InvestCEC

Data Management Plan – D1.2

Enspire Science

Project information

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Document information

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Deliverable type		
R	Document, report	X
DEM	Demonstrator, pilot, prototype	
DEC	Websites, patent fillings, videos etc.	
OTHER		
Dissemination level		
PU	Public	
SEN	Sensitive, limited under the conditions of the Grant Agreement	X

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1.1	30/03/2023	Enspire Science	First draft
1.2	15/04/2023	Enspire Science	Complete draft after partners comments and modifications
1.3	30/04/2023	Enspire Science	Final draft

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1. Executive Summary

This document presents the first version of InvestCEC Data Management Plan (DMP). The DMP is a living document that outlines the main elements of the data management that will be used by the InvestCEC Consortium regarding the project data. It includes descriptions of the way that data is handled during and after the project, the type of data to be collected, processed or generated, the methodology and standards to be applied to ensure that the data management meets the FAIR data principle and whether and how the data will be shared.

The document follows the template provided by the European Commission in the Participant Portal. The main topics covered in this document are:

- The scope and objectives for data management in the project;
- Overview of what data may be gathered, processed and/or generated in the project;
- How data will be handled according to the FAIR Data principle, making data: findable, accessible, interoperable, and reusable;
- The resources and costs of making data FAIR in this project;
- How the consortium members intend to keep the data secure;
- Ethics and privacy strategy in InvestCEC.

2. Introduction

2.1. Scope and Objectives

The purpose of the Data Management Plan (DMP) is to provide an analysis of the main elements of the data management during and after the InvestCEC project, and how data will be handled in line with the European Commission's requirements. The DMP describes the data expected to be gathered, processed and/or generated with the metadata attached to ensure their compliance to the FAIR data principles. The data management practices will ensure that the project's data can be preserved, exploited and shared in a consistent manner.

InvestCEC aims at developing and demonstrating a model for circular economy projects at local level which can be replicated by different European cities and regions in different contexts. Therefore, sharing and ensuring accessibility to data produced during the project that can support replication (e.g., a list of SMEs and their offered circular economy solutions, demonstration results, environmental impact data) is essential. Nevertheless, InvestCEC will work closely with local authorities, entrepreneurs and investors, making it highly likely that some data and outputs will be confidential (e.g., internal documents, business plans, investors' information). Hence, the DMP also specifies which of the data will be publicly available (open access), which data will be shared with relevant audience such as the Circular Cities and Regions initiative (CCRI) community members and which will be available only to the consortium (confidential), as can be assessed at this stage.

This first version of the Data Management plan is submitted to the EU in April 2023. It is important to note that the document is a living document, meaning that it will evolve during the project. A history of versions will track the changes and with a clear version number and a date. An updated version will be delivered by the coordinator (Enspire) at the end of the project (October 2025), which is the primary responsible for data management.

2.2. List of Abbreviations

- CCRI – Circular Cities and Regions Initiative
- CE – Circular economy
- DMP – Data Management Plan
- FAIR – Findable, accessible, interoperable, reusable
- WP – Work package

3. Data Summary

The data that may be collected, generated and used will be necessary to meet the objectives of the InvestCEC project. The project data can be divided into two groups:

- Data collected/generated/used by the consortium or the involved stakeholders during the model development and demonstration, such as relevant municipal data, investors' data, entrepreneurs' data.
- Data collected/generated/used by the consortium or the involved stakeholders during dissemination and communication activities, replication activities and other events.

3.1. Re-use of Existing Data

In addition to data to be generated in the project, we will use existing data, most of it owned by the partners, including:

- a database of companies and entrepreneurs providing circular economy (CE) solutions (Venionaire Capital)
- internal data on local CE project (Stadwerke Klagenfurt)
- Potential additional existing datasets that will be used for report and activities
- Data from any platform relevant to the project, e.g., the European Innovation Partnership on Raw Materials or the Water Reuse and Recycling Action Group

This data will be used to identify solution providers that can meet the needs of Klagenfurt with respect to their CE objectives, within the context of the InvestCEC model demonstration.

3.2. Data Types and Formats

The majority of the outputs produced in InvestCEC will be in the form of text resources such as templates, manuals, reports and description of procedures. While the full scope of data to be collected, processed and/or generated is not clear yet, we foresee the involvement of different kinds of data related to the following areas:

- Model development
- Model demonstration
- Business-related data
- Replication and capacity building

The following data formats will be used:

- Model for CE projects at the city/region level and other replication data and outputs – templates, guidelines, and manuals for model replication (Word, PDF, etc.)
- Demonstration data and outputs – text and quantitative data describing the progress and results of the demonstration in Klagenfurt.
- Confidential business data – as part of the work with entrepreneurs and investors, confidential data and information will be obtained.
- Research data and outputs - raw and processed data collected/generated through scientific work, including publications. Specifically, this will include information from cities, areas and entrepreneurs on their needs and possible solutions based on circular economy; main financial barriers that hinder the transition towards circular economy in cities, as well as potential innovative solutions to this problem, through literature review.
- CE solutions marketplace – the online marketplace will include data on different CE products. The data will be collected based on a designated template provided to interested entrepreneurs.
- Project operational data – reports (Word, Excel, PDF, etc.)

The data collected via the website is outlined in the privacy policy https://investcec.eu/privacy-policy/

3.3. Data Utility

The data collected/generated/re-used in the InvestCEC project may be useful for several groups:

- Municipal/regional authorities
- Investors
- Entrepreneurs
- Policy makers

Members of all these groups can use the data and outputs of the project in order to take part (as initiators or participants) of CE projects at the local level. For example, data integrated in the deliverables and different outputs such as the CE solutions marketplace can be used by local authorities to select appropriate service providers, as well as by investors to identify potential opportunities. Furthermore, entrepreneurs will be able to use replication materials related to business development to increase their investment readiness. Policy makers will potentially use the data and outputs provided in the InvestCEC project to adjust policies or develop new policies that support the acceleration of CE projects at the local levels, e.g., adopting reports that focus on policy recommendations.

4. FAIR Data

The FAIR data principles describe four key concepts in research data management. In accordance with the FAIR principles, data should be:

- **Findable** – Easy to find by humans and computers and based on mandatory description of the metadata that allows data discovery;
- **Accessible** – Long term storage so data can be easily accessed with defined access conditions to actual data and metadata;
- **Interoperable** – Ready to be combined with other datasets by humans or computers;
- **Reusable** – Ready to be used and further processed for research or other purposes.

This section describes the measures taken to ensure the alignment with the FAIR data principle.

4.1. Making data findable, including provisions for metadata

To allow the reuse of non-confidential InvestCEC data, metadata and data should be easy to find. The data to be generated/collected/reused in the InvestCEC project will be identifiable and locatable by means of unique identifications. Files will be uniquely identifiable by using standardized name conventions and clear versioning.

The following common rules for dataset/output naming and versioning will be used to ensure data visibility, discoverability, citation and permanent online tracking. The recommended title for each dataset consists of:

Project acronym: Task title or short description of specifying Task aims: additional information specifying coverage and nature of data/output (optional: version number in case of revisions or updates)

For example:

InvestCEC: Data Management Plan V.1

InvestCEC: Model and tools for urban/regional circular economy projects: Complete model including replication material

Furthermore, specific and consistent keywords will be associated to each dataset or output to enhance semantic discoverability.

4.2. Making data accessible

InvestCEC will follow the principle "as open as possible, as closed as necessary." Namely all data will be made available, except for confidential business information and other type of data which will be defined as confidential for various reasons, including commercial, privacy and security considerations. In case relevant, scientific publications will be published with green/gold Open Access.

To facilitate access, data and other outputs will be reposited and published through project platforms such as the website, the stakeholder platform and social media, as well as self-archived by the InvestCEC consortium members' websites, repositories and other platforms. Additionally, we have created a Zenodo community where all public data and outputs from the project will be uploaded: https://zenodo.org/communities/investcec/?page=1&size=20

The consortium will store the research data in a format which is suited for long-time preservation and accessibility. Furthermore, in the updated version of this deliverable the following issues will be addressed:

- Specification of the data which will be made openly available and data which will be confidential, including reasoning.
- Information on where the data and associated metadata, documentation and code are deposited;
- Specification of restrictions and how access will be provided in such cases.

4.3. Making data interoperable

Datasets will follow the convention of the repository they are hosted at. All relevant documentation explaining methodologies and data, including users' manuals, data collection procedures, processing, and data quality information will be made available along with the data in order to guarantee reproducibility and the validation of the findings. Data will be collected and shared in a standardized way using a standard format for that data type. Reference will be made to the software(s) required to run it. We do not foresee barriers or interoperability issues. The table below describes the type of metadata to be included.

Table 1. Metadata description

General information	Sharing and access	Methodology
Title	Access restrictions	Used content
Identifier	Link to data repository	Description of methods
Author information	Links to publications citing the data	Instrument / software used
Date of production		Quality assurance
Project information (acronym, number)	Link to data source (when relevant)	

4.4. Increase data re-use

In general, data and outputs will be uploaded to the InvestCEC website to make it more accessible for reuse. Relevant documentation explaining data collection/generation/reuse procedures (e.g., methodologies) will be made available with the data, to guarantee reusability.

5. Allocation of resources

The activities related to providing the data and outputs in Open Access are anticipated to be covered within the allocated budget for each WP, being acknowledged as eligible costs under Horizon Europe. The costs of making scientific publications, hosting a project website and the data and outputs repositories are contained within the InvestCEC budget as eligible costs.

Further investigation of potential cost related to data and outputs repository need to be done. The repository will ensure that data is stored safely and securely and in compliance with European Union data protection laws and in accordance with Article 27 (Appendix A).

As part of WP1, Enspire, the coordinator of InvestCEC, is responsible for the data and outputs management and the Data Management Plan, in collaboration with all other consortium partners.

Resources for long term preservation, associated costs, and how data will be kept beyond the project and how long, will be discussed by the Consortium.

6. Data Security

During the project, data and outputs will be stored on the reliable and secured storage system of the partners. Every partner is responsible to ensure that the data are stored safely and securely and in compliance with European Union data protection laws and in accordance with Article 27 (Appendix A). After the completion of the project, all the responsibilities concerning secure storage will go to the repository storing the dataset.

Data and outputs will be stored long term in a certified repository that is in line with standards security requirements.

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7. Ethics

We do not foresee ethical issues in the data collection and use during the InvestCEC project, and the likelihood for developing personal data is very low. Yet, in case such issues will arise, the following practices will be applied:

- If personal data is collected, Data Protection Regulation will be respected.
- In cases where access to personal data by the partners is granted, they are responsible for treatment of said data and shall comply with rules.

8. Other issues

No other national/funder/sectorial/departmental procedures will be used for data management.