

D1.2 Initial Data Management Plan

WP1 COORDINATE – PROJECT MANAGEMENT
AND COORDINATION



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List of abbreviations

DMP – Data Management Plan

GA – Grant Agreement

1 Executive summary

This document concerns deliverable D1.2 and the Initial Data Management Plan. The document describes the data management life cycle for all data sets that will be collected, processed or generated by the action. The document also presents what data will be collected, processed or generated and following what methodology and standards, whether and how this data will be shared and/or made open, and how it will be curated and preserved.

2 Introduction

2.1 Circ-Boost at a glance

Circ-Boost aims to become a focal point and interaction node for different emerging technologies to foster circularity in buildings and the construction sector. The overall objective of the project is to enable and demonstrate an increase in the large-scale uptake of integrated circular solutions (ICS) in the European construction value chains demonstrated through five large scale pilots. The project's core consists of five pilot projects, deployed in different European regions, highlighting and demonstrating at large scale novel and integrated solutions for demolition, construction waste processing, management, and valorisation in new products. Transversal activities of digitalization will allow collaboration between the pilot projects and more efficient use of digital tools and platforms.

Targeted activities are envisioned for boosting and maximising the pilot projects' commercial and business potential through effective exploitation measures. Furthermore, in order to ensure that the solutions demonstrated will actually be adopted by the industry, the project will support construction and design companies in educating and training their workforce to optimally use the new technologies as part of training activities. The Circ-Boost project will also leverage the partners' existing regional and international networks and connect with new networks, initiatives, and projects to disseminate and compare project results with a wide audience of construction stakeholders increasing the overall uptake potential of circular solutions. Finally, tailor-made communication and dissemination measures will further support the dissemination of project results with policy makers, and European-wide construction industry, as well as the promotion of the project's success.

2.2 Purpose of this document

Deliverable 1.2 represents the Data Management Plan (DMP) that should describe the data management life cycle for all data sets that will be collected, processed or generated by the action. It is a document describing what data will be collected, processed or generated and following what methodology and standards, whether and how this data will be shared and/or made open, and how it will be curated and preserved.

This document is based on the Guidelines on FAIR Data Management in Horizon 2020 and the Open Research Europe Data Guidelines. During the lifetime of the project, the deliverable must be revised at the half-way point and end of the project to reflect changes occurring during project execution.

3 Data Summary

Under the GA, “*Results*” refers to “any (tangible or intangible) output of the action such as data, knowledge or information — whatever its form or nature, whether it can be protected or not — that is generated in the action, as well as any rights attached to it, including intellectual property rights.”

Within the scope of the Circ-Boost project, data includes theoretical and experimental results (in the form of short reports, raw measurement data, laboratory and field reports, scientific publications, presentations and books), as well as software codes and simulation results.

In more detail, two types of data will be involved in the Circ-Boost project:

1. **Data that is already available that will be reused.** This type of data includes
 - a. Scientific publications, books and reports indexed in scientific databases (such as Scopus and Web of Science)

- b. Experimental data from other researchers (available through open access, and reusable under an appropriate copyleft license)
- c. Open-source and commercial software (available through repositories such as www.GitHub.com or through commercial licenses)

In all these cases, reuse of data will always be done acknowledging and respecting the conditions of authors, publishers and right holders in general, following the conditions included in their licenses, or under express authorization of the right holders.

2. **Data that will be generated within the project.** This type of data includes

- a. Theoretical findings/analytical calculations which are stored in .pdf, .docx, .xlsx, .pptx formats (reports, publications, calculation sheets, presentations). The size of these data types is in the order of megabytes (MBs).
- b. Experimental laboratory/field measurements which are stored in .xlsx, .txt, .jpeg, .pdf, .ppt formats (raw measurement data, photos, reports, presentations). The size of these data types is in the order of MBs or gigabytes (GBs).

Software code and simulation files/scripts which are expected to be stored in .txt, .cpp, .py and .m formats (C++, Python and MATLAB files). The size of these data types is in the order of kilobytes (KBs).

4 FAIR Data

4.1 Making data findable, including provisions for metadata

Before any publication, data will first be stored in the offices and computers of the partner generating the data. All hardcopies will be stored in the corresponding partners' offices. Electronic data will be stored on the partners' computers, as well as the collaborative platform [MyDisk](#) enabling daily backup. Data security and confidentiality will be ensured through private authentication.

As the second step, all data produced within the Circ-Boost project will be deposited in the UPC institutional repository UPCommons (<https://upcommons.upc.edu/>), which complies with OpenAIRE for both publications and datasets. UPC's institutional repository collects, manages, disseminates and preserves the UPC's teaching and research outputs, mainly in open access, but also in closed form for confidentiality or other justified reasons.

Within the Circ-Boost project, generated data will be divided into "public" and "confidential". The former will comprise information that can be published after an informed decision regarding disclosure is made. The second will contain information whose dissemination shall be restricted, such as license rights, confidentiality reasons, or because it is sensitive or personal.

Within UPCommons, "Research Data UPC" (<https://upcommons.upc.edu/dades>) hosts research data related to publications (journal articles, etc.) or to a research project (e.g., Horizon Europe). In Research Data UPC, files will be stored in locked and unlocked forms for public and confidential data, respectively. To ensure direct access to the data, a DOI will be provided for each dataset hosted in UPCommons.

The metadata standard used to describe the dataset will be the Dublin Core Schema (<https://dublincore.org/schemas/>), as it is a flexible and commonly used standard which is also adopted by the European OpenAIRE repository. When deposited, each entry will be accompanied by adequate keywords.

4.2 Making data openly accessible

The UPCommons institutional repository of the UPC also allows the data to be openly accessible. UPCommons provides the possibility of linking data to associated scientific publications and it guarantees interoperability with OpenAIRE projects, and offers a DOI as a persistent and unique identifier for each set of data.

Within UPCommons, it is possible to choose between different licenses and restrictions of access to data (closed, restricted, or with an established embargo period). Using UPCommons, and when no embargo period applies, if data is marked as public, it will be made openly available.

If data is generated by partners outside of the project work plan or if its use and access is to be restricted by intellectual property rights, or if it contains confidential information, the data will be kept closed.

As mentioned above, public access to data will be made available by means of one or more UPCommons OpenAIRE datasets, as UPCommons will automatically be harvested by OpenAIRE. All data will be fully accessible thanks to the included metadata and the search facility available in UPCommons. Interested users will find out about the data through project publications, project dissemination channels such as the project website and UPCommons. Wherever necessary, adequate instructions, explanations and manuals will be included to make the data more easily understood and reusable.

4.3 Making data interoperable

In order to enable and facilitate the interoperability of the data generated within the project, the Dublin Core standard will be adopted.

The data will be properly structured using the concepts and terms inherent to the methodology involved in the project. To this end, standard metadata vocabularies from the ISO 15836-1:2017 Information and documentation - The Dublin Core metadata element set will be used to deploy an internal metadata system, the implementation of which will be updated with any custom entry required by the project (https://wiki.icaci.org/index.php?title=ISO_15836:2009_Information_and_documentation_-_The_Dublin_Core_metadata_element_set).

4.4 Increase data re-use (through clarifying licenses)

All the data generated and published within the Circ-Boost project is expected to provide long-term value and this DMP aims at enabling and facilitating its proper sharing and preservation. In particular, the data will be available to for reuse by all researchers related to areas covered by the project: civil engineering, environmental engineering, construction, computational mechanics, etc. At the same time, before publication, data stored at the partners' offices, computers and MyDisk collaborative platform will be reusable only by project partners.

5 Allocation of resources

The DMP described in this document is based on open-source and free resources. Hence, the only costs foreseen for making the generated data FAIR and for its long-term preservation are related to the hardware required to store it and the working time needed to setup, maintain and develop the different tools required.

As UPCommons is the institutional repository of UPC, it will be used for long-term preservation, and no related costs will be reflected on the project budget, but eventual subsequent resources required to make the generated data publicly available have been included within the project budget.

The Circ-Boost Coordinator, prof. Albert de la Fuente Antequera, will monitor the proper execution of the plan and Project Manager, Nikola Tošić, will be responsible for the operationalization of the DMP.

6 Data security

In order to guarantee the proper storage of the generated data, the collaborative platform MyDisk, developed by UPC will be used. All files containing confidential data will be protected by the owners using local encryption tools, such as password protected archives, before being uploaded to shared repositories. In addition, a local backup mechanism will be implemented during the project to preserve the data covered by this DMP. The server hosting the tools will be accessible only to authorized system administrators. The storage of the dataset within the UPCommons repository will provide support for its correct duplication and preservation.

Therefore, both the UPCommons and the local storage system will ensure full compliance to with the general obligation of confidentiality, during the implementation of the action and for four years after the period set out in the GA.

National and EU legislation will be respected for all aspects of data collection, storage, protection, retention and destruction. In particular, the ethical aspects related to data collected in this dataset are addressed in the Ethics and Research Integrity requirements stipulated by the GA.

The beneficiary commits to respect the highest standards of research integrity as set out, for instance, in the European Code of Conduct for Research Integrity (https://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf). This implies compliance with the following essential principles: honesty; reliability; objectivity; impartiality; open communication; duty of care; fairness and responsibility for future science generations.

7 Ethical aspects

Compliance with ethical principles and applicable international, EU and national law in the implementation of research activities not originally envisaged (or not described in detail) in the DoA will be ensured. The Consortium also confirms that any ethical concerns raised by those activities will be handled following rigorously the recommendations provided in the European Commission Ethics Self-Assessment Guidelines.

8 Other issues

Data Management will comply with the institutional open access policy (see https://biblotecnica.upc.edu/sites/default/files/pagines_generals/coneix/mandat-eng.pdf), as well as with Spanish (<http://www.ucm.es/BUCM/boletin/bibliotecario/01/acceso.pdf>) and European OpenAIRE (<https://guidelines.openaire.eu/en/latest>) standards and recommendations.

9 Further support in developing the DMP

All project partners will follow their institutional and national procedures for data management, in addition to this DMP.

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