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Deliverable 1.2: Data Management Plan



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Author(s)	Organization
Lola Alacreu	ETRA

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EXECUTIVE SUMMARY

The Data Management Plan (DMP) is a living document that aims to provide an analysis of the main elements of the data management policy that will be used by the ECLIPSE Consortium regarding the project research data.

This document will evolve during the development of the project, when the project progresses and when significant changes occur, to keep an updated version of the guidelines and recommendations for making the research data Findable, Accessible, Interoperable and Reusable (FAIR) and therefore contribute to knowledge discovery and innovation.

The current version is the initial version in which we present the envisioned data management strategy and make a first effort to plan the definition of the types of research data that will be generated or collected during the project, how the research data will be deposited and what parts of the datasets will be shared for verification or reuse.

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1. INTRODUCTION

1.1. PURPOSE OF THE DOCUMENT

The purpose of the Data Management Plan (DMP) is to provide an analysis of the main elements of the data management policy that will be used by the ECLIPSE Consortium regarding the project research data.

The DMP is not a fixed document; on the contrary, it will evolve during the lifespan of the project. This DMP will be a living document in which information will be available on a finer level of granularity through updates as the implementation of the project progresses and when significant changes occur.

This first version of the DMP aims to outline how the ECLIPSE project will try to make the research data findable, accessible, interoperable, and reusable (FAIR) and therefore contribute to knowledge discovery and innovation. The objective is to lay the foundations for creating an effective data management strategy covering the complete research data life cycle.

1.2. SCOPE OF THE DOCUMENT

The scope of this deliverable is to cover the entire life cycle of research data. This data management plan, which will be updated when needed, will serve as a guide by the ECLIPSE consortium on how to manage the research data during and after the end of the project. The current deliverable is the first version presenting the planned data management strategy. It provides an initial definition of the types of research data that will be generated or collected during the project, how the research data will be deposited and what portions of the datasets will be shared for review or reuse.

1.3. STRUCTURE OF THE DOCUMENT

This deliverable follows the template provided by the services of the European Commission (EC) Horizon Europe Data Management Plan Template (Horizon Europe, Data Management Plan Template, Versio 1.0, 2021) adapted to follow ECLIPSE document procedures.

The document is organized in eight sections:

- Introduction (section 1). Provides an overview of the DMP's purpose, scope, and evolution.
- Data Summary (section 2). Details the types of data to be generated or collected in the project demo sites, their formats, and the intended use.
- Fair Data (section 3). Discusses measures to ensure the data adheres to FAIR principles, including metadata standards, data repositories, and sharing protocols.
- Other research Output (section 4). Covers non-data outputs, ECLIPSE website and deliverables.
- Data security (section 5). Describes strategies for protecting sensitive data, including storage solutions and access control mechanisms.
- Ethics (section 6). Addresses ethical considerations, including compliance with regulations and safeguarding privacy.
- Conclusions (section 7). Summarizes the key takeaways and commitments for data management.
- Acronyms (section 8). Lists abbreviations and terms used throughout the document.

2. DATA SUMMARY

Section 2 provides the most important information and specifics about the data that will be generated, collected and used by the ECLIPSE project during the implementation of its activities.

On the one hand, indeed, it is of foremost importance to clarify the purpose of the data collection and management activities within ECLIPSE, with specific attention to how such a purpose is related to the project objectives. Moreover, a clear overview of the roles concerning data management within the consortium is provided.

On the other hand, this section will focus on more technical insights in relation with the types and formats of the data that will be collected, as well as its expected size and origin. This includes information on potential re-use of existing data. Data utility will also be addressed: this will clarify to whom the data generated/collected might be useful. As previously stated, ECLIPSE will collect existing data from the demo sites as well as generate new data within the execution of the project activities. The data collected and generated by ECLIPSE will be critical to deliver the envisioned project results linked to the creation of the CERF. Moreover, the results will be disseminated (according to the FAIR data principles, to ensure a wide knowledge transfer and the official recognition of the project's outcomes.

2.1. PURPOSE OF DATA MANAGEMENT AND RELATION TO THE PROJECT

ETRA I+D coordinates the ECLIPSE project, within the European Commission's Digital Europe programme, whose main objective is the implementation and demonstration of a Common European Reference Framework (CERF) for energy consumption applications in the domestic sphere.

Specifically, the ECLIPSE project lays the foundations for the development of new energy applications, as well as for the improvement of existing ones, that provide consumers with simple, useful and easy-to-use information on energy savings and other benefits (such as CO₂ reduction and other economic and social incentives). In this way, it seeks to promote sustainable energy consumption behaviour and the empowerment of end consumers, while reinforcing the stability and resilience of European electricity networks.

The project's solutions will be implemented and demonstrated in 16 EU countries, ensuring interoperability with third-party systems while respecting the current regulatory framework.

ECLIPSE is fully committed to following and upholding the FAIR principles for the management of data. This applies not only to the data produced by the project as output but also to the data used for the experimentation during the project.

ECLIPSE project will adopt the Open Science approach in various aspects of the project such as Open access to research outputs such as publications, and workflows or participation in an open peer-review process.

It will comply with European recommendations regarding Data Management Plans, providing clear procedure for findable, accessible, interoperable, and re-usable (FAIR) data and updating the current document along the development of the project.

The purpose of the DMP is to provide an analysis of the main elements of the data management policy that will be used by the Consortium about the project research data. The DMP reflects consortium data management policies, systems, and procedures - which will be implemented and embedded into research procedures and regularly reviewed throughout the research cycle.

The ECLIPSE consortium will strive to make data open but cannot overrule limitations that partner institutions put on data that they contribute (as specified in their Background included in the ECLIPSE Consortium Agreement- Attachment 1). Moreover, an ethical approach will be adopted and maintained throughout the fieldwork process. The responsible partners will assure that the EU and the institution standards regarding ethics and Data Management are fulfilled.

2.2. ECLIPSE DATA MANAGEMENT ROLES AND RESPONSIBILITIES

As per the individual responsibilities on data management within the ECLIPSE project consortium, the roles are assigned as follows:

- The Project Coordinator (ETRA) is identified as the Data Protection Officer (DPO) of the project, ensuring the overall proper data management and monitoring within the project in compliance with the existing data protection rules, as per with article

39 of the General Data Protection Regulation (GDPR). In addition, the DPO will provide advice when requested as regards the data protection impact assessment and monitor its performance, as well as act as the contact point for the supervisory authority on issues relating to processing and to consult it, where appropriate, with regard to any other matter. Moreover, the DPO is the owner of the project shared repository folder, managing the access rights and permissions;

- The Technical Manager (TRIALOG) supports the Project Coordinator in the monitoring of the compliance with the data protection rules. They also identify project data and technical results that may be appropriate for publication, and monitor the dataset availability, integrity and compatibility for use by different partners throughout the project's duration;
- The Communication and Dissemination Manager (ETRA) identifies publications suitable for publication in the considered repositories and manages the publication on the Open Access platforms;
- Each individual partner identifies their own project results suitable for publication and shares the published scientific articles with the Project Coordinator and the Dissemination and Communication Manager.
- The ECLIPSE External Independent Ethics Advisor (EIEA) analyses and tackles any potential ethical issues of the project, providing solutions and recommendations to the consortium, in the context of the ECLIPSE project.

2.3. TYPES AND FORMATS OF DATA GENERATED/COLLECTED AND UTILITY

The detailed definition of the different types, formats and standards of the data to be collected, processed and/or generated during the project is taking place in the framework of WP3, "Architecture of a scalable and interoperable European open-source CERF and data sets". Moreover, WP3 investigates which data assets from the demonstrators are identified as needed (despite no input has been yet provided on this issue). In addition, in WP5, "Preparation, coordination and monitoring of deployment and demonstration activities" it will collect, process and generate the data from project demo sites.

The preliminary documentation and information from the project's demo partners have already been collected and registered in a dedicated spreadsheet, which is stored

in the project shared repository (described in detail in D1.1). The metadata requested in the spreadsheet are structured in different categories as follows: general info, data asset features, data asset availability, data asset rights, data analysis, data asset assessment.

The table below lists all the data foreseen at the current stage of the project. It may evolve and be updated during the life of the project.

Data Type	Data Name	Data description and utility	Data owner/origin	Will this data be collected within the pilots?	Data format	Expected data volume (if known)	Where this data will be stored?	Will this data be shared between partners?	How this data will be shared?	Has a dedicated agreement been made?
Financial Data	Project financial data	All the financial data that are produced during the project and that are used to make financial report for European Commission and internal report	Eclipse partners	No	Word documents	Mb	ETRA internal storage	Detailed data are only accessible to Eclipse coordinator and European commission. Aggregated data can be made available by Eclipse coordinator to project consortium	E-mails	No
Personal data	Contact list	Contact list of the project	Eclipse partners	No	Excell sheet	Kb	SharePoint	Yes	SharePoint	No
Documentation	Project management documents	All the documentation made by the project to run operation, to monitor and conduct the project's good development	Eclipse consortium	No	Word documents	Mb	SharePoint	Yes	SharePoint, emails	No
Documentation	Eclipse deliverables	All the deliverables that the project must produce during the project's time as agreed in the Grant Agreement	Eclipse consortium	No	PDF & word documents	Mb	SharePoint	Yes	SharePoint, emails	No

Documentation	Technical specifications	All the documentation that describes the technical components developed as part of the project.	Solution providers	No	PDF & word documents	Mb	SharePoint	Yes	SharePoint, emails	No
Documentation	Workshops proceedings	Documentation produced in project workshops, including cybersecurity and privacy workshops. This includes the	Eclipse partners	No	PDF & word documents	Mb	SharePoint	Yes	SharePoint, emails	No
Documentation	Communication materials	All the documentation that describes the project to the public and can be put on the future website	Eclipse consortium	No	TBD	Gb	SharePoint	Yes	Website	No
Field data	Historical data	Historical data collected in the pilots to enable the development and adaptation of the Eclipse components.	Pilots	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces, emails	No
Field data	Monitoring data	Data collected in the pilots to enable the operation of the Eclipse components.	Pilots	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Personal data	Personal data from customers	Personal data from customers participating in demo sites activities	Personal data from customers (name, ID, telephone,		Excell sheet	Kb	Solution providers storage	Only accessible to selected partner needing these data for study purpose.	Dedicated interfaces	A consent form from partners will be signed in

			email, address, etc.)					The project will always keep the confidentiality and anonymity of customer's data.		order to give access to this information.
Field data	Smart meters measurements	Total dwelling energy consumption	French pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Dedicated Measurement Devices	Energy consumption at appliance level	French/Nordics pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	EV battery data	EV battery capacity and SoC	French/Nordics pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	ENTSO-E TP data	Loads, generation mix, market prices, allocations	French/Nordics pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Home retail electricity price	Energy cost calculation and simulation	French pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No

Field data	EMS	Simulated data of: consumption, user information and preferences	French/Nordics pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Sensors	Temperature, other	French/Nordics pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Baseline libraries	Temperature, Consumption, other	French/Nordics pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Energy consumption	Energy consumption at both appliance level and household level - for baseline, flexibility delivery, energy management and patterns recognition	French pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Weather forecasts	Current weather, local weather forecasts - for baseline and forecasts + consumer awareness of weather impact on consumption	French pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No

Field data	Demand forecasts	Demand forecast - calculated by DSR platform	French pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Grid signals	Market price signals and simulations, energy market products	French pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Smart meters measurements	Electricity consumption / production. Used to calculate / simulate energy cost and CO2 footprint	Digital4Grids	Yes	PostgreSQL database	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose (subject to D4G agreement).	API	No
Field data	Dedicated Measurement Devices	DMD Electricity consumption. Used for: - customer information - flexibility baseline calculation - Building synthetic profiles	Digital4Grids	Yes	PostgreSQL database	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose (subject to D4G agreement).	API	No
Field data	Sensors	Electricity consumption / production. Used for: - customer information - flexibility baseline calculation	Digital4Grids	Yes	PostgreSQL database	Gb	Solution providers storage	Only accessible to selected partner needing these data for study purpose (subject to D4G agreement).	API	No

		- Building synthetic profiles								
Field data	Sensors	Weather data. Used for flexibility baselines calculation.	Digital4Grids	Yes	PostgreSQL database	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose (subject to D4G agreement).	API	No
Field data	EV battery data	EV battery capacity and SoC	Digital4Grids	Yes	Database	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose (subject to D4G agreement).	API	No
Simulated data	EV battery data	EV battery capacity and SoC	Digital4Grids	Yes	Database	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose (subject to D4G agreement).	API	No
Field data	Home retail electricity price	Energy cost calculation and simulation	Digital4Grids	Yes	Database	Mb	Solution providers storage	Proprietary data	/	No
Field data	Electricity CO2 footprint	Building CO2 footprint calculation and simulation	Digital4Grids	Yes	Database	Mb	Solution providers storage	Proprietary data	/	No

Field data	EMS	Electricity consumption / production. Used for: - customer information - flexibility baseline calculation - Building synthetic profiles	Digital4Grids	Yes	Database	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose (subject to D4G agreement).	API	No
Simulated data	EMS	Same as above. Using simulated data while waiting for the 1st Dcbe1 units to be installed in Europe	Digital4Grids	Yes	Database	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose (subject to D4G agreement).	API	No
Field data	Baselines	DER calculated baselines used for flexibility calculation	Digital4Grids	Yes	Database	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose (subject to D4G agreement).	API	No
Field data	Flexibility	Flexibility messages exchanged between FSP and TSO / DSO (conforming to IEC 62746 and 62325). Include: - flexibility power / energy - bid price. - activation	Digital4Grids	Yes	Database	Gb	Solution providers storage	Only accessible to selected partner needing these data for study purpose (subject to D4G agreement).	API	No

Field data	Historical Validated Data and near real time energy data	Smart meters, In-home metering devices	Austrian pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose. The data is collected only after the consent of the end-users	Dedicated interfaces	No
Field data	Signals	Aggregators' signals, Weather signals, Grid signals, other markets signals	Austrian pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	IOT data	EV battery readings, car manufacturer data and historical/specification data of the charging point.	Spanish pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose. i-DE will always keep the confidentiality and anonymity of customer's data.	Dedicated interfaces	No
Field data	Internal Systems data	Tariff data, historical consumption, customer profiling, behaviour profiling (customer's data aggregated)	Spanish pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose. i-DE will always keep the confidentiality and anonymity of customer's data.	Dedicated interfaces	No

Field data	External systems data	Wholesales market prices, weather, forecasted weather.	Spanish pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose.	Dedicated interfaces	No
Field data	Internal Systems	Smart-Charging/V2G service, based on DSO grid needs	Spanish pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose. i-DE will always keep the confidentiality and anonymity of customer’s data.	Dedicated interfaces	No
Field data	Grid signals	DSO infrastructure data: substation, secondary substations, low-voltage supply point, ...	Spanish pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose. i-DE will always keep the confidentiality and anonymity of grid data.	Dedicated interfaces	No
Field data	External systems data	Customer survey regarding acceptance of the use case.	Spanish pilot	Yes	Excel sheet	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose. i-DE will always keep the confidentiality and anonymity of customer’s data.	Dedicated interfaces	No

Field data	Grid data	Metering systems, SCADA/EMS, SCADA/DMS, sensors	Bulgarian pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Energy consumption	Metering systems data.	Bulgarian pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Energy prices	Energy prices from Bulgarian market	Bulgarian pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Smart meters	Source of the consumption and production data, smart meter ID, events.	Slovenian pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Energy consumption and production	Active energy consumption and production. If smart meters provide, also the reactive energy.	Slovenian pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No

Field data	Internal systems data	Net usage tariffs information and data, smart meter counter data giving information about e.g. Monthly, daily historical consumption (stored in specific internal register of each smart meter), customer classification: households, other LV connected customers, dynamic tariffs information- if will be provided to the selected grid users.	Slovenian pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	EMS SCADA data	Energy consumption at 11kV feeders for selected area, Total Demand, RES generation, RES curtailments power outage	Cypriot pilot	Yes	TBD	Mb	TSO Cyprus storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces/massively upon request	No
Field data	Smart meter data	Domestic/commercial consumption Generation/generation from prosumers under netmetering scheme	Cypriot pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	IoT and sensors data	Sensors and IoT devices placed in the building premises collecting data for Temperature,	Greek pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner	Dedicated interfaces	No

		Humidity, Luminance, Motion, Electricity Consumption						needing these data for study purpose		
Field data	External systems data	Consent forms for the acceptance of the use cases from the users	Greek pilot	Yes	PDF	Mb	METLEN cloud	Only accessible to selected partner needing these data for study purpose. METLEN will always keep the confidentiality and anonymity of customer's data.	Dedicated interfaces	No
Field data	Smart meters data	Energy consumption, solar production	Swedish pilot	Yes	JSON	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Forecasts	Weather forecasts, demand forecasts	Swedish pilot	Yes	JSON	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Frequency meter data	Continuous measurements for grid frequency	Swedish pilot	Yes	JSON	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Field measurements	State-of-Charge, temperature	Swedish pilot	Yes	JSON	Mb	Solution providers storage	Only accessible to selected partner	Dedicated interfaces	No

								needing these data for study purpose		
Field data	Prices	Spot prices for electricity	Swedish pilot	Yes	JSON	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Prices	Historical auction prices for ancillary services	Swedish pilot	Yes	JSON	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Metering data	Metering data from participating clients	Portuguese pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Power flow	Power flow in distribution network	Portuguese pilot	No	NA	NA	NA	NA	NA	NA
Field data	Energy Market data	Energy Market data in Portugal (to be deployed)	Portuguese pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Power flow profiles	Power flow profiles at TSO-DSO interfaces	Portuguese pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No

Field data	Bids	Flexibility messages exchanged between FSP and TSO / DSO. Include: - flexibility power / energy - bid price - activation	Portuguese pilot	Yes	XML	Mb	TBD	Only accessible to partners within PT pilot	Dedicated interface	No
Field data	Flexibility Needs	Flexibility needs information send by the TSO	Portuguese pilot	Yes	TBD	Mb	TBD	Only accessible to partners within PT pilot	Dedicated interface	No
Field data	Meter consumption data	Electricity measurement portal - consumption data in kWh	Czech pilot	Yes	Database	N/A	Solution providers storage	Only accessible to selected partner needing these data for study purpose	data export on demand	No
Field data	Customer data	Data from SAP - user data, such as business partner details, EAN, fuse amperage, tariff, address, and consumption and production readings	Czech pilot	Yes	Database	N/A	Solution providers storage	Only accessible to selected partner needing these data for study purpose	data export on demand	No
Field data	Outages data	Outages info service	Czech pilot	Yes	Database	N/A	Solution providers storage	Only accessible to selected partner needing these data for study purpose	data export on demand	No

Field data	Customer requests and inputs	Customer requests such as - self-readings, work in electrical cabinet, connection of a generator, tree cuttings, changes in customer data, other technical requests	Czech pilot	Yes	Database	N/A	Solution providers storage	Only accessible to selected partner needing these data for study purpose	data export on demand	No
Field data	Weather conditions	Notification of extreme weather events	Czech pilot	Yes	Database	N/A	Solution providers storage	Only accessible to selected partner needing these data for study purpose	data export on demand	No
Field data	Customer data	User data, such tariff, address, consumption and production readings from smart meters.	Polish pilot	Yes	Database	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Weather data and forecasts	Sunshine and outdoor temperature data will be downloaded from the weather forecast provider and made available to app users as contextual information (historical and forecast).	Polish pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Flexibility needs (voltage control)	DSO flexibility needs assessment (low-voltage network areas with voltage problems)	Polish pilot	Yes	CSV	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	data export on demand	No

Field data	System data	System data from TSO levels and recommendations (e.g. normal usage, required reduction/increase).	Polish pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	EMS SCADA data	Supply and demand, generation volumes, RES generation volumes, grid status and outages	Croatian pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Ancillary services need	Flexibility requests sent by the TSO	Croatian pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Smart meter data	Consumption data from consumers; Generation from prosumers (solar, etc); Smart meter ID	Croatian pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No
Field data	Energy prices	Energy prices from Croatian market	Croatian pilot	Yes	TBD	Mb	Solution providers storage	Only accessible to selected partner needing these data for study purpose	Dedicated interfaces	No

Table 1: Types and formats of the data generated during the project

2.4. RE-USE OF DATA

Throughout the project, existing research findings, publications, and other pertinent information that is accessible will be examined. The primary purpose of this analysis will be to conduct internal project assessments, and the relevant information will be included in the appropriate project deliverables with appropriate attribution to the sources.

During the project's lifetime, available results from other research activities, publications, and further relevant information available will be analysed. This information will be mainly used for internal project studies and will be provided in respective project deliverables with appropriate references to the origins of the gathered information.

2.5. UPDATES OF THE DMP

As defined on the Description of Action (DoA), the D3.1 "CERF architecture specification and ECLIPSE interoperability profiles" and D3.2 "Specific Data Protection analysis" (TRIALOG, November 2025) will more deeply specify the data gathered and the technical definition of the ECLIPSE ecosystem. It will complement the DMP information and will describe the details of the types and formats of data to be handled.

In this context, in Month 3 (due month for the current deliverable) the project is not yet in the position to provide a detailed final list of the data sets of the project, neither the formats, nor specific standards to be used, but rather preliminary information. As previously indicated, the Data Management Plan is a living document that will be updated over the course of the project whenever significant changes arise, such as new data, modification in consortium policies, changes in consortium composition, external factors, etc.

3. FAIR DATA

The FAIR principles describe four key concepts in research data management. Data should be:

- **Findable** – Easy to find by both humans and computer systems and based on mandatory description of the metadata that allows the discovery of interesting datasets.
- **Accessible** – Long term storage so data can be easily accessed and/or downloaded with well-defined license and access conditions, whether at the level of metadata, or at the level of the actual data content.
- **Interoperable** – Ready to be combined with other datasets by humans, as well as computer systems.
- **Reusable** – Ready to be used for future research and to be processed further using computational methods.

3.1. MAKING DATA FINDABLE, INCLUDING PROVISIONS FOR METADATA

Identification and localisation will be used for the data to be processed during ECLIPSE project. The data to be generated in ECLIPSE project will be identifiable and locatable through unique identification mechanisms. Files will be uniquely identifiable by using standardised name conventions and clear versioning. These conventions for the documents are already provided in D1.1 Project Management Plan.

ECLIPSE project research data will be inventoried and annotated with metadata following the discoverability standards promoted by the Data Catalogue (DCAT) Application Profile ([http91](#)):

“It is important to ensure that your data can be found. The term usually applied to this is the discoverability of data. Essential for discoverability is metadata. Metadata describes the dataset itself (e.g., date of creation, title, content, author, type, size). This information about the data needs to be added to the catalogues to help discover the data. Metadata needs to be both human understandable and machine readable. If it is published as Linked Data, the discoverability of the data is greatly increased. Metadata does not only serve the purposes of description and discovery, but also renders itself as essential for the scope of

contextualisation (relevance, quality, restrictions (rights, costs)), as well as for matching users and software to data available on the internet.”

The Dublin Core metadata standard is a straightforward and efficient element set used to describe various networked resources. The metadata landscape, as perceived by the Dublin Core community, is currently divided into four levels of interoperability and 15 sections for data description; these interoperability levels and sections are resumed in the tables below:

Table 2: Dublin Core Metadata Element Set - 4 Interoperability Levels

Dublin Core Levels of interoperability	
Level 1: Shared term definitions	Shared vocabularies defined in natural language
Level 2: Formal semantic interoperability	Shared vocabularies based on formal semantics
Level 3: Description Set syntactic interoperability	Shared formal vocabularies in exchangeable records
Level 4: Description Set Profile interoperability	Shared formal vocabularies and constraints in records

Table 3: Dublin Core Metadata Element Set - 15 Elements Overview

Contributor	An entity responsible for making contributions to the resource
Coverage	The spatial or temporal topic of the resource, the spatial applicability of the resource, or the jurisdiction under which the resource is relevant
Creator	An entity primarily responsible for making the resource
Date	A point or period of time associated with an event in the lifecycle of the resource
Description	An account of the resource
Format	The file format, physical medium, or dimensions of the resource

Identifier	An unambiguous reference to the resource within a given context
Language	A language of the resource
Publisher	An entity responsible for making the resource available
Relation	A related resource
Rights	Information about rights held in and over the resource
Source	A related resource from which the described resource is derive
Subject	The topic of the resource
Title	A name given to the resource
Type	The nature or genre of the resource

The fifteen elements "Dublin Core" described in this standard are part of a larger set of metadata vocabularies and technical specifications maintained by the Dublin Core Metadata Initiative (DCMI). The fifteen element descriptions have been formally endorsed in the following standards:

- ISO 15836-2:2019
- ANSI/NISO Standard Z39.85-2012 of February 2013,
- IETF RFC 5013 of August 2007.

The DCAT Application Profile utilizes Dublin Core standards as a foundation, but it is not a vocabulary. Rather, it is a straightforward specification used for describing metadata for EU governmental data and portals.

The metadata will be made public alongside the data in a machine-readable format, utilizing standard terminology to define the metadata. The metadata will also describe the overall features of the dataset, including information about local parameters, license, origin, and quality. The European Data Portal has established best practices for using DCAT-AP, and the ECLIPSE partners will adhere to them.

3.2. MAKING DATA ACCESSIBLE

An analysis of which ECLIPSE research data will be made openly accessible and which data will be kept closed will be done at a later stage of the project. The starting point is the definition of all types of research data to be handled and generated during and after the end of the project. Once this action is done, the data accessibility analysis will be carried out including the specification of software tools required to access the data. The outcome shall be implemented in the potential coming versions of the DMP. At the current stage, this analysis would not make much sense since the datasets are not defined yet.

During the project lifetime, information on the following aspects will be elaborated for all datasets on case-by-case basis, before making consortium decision on handling of the particular data generated or collected:

- Nature and scale of the data in consideration,
- To whom it could be useful / targeted audience and its size / level of interest,
- Information on the existence of similar data and possible synergies,
- Possibility for integration and reuse of the provided data by external users / researchers, and
- Any further related issues.

In general terms, ECLIPSE research data will be made available, when possible, without compromising privacy, ethical or commercial sustainability, to parties with a legitimate research interest. In the case of ECLIPSE, certain research data – especially considering the pilot sites – is sensitive due to security issues and therefore will be kept confidential.

3.2.1. OPEN RESEARCH DATA REPOSITORY

To ensure open access to research data sets, the ECLIPSE project will utilize [Zenodo](#), an established European online scientific repository that is fully integrated with OpenAIRE. Decisions on whether to upload and provide access to research data sets on Zenodo will be made on a case-by-case basis by the Project Coordinator (ETRA), the Technical Coordinator (TRIALOG), and the partner(s) who own the data. Data sets marked as public

(by the owner of the data) will be made openly available, while those containing confidential or protected information will be kept private for privacy reasons.

Zenodo provides a user-friendly online service that allows researchers, scientists, EU projects, and institutions to share, preserve, and showcase research results, including data and publications, that are not already part of institutional or subject-based repositories. The service provides hosting in CERN's professional data centres, following industry best practices. Zenodo's policies on data handling and service usage are described in detail at ([htt84](#)).

As previously stated, ECLIPSE intends to share datasets publicly in Zenodo, using the repository's required/provided descriptive metadata. Zenodo provides a Digital Object Identifier (DOI) for all publicly accessible uploads, making them easily and uniquely citable. It is important to note that Zenodo DOIs cannot be edited once registered. Additionally, Zenodo supports the harvesting of all content via the OAI-PMH protocol ([htt85](#)).

3.2.2. ECLIPSE INTERNAL REPOSITORY

During the life cycle of ECLIPSE, data collected or generated by the project will be stored and systematically organised in the official project repository on SharePoint managed by ETRA until the end of the project.

SharePoint is a cloud-based service, hosted by Microsoft to create sites to share documents and information with the partners. It is used as a repository to securely store and share files, making data available to the whole Consortium. The repository (documents section) consists of a project internal area, not possible to be accessed by external users and only share with the relevant partners of the different organization.

3.2.3. OPEN ACCESS PUBLICATIONS

ECLIPSE is committed to backing the Open Data policy of the EC by offering a range of tools to disseminate research findings to a wider audience. The project seeks to make research results available with open access to all aspects of the research process, including methodology, tools, publications, data, software, peer reviews, and more.

The knowledge management strategy of ECLIPSE is designed to be highly transparent, with a default rule of making results publicly available. At the same time, the project's datasets will be fully described with metadata to facilitate their discovery and reusability by other researchers through an online repository. Consent forms will explicitly state that the pseudonymised dataset will be published on a public repository.

To provide open access to the ECLIPSE datasets, the project will utilise Zenodo, a reputable data repository. The datasets will be thoroughly documented and uploaded together with their corresponding metadata.

The rules and principles of the European Commission's Digital Europe Framework Programme clearly defines those scientific results generated within projects should be made available as open access publications, i.e., freely available online to any user. Following these rules, enforced in the ECLIPSE Grant Agreement –Annex 5, Article 17, open access will be ensured to all peer-reviewed scientific publications related to ECLIPSE and its composite solutions.

The beneficiaries must ensure open access to peer-reviewed scientific publications relating to their results. In particular, 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) and
- 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); Digital Europe 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.

3.3. MAKING DATA INTEROPERABLE

At a later stage of the project (during last phase of WP6), an evaluation of data interoperability will take place to determine which data and metadata vocabularies, standards, or methodologies will be utilized to promote interoperability. The assessment will determine if standardized vocabularies will be adopted for all data types within the dataset to enable cross-disciplinary interoperability. The first step in this process will be to define all types of research data that will be generated and handled during and after the project, as well as the components or actors involved in communication within the ECLIPSE project.

The following actions are planned for the upcoming years:

- Identification of the main interfaces between components and actors to be developed in the scope of ECLIPSE project.
- For each interface, assess the available standards and data models.
- For each interface, assess the available new data models based on ontologies.
- Gather the applicability of the standards and data models identified to the ECLIPSE project.
- For each interface, assess the most appropriate standards and best suitable data models.

The outcomes of the actions described above may be integrated in the potential coming versions of the DMP.

3.4. INCREASE DATA RE-USE

Data handling during the project will be conducted on a case-by-case basis, as previously mentioned. Once a data set is designated as public, it will be made available on Zenodo for full reuse. This may include specifying an embargo period or providing controlled access to a whitelist of individuals, in accordance with Zenodo policies.

As suggested by the Model Grant Agreement data will be made accessible with Creative Commons Licences (CC BY or CC 0) whenever possible. Depending on their characteristics, data sets may be subject to different licenses.

The Zenodo repository ensures sustainable archiving of the final research data. Items deposited in Zenodo will be retained for the lifetime of the repository, which is currently the lifetime of the host laboratory of CERN ([htt59](#)). All publicly available uploads on Zenodo will be stored safely for the future in the same cloud infrastructure as research data from CERN's Large Hadron Collider and using CERN's battle-tested repository software INVENIO ([htt87](#)), which is used by some of the world's largest repositories such as INSPIRE HEP ([htt88](#)) and CERN Document Server.

The data will remain reusable at least until Zenodo discontinues the dataset(s).

The project envisages adopting the “data pedigree” concept, which ensures that each piece of relevant information is traceable back to the original data sources and author. This data lineage along with metadata allows for quality audit and sensitivity analyses of the outputs.

4. OTHER RESEARCH OUTPUTS

4.1. ECLIPSE WEBSITE AND PUBLIC DELIVERABLES

The ECLIPSE website describes the mission and the general approach of the project and its development status, as well as provides a short description of the project's objective and its methodology, news, events, promotional materials, publications and updates that are relevant to the project's activities. Following submission and EC approval, public project deliverables will be available for download from the website for up to 5 years after project completion, while confidential deliverables will be kept in the SharePoint repository accessible only to authorised users. In certain cases, external parties may request access to confidential deliverables, and the Consortium may decide to share corresponding deliverables or specific parts with those parties. The public deliverables will be available in the commonly used PDF format, on a dedicated section of the project's website (under construction when preparing this deliverable).

During the life cycle of ECLIPSE, data collected or generated by the project will be stored and systematically organised in the official project repository on SharePoint.

5. DATA SECURITY

The Zenodo and SharePoint repositories will ensure secure and safe storage of both public and non-public data respectively.

Zenodo provides clear security guaranties. All data files are stored in CERN Data Centres, primarily Geneva, with replicas in Budapest. Data files and metadata are backed up on a nightly basis. Files are regularly checked against their checksums (using MD5 algorithm) to assure that file content remains constant. In case of closure of the repository, Zenodo ensures that efforts will be made to integrate all content into suitable alternatives.

SharePoint is a web-based collaborative platform that integrates natively with Microsoft 365.Online, which is a cloud-based service managed by the project coordinator ETRA.

The servers hosting the research data will be accessible only by authorized system administrators. Files containing confidential data should be protected by owners using local encryption tools (i.e., password-protected archives) before being uploaded to shared repositories. Interaction through web user interfaces will use https protocol (i.e., secure). Also, a secure file transfer protocol (sftp) will be provided as the need arises.

To assure data security and privacy, the ECLIPSE developments will support advanced data anonymization and encryption mechanisms, as well as cloud and on-premises storage on servers to which only the relevant staff have access. Example of encryption mechanisms to ensure data security and privacy that may be used by the consortium are: Pseudonymization, Aggregation, Removal of sensitive data from datasets, AES (Advanced Encryption Standard), RSA (Rivest-Shamir-Adleman) or SSL/TLS (Secure Sockets Layer/Transport Layer Security).

More specifically the servers onto which the data will be stored will have server-side encryption. This means that the server's administration personnel will be able to generate public keys for specific personnel who will have access to the data but will not be able to access the data themselves (since the private keys required for this access will be generated on the machine of the person with access to the data). This means that only the required personnel (and stakeholders that have active data contracts) will have access to the data and, even in the remote case of a possible data leak or server hack, the data stolen will be fully encrypted.

Finally, and after a retention period (to be defined), a secure deletion software will be used to destroy data, i.e., using Gutman algorithm (35-pass overwrite technique).

If deemed necessary, a full format can be used in conjunction with overwriting, to provide further assurance that data cannot be recovered, guaranteeing the destruction of the project personal data.

The following guidelines will be used to ensure the security of the data:

- Use anonymised and aggregated data instead of individual data.
- Encrypt data by the local researchers and not allowing the data to leave their premises unencrypted.
- Store data in at least two separate locations to avoid loss of data.
- Limit the use of USB flash drives.

- Label files in a systematically structured way to ensure the coherence of the final dataset.

6. ETHICS

Ethical issues are covered in WP8 and pre-assessed during the Grant Agreement Preparation phase. The ECLIPSE consortium must comply with all European, national and institutional legislation and directives relevant to the country where the data collection is taking place. The collection, processing and transmission of personal data will be analysed under principles of (a) The Universal Declaration of Human Rights and the Convention 108 for the Protection of Individuals with Regard to Automatic Processing of Personal Data, (b) The General Data Protection Regulation (GDPR) (Regulation (EU) 2016/679), and (c) The national laws applying its provisions. Any additional regulations at national level that do not fall under the GDPR and apply to data protection, or any other sensitive information will also be considered.

Data managed during the project will be processed only under the following preconditions which need to be met: (a) When the data subject has given her/his consent; (b) When the processing is necessary for the performance of or the entering into a contract; (c) When processing is necessary for compliance with a legal obligation; and (d) When processing is necessary in order to protect the vital interests of the data subject.

7. CONCLUSIONS

The ECLIPSE project's Data Management Plan (DMP) outlines a structured approach to managing research data throughout the project's lifecycle. This living document ensures compliance with Horizon Europe's data policies and facilitates knowledge sharing and innovation and sets the guidelines and recommendations to be followed to make the project research data Findable, Accessible, Interoperable and Reusable (FAIR) and therefore contribute to knowledge discovery and innovation.

This document covers the entire research data lifecycle from creation and collection to long-term preservation and sharing and guides consortium members on managing data during and after the project's completion. Moreover, outlines the data types, storage methods, and sharing strategies for review or reuse.

As it has been stated in the document, the Data Management Plan is a living document that may be updated on a regular basis all along the project implementation, to cover all relevant changes or progresses that might occur during the project lifetime.

8. ACRONYMS

Table 4. Acronyms

Acronym List	
DCAT	Data Catalogue Vocabulary
DCMI	Dublin Core Metadata Initiative
DMP	Data Management Plan
DoA	Description of Action
DOI	Digital Object Identifier
DPO	Data Protection Officer
EC	European Commission
EIEA	External Independent Ethics Advisor
FAIR	Findable, Accessible, Interoperable and re-usable
GA	Grant Agreement
GDPR	General Data Protection Regulation
PSC	Project Steering Committee



Thank You

If you have any questions, please get in touch with us.



www.eclipse-digital.eu



info@eclipse-digital.eu



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