COREu

CO$_2$ Routes across Europe.

Deliverable	
D1.2 Data Management Plan	
Deliverable Lead	Domina
Deliverable Due Date	30/06/2024
Actual Submission Date	30/06/2024
Version	1.0

Funded by
the European Union

Document Control Page

Title	**D1.2 DMP**
Authors	Ariane Yonta (Domina) Enrico Rizetto (Domina) Caterina Calefato (Domina)
Reviewers	Chiara Caccamo (Sintef)
Work Package	WP1
Description	COREu Data Management Plan (DMP) and procedures First version of the detailed description of COREu's data collection and generation processes, It also outlines how the data will comply with FAIR principles.
Creation Date	15/04/2024
Type	Report
Language	English
Audience	Public

Document History

Version	Date	Author(s)	Changes
0.1	15/04/2024	Domina	Tables of content
0.2	19/04/2024	Domina	First Draf
0.3	20/05/2024	Domina	Complete Draft
0.4	03/06/2024	Domina	Executive summary, introduction and conclusions
0.5	24/06/2024	Domina	Final draft ready for peer review
1.0	25/06/2024	Domina	Final peer reviewed version, ready for submission

Table of Contents

List of Tables

Definitions and acronyms

CA	Consortium Agreement
DMP	Data Management Plan
EC	European Commission
EU	European Union
FAIR	Findable Accessible Interoperable and Reusable
GA	Grant Agreement
PC	Project Coordinator
TC	Technical Coordinator
WP	Work Package
CEE	Central-East Europe
EGDI	European Geological Data Infrastructure
FDSN	Federation of Digital Seismograph Networks
ISC	Information science and computing
NACE	Nomenclature science and computing
GDPR	General Data Protection Regulations

Executive Summary

This document describes the core aspects of the Data Management Plan of the COREu project and the data policy which will be applied to the COREu consortium. It is part of the activities of the WP 1, under the Task 1.2. This Task will provide two different versions of the Data Management Plan document. The first is the current Deliverable D1.2, due on M6 which presents the first draft of the process of data generation collection and analysis during the project lifetime. The second one is the Deliverable D1.3 due M24 which will be an update of the first version. The goal of this document is to provide instructions for how to access and reuse open research data, focussing on how data and information will be managed, controlled and monitored during the activities of the project. It further aims to contribute to best data handling through describing what research data the project expects to generate and which parts of the data can be public.

The COREu DMP will follow Horizon Europe Open Science standards: data generated will be "as open as possible, as closed as necessary". Access is provided to the EU research community through open practices and open sharing, to avoid methodological bias. The COREu consortium strongly believes in the value of making project research outcomes and knowledge available to the widest audience possible. In accordance with the guidelines of Horizon Europe hence this DMP will be regularly enhanced and optimised during the project implementation in order to gather required updates from the advancements of the research activities of the project.

1. Introduction

The scope of the deliverable D1.2 is to report the initial version of the COREu Data Management Plan (DMP). The COREu DMP provides the required analysis on the core elements of the data management policy which will be applied during the project by the COREu consortium. The chapter 1 describes the content of the deliverables and the relation of its outcomes with other WPs and tasks.

1.1. Description of the document

The COREu DMP is a comprehensive document outlining how outcoming data from the project will be handled during and at the end of the research activities. The scope of the DMP includes several keys components that ensure data integrity, accessibility and compliance with the FAIR Data principles in accordance with the Horizon Europe guidelines. The DMP is built around the following main pillars based on these guidelines:

- how research data will be handled during and at end of the project
- which data will be generated collected, and processed
- which methodology and standards will be applied to collected and store data
- which data will be shared and made open access
- how data will be curated and preserved (including at end of the project).

1.2. WP and Tasks related with the deliverable

The goal of Task T1.2 is to manage the information and data generated by activities across other work packages (WPs) throughout the entire project. Since the information and data will evolve and improve over time, the document will be continuously monitored and updated as needed. This initial version of the DMP documents the information and data from the project's first period and outlines expected future data. Key data and information described in this deliverable relate to the following tasks:

- Task 2.1: Studies on CO2 Composition and Impurities

The data gathered from this task will describe the impacts of CO2 compositions on transport and storage, using value chain analyses and experimental research. The focus will be on CO2 streams from capture plants and transport chain materials. SINTEF ER, GRTGaz, CERTH, and Saipem will identify and simulate the removal of critical impurities, with GRTgaz focusing on corrosion impacts, and INiG and OGE conducting long-term corrosion tests. This study aims to provide validated impurity specifications for demonstration processes and includes hydrate formation studies by INiG to recommend risk mitigation strategies.

- Task 2.2: Industrial Accidental Analysis

The data outcomes from this task will be derived from a research tool designed to analyse flow and phase behaviour in CO2 pipeline networks. This tool will extend existing in-house models for multiparameter mixture simulations and will be validated through comparisons with commercial software. The primary focus will be on real-case applications in the Greek demo, ensuring that the results inform operational conditions for CO2 transport systems. Additionally, a publicly available open-source engineering tool will be developed to prevent running ductile fractures in pipelines, validated against existing pipe rupture data. This task will also provide industrial perspectives on accidental scenarios and flow assurance for CCS

processes engineering tool will be developed to prevent running ductile fracture in pipelines, validated against existing pipe rupture data. industrial perspectives on accidental scenarios and flow assurance for CCS processes.

- Task 2.3: Performance Evaluation of CO2 Analysers

The objective of this task is to experimentally evaluate the performance of CO2 analysers used in capturing processes. The resulting data, derived from testing and analysing two to four CO2 analysers, will be shared within the consortium and partially disseminated to the public.

- Task 2.4: Loading/Unloading Conditions for CO2 Transportation

The objective of this task is to assess operational scenarios for CO2 transportation, including unloading and loading conditions. This involves collecting and sharing data related to various transportation modes and conditions.

- Task 3.1: Data for CO2 Conditioning/Compression System Design

The task activities results will provide the design a CO2 conditioning/compression system based on captured CO2 data. The dedicated pilot plant operation data from Elpedison's power plant within the HiRECORD project, using captured CO2 characteristics to inform the design of the CO2 system.

- Task 4.1: Geological and Geophysical Analysis

The task will generate data about the analysis of subsurface structures for planned CCS scenarios using geological and geophysical subsurface data for experimental and modelling studies for the maturation of the Polish CCS route.

- Task 4.2: Stakeholder Information Collection

The task will gather and sharing data results from Techno-economic analyses which will be performed for CO2 routes based on regional scenarios, collecting investment and operating costs from WP3 and T4.1, with common economic and regional data. UNIBO will add data for CCS with bioenergy in Greece, while SINTEF ER and SINTEF AS will optimize CCS routes using in-house and value chain optimization models. Detailed analyses by various partners will provide total costs for capture, transport, and storage, and calculate CO2 storage costs, integrating carbon credit generation potential evaluations for the Prinos demo

- Task 4.3: Cost-Benefit Analysis of CCS Scenarios

 The task will generate data from various analyses and make a comprehensive evaluation of CCS scenarios to inform project decisions. Cost-benefit analysis (CBA) of CCS scenarios, integrating outputs from LCA, techno-economic, and risk analyses to compute the net present value and environmental net present value of the CCS project compared to a baseline.

- Task 5.1: Policy Framework Discussion

The task will gather data assessment related to policy and regulatory aspects. The task will review EU policies and initiatives related to cross-border CO2 transport and storage infrastructure, focusing on financial support, enabling legislation, and industrial decarbonization strategies. The partners involve in this task will identify legal and financial bottlenecks by leveraging findings from other work packages and conducting local policy

analyses. The task will also develop policy reform guidelines and benchmark national positions on CCS in relation to the EU's carbon neutrality strategy.

- Task 5.2: Social acceptance

The task outcome data describe Information about social acceptance of CCS technology. By conducting comprehensive stakeholder analysis and engagement throughout the project's duration, it will involve surveys to gauge perceptions, participatory formats to facilitate dialogue, and analysis of CCS impacts on job creation and workforce training. The findings will inform stakeholder engagement strategies and create local governance entities to promote public involvement and acceptance of CCS technology.

- Task 5.3: Environmental risk assessment

Data gather from this task will be generated by the evaluation of the environmental impacts and risks of the CCS value chain, focusing on transport and storage for both on- and offshore sites, with extensive monitoring and sampling at the Prinos site and future Central-East Europe locations. Environmental monitoring plans will be developed and implemented, using data from sampling campaigns and continuous monitoring to assess natural variability and potential CCS impacts.

- Task 6.2: Communication and dissemination toolbox

Data gather from this task come from the development of the media kit, website, and learning management system for the project, social media impacts. A COREu Metaverse Platform will be created with AI and AR/VR/MR applications for stakeholder collaboration, featuring a CO_2 monitoring dashboard and digital twins of industrial assets. Local media campaigns, events, and communication activities targeting various audiences, including children and young people.

The data collected and analysed across these tasks are critical for ensuring the successful design, implementation, and monitoring of CCS technologies and infrastructure, supporting project objectives and contributing to the broader goals of reducing carbon emissions and enhancing environmental sustainability.

2. Data Summary

The COREu project will demonstrate key enabling technologies within a CCS (Carbon Capture and Storage) value chain and support the development of three new CCS routes in Central-East Europe (CEE), helping to accelerate CCS development. COREu aims to establish an open-access, transnational network of infrastructure and logistics to connect emitters with storage sites across Europe.

2.1. COREu data collection purpose and relation to objectives

Data collected for the COREu project encompasses a wide array of information necessary for advancing CCS technologies and infrastructure. The data is intended to support various project activities, including:

- Development of CCS infrastructure: Identifying transport requirements and developing clusters of emitters.

- Enhancement of CCS knowledge: Sharing experience and data across Europe to create a common framework for CCS deployment.

- Seismic and environmental assessment: Monitoring background seismicity and assessing the environmental impact of CO_2 storage activities.

- Social acceptance and risk assessment: Conducting activities related to social acceptance, natural and environmental risk assessments, and life cycle cost analysis (LCCA).

- Stakeholder engagement: Mapping stakeholders to support regional CCS hubs and emission reduction alliances.

The data originates from a variety of reputable sources and methodologies, including the LPB Archive, which provides general regional information, seismic data, maps, historical production data, fluid properties, and environmental data. INiG - PIB Experimental Lab Facilities contribute experimental data related to corrosion tests, simulations on CO_2 safety, and fluid properties. Seismic data includes seismic waveforms from existing stations, seismic catalogues, earthquake focal mechanisms, and data from seismic stations operated by AUTH and other institutes in Greece. Field samples, collected from the Bay of Kavala, Greece, during multiple field campaigns in different seasons, are analysed for various chemical and physical parameters. Publicly available sources and client contacts provide information on glassmakers' plants, addresses, contact persons, and plans for evaluating CO_2 production. Stakeholder data is elicited from COREu project partners, the GFL membership portfolio, and WP5 stakeholder mapping lists to gather information about potential stakeholders for emission reduction alliances. Additionally, databases, publicly available at European, national, and regional levels, or collected via questionnaires distributed to stakeholders, contribute to this comprehensive dataset. This dataset is crucial for addressing the multifaceted aspects of CCS deployment, including technological, environmental, social, and economic dimensions.

The expected size of the data, both collected and generated, is not yet known. More specific details regarding data size hardware and software utilisation will be provided in the release documents for the individual work packages and are subject to change as the project progresses.

Table 1 provides a comprehensive list of the data format to be collected, generated, and processed within the context of the COREu project.

#	Data Element Format	Data Element Owner	Origin WP
1	DOC XLS PDF transport mode specification	SINTEF AS	WP4(T4.1)
2	SEGY seismic data Pdf presentations CSV coordinates table	ENERGEAN. GR ENERGEAN.IT	WP2 (T2.5) WP3(T3.1) WP5(T5.4)
3	CSV. PDF cost benefit analysis data	ELPEDISON	WP3(T3.1) WP4(T4.3)
4	SEGY seismic data GEOTIFF, SHP georeferenced and vector maps	CGS UNIGEO	WP4(T4.1)
5	CSV XLS experimental data, coordinates table SEGY seismic data PDF	INiG	WP2(T2.1) WP4(T4.1)
6	SEGY seismic data PDF	LPB	WP4(T4.1, 4.2, 4.5) WP5(T5.1, 5.2, 5.4)
7	PDF. DOC. XLS	GRTGAZ	WP2(T2.1, 2.2, 2.3) WP5(T5.1)
8	XLS PDF metrics and reports	SAIPEM	WP2(T3.2, T3.3) WP3

9	SEGY	GFZ	WP3 (T3.1.1)
10	XML, JSON, ASCII SEGY metrics and seismic data	AUTH	WP3 (T3.1)
11	CSV, XLS chemical analysis	UNIROMA1	WP3(T3.1.3)
12	PNG DOC TXT CSV PDF Images of published reports, environmental and social data	STRESS	WP5(T5.2, 5.3)
13	XLS client information and contact	STARA	WP5(T5.2)
14	JPEG, PNG, PDF, CSV Websites cookies events and publications reports	DOMINA	WP6(T6.2, 6.3)
15	XLS stakeholder's emails address and other contact	GLASS FUTURES	WP6(T6.5)
	CSV, XLS report of corrosion tests and experiments	OGE	WP2(T2.2) WP4(T4.1)

Table 1: List of data element format

3. FAIR data

COREu will manage data in accordance with the FAIR principles of data management, ensuring that data is Findable, Accessible, Interoperable, and Re-usable. The project aims to maximize access to and reuse of the research data generated. However, certain datasets or parts of datasets cannot be shared to protect the privacy of participants, and maintain the confidentiality of classified information.

3.1. Making data findable

To emphasise the findability of the COREu project research data and making them easier for others to discover, the COREu Consortium partners implement the following strategies:

- Assign unique identifiers like DOIs (Digital Object Identifiers) and URIs (Uniform Resource Identifiers) to datasets.

- Create comprehensive metadata that describes the data in detail, including its context, content, and structure. The created metadata will be compliant with EGDI and FDSN standard

- Store data in widely accepted and machine-readable formats such as CSV, XLSX, JSON, and XML. SEGY a common format used to geophysical data

- A trusted and accessible data repository has been established which is indexed by search engines and offers robust search functionalities.

- Some relevant keywords and tags in the metadata will be used to enhance searchability. Search key-words will be provided pertaining to technological features relevant to CO_2 capture, compression, transportation and storage

- The versioning management of the data, metadata template and files stored into the repository

- Some data will be made openly accessible to ensure it can be found and accessed by a broad audience.

3.2. Making data openly accessible

Making data openly accessible is broad and multifaceted, aiming to enhance transparency, promote collaboration and innovation, maximize research impact, support open science, facilitate data-driven decision making, and ensure long-term preservation and accessibility. These objectives collectively contribute to a more efficient, effective, and impactful research ecosystem.

The COREu Research Project Repository is committed to ensuring that data collected and generated during the project is accessible to maximize its utility and impact. To achieve this, the following access policies are implemented:

- Public data is freely accessible to all users, restricted data requires user registration and approval, and confidential data is limited to authorized project personnel.

- Users must authenticate via Multi-Factor Authentication (MFA): For added security, which requires users to provide an additional verification method (such as a code sent to their email address).
- Regular audits of access and usage logs are conducted to ensure compliance, and violations of access policies will be addressed in accordance with the project's governance procedures.
- Training and support are provided to help users access and utilise the repository effectively.
- Use tools and software to access to data. GIS and Petrel are powerful tools in their respective fields. GIS is widely used for spatial data analysis and mapping across various sectors, while Petrel is specialized software for subsurface geological and reservoir modelling in the oil and gas industry
- Ensure that the data repository is updated with any new data or corrections to maintain the accuracy and relevance of the datasets.

The COREu Research Project Repository aims to facilitate open access to research data while ensuring the responsible and ethical management of sensitive information.

Table 2 provides summary description of the accessibility of data both collected and generated within the project

Data Element Owner	**ENERGEAN GR, ENERGEAN IT**
Origin	ENERGEAN archive including general regional information
List of data element's parts that will be made openly accessible	TBD
Utilised open repositories	ENERGEAN repository
List of data elements that will not be publicly shared	The data that we have shared to the partners were private and confidential
Method / software tools required to access the data	Microsoft office tool, GIS and Petrel

Data Element Owner	ELPEDISON
Origin	Pilot plant design and operations in the framework of HIRECORD project
List of data element's parts that will be made openly accessible	Data about cost benefit analysis
Utilised open repositories	Project repository
List of data elements that will not be publicly shared	Prinos demonstration outcomes
Method / software tools required to access the data	TBD
Data Element Owner	CERTH
Origin	Published literatures, Pilots plants
List of data element's parts that will be made openly accessible	All Data will openly accessible
Utilised open repositories	Project repository
List of data elements that will not be publicly shared	NA
Method / software tools required to access the data	NA

Data Element Owner	**CGS**
Origin	State managed data funds
List of data element's parts that will be made openly accessible	All data will be made openly available
Utilised open repositories	CGS repository
List of data elements that will not be publicly shared	NA
Method / software tools required to access the data	Microsoft Office tools and web browsers
Data Element Owner	**UNIGEO**
Origin	UNIGEO archive
List of data element's parts that will be made openly accessible	All data will be made available to project partners
Utilised open repositories	UNIGEO repository
List of data elements that will not be publicly shared	NA
Method / software tools required to access the data	Microsoft Office tools, Kingdom and web browsers
Data Element Owner	**INiG**

Origin	LPB archive including general regional information
List of data element's parts that will be made openly accessible	Sensitive data will be shared only with the consortium
Utilised open repositories	Project repository
List of data elements that will not be publicly shared	Sensitive and confidential from LPB
Method / software tools required to access the data	Microsoft office tool, CMG and Petrel
Data Element Owner	**LPB**
Origin	LPB archive including general regional information
List of data element's parts that will be made openly accessible	NA
Utilised open repositories	Data will be share via email or upload to project repository
List of data elements that will not be publicly shared	The data that we have shared to the partners were private and confidential
Method / software tools required to access the data	Microsoft office tool, Petrel for the shared data
Data Element Owner	**GRTGAZ**
Origin	Public scientific articles, simulations scenarios, GRTGAZ database

List of data element's parts that will be made openly accessible	Data are sharable only within the project scope
Utilised open repositories	Project repository
List of data elements that will not be publicly shared	Simulations scenarios data are private and confidential
Method / software tools required to access the data	Microsoft Office tools
Data Element Owner	**OGE**
Origin	Different simulations involved in the project
List of data element's parts that will be made openly accessible	NA
Utilised open repositories	Project repository
List of data elements that will not be publicly shared	Data are sensitive and sharable only within the project scope
Method / software tools required to access the data	Microsoft Office office tools
Data Element Owner	**GFZ**
Origin	Seismic waveforms from existing stations

List of data element's parts that will be made openly accessible	Seismic models
Utilised open repositories	TBD
List of data elements that will not be publicly shared	The data that we have shared to the partners were private and confidential
Method / software tools required to access the data	NA
Data Element Owner	**AUTH**
Origin	Seismic catalogues, seismic stations
List of data element's parts that will be made openly accessible	Seismic models
Utilised open repositories	TBD
List of data elements that will not be publicly shared	TBD
Method / software tools required to access the data	GIS and Petrel for the shared data
Data Element Owner	**UNIROMA1**
Origin	The water column and near-surface sediments in the Bay of Kavala, Greece, in areas that may be affected by CO2 storage activities

List of data element's parts that will be made openly accessible	All data will be made available after pubblication
Utilised open repositories	Zenodo or Pangea repository
List of data elements that will not be publicly shared	NA
Method / software tools required to access the data	Basic office tool
Data Element Owner	**STRESS**
Origin	Data collected to questionaries distributed to stakeholder
List of data element's parts that will be made openly accessible	All data will be made openly accessible
Utilised open repositories	NA
List of data elements that will not be publicly shared	NA
Method / software tools required to access the data	NA
Data Element Owner	**STARA**
Origin	Internal know how, clients contacts

List of data element's parts that will be made openly accessible	Aggregated data on CO_2 production will be made openly available
Utilised open repositories	NA
List of data elements that will not be publicly shared	Some data may be restricted due to privacy concerns/sensitivity
Method / software tools required to access the data	NA
Data Element Owner	**GLASS FUTURES**
Origin	GFL membership portfolio. WP5 stakeholder mapping list
List of data element's parts that will be made openly accessible	All data will be made openly accessible
Utilised open repositories	Project repository
List of data elements that will not be publicly shared	NA
Method / software tools required to access the data	Microsoft Office tools
Data Element Owner	**DOMINA**
Origin	Website cookies, Questionaires, Events activities

List of data element's parts that will be made openly accessible	TBD
Utilised open repositories	Domina Repository
List of data elements that will not be publicly shared	Access to the specific data is restricted to the project's communication
Method / software tools required to access the data	NA

Table 2: Data Accessibility

3.3. Making data interoperable

Ensuring data operability is crucial for promoting effective collaboration, enhancing research and innovation, complying with regulations, supporting data-driven decision-making, and improving transparency and accountability.

In the context of COREu project will be enhance the interoperability implementing the following strategies:

- Use standard data formats by adopting widely accepted formats such as CSV, JSON, XML, XLS to ensure compatibility across different systems, and employing domain-specific standards where applicable, like SEGY for seismic data or GeoTIFF for geospatial data.

- Implement metadata standards using standardized metadata schemas such as EGDI and FDSN. The EGDI standard focuses on geological data harmonization, accessibility, and interoperability across Europe, while the FDSN standard ensures standardized collection, management, and sharing of seismic data on a global scale. Both standards enhancing data usability and facilitating collaborative research.

- Utilise controlled vocabularies such as NACE (Nomenclature of Economic Activities) and ISC (Information Science and Computing) vocabularies refer to structured sets of terms and definitions used to standardize and facilitate communication and data exchange in the fields of information science and computing.

- Implement data versioning and provenance tracking by tracking different versions of datasets to manage updates and changes over time and maintaining provenance information to document the origin and history of the data.

- Ensure data accessibility by hosting data in accessible repositories that support interoperability protocols and providing access controls to protect sensitive information while enabling legitimate use. The project repository will be accessible under login process by all the consortium.

- Use interoperable software tools such as Microsoft Office tools and Petrel software. Petrel is a powerful and versatile platform for the oil and gas industry, providing comprehensive capabilities for subsurface modelling simulation, and analysis. By integrating various types of data and offering advanced visualization and analysis tools, Petrel helps geoscientists and engineers make informed decisions about exploration, development, and production, ultimately enhancing the efficiency and effectiveness of oil and gas operations.

By implementing these strategies, the COREu project can enhance the interoperability of its data, this will facilitate broader collaboration, increase the impact of the research, and support data reuse in future studies.

3.4. Increase data re-use

Making data reusable enhances scientific impact, promotes innovation, supports transparency, and maximizes return on investment. It aligns with the objectives of Horizon 2020 by fostering open science, collaboration, and knowledge sharing, ultimately contributing to the advancement of science and technology and addressing societal challenges. Within the project activities, several key utilities will be employed to ensure data reusability:

- Ensure data quality and consistency by regularly validating and cleaning data to maintain accuracy, and implementing quality control procedures to identify and rectify errors. For the purposes of data protection and management, as well as to facilitate reuse, the research materials and data will be stored in accordance with the guidelines established by the Consortium Agreement and the Open Science policy. Individual partners will determine the degree of openness and targeted usage policies for their specific data, with particular attention to any data generated or obtained from experimental research, which will follow the Consortium Agreement (CA) guidelines. Data quality is assured by sharing results and inputs within the expert community in the group, simulators will point out inconsistent inputs to some degree.

- Implement open licenses, such as Creative Commons and Zenodo standards, to clearly communicate the terms of use, and include license information in metadata and documentation whenever applicable. Preference will be given to the adoption and use of open-source and open-document licenses, provided there are no conflicts with privacy, legal, or industrial confidentiality.

- Engage with the research community by establishing feedback mechanisms and collaborating with other projects to align with broader community standards. Incorporating feedback into the data management process is essential to improves data quality, enhances metadata and documentation, facilitates interoperability, ensures usability, promotes transparency and trust, supports continuous improvement, and encourages collaboration.

The COREu project can ensure its data is reusable, enabling researchers, policymakers, and stakeholders to effectively access, understand, and utilise the data. This not only enhances the value and impact of the data but also supports transparency, collaboration, and innovation in the research community.

4.   Data Management allocation of resources

Proper allocation of resources is essential for effective data management in the COREu project. By investing in personnel, infrastructure, software, quality control, security, documentation, accessibility, feedback mechanisms, and project management, the project can ensure that its data is managed effectively, thereby enhancing its value and impact. This comprehensive approach supports the project's objectives of fostering open science, collaboration, and innovation, ultimately contributing to the advancement of knowledge and addressing societal challenges.

Each partner in the consortium is responsible for their data and will assign a dedicated Data Manager to represent their organisation. Data requests from inside or outside the consortium should be directed to these individuals through their selected communication channels. External requests for data access must be verified and cleared by the Project Manager before approval, and any partners who might be affected should be notified.

As previously stated, informed consent is crucial for the consortium, and all identifiable data will be handled in accordance with relevant EU rules and regulations on data management. The costs associated with making data FAIR (Findable, Accessible, Interoperable, Reusable) are covered in accordance with the CA guidelines

SINTEF is responsible for managing the project's data on behalf of COREu, in collaboration with DOMINA, the leader of T1.2. In addition, each partner is responsible for the data they collect, generate, and process.

5 Data security

Regarding the data that will be collected, processed, and stored by consortium partners during the project, each partner will be individually responsible for the data they handle. Each partner will ensure compliance with the regulations of their respective countries also with the EU legislations. The exception to this is WP3, which involves tasks related to identifying potential leakages from the CO_2 infrastructure and reservoir. In accordance with the Guidelines for the Classification of Information in Research Projects, some results from these tasks may be classified as EU sensitive. Results obtained from in situ monitoring will be assessed and classified as EU sensitive if they contain sufficiently detailed information about possible anomalies. Partners are committed to using repositories that adhere to the highest security standards, with strict policies enforced and verified through appropriate risk assessment processes. These repositories will be certified and accessible only to authorized personnel, ensuring best practices in data security are always applied. Security measures will include encryption tools and secure transfer protocols (HTTPS for web and SFTP for local data transfer) based on the project's needs.

Regarding data retention, which falls under the responsibility of each respective partner. Partners will ensure that data is destroyed as soon as the defined retention period ends. As a general principle, all data on the premises of the partners will be automatically discarded [no later than three years after the project's conclusion. Any personal data will be destroyed upon project completion unless explicit consent to retain the data has been provided by the data owners. Data backup, it is also under the responsibility of each respective partner. They will ensure that regular backups are performed and securely stored throughout the entire project period. Backups should be maintained using appropriate storage media and located in secure storage location.

6 conclusions

The document outlines preliminary details of the COREu data collection and generation process, emphasizing its alignment with the project's objectives. It includes an initial list of data elements to be utilised for achieving these objectives. Additionally, the document describes the first considerations for applying principles and guidelines to each dataset to ensure compliance with the FAIR (Findable, Accessible, Interoperable, and Re-usable) principles. Furthermore, it introduces the COREu strategy for data management resource allocation and provides a detailed description of the adopted data security strategy. As previously explained, this deliverable serves as the first documented Data Management Plan (DMP). Since some activities have yet to begin and some data still need to be defined, it explains how the consortium plans to manage COREu research data.

To address this first deliverable, a survey questionnaire has been distributed to the consortium and will be updated as necessary. This document is based on the outcomes of that survey. Additionally, a webinar was organized for consortium members who are not familiar with data management and FAIR principles. Both the survey and the webinar are available in the project repository with the links provided below. To view them, you can request access credentials from the project coordinator.

https://sintef.sharepoint.com/:f:/r/teams/work-24067/Delte%20dokumenter/100%20Work%20Packages/WP1%20Project%20Management/Deliverables/D1.2?csf=1&web=1&e=gXtyFr

https://sintef.sharepoint.com/:f:/r/teams/work-24067/Delte%20dokumenter/100%20Work%20Packages/WP1%20Project%20Management/WP%20meetings/DMP_Meeting?csf=1&web=1&e=EsZxjf