

DATA MANAGEMENT PLAN

(To be filled in and uploaded as deliverable in the Portal Grant Management System, at the due date foreseen in the system (and regularly updated).)

 *The template is recommended but not mandatory. If you do not use it, please make however sure that you comply with the research data management requirements under Article 17 of the Grant Agreement.)*

PROJECT	
Project number:	[101172806]
Project acronym:	[EASYDC-FOS]
Project name:	[Towards a wide-spread HVDC-based power system enabled by new highly efficient cable & fibre optic monitoring systems]

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1. INTRODUCTION

A **Data Management Plan (DMP)** is considered as a key element to sound data management, especially in EU funded projects. The latter describes the data management life cycle for data collected, generated, or otherwise processed, specifically in projects under the Horizon Europe funding scheme.

The present document constitutes the first version of EasyDC-FOS project's DMP and will be submitted within the first six months of the project. It is based on the DMP template provided by the European Commission (EC) [\[1\]](#) and follows the 'Horizon Europe Programme Guide' [\[2\]](#).

This DMP should be considered as a living document, that will evolve and gain more precision and substance throughout the project duration. The evolution of the architecture and its piloting in practical use cases are key determining factors in increasing the sophistication and detail of the DMP.

Information will be made available on a finer level of granularity through updates of the DMP as the implementation of the EasyDC-FOS project progresses. This will be done when significant changes occur, such as (but not limited to) the inclusion of new data, new possibilities for aggregation and anonymisation, changes in consortium policies (for example innovation potential), changes in consortium position and external factors (for example new consortium members joining).

In accordance with general policy objectives for making research data **Findable, Accessible, Interoperable and Re-usable (FAIR)**, this DMP includes information on the following:

- The categories of research data that will be collected, processed and/or generated by the project.
- The methods and standards to be applied in respect of the FAIR data principles for handling research data during and after the end of the project.
- The sharing of research data or making it publicly accessible and, if so, which open access model it should follow.
- The curation and preservation of data during and after the project.
- The additional safeguards to be implemented to ensure respect of the FAIR data principles in terms of allocation of resources, data security, research ethics and intellectual property rights.

2. DATA SUMMARY

Will you re-use any existing data and what will you re-use it for? State the reasons if re-use of any existing data has been considered but discarded.

What types and formats of data will the project generate or re-use?

What is the purpose of the data generation or re-use and its relation to the objectives of the project?

What is the expected size of the data that you intend to generate or re-use?

What is the origin/provenance of the data, either generated or re-used?

To whom might your data be useful ('data utility'), outside your project?

This section will provide a preliminary overview of the data collected as part of the EasyDC-FOS project.

2.1. Research data

The notion of 'research data' refers to "information, in particular facts or numbers, collected to be examined and considered as a basis for reasoning, discussion or calculation" [3].

Research data covers a broad range of types of information, and digital data can be structured and stored in a variety of file formats. Examples of data include statistics, results of experiments, measurements, observations resulting from fieldwork, survey results, interview recordings and images. In the context of the EasyDC-FOS project, much of the research data will relate to experiences gathered from demo activities (both qualitative evaluations and quantitative statistics). Additionally, as with most other EU projects, collected data will also relate to consortium activities, including project communications, events, surveys and questionnaires (both within the consortium and potentially towards external stakeholders).

It should also be noted that properly managing data (and records) does not necessarily equate to sharing or publishing that data. Some kinds of data may not be sharable due to the nature of the records themselves or due to ethical and privacy concerns. This concerns, for example:

- Preliminary analyses
- Drafts of scientific papers
- Plans for future research
- Peer reviews
- Communications with colleagues.

Research data which cannot be shared can come in various forms. These include trade secrets, and commercial information, data which is subject to intellectual property rights claims that would impede sharing, materials that need to be kept confidential by a researcher until they are published or any similar information which is granted protection under law. Moreover, deliverables and their underlying data marked as sensitive (SEN) can only be shared in restricted form.

2.2. Collection purposes

Research data will be collected and processed during the project for the following purposes and in relation to the following project objectives:

- To identify and define the specific design, technical specifications and standards required to develop the new cable system, monitoring solutions, and their functionalities.
- To design and develop a safe and cost-efficient solution by design to improve the performance of High voltage direct current (HVDC) cables, leading to a power-dense system with an extended life cycle, while demonstrating compliance with the cable industry requirements and standards and achieving the Key performance indicators (KPIs) directly linked with the technological competitiveness of EasyDC-FOS.
- To develop, train and fine-tune more precise digital tools and indicators for the identification of thermal, acoustic and space charge phenomena factors to monitor the ageing status in long-distance current and newly designed cable systems.

- The development of a multiphysics fault detection tool for HV cables, based on fiber optic sensing solutions to identify unexpected damages in cable corridors at distances longer than 125 km, increasing sustainability and cost efficiency of the whole system.
- To create and deploy a new digital fibre optic Partial discharge (PD) monitoring system based on the launch of a PD analyser that works online, while reducing inaccuracy of fault alarms, therefore increasing safety of maintenance working force.
- To integrate the stand-alone digital models into an edge, cybersafe infrastructure.
- Demonstrate the technologies in relevant European environments to reduce the leap between the laboratory testing stage and validation in real-life scenarios, through the execution of tests that will measure compliance with the proposed benchmarks.
- Guarantee the sustainability of the proposed technological solutions, seeking the minimum impact on the landscape and environment, as well as the continuous evolution inside the energy industry, establishing the pillars of an ambitious scalability and replication strategy supported by a strong set of communication, dissemination and exploitation activities, from a short-, medium- and long-term point of view, and considering the entire HVDC value chain.

2.3. Data sets

During the first months of the project, all project partners were asked to describe the specific data sets that will be processed throughout the EasyDC-FOS project.

At this early stage of the project, the following types of research data have been identified:

- **Energy data:** Data including HVDC system performance metrics, such as thermal stability, resistivity, and operational temperature data, cable energy transport efficiency and capacity.
- **Experimental tests data:** Data from performance tests, including thermal loops, voltage stress, and ageing tests of the new HVDC cable systems, space charge phenomena and thermal ageing test results.
- **User research data:** Data concerning the feedback from TSOs and other stakeholders on system requirements and performance. The data will be shared among partners and used in WP3-8. Data will be anonymized after use.
- **Business use cases and KPIs:** this data includes use cases description from past projects (e.g., CABLESENS, INTEROPERA, BESTPATHS, etc...) and business use cases (BUC) drafted in this project by academic and industrial partners (including use case leaders). A list of KPIs will be identified to measure project goals. The information consists of the textual description of use cases and KPIs (including calculation process and baselines). The data sources are the project's partners, and public information available in public deliverables (from past projects), which may be re-used for BUC writing in EasyDC-FOS. No confidential or personal data will be shared beyond the project.
- **Market demonstration data:** This data concerns the demonstration activities focused on market functioning. The dataset is expected to be created by collecting all the relevant information from the use cases set-up, run, and post-processing. The dataset contains all the necessary information to comprehensively describe the demonstration activity and assess the performance of the corresponding market design. The used datasets concern quantitative and qualitative information, mainly technical and economic, on assets, resources, networks, and geography profiles. Additional data from publicly available databases may be used for the assessment.
- **Sensor and monitoring system data:** Task 5.1 involves collecting and organising data of insulating materials, cables, and accessories for HVDC cable systems, essential for advanced modelling. This collection will be done as follows: The optical sensors developed for the project will collect data from **vibration sensors** at specific points such as **joints and terminations**, allowing for the detection of structural and mechanical anomalies. The **partial discharge (PD) sensor** will detect and analyse insulation failures in the cable, enhancing failure prediction capabilities. Additionally, the **local temperature sensor** will provide precise temperature measurements at localised points (*joints and terminations*), improving the accuracy of the thermal model. Furthermore, **DAS (Distributed Acoustic Sensing)** and **DTS (Distributed Temperature Sensing)** systems will collect data along the entire length of the cable, providing real-time information on temperature and abnormal acoustic events, respectively. The **interrogators developed in the project** will collect data from these sensors and systems, transferring it to the **Barbara Edge infrastructure**. Data will be stored as time-series datasets within the

Barbara Edge [maybe Barbara can add more info on this] and will be analysed using the algorithms and models deployed in the Barbara Edge infrastructure within the project. The data will be shared with other researchers upon motivated request.

- **Cybersecurity data:** WP7 has the aim of developing a robust Edge computing infrastructure integrated with advanced cybersecurity mechanisms, orchestration capabilities, and AI/ML-based models to enhance HVDC cable system monitoring and fault detection. Data will be collected by different equipment and sensors in the field that will be transmitted to an Edge Node using different communication protocols. This Edge Nodes have different security features such as no root access, closed ports, no incoming communication channels, file system isolation, full data encryption, among other. Taking in consideration the full data encryption, all data, both at res and in transit, is encrypted using industry-standard algorithms, such as AES-256 and RSA, to safeguard against unauthorized access and disclosure. Also, the data privacy is respected by avoiding direct access to user data. These data remain under full ownership and control. The data collected will be stored in an internal database in the Edge Node. Data retrieval will be facilitated through secure communication protocols and secure VPN access. On-site displays in substations will provide immediate insights, ensuring data sovereignty, real-time accessibility and long-term storage for performance monitoring, validation, and regulatory compliance.
- **Economic and IPR information:** Data concerning the partners' background and foreground IP and business potential of expected results. This data is gathered from partners through questionnaires and market studies. Given that this data concerns IP and economic results, this data is not intended to be shared outside of the project.
- **Life cycle inventory data:** Data describing inputs and outputs of processes associated with the life cycle of the newly developed HVDC cable system. This data represents the quantitative information such as masses, volumes or distances, as well as qualitative information such as specific type of technology or specific type of material being used.
- **Documents (text, Word) and spreadsheets** generated as part of the project.
- **Documents relating to meetings, pilots, workshops** generated as part of the project.
- **Academic literature and knowledge materials** generated as dissemination of the project.

All partners commit to continuously keep track of the specific data sets processed under the tasks they are leading and to report them internally.

The DMP is intended as a living document and more detail will be added as the project progresses. All partners commit to continuously keep track of the specific data sets processed under the tasks they are involved in and to report them internally by updating the DMP for each task of the project. Partners will be periodically reminded to update their responses.

2.4. Origin of data and re-use of existing data

Most of the research data within the EasyDC-FOS project will consist of original unpublished data, except where clearly indicated otherwise. This original unpublished data will be gathered by the consortium partners during the project. This will include, for instance, data gathered from models and algorithms development, user research, participation in the demos, and the recording of HVDC data. The project may also leverage existing knowledge. Such materials will be gathered using applicable scientific methods, using the scientific databases and repositories available to the consortium partners.

2.5. Expected size of the data

The total size of the eventual research data of the EasyDC-FOS project is difficult to estimate at the early stage of the project.

Nevertheless, the EasyDC-FOS project will gather substantial amounts of data. For instance, video recordings can be made of user interviews and certain project meetings, as well as pictures. Data on energy consumption will be processed as well, which may also result in substantial datasets.

However, most of those larger datasets are not intended for sharing or re-use and are therefore not relevant for this DMP. For instance, data containing personal data must in any case be anonymized or omitted before such data can be shared. Moreover, most of that data constitutes raw data that

will only be useful for the initial processing operations they serve within the project. The final output, the processed data, will be much smaller.

2.6. Data utility

The EasyDC-FOS project aims to leverage advanced data collection, modelling, and analytical techniques to enhance the performance, safety, and sustainability of HVDC cable systems by gathering comprehensive datasets from real-world environments, experimental tests, and digital simulations to create predictive models for cable ageing, fault detection, and thermal behaviour. By integrating these models into a robust edge-computing infrastructure, the project aims to provide real-time monitoring, fault localization, and proactive maintenance insights.

This data-driven approach focuses on generating actionable intelligence through Artificial intelligence (AI) and Machine learning (ML) algorithms, trained using extensive historical and live operational data. These models will be refined using iterative loops of validation and testing, ensuring high accuracy and reliability. The insights derived from data research will inform the design and optimization of cable systems, contribute to the development of industry standards, and provide stakeholders with tools for efficient decision-making, ultimately supporting the broader goals of sustainability and energy efficiency in HVDC technology deployment.

All personal data collected in EasyDC-FOS will not be shared for legal reasons, making utility beyond the project irrelevant.

All major data repositories generated because of the project's research activities and not constituting personal data will be made available for the purpose of making that data reusable by relevant stakeholders.

3. FAIR data

This section describes the FAIR data principles and how they are implemented in the EasyDC-FOS project.

3.1. Making data findable, including provisions for metadata

Will data be identified by a persistent identifier?

Will rich metadata be provided to allow discovery? What metadata will be created? What disciplinary or general standards will be followed? In case metadata standards do not exist in your discipline, please outline what type of metadata will be created and how.

Will search keywords be provided in the metadata to optimize the possibility for discovery and then potential re-use?

Will metadata be offered in such a way that it can be harvested and indexed?

Making data findable means that the data should be easily discoverable by other potential users. This requires metadata to be made available online as an easily searchable source, and that data is assigned a persistent identifier specified in the metadata. Other means to achieve findability include having rich metadata describing the data and having the metadata online in a searchable resource such as a catalogue or data repository.

The EasyDC-FOS project attaches great importance to making its research data findable, discoverable and identifiable. The partners commit to using appropriate naming conventions as defined by the Project Management Plan (D1.1) as follows:

The numbering scheme for the deliverables, including those that are under development, will have the following notation: **DX.Y- Name of the deliverable_vN.P_revPARTNER**, whereby

- D stands for the word deliverable;
- X.Y is a number representing the Work Package which the deliverable is linked to (X) and the deliverable (Y) within the Work Package it is linked to (as per the GA or latest Amendment);
- The title of the deliverable must follow the one included in the GA or latest Amendment;

- _v stands for the word versión;
- N is the major revision (starting at 0);
- P minor version reflects the progress during the Deliverable preparation phase (e.g. between telcos);
- _revPARTNER will be included indicating which partner revision or contribution it is, on top of the version being revised.

For the integration of the partner inputs, the Word “changes-tracking mode” shall always be used, if feasible. Furthermore, a revision numbering shall be included within the document. Similar numbering may be used for other documents generated during the project.

All data that the consortium deems important for project participants will be integrated in the internal Microsoft SharePoint project repository, a cloud storage software suite which acts as the metastore for all project generated data. The access rights determined by the original author/publisher of included entries will be respected. This platform will also be used for internal project sharing purposes.

As described in D1.1, all relevant documentation within EasyDC-FOS will be available in the Teams SharePoint. The repository will be updated according to the needs of the project, creating new folders or subfolders in accordance with the needs. The idea is having a full repository of working documents, final documents, legal documents, templates, and any ready-to-use documentation generated by the project members. Each WP Leader is responsible for the contents of each WP folder. The main recommendation is creating collaborative documents within each folder to foster the team working.

Public facing data will be disseminated via the project website, which applies standard Search Engine Optimisation (SEO) methodologies as a tool to increase the visibility and discoverability of the data based on selected keywords. SEO considers how search engines work, what users search for, the actual search terms or keywords typed into search engines and which search engines are preferred by their targeted audience. In general, via SEO the platform will appear more frequently in the search results list. SEO may also target different kinds of search, including image search, local search, video search, news search and theme-specific vertical search engines.

The partners agree to provide adequate metadata within the data sets to ease the interpretation of the data and to increase the identification, discoverability, re-use and preservation thereof. Metadata is structured information describing the characteristics of the sources. A distinction is made between:

- Descriptive metadata, such as title, abstract, author, and keywords.
- Administrative metadata, which are used to provide information to help manage a source, such as when and how it was created, file type and other technical information, and who can access it.

Having said the above, at this stage of the project, the consortium has yet to define or choose the metadata standard that will be used for the data generated throughout the project. Possible candidates include IEC 62559-2:2015, at least for business case metadata.

To increase the findability, the partners will also include keywords or key-phrases describing the subject or content of the data including relevant terms of the field. Since the documents may also include materials in other European languages than English, the search keywords will also be translated to at least the languages of each of the consortium partners.

Other information that the research data could contain include the reference period, project funding information (for example EU logo and information about the Grant Agreement and the action/program that funds the project, official project name and project ID), release policy including dissemination rules, information about the collection of the data such as the data source, geographic coverage of the data, language, and file format.

3.2. Making data accessible

Repository:

Will the data be deposited in a trusted repository?

Have you explored appropriate arrangements with the identified repository where your data will be deposited?

Does the repository ensure that the data is assigned an identifier? Will the repository resolve the identifier to a digital object?

Data:

Will all data be made openly available? If certain datasets cannot be shared (or need to be shared under restricted access conditions), explain why, clearly separating legal and contractual reasons from intentional restrictions. Note that in multi-beneficiary projects it is also possible for specific beneficiaries to keep their data closed if opening their data goes against their legitimate interests or other constraints as per the Grant Agreement.

If an embargo is applied to give time to publish or seek protection of the intellectual property (e.g. patents), specify why and how long this will apply, bearing in mind that research data should be made available as soon as possible.

Will the data be accessible through a free and standardized access protocol?

If there are restrictions on use, how will access be provided to the data, both during and after the end of the project?

How will the identity of the person accessing the data be ascertained?

Is there a need for a data access committee (e.g. to evaluate/approve access requests to personal/sensitive data)?

Metadata:

Will metadata be made openly available and licenced under a public domain dedication CC0, as per the Grant Agreement? If not, please clarify why. Will metadata contain information to enable the user to access the data?

How long will the data remain available and findable? Will metadata be guaranteed to remain available after data is no longer available?

Will documentation or reference about any software be needed to access or read the data be included? Will it be possible to include the relevant software (e.g. in open source code)?

The term 'making data accessible' means that both humans and machines have the possibility to access that said data under specific conditions, and that restrictions are implemented only when appropriate. This does not necessarily require the data to have open access, but in circumstances where data is not available then there should be at least metadata available. Data accessibility can be improved by adding a persistent identifier leading to the data or the associated metadata, a standardized data retrieval protocol, data access procedures including authentication and authorization as needed, and by always having metadata accessible [4].

Materials generated under the EasyDC-FOS project will be disseminated in accordance with the Consortium Agreement. The project deliverables that are marked as 'PU' (public) in the Description of Action will be made openly available via the project website and can be further shared through related platforms such as Zenodo [5], Arxiv [6], and more, in accordance with the Grant Agreement.

Certain data fall outside the scope of the Open Access strategy. These include different types of data that can be used to identify individuals or that are of a commercially sensitive nature. Consequently, the following data fall outside of the scope of the Open Access strategy:

- Personal data of research participants, project partners or other stakeholders
- Raw qualitative research data, for example from questionnaires
- Draft reports
- Unfinished work
- Personal notes
- Plans for future research
- Preliminary analyses
- Peer reviews

- Communication outside of a test setting

Therefore, any data in PU deliverables will be anonymised. Furthermore, a process can be adopted to remove confidential data, after which the document or information initially containing such confidential data could become public. This process includes checking for the purpose of the publication, data cleaning, and validation.

All other types of data intended to be fed into the online hub, such as the knowledge library (links to the sources, or the sources themselves if these are freely accessible), list of similar projects and initiatives, lists of training and solution providers, list of stakeholders on organisational level, etc. will also be made openly accessible by default, as far as not restricted by IP or other rights.

The open research data will be made available with the lowest technical threshold possible, i.e. without any prior requirement of identification or authentication. Original (non-anonymised or non-pseudonymised data) will be stored to allow identification and traceability for research validations and follow-up, but such storage will be organised separately from the research data and in adherence to state-of-the-art confidentiality and security standards, including encryption, access logs and seals. If the document itself cannot be made secure with a password, they will be stored in an encrypted container with password protection (7zip, and more).

3.3. Making data interoperable

What data and metadata vocabularies, standards, formats or methodologies will you follow to make your data interoperable to allow data exchange and re-use within and across disciplines? Will you follow community-endorsed interoperability best practices? Which ones?

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? Will you openly publish the generated ontologies or vocabularies to allow reusing, refining or extending them?

Will your data include qualified references¹ to other data (e.g. other data from your project, or datasets from previous research)?

The (meta)data that will be made open and re-usable will be in line with most widely used terminologies, standards and methodologies in the field of energy, to facilitate interoperability and interdisciplinary interoperability. Existing standards and methodologies proposed in projects such as Bridge will be levied wherever possible. From a practical perspective, standard and commonly used file formats will be used wherever available.

3.4. Increase data re-use

How will you provide documentation needed 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 measurement, etc.)?

Will your data be made freely available in the public domain to permit the widest re-use possible? Will your data be licensed using standard reuse licenses, in line with the obligations set out in the Grant Agreement?

Will the data produced in the project be useable by third parties, in particular after the end of the project?

Will the provenance of the data be thoroughly documented using the appropriate standards?

Describe all relevant data quality assurance processes.

Further to the FAIR principles, DMPs should also address research outputs other than data, and should carefully consider aspects related to the allocation of resources, data security and ethical aspects.

¹ A qualified reference is a cross-reference that explains its intent. For example, X is regulator of Y is a much more qualified reference than X is associated with Y, or X see also Y. The goal therefore is to create as many meaningful links as possible between (meta)data resources to enrich the contextual knowledge about the data. (Source: <https://www.go-fair.org/fair-principles/i3-metadata-include-qualified-references-metadata/>)

Specific details on future use of the data will be provided as part of WP9's exploitation planning activities. In general, the project consortium will aim to apply open licensing through common, standardised and widely known license models.

All public data sets will be under the regulation of the Creative Commons Licenses. Any Data classified as sensitive will, by default, not be reusable for reasons of commercial exploitation. By default, the CC-BY-SA license will be used for public data. This license allows others to remix, tweak, and build upon your work, even for commercial purposes, as long as the original work is credited, and the new work is licensed under identical terms. This license is often compared to "copyleft" free and open-source software licenses. Hence, any derivatives of the original work will also allow commercial use.

Regarding public deliverables, the associated data will be shared once the EC has approved the deliverable. In the case of scientific journal publications, underlying data will be made available at the same time the journal publishes the article. The underlying data will be linked to the publication.

The Project Management Board will decide on the specific license that applies to each data deposited, taking the exploitability of the results into account.

All the open research data will be made available for re-use without any data embargo, meaning that all data will be made openly available and free to re-use upon their publication. There will be no restriction on the use of data by third parties after the end of the project.

The data will remain reusable so labelled accordingly with the applicable licenses.

4. Other research outputs

In addition to the management of data, beneficiaries should also consider and plan for the management of other research outputs that may be generated or re-used throughout their projects. Such outputs can be either digital (e.g. software, workflows, protocols, models, etc.) or physical (e.g. new materials, antibodies, reagents, samples, etc.).

Beneficiaries should consider which of the questions pertaining to FAIR data above, can apply to the management of other research outputs, and should strive to provide sufficient detail on how their research outputs will be managed and shared, or made available for re-use, in line with the FAIR principles.

Other research outputs generated as part of the EasyDC-FOS project will mostly concern software code. Wherever possible, the consortium strives to apply the same standards and principles outlined in the previous section to these software outputs.

For example, BAR's own platform includes a Library that can serve as a repository, where dockerized models or applications must be uploaded to enable deployment in the Edge Nodes.

Nevertheless, sensitive information such as APS confidential details about algorithms, models, or code will not be made public. Instead, outputs and results related to the project's tests and tasks will be made available. Similarly, RDT will keep sensitive information on models related to space charge and partial discharges, though research papers with some results may be made available, provided all relevant participants agree to the information exchange

5. Allocation of resources

What will the costs be for making data or other research outputs FAIR in your project (e.g. direct and indirect costs related to storage, archiving, re-use, security, etc.) ?

How will these be covered? Note that costs related to research data/output management are eligible as part of the Horizon Europe grant (if compliant with the Grant Agreement conditions)

Who will be responsible for data management in your project?

How will long term preservation be ensured? Discuss the necessary resources to accomplish this (costs and potential value, who decides and how, what data will be kept and for how long)?

This section describes the different roles concerning data management and how expenditures for data management and open research have been allocated in the EasyDC-FOS project.

5.1. Roles in data management

The main coordinating roles in data management are provided for in the Consortium Agreement and Grant Agreement as follows:

- Project Coordinator (LMK): is responsible for overall Project management, and therefore, ensure that an appropriate data management plan is developed and used to protect the privacy of data and address all other data management aspects.
- Dissemination, communication and exploitation manager (ACE): is responsible to raise public awareness and ensure wide communication of the project results and will also be responsible for the IP management and exploitation of the project's outcomes.
- UCA will act as Open Access Coordinator to implement Open Science during the project.

Furthermore, the WP/Task leaders will be expected to provide first level of data management within the scope of their role and ensure that the data of their WP/Task is treated according to the agreed project principles and processes.

5.2. Resources

EasyDC-FOS will provide open access (OA) to research outputs (e.g., publications, data, models, algorithms, and workflows) through deposition in trusted repositories. All partners will provide OA to peer-reviewed scientific publications relating to their results. The authors of all peer-reviewed scientific publications will choose the most appropriate way of publishing their results, and these publications will be stored in an OA trusted repository, during and after the project's life following Annex 5 of the GA. The consortium will be encouraged to publish in the Open Research Europe platform.

As noted, UCA act as Open Access Coordinator to support Open Science throughout the project. Furthermore, LMK oversees the general data management strategy, supported by all partners who collect, generate or make data available (including notably piloting Member States).

The costs for long-term preservation of the data have been considered by the consortium. There will be no further costs related to the preservation of data beyond the end of the funding period.

6. Data security

What provisions are or will be in place for data security (including data recovery as well as secure storage/archiving and transfer of sensitive data)?

Will the data be safely stored in trusted repositories for long term preservation and curation?

EasyDC-FOS partners commit to using state-of-the-art technologies for secure storage, delivery and access of personal data, as well as managing the rights of the users. The goal is to completely guarantee that the accessed, delivered, stored and transmitted content will be managed by authorised persons, with well-defined rights, at the right time.

EasyDC-FOS uses secure the Microsoft SharePoint platform as an internal repository. EasyDC-FOS consortium partners may also use internal secured storage platforms, or secure cloud services such as Google Drive and Miro. Where possible, it will be stipulated that personal data should be stored on EU-based servers. Where such is not possible, suitable arrangements should be put into place, such as Standard Contractual Clauses (SCC).

Demos will be conducted by the responsible Project partners, who, in accordance with the GDPR, conduct their personal data processing activities under the supervision of a qualified data protection officer (DPO).

In addition, the consortium confirms to comply with the following guidelines to ensure the security of any centrally stored data:

- Keep pseudonymised data and personal data of participants separated
- Encrypt data if it is deemed necessary by the responsible project partner
- Store data in at least two separate locations to avoid loss of data
- Limit the use of USB drives and personal folders

- Save digital files in one of the preferred formats (as set out above)
- Label files in a systematically structured way to ensure the coherence of the final data set

7. Ethics

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, include references to ethics deliverables and ethics chapter in the Description of the Action (DoA).

Will informed consent for data sharing and long term preservation be included in questionnaires dealing with personal data?

The ethical aspects of the EasyDC-FOS Project will be assessed across all WPs. More specifically, legal and ethical issues are handled in:

- WP8 concerning the demos: Project coordinator will provide legal and ethics support to each of the demos. This will include providing for informed consent concerning demo participants.
- T9.5 & T10.4 Exploitation strategy and IPR: will define the IP and knowledge management strategy of the EasyDC-FOS project's outcomes. This will be reported on in D9.4 "Report on exploitation and IPR activities I" and D10.5 "Report on exploitation and IPR activities II, and plan beyond the project".
- D1.1 Project Management Plan: includes general provisions on data handling within the project.

Issues of intellectual property rights and ownership are furthermore governed by the provisions of the Consortium Agreement and the Grant Agreement, as signed by all project partners.

All consortium members must keep any data, documents or other material confidential during the implementation of the EasyDC-FOS and for the duration of the specified time-limit in accordance with Article 13 of the Grant Agreement. Further detail on confidentiality can be found in Article 13 of the Grant Agreement.

Additionally, the EasyDC-FOS consortium partners confirm to respect for the EU and national law requirements on privacy and data protection and adhere to the research ethics standards applicable to Horizon Europe research. In accordance with the data minimization, data retention and purpose limitation principles, personal data will not be collected beyond the scope of the processing objectives and will not be stored longer than necessary.

8. Other issues

Do you, or will you, make use of other national/funder/sectorial/departmental procedures for data management? If yes, which ones (please list and briefly describe them)?

N/A

9. Conclusions

The purpose of this document was to set out a first and provisional version of the DMP for the EasyDC-FOS project. This DMP will have to be revised and updated throughout the full duration of the project. Based on the current assessment, research data that will be shared or made publicly accessible in EasyDC-FOS is anticipated to be limited in scale and scope, due to the objectives and nature of the project.

When research data in EasyDC-FOS constitutes personal data, this data will be subjected to strict legal safeguards against re-use, including through the GDPR, thus rendering most of the research data ineligible for sharing and re-use. Nonetheless, certain statistical and aggregate data can be generated and made available for sharing and re-use where possible.

The information concerning the project partners' data processing activities will be further updated throughout the project.

10. References

[1] European Commission, EU Grants: Data Management Template (HE): 01.04.2022.

[2] European Commission, Horizon Europe Programme Guide: 01.05.2024.

[3] European Commission, Guidelines to the Rules on Open Access to Scientific Publications and Open Access to Research Data in Horizon 2020, Version 3.2, 21 March 2017.

[4] Jones, S., Grootveld, M. (2017). How FAIR are your data?. Zenodo.
<http://doi.org/10.5281/zenodo.1065991>.

[5] <https://zenodo.org/>

[6] <https://arxiv.org/>

HISTORY OF CHANGES

VERSION	PUBLICATION DATE	CHANGE
0.1	14.02.2025	Initial version shared with consortium
1.0	28.02.2025	Final version ready for submission