Bin2Bean

D8.3 – DMP midterm

Consorzio Italbiotec

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Document control sheet

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Document history

Version, Date	Description
VO, 27/02/2024	The first Data Management Plan (D8.1) is submitted
V1, 20/01/2025	The first version of DMP – midterm (D8.3) is prepared starting from D8.1 and shared with partners
V2, 20/02/2025	The document is implemented after contributions from partners
V3, 27/02/2025	Final document (D8.3) ready after revision. Modifications with respect to D8.1 includes the following:

	- Addition of paragraph "2.1 Implementation status at M18" describing the data that were re-used or generated for each WP based on the activities carried out so far. - Addition of paragraph "3.5 Implementation status at M18" describing the updates for the project repository, protection route, control protocols and quality assurance - Addition of paragraph "6.4 Implementation status at M18" describing how the project handled the topic of data security.

Project partners

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List of Acronyms

DMP – Data Management Plan
DOI – Digital Object Identifier
EC – European Commission
ENoLL – European Network of Living Labs
EU – European Union
EUSO – EU Soil Observatory
GDPR – General Data Protection Regulation
LCA – Life Cycle Assessment
LL – Living Labs
PDCA – Plan, Do, Check, Act
SPG – Surveys, Protocols, Guidelines
StaFo – Stakeholder Forum
TEA – Techno- Economic Assessment
WP – Work Package

Statement of originality

This deliverable contains original unpublished work but builds on the previous version of the Data Management Plan (DMP) of the Bin2Bean project (D8.1). As a result, parts of the text have remained unchanged while others have been modified to accommodate the project developments.

Executive Summary

The **Data Management plan** is a key tool to guide the management of the data to be collected, processed and/or generated by the Horizon Europe funded project BIN2BEAN. After providing a summary of the data that will be generated and re-used by the project, the present document outlines the strategies and data management policies implemented by the BIN2BEAN partners in line with the FAIR (Findable, Accessible, Interoperable and Reusable) principles. Indeed, BIN2BEAN will adopt an Open Access to Research Outputs strategy where its research outputs will be made accessible and shared throughout the duration of the project and archived to maximize discoverability, while ensuring that confidential data are protected whenever necessary. Data security, with a focus on the management of personal data, represents a point of attention for the BIN2BEAN project as part of its engagement on ethics. This issue will be properly addressed by following the General Data Protection Regulation (GDPR, Regulation EU 2016/679) and any applicable national laws in the countries in which it operates. BIN2BEAN also plans to contribute to the development of the European Soil Observatory (EUSO) by providing inputs on: i) the suggested framework and resulting metrics for assessing soils health improved by the use compost of other soil improvers and ii) the improved method for calculation of relevant soil health indicators addressing chemical pollution and climate tipping.
This document represents the midterm update of the DMP submitted in February 2024.
Updates include:

- A description of the data handled, generated or reused in the first 18 months of the project;
- An update on project repository, protection route, control protocols and quality assurance;
- A description on how the project handled the topic of data security in the first 18 months of its implementation.

A further update of the plan is foreseen at the end of the project, dealing with long-term data management.

1. Introduction

This deliverable describes the **Data Management Plan** (DMP), as a key tool to guide the management of the data to be collected, processed and/or generated by the European Union's Horizon Europe BIN2BEAN project in line with the FAIR (Findable, Accessible, Interoperable, Reusable) principles.
The DMP considers a) what data will be collected, processed and/or generated by the BIN2BEAN project; b) whether data will be used, exploited and shared; c) how data will be curated and preserved during and after the end of the project; d) which quality standards will be applied.
The present document is drafted following the Data Management Plan Template for Horizon Europe (Version 1.0, 5 May 2021).
This deliverable is a living document that has been updated at M18. A further update is foreseen at the end of the project at M36 (D8.4 – DMP final).

To better understand the data that will be generated during the project, this section provides a short summary of the BIN2BEAN project.

1.1 BIN2BEAN project summary

In Europe, soil degradation is a critical environmental, social and economic challenge. In this context, soil improvers obtained from bio-waste can support soil restoration and the transition towards regenerative soil systems while fighting another widespread issue: the landfilling and incineration of waste. The EU-funded BIN2BEAN project seeks to empower cities in their contribution to healthy soils by optimizing the valorization of their bio-waste into soil improvers. Through 3 Living Labs (LLs), built as pilot city-regions, it establishes a multi-actor and participative strategy towards soil effective biowaste recycling. In each LL, after mapping local contexts in terms of material flows, biowaste hotspots and key actors, a tailored evaluation framework to demonstrate the safety, environmental and socio-economic performance of soil improvers will be co-designed and implemented, through laboratory testing and modelling, feasibility studies and choice experiments. The data obtained will feed into a pilot scoring system, that will be co-developed and validated during the project, to help cities selecting the most effective solutions for better biowaste sorting, processing and recycling as soil improvers. The highest scored solutions will be selected to develop innovative and tailored business models adapted to the geo-spatial context, i.e. inner city, city-region and the wider market. Business (and community) models will match to stakeholders' willingness-to-adopt (circular) implementation packages, while the pre-market processes will be monitored through Techno-Economic Assessment (TEA). Finally, based on all previous results, local, national and EU policy roadmaps will be drafted, including waste charging policies and citizen awareness campaigns in the city-region, that will be piloted in LLs. All this will feed into a PDCA (Plan, Do,

Check, Act) approach, enabling cities to create a continuous value-based improvement loop towards regenerative soil systems.
BIN2BEAN will support circular waste management with the creation of 40 start-ups specialising in soil improver value chains. This will help to reach Europe's 2035 objectives of reducing landfill to 10% of total waste while reinjecting nearly 135,000 tonnes of nitrogen and 45,000 tonnes of phosphorus into soils in an environmental, human and sustainable way.
To achieve its goals, the BIN2BEAN project is structured in 8 Work Packages (WPs) as described below.

Work Package 1 – Living Lab creation and replication
WP1 focuses on the creation of LL and the definition of a stakeholder engagement and consultation methodology for the project to facilitate the participatory approaches of the activities, i.e. data collection, co-design and test of solutions.

Work Package 2 – Mapping local, national, and EU contexts and opportunities on bio-waste collection and recycling into soil improvers
WP2 sets a baseline for the project activities by (1) analysing the regulatory framework linked to bio-waste collection and transformation, and to the use of soil improvers from bio-waste; (2) reviewing existing solutions and best practices in different cities to assess their state of progress; (3) map local contexts and current initiatives in the LLs and analyse the needs and barriers of local stakeholders.

Work Package 3 – Evaluation framework for the safety and environmental performance of soil improvers and their production phase
WP3 aims at improving the safety and performance of soil improvers from bio-waste throughout their life cycle, by designing and validating an evaluation framework for their safety and environmental performances. Guidelines, indicators and improved testing methods will be provided from bio-waste collection to soil improvers production and use.

Work Package 4 – Assessment of end-users acceptance and selection of the most relevant solutions to boost, through decision-making tools for cities and end-users
WP4, more focused on end-use, defines a complementary evaluation framework on the socio-economic performance of soil improvers from bio-waste. Then, the evaluation framework defined in WP3 is applied in LLs to measure the safety and performance of soil improvers from bio-waste through laboratory testing. All performance outputs are combined into: (a) a scoring system, selecting the most market ready solutions (up to 2 solutions per business models) and (b) an app redirecting end-users towards the most suited soil improver for their soils.

Work Package 5 – Development of local business models and go-to-market strategies for solutions selected through the scoring system
WP5 develops and pilots appropriate business and community models for biowaste recycling while making use of the selected solutions in WP4, including also elements of social acceptability and willingness to adopt as well as upscaling feasibility through Techno-Economic Assessment (TEA). Business models are developed, tested with business angels and venture capitalists, and for the most resource-efficient models, detailed business plans are drafted. Finally, training guidelines for entrepreneurs for the market advancement of circular solutions are provided.

Work Package 6 – Production of policy guidelines and roadmaps for the deployment of soil improvers from bio-waste in urban areas
WP6 builds on all the previous results of the project (from WP2-5) to draft guidelines and roadmaps targeting policymakers and local authorities to advise cities on how to boost soil health improvement with soil improvers from bio-waste by co-creating and piloting awareness-raising campaigns and waste-charging policies. The WP also provides guidance on the drafting on new local funding opportunities and calls for projects to foster the deployment of soil improvers from bio-waste.

Work Package 7 – Communication, dissemination and exploitation strategy
WP7 is aimed to generate visibility and awareness for the project during the whole project duration and to engage and empower stakeholders to build up on the outcomes and to apply best practices locally on the longer term. It also promotes the engagement with other funded projects to maximise project impacts and results spreading.

Work Package 8 – Project Management
This work package deals with the day-to-day management of the project, including the development of the Data Management Plan and the monitoring of ethical considerations. It ensures (1) efficient coordination and data collection between partners, (2) timely completion of all objectives, milestones and deliverables and (3) proper reporting to the European Commission.

2. Data summary

This section provides an overview of the data generated or re-used in the BIN2BEAN project, describing the types of data, the purpose for generation or re-use, their origin and to whom the data may be useful outside the project.

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

Work Package 1

WP1 will reuse existing toolkits and methodologies from previous EU projects, with regards to LL setting up and management, to define a tailored approach for Bin2Bean, as well as existing data and results from LLs.

Work Package 2
WP2 will analyse local, national and EU regulatory frameworks linked to the collection and transformation of bio-waste and the use of soil improvers from bio-waste. It also generates data about existing solutions and best practices in different cities to assess their state of progress. For the three Living labs, WP2 generates participatory material flow analyses (PMFA) and causal maps to identify the needs and perceived barriers of stakeholders (Living lab participants) in the local contexts. Of these activities, activity abstracts will be published for others (cities) to replicate. Depending on permission of Living Lab participants, some PMFAs and causal maps will be published in open access academic journals.

Work Package 3
WP3 will monitor the biowaste collection and recycling processes based on data provided by the LL's, develop quality management control processes, test new methods to assess safety, develop indicators to assess soil improvers holistically in terms of their performance on soil quality and functions, and create guidelines to promote market authorisation. Given this scope, WP3 will reuse those data which may be collected from publicly available sources, such as open access articles published in various peer-reviewed scientific journals or scientific reports, and those data which is included in modelling tools for characterization of chemicals.

Work Package 4
WP4 will evaluate using different criteria (socio-economic, agronomic, soil-health and safety) from the solutions identified in the WP2 report on good biowaste recycling practices in EU cities/ city-regions. The data gathered will vary depending on the criteria analysed. Literature data from the desk research conducted for the preliminary laboratory study, data from discrete choice experiments will be used to assess stakeholder's willingness to adopt solutions and/or to evaluate end-users' willingness to pay for soil improvers. Anonymised results of the surveys will become available as generalised results. From T4.3 (implementation of evaluation framework) there will be data resulting from laboratory analysis (impact on soil health and safety of soil improvers), as well as data from laboratory analysis of soil improvers (e.g. incubations) tests. WP4 comprises the creation of Digital advisory Tool (App) for end-users that will reuse the existing model SNOMIN (Berghuijs et al. 2024, https://doi.org/10.1016/j.eja.2024.127099) to simulate the amount of nitrogen available to plants produced by the model. Model parameters for the soil improvers identified by the living lab will be measured through laboratory analysis (T4.3), data from the solutions identified by the living lab will be made available.

Work Package 5

WP5 will focus on developing local business models and go-to-market strategies for selected solutions.

Task 5.1 (T5.1) will re-use data and results from T2.4, T4.1 and T4.3 and cluster the selected solutions into coherent Implementation Packages for (better) biowaste recycling, adapted to the geo-spatial context (Sense-making workshop with Living Lab participants). Data regarding the identification and assessment of value-based product market combinations will also be produced, providing insights into strategic market alignment.

Task 5.2 (T5.2) will produce, with the support of the scientific literature, Business Models Data (documents and reports) covering sustainability and social aspects, Market Study Data offering insights into competitors and market segments, aiding in drafting comprehensive business plans.

Task 5.3 (T5.3) will generate Techno-Economic Assessment (TEA) Data (reports and datasets), Profitability Metrics Data, and Sensitivity Analysis Data, providing a holistic view of economic and technical aspects for decision-making. To do this, an important contribution will be provided by scientific literature and WP4 data regarding the selected solutions.

Finally, Task 5.4 (T5.4) will generate Data on Training Needs, from Peer-Learning Webinars and Workshops Data (incl. Presentation, records, etc.), and Training Material Data (e.g. multimedia), contributing to understanding needs, providing tools, and fostering knowledge exchange for enhancing circular innovations in the market.

Work Package 6

WP6 analyses project results (from WP2-5) and other national and European projects (including drafted guidelines and roadmaps) with the aim of policy advising. The WP also provides guidance on the drafting of new local funding opportunities and calls for projects to foster the deployment of soil improvers from bio-waste. Data generated are linked to methods for communication, awareness raising and policy guidance, information on policies, economic considerations and calls for funding.

Work Package 7

The visual identity and communication material produced by ETA within this WP will be originally produced for the BIN2BEAN project. It is however possible that ETA uses stock images for banners and videos that will be adapted to the specific project visual identity.

Work Package 8

N.A.

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

	Data generated	**Data re-used**
WP1	Qualitative and quantitative data obtained from all the Surveys, Protocols and Guidelines (SPGs) implemented during the project.	Literature review of existing toolkits and previous EU projects, qualitative data of LLs insights, existing quantitative data from LLs, statistical/analytical and modelling data generated by LLs and WPs.
WP2	Qualitative and quantitative data obtained from surveys sent to different cities, personal data of StaFo members (emails), participatory material flow analyses in LLs, mental models of Living Lab participants' perceptions of elements, barriers and enablers of the biowaste system in their local context	Review of local, national and EU regulatory frameworks, existing quantitative data about material flows from LLs Statistics, surveys, data for the estimation of biobased material flows
WP3	Generated data (e.g. data collected about the amount of bio-waste, green waste from the LL's) will be in digital form, of quantitative type. Models containing generated data will be stored in MS Excel (.xls/.xlsx), or as Matlab (.m) or Python (.py) files. Other data formats include word files (.doc/.docx) and PDF (.pdf).	Information about the local legislative frame and data on national flows of bio-waste and green waste by desktop search, Physicochemical properties of soil stressors, emissions of greenhouse gases from improved soils; soil parameters (e.g. pH) as retrieved from literature.
WP4	Qualitative and quantitative data from discrete choice experiment, consultation with the living labs, lab measurements.	Scientific literature, publicly available datasets (e.g. weather data, soil gridded data), data from WP2 Data obtained from discrete choice experiments to probe adoption and upscaling potential:
WP5	Qualitative and quantitative data on: - stakeholders' willingness to adopt selected solutions: survey responses, and feedback records. - market analysis reports, datasets on product-market alignments. - business model documents, financial reports and projections, operational plans.	Results from T2.4, T4.1, and T4.3. Scientific literature for business models development. Re-use of results from choice experiments and survey responses (WP4) Data from literature (existing TEA models, profitability indicator reports) and WP4 for TEA development about the selected solutions.

	- market segments and potential barrier: market study reports, analysis datasets. - workshop notes. - TEA reports, simulation and financial metric datasets. - sensitivity analysis reports, datasets with varying conditions. - training needs: key success factors, survey responses from SMEs and start-ups, and inputs from T5.2.1 workshops. - Data generated during peer-learning webinars and industrial workshops, including presentations, discussions, and interaction records. - multimedia resources.	
WP6	Information and qualitative data on methods for communication, awareness raising and charging policy (obtained from workshops and tests with the LL's). Information on suitable policies (local, national, EU) along the value chain from bio-waste to soil improvers incl. economic considerations obtained from forums in the LL's etc. Information on potential calls for funding by the LL's	Results from foregoing project tasks (T2.2-T2.4, T3.1+T3.4, T4.1+4.3, T5.1+T5.2), literature review and previous EU projects on awareness raising and communication. Desktop research for national and EU policies (bio-waste, quality of soil improvers etc.). Desktop research for funding programmes.
WP7	Images, videos and PDFs. User data (name, surname, email, organization) collected via registration forms.	Stock images and videos, email addresses previously collected.
WP8	Information and contacts of partners of the consortium and their members as well as other stakeholder that are involved at management level	N/A

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

	Data generated	**Data re-used**
WP1	Ensuring a participatory approach throughout the project, as data obtained from LLs will feed in all WPs, enabling the co-development of project results. Defining a replication and a transfer roadmap for future City-Region Living Labs.	Defining a common methodology and list of tools to set up and run a LL.
WP2	Assessment of potential solutions and state of the art of bio-waste collection and valorisation in different cities. Establishing a quantitative baseline for urban biowaste recycling (year 2023), to be used for the evaluation of potential business models (WP5). Identification of barriers and potential intervention strategies related to biowaste recycling in LL city-regions.	Identification of potential local, national and EU regulatory barriers, creation of material flow analyses. Generated data will mainly be used in WP4 and WP5 to assess (market potential and effectiveness of) potential solutions and business models in the three city-regions.
WP3	Data will mainly be generated to develop new impact assessment methods to be reported in Deliverable D3.3. "List of environmental performance indicators of soil quality and ecosystem functioning".	Data will mainly be reused to develop new impact assessment methods to be reported in Deliverable D3.3. "List of environmental performance indicators of soil quality and ecosystem functioning".
WP4	Data collection aims to score the different soil improvers solutions using multiple criteria. Willingness to adopt/ willingness to pay for solutions	Existing data will be used for the preliminary feasibility study and to model the impact of soil improvers on plant growth and soil health.
WP5	- Convert multiple solutions into coherent implementation packages for biowaste recycling (sense-making) - Analyse market segments, success factors, and potential barriers, helping the development of business models and market strategies tailored	Results from T2.4, T4.1, and T4.3, to cluster them into Implementation Packages. Literature material: analyse market segments and potential barriers, helping the development of business models and market strategies tailored to different Living Labs (LLs).

	to different Living Labs (LLs). - Assess the feasibility of upscaling solutions, providing key indicators, informing decision-making on the economic viability and technological aspects of scaling up solutions. - Identify key success factors and assess training needs.	
WP6	Ensuring a successful value chain from bio-waste to soil improvers in the LL's. Development of promising entrepreneurial activities in the value chain including funding opportunities. Identification of effective ways to develop the valorisation of bio-waste either by a guided modification of existing policies or generating science-based results on valorisation methods	Identification of barriers and policy gaps on all policy levels. Identification of misconnections regarding the quality of soil improvers and qualities considered in policies. Identification of missing knowledge and possible research calls to foster the production of soil improvers. Evaluation of data from the BRIT EU (data bank under construction)
WP7	Use the data generated and collected to promote the project and extend its outreach	Email addresses previously collected can be reuse to further promote project's activities
WP8	Contact the project members and maintain an effective communication flow.	N/A

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

	Data generated	**Data re-used**
WP1	N/A	N/A
WP2	<1GB	N/A
WP3	100 MB	10 MB
WP4	< 1 GB	Despite the fact that the data repositories that we consult are huge, we will only pull from the APIs of the repository the data for areas used in the living lab, so we do not foresee that the data collected will be larger than 1 GB
WP5	Training materials (especially registration of this training) will have an expected size of > 1 GB.	N/A

	Other data will have a size of < 1 GB	
WP6	Reports and guidelines will have an expected size of < 1 GB	This will depend on the amount and size of the graphics mined for the project.
WP7	>1 GB	<50MB
WP8	N/A	N/A

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

	Data generated	**Data re-used**
WP1	Living Labs activities, surveys, research, implemented with their members.	Literature review, reports and tools from previous projects, European Network of Living Labs (ENoLL) platform.
WP2	Statistical Offices, Surveys, Interviews, Living Lab activities	Literature review, reports and previous projects
WP3	Data will be collected from the LL's and generated through development of new models for assessing soil health.	Publicly available sources, such as open access articles published in various peer-reviewed scientific journals or scientific reports, or from the USEtox model.
WP4	Surveys, laboratory testing, modelling	Literature, publicly available repositories
WP5	Workshops and interviews, literature, reports, T5.2.1 workshop, surveys, peer-learning webinars	Literature, publicly available repositories
WP6	Activities of the LL's, national and European regulations. As well as previous research calls	Data and information from foregoing project tasks, EU policy surveys, scientific literature (original research work plus reviews), other EU projects
WP7	Dissemination and communication activities, registration forms	Repositories of stock images and videos,
WP8	Day-to-day management and internal meetings	N/A

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

Work Package 1

All organisations/projects that work with LLs; especially on the topic of Soil Health, other research projects dealing with soil improvement from bio-waste; policymakers to design data-driven policies; other territories that would adopt the BIN2BEAN LL approach; who would like to reach or create other LLs.

Work Package 2

Both internal stakeholders, i.e. the project partners that build upon results from WP2, as well as external stakeholders, especially urban stakeholders in waste management and circular economy, who want to develop or strengthen biowaste management strategies oriented at clean, safe and effective soil improvers from urban bio-waste.

Work Package 3
Outside the project, data generated is expected to be useful to scientific community which may use the developed impact assessment method and its underlying data in their life cycle assessment studies.

Work Package 4
The data collected and especially the synthesis that will be produced in the context of T4.3 (scoring system) will be useful for end users and decision makers who have stake in the field of soil improvers.

Work Package 5
The data generated in WP5, including stakeholder acceptance, market insights, business models, and training needs, will benefit policymakers, local governments, businesses, entrepreneurs, investors, and educational institutions seeking insights into sustainable practices for soil health with bio-waste, circular business development, and entrepreneurship.

Work Package 6
The data generated in WP6 are of particular interest for policymakers, for companies and municipalities searching for alternative ways of bio-waste valorisation, for farmers looking for soil improvers. Data on research calls are of interest for scientists aiming to foster to use of bio-waste based on new knowledge.

Work Package 7
Data generated in implementation the Dissemination and Communication actions will be useful for the target audience groups identified by the partners, like farmers, policymakers, industries and citizens. These groups are detailed in D7.2.

Work Package 8
The data generated within WP8 are for internal use only for the purpose of day-to-day management and internal communication between the partners.

2.1 Implementation status at M18

This section was added as part of the updated version of the DMP, due at M18 of the BIN2BEAN project. Below, an update on the data collected, re-used or generate is reported for each WP, highlighting any discrepancies from what was planned in D8.1.

Work Package 1

There are no discrepancies from what was planned in D8.1. Each LL leader has collected personal data from their members (such as name, e-mail address) when compiling their list of members. These lists are kept private by each LL leader and are treated in accordance with GDPR.

Work Package 2

At M18, several reports in a docx format have been finalized collecting the results of the activities carried out in this WP: IR2 (internal report on the regulatory framework at the European, national, and regional levels) reused literature data about policy regulations in the EU and project specific countries and generated country-specific xls files to collect country-specific regulations, while IR4 (internal report describing the city-region networks of food system actors and biowaste flows in each living lab) establish a quantitative baseline for urban biowaste recycling. IR5 (internal report with the causal maps among the relevant system elements, barriers and enabling factors of the current biowaste systems in the three Living Labs) will be completed in March 2025. At M18, IR5 contains the results for the individual mental models of key stakeholders in the Egaleo and Hamburg Living Labs. Individual mental models cannot be publicly shared due to GDPR guidelines.

D2.1, in a docx format, collects and summarises the outcome of an extensive data collection, reuse and generation, including: reuse of data of over 50 publications at national, EU or international levels on good practices of bio-waste recycling into soil improvers; interviews with experts and solutions providers, two surveys targeting cities and citizens. For interviews and surveys, informed content was collected from the participants and data were reported after proper anonymisation and data aggregation. Interviews were partly cited in the report, only after receiving written consent from the respondents.

Finally, this WP deals with the collection and storage of personal data of the StaFo members (such as name, email address) in a contact list. These lists are kept private by EQY, managing the StaFo, and ITB, coordinating the project, and are managed in accordance with GDPR.

Overall, there are no significant discrepancies from what was planned in D8.1.

Work Package 3

There are no significant discrepancies from what was planned in D8.1.

SPG5 (survey on current bio-waste collection and processing schemes) was finalized and, as planned, is stored in digital form. Data was collected from the three Living Labs, including information on local regulations, collection methods, bio-waste processing, soil improver quality, and costs. The collection of this data was supported by the visits to several collection sites and processing plants. However, while the data collected for Hamburg is clear and comprehensive, data from Amsterdam and Egaleo is more fragmented due to, respectively, varying data on bio-waste collection

and fragmented responsibilities in Greece. As a result, this section contains some data gaps, which will be addressed in the upcoming project months.
Additionally, the first version of SPG6 (Surveys, protocols and guidelines for the LL's) includes guidelines and recommendations for SRH, while guidelines and recommendations for EGL are continuously implemented, but due to fragmented responsibilities it is difficult to influence the processing steps. Recommendations for AMS will be discussed soon due to different responsibilities in the administration.
As planned, WP3 also reused data collected from a number of open access articles on the interactions between soil functions and ecosystem services offered by the soil. The data is stored in MS Word and MS Excel files. They will be used for development of a new framework for assessing soil health, to be reported in D3.3.

Work Package 4
The preliminary feasibility studies and market analysis were supported by the re-use of already existing data, especially market reports and available data from market research repositories (e.g. Statista, indexbox, ...). The analysis also resulted in the generation of a preliminary dataset of inputs and outputs of the identified pre-solutions in each LL as a starting point of the TEA that will be carried out in WP5. These datasets may contain confidential information as they provide technical information on innovative products/processes.
The discrete choice experiments (DCEs) are being implemented as surveys (in Qualtrics) among households in Hamburg and Egaleo, and with end-users of organic soil improvers (farmers, landscapers, urban green management) in the Amsterdam city-region. At M18, the DCEs have been designed for the three Living Lab contexts (three surveys testing context-specific attributes) and will be distributed and analysed in M19-20. The respondents' surveys will be kept under GDPR at the server of Wageningen University, while the statistical analysis of the results will be shared internally and – depending on the results – in peer-reviewed academic articles.
Data from the laboratory analysis (soil incubation) of the first identified solution from the living lab (Hamburg, compost) has been generated and are being evaluated (T 4.3). The app (T 4.4) is under construction by WR in collaboration with the Farmmaps foundation (https://www.farmmaps.net/en; i.e. the platform where the app will be deployed).

Work Package 5
So far, WP5 collected data using a survey implemented on Google Forms. The survey collected information on: current practices and challenges of the respondents, training and capacity building needs, and general information. Besides, sensitive contact information (name, surname and email address) has been collected, although respondents were given the possibility to choose whether to leave contact details for follow-up or not. Answers, properly anonymised before sharing, are collected in an excel file. Contact details are safely stored in an internal secured repository of ITB, as the partner responsible for this activity, and will be used to

contact stakeholders that have previously provided their consent to inform them about training opportunities.
The survey results are completed by desk-based research that re-used already available data in the literature, market research reports and deliverables from previously funded project.

Work Package 6
This WP aims at policy recommendations on the local, the regional and the EU level. It builds upon other WP's and is scheduled for M18/M24-M36. Preparatory work is under way, i.e. a drafted guideline for communication strategy and workshops on financial incentives and communication.

Work Package 7
Data generated during D&C activities has been internally produced and can be downloaded/used to promote the project online. In the production of such materials, stock images and videos have also been utilized (in accordance with the related licencing). Personal data collected via registration forms are stored in ETA's server and utilized only to promote the project activities and results.

Work Package 8
This WP mainly deals with contact information of the partners. A contact list in an excel format is made available for all the partners on the project SharePoint to foster the smooth exchange of information between the partners.

3. FAIR data

The data and metadata generated or re-used within the BIN2BEAN project, as described in Section 2, will respect the FAIR (Findable, Accessible, Interoperable and Reusable) principles. In line with this approach, BIN2BEAN will adopt an **Open Access to Research Outputs** strategy where its research outputs will be made accessible and shared throughout the project and archived to maximize discoverability, while ensuring that confidential data are protected whenever necessary. Furthermore, as per the Science Europe Principles on Open Access to Research Publications, BIN2BEAN's approaches, scientific articles, conferences support and reports, and potential white papers will be open access to support future applied and fundamental research work as well as future policy recommendations and thus maximize the project's impact. This is complemented by the principle of **Open Methodology**: whenever possible, the specific methodologies of the activities envisioned in BIN2BEAN will be described, discussed and shared openly outside of the consortium. This approach will allow to gather feedback from external expert panels present in the StaFo while raising awareness about the project.

To support soil data discoverability, sharing and re-use in Europe, BIN2BEAN data management will follow, whenever possible, the EJP SOIL data management workflow and guidelines.
The paragraphs below describe how the BIN2BEAN approach to data management aligns with the FAIR principles.

3.1 Making data findable, including provisions for metadata

In order to make data findable by other project partners and users, a persistent identifier (PID) will be assigned to the different project outputs. The PID will be decided by the partner(s) generating the data according to the type of data:

- Physical: e.g. people, instruments, vocabularies;
- Digital: e.g. documents, data, software, publications;
- Conceptual: e.g. organizations, projects.

Presently, BIN2BEAN partners use a shared repository not indexed in OpenAIRE. To improve the findability of the data within the shared repository, partners will adopt a naming convention for the project outputs in the form of a document:

Acronym of the output+number of the output – responsible partner – type – dissemination level – short title

Acronym of the output: D = deliverable; MS =milestone; IR = internal report; SPG = Survey, Protocol, Guidelines
Responsible partners: use the short name as indicated in the GA
Type: R=Report, DEM=Hardware, DATA = data sets, etc., DEC = Websites, patents, etc., DMP = Data Management Plan, ETH = Ethics, OTH = All other (only applicable for deliverables)
Dissemination level: PU = Public, C = Confidential, R = Restricted to a specified group, SEN = Sensitive
Short title: title of the output
For subsequent versioning, the format Vxx is used.

Nevertheless, data generated during the project will be deposited in a trusted general repository (e.g., Zenodo) which allows to assign uploaded digital outputs a unique DOI (regardless from the openness of the data) making the data easily findable outside the consortium. Other scientific published outputs (e.g. publication in indexed journals) are assigned a DOI at the moment of publication. Using a DOI for the BIN2BEAN outputs ensures that i) the dataset will be findable and accessible, no matter where the 'digital object' is located on the web; ii) data will be automatically included in the manuscript submitted for publication; iii) consistent and correct citation by others is enabled ensuring measurement of the impact of BIN2BEAN research.

BIN2BEAN also collaborates with the EUSO Platform and the SoilWise initiative within the Cluster on Data & Knowledge Management (see paragraph 4) which provides an entry point for soil-related data, increasing their findability.
A repository system also allows for providing metadata to enable the discovery of data. Basic discovery metadata (i.e. title, authors, subject, keywords) will be provided for all data (open and restricted) allowing to perform meta-analysis on them. The metadata standards to apply, establishing a common way of structuring and understanding data, will follow the RDA Metadata standard Directory based on the type of data generated and the repository used.

3.2 Making data accessible

3.2.1 Repository

BIN2BEAN foresees different levels of data accessibility:

- Raw data are stored locally at each partner's facilities and according to their respective internal rules.
- Documents and data such as deliverables, reports, surveys, intermediate publication statuses, etc. are processed collaboratively on the SharePoint Cloud as a collaborative platform accessed by partners. Different levels of accessibility can be foreseen allowing for "private" folders in case of data that need to be kept confidential (mainly personal data)
- Whenever possible, the data/metadata will be shared in a common trusted repository (such as Zenodo). The type of repository will be identified within the upcoming months after a clear overview of the data to be collected and generated with the approval of the BIN2BEAN General Assembly. The repository, whichever will be chosen, will ensure that uploaded digital outputs will be assigned a DOI and will allow for selecting the access rights of the uploaded material (i.e. open access, closed access, embargoed and restricted). The use of a free of charge repository will be preferred. Following EJP SOIL guidelines on data management, the chosen repository will need to be persistent (>20 years guaranteed), include metadata, and include data license.
- As BIN2BEAN is committed to support Open Science, scientific papers will be mainly published in green or gold open access peer-review journals, while public project deliverables will be published on the CORDIS platform and project website.

3.2.2 Access to data and metadata

When data are obtained and/or report produced, the partners involved can decide either to disseminate and publish the data or to protect them (according to the consortium agreement and background IP rights).

Dissemination and communication route

BIN2BEAN is committed to making data and metadata openly accessible whenever possible following the principle “as open as possible, as closed as necessary”. This includes data in public reports, publications in open access peer-review journals, aggregated data resulting from interviews and surveys among others.
Data to be disseminated and communicated will be made public on a repository such as Zenodo and, for the most relevant outputs, on the project website. If publication is foreseen, open access has to be guaranteed (preferably gold or green if the first option is not possible). In this case, the article will always be uploaded to the corresponding repository together with files containing information that supports such publications.
Some of the outputs such as the indicators developed by DTU, some information related to the selected solutions and the results of safety and environmental performance tests will be included on the Farmmaps as well. These data will be accessed anonymously through the open repository.
All the data that will be made available on the trusted repository, on the project website and on the Farmmaps will be maintained for at least one year after the end of the projects. All data will be free of charge, except for the Farmmaps which will be become available to users upon payment of a fee one year after the project ends.

Protection route (exploitation or no publication)
Restrictions to access are foreseen for: i) personal data of stakeholders involved in project activities and LLs (only processed and anonymised data will be shared); ii) patentable inventions; iii) business models and business plans data unless the solution provider allows for sharing information; iv) confidential industrial know-how coming from the LL stakeholders.
Indeed, BIN2BEAN undertakes to provide and make public only the tools and methods to make them more operational without jeopardising the entrepreneurial activity of the various actors, both private and public, involved.
An embargo period for publications is not foreseen as publishing on a journal with an embargo period do not represent an eligible cost.
If the data is not yet finalised or under IP checks, the data will be hosted on the SharePoint Cloud and username and password will be required to access those data. Only consortium partners, or specific partners depending on the requirements, will be able to access those data.
The protection route will be further developed in the upcoming months of the project in collaboration with the exploitation plan.

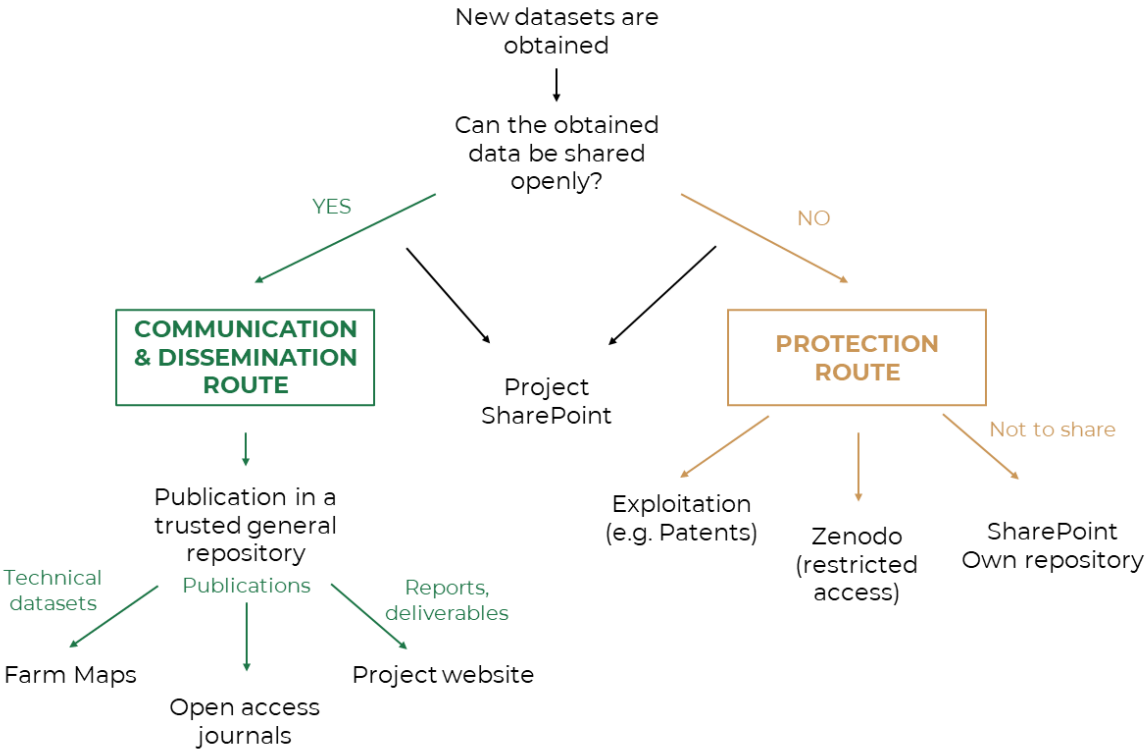

Figure 1. Decision-making workflow for data sharing or protection

3.2.3 Software to access the data

No specialised software will be needed to access the data. However, this specific requirement will be analysed in detail in the upcoming months when the type of data generated will be clarified.

3.3. Making data interoperable

Using common and shared metadata vocabularies and standard methodologies supports the interoperability of BIN2BEAN data inside and outside the project. The primary purpose of interoperability is to allow and facilitate data exchange and re-use between researchers and partner institutions, but also ensuring the replication of project results with institutions outside BIN2BEAN.

The partners already have identified commonly used vocabularies in the participating partner institutions/countries and, accordingly, a glossary has been added at the beginning of each publication. An agreed list of abbreviations will be shared on the collaborative project management platform and adopted as a standard solution to quickly identify technical terms, data, processes, etc. of different origin. Furthermore, whenever possible, data will be stored in standard and openly defined formats (.txt, .csv) or format of common uses (.pdf, .docx, .xls) including all the necessary metadata to interpret and analyse data in order for data to be used by different researchers regardless of the software available. Data will be described

according to metadata standards (e.g. DDI – Data Documentation Initiative, Doublin Score Metadata, ...). Furthermore, if a dataset is built on another dataset, the DOI of the reference dataset will be provided.
International code lists on soil, like those available at https://inspire.ec.europa.eu/codelist, will be also taken into account to improve interoperability.

3.4. Increase data re-use

3.4.1 Licence

Peer-reviewed scientific publications in BIN2BEAN as well as data that are openly published on the public repository (e.g. Zenodo) will be made available under the latest version of a Creative Commons Attribution International Public License. CC-BY 4.0 is the less restrictive license allowing users to share and adapt the content, provided that appropriate credits are given to the authors. In particular, any third parties who reuse open data produced in BIN2BEAN must give credit to the original author(s), provide a link to the CC-BY license, and indicate if changes were made. No time restrictions are foreseen to the use of data once they are made publicly available.
More restrictive licences, according to the report on the national and EU regulations on agricultural soil data sharing and national monitoring activities of the EJP SOIL, can be foreseen in some specific cases that will be documented in the next versions of the DMP.

3.4.2 Quality assurance

Implementing robust data quality assurance processes is crucial for ensuring the accuracy, reliability, and integrity of the data.
A sound methodology for collecting and processing the data is at the hearth of data quality assurance. Indeed, public deliverables and publications will always include a description of the methodology. Whenever possible, the methodology description will be provided for all the data made publicly available as an additional documentation. Additional documents to facilitate data re-use can be: software, algorithms, protocols, workflows, codebooks, etc.
This transparency about the research process will ensure the re-use and reproducibility of results.
Furthermore, quality control of the deposited datasets will be guaranteed. When data/publications are uploaded to the public repository, the project manager will curate and validate the data before they are published. This ensure that the data uploaded on the BIN2BEAN community are legitimate within the project.
Further details on data collection, analysis, and control protocols will be provided in the subsequent updates of the DMP.

3.5 Implementation status at M18

In line with the previous version of the DMP and its Open Access to Research Outputs strategy, the BIN2BEAN project applied a FAIR management of its data ad originally outlined.

Project repository

To ensure data accessibility and findability, the BIN2BEAN project gas selected Zenodo as an appropriate repository for all research project outputs. A dedicated BIN2BEAN community has therefore been created to collect all research outputs generated by the project and shared through this platform. The choice, approved by the General Assembly during the second Consortium Meeting held in February 2024, was guided by the criteria outlined in the previous paragraph, its widespread diffusion in the scientific sector, the potential for citation and the simplicity of data submission and retrieval.

Zenodo is a multi-disciplinary open-access research data repository developed by CERN in partnership with OpenAIRE and launched in 2013, commissioned by the EC to support its Open Data policy. Zenodo ensures that all uploaded outputs receive a DOI, ensuring they can be easily located and cited. Furthermore, Zenodo offers flexibility in access rights for uploaded materials: *Open Access* (data publicly accessible without restrictions), *Closed Access* (restricted access to authorized users only, ensuring that sensitive information is protected), *Embargoed Access* (Researchers can set an embargo period during which access to the data is restricted. After the embargo expires, the content automatically becomes publicly available), *Restricted Access* (specific limitations on who can access the data, ensuring compliance with intellectual property regulations). All records on Zenodo are supported by rich metadata standards, ensuring that all uploaded files include comprehensive metadata. This metadata follows the DataCite schema, which enhances discoverability and usability. Key elements include title, authors, abstract, keywords, licensing information.

Finally, Zenodo is a free repository, making it a cost-effective option, while ensuring a +20 years preservation of the data: data and metadata are backed up nightly and will be preserved for the repository's lifetime, which corresponds to the operational lifespan of its host laboratory, CERN.

All the BIN2BEAN outputs that have been currently uploaded on Zenodo have been made available under the CC-BY4.0 licence. However, Zenodo allows users to specify their own licensing terms, ensuring clarity regarding usage rights. This flexibility in licensing supports compliance with FAIR principles by promoting reuse while respecting intellectual property rights.

Protection route

Generated data that constitute Key Exploitable Results (KERs) will be particularly important. Based on the exploitation strategy agreed by partners in 2024 and included in D7.4, all the listed project results (and the associated data) will be publicly

released, thus ensuring maximum openness. In one case (KER #2) exists the possibility that licensing will be adopted, and project partners will define this aspect towards the end of the project.

Control protocols and quality assurance

The BIN2BEAN project has strengthened its data management practices to ensure high-quality, reliable, and reusable data throughout its lifecycle. Quality assurance is not treated as a one-time task but as an integral part of the project's workflow. Outputs undergo several steps of revisions and validation before being published with compliance to FAIR principles being considered as a criterion of the revision. Pre-publication review should also include: data accuracy, proper anonymization of sensitive information, compliance with repository standards (e.g., Zenodo's metadata and format requirements). The revision process is described in the project Quality Plan (IR14).

4. Other research outputs

BIN2BEAN will contribute to the development of the European Soil Observatory (EUSO), a dynamic and inclusive platform managed by the Joint Research Center (JRC) for reference data and knowledge at EU-level for all matters relating to soil. Relevant knowledge and project outputs (including data) that are foreseen to be fed into the EUSO Platform include:

- Suggested framework and resulting metrics for assessing soils health improved using compost of other soil improvers.
- Improved method for calculation of relevant soil health indicators addressing chemical pollution and climate tipping.

This DMP and its updates will be made available to the JRC to validate their relevance and provide recommendations on how the integration of knowledge to EUSO can be organised. The interactions with the JRC will be managed by DTU and ITB, as a contact person appointed to participate in discussions on data management and sharing with the EUSO Platform.

Relevant data will be made accessible to the EUSO Platform by (1) publishing in a scientific open-access journal with DOI, and (2) additionally publishing all relevant supplementary data on a public repository with DOI (e.g. Zenodo). Selection of a journal with DOI and public repository with DOI will be done when the data is generated, and article written up.

The BIN2BEAN project is currently participating in the **Cluster of Data & Knowledge Management** facilitated by the Mission Soil Platform together with 29 mission-funded projects, aiming to discuss strategies to increase findability, accessibility, interoperability and reuse of data generated related to soil.

5. Allocation of resources

The project coordinator is responsible for the implementation of the Data Management Plan, its future updates, and the supervision of the agreed data management policies in collaboration with the WP leaders as part of the Work Package 8 – Project Management (task 8.2). EQY, as the owner of the SharePoint cloud, is responsible for managing the secured repository where each partner can add IRs, SPGs, deliverables and any other documents and data generated by the project for internal sharing. WR will manage, update and maintain the data on the Farmmaps app platform.
To ensure the proper management of data within the BIN2BEAN project, personnel costs related to data management have been foreseen for each partner as part of their budget in WP8. The repository in use for storing project outputs and data – SharePoint Cloud – is free of charge, while the Farmmaps app costs are estimated to be 5k€ / year. Half of the costs to keep the app online (total 10k€ minus possible users fee) will be covered through the materials costs of WP4, the other half through another European project EcoNutri that will also use the app.
Furthermore, the beneficiaries of BIN2BEAN intending to publish scientific results budgeted for approximately 30k€ to cover fees for publishing in open-access journals. Furthermore, to comply with the FAIR principles, BIN2BEAN partners plan to share open data and metadata in a common trusted repository, such as Zenodo, that is free of charge.

After the project ends, BIN2BEAN plan to ensure the long-term preservation of data. In particular, EQY will keep the Sharepoint cloud active for one year after the end of the project. If there are no regular updates or activities on the site, EQY will consider closing the SharePoint 12 months after the approval of the final periodic report. From then, all data will be stored in the internal server of the Project Coordinator (ITB) and available upon request of any partners and the European Commission for four years. In total, all project data will be preserved for a total of five years after receiving the final payment for the project. The BIN2BEAN project also foresees to keeping the app on Farmmaps free of charge for non-commercial use for 1 year after the end of the project. Beyond that time the app will become available to user upon payment of a fee for one year, if this proves to be not financially sustainable the app will be discontinued. These modalities for long-term preservation are free of charge for the project partners. Nevertheless, should any additional resources be needed, the allocation of these resources will be discussed at a later stage of the project.
Data long term preservation will be discussed in detail in the further updates of this deliverable.

6. Data security

6.1 SharePoint -Cloud

To increase collaboration between partners within the project, the SharePoint cloud is used, hosted by Microsoft, as a safe place to store, organize, share and access information. This is where documents and data such as deliverables, reports, surveys, intermediate publication statuses, etc. are processed collaboratively. The data confidentiality, integrity and availability will be ensured via this platform (MS Sharepoint security measures).
External backups are not expected as a result of the SharePoint structure because it has a custom-built solution for storage of customer data in Azure Storage. Every file is simultaneously written into both a primary and a secondary data canter region. After the contents are written into Azure Storage, checksums are stored separately with metadata, and are used to ensure that the committed write is identical to the original file sent to SharePoint during all future reads. Within each region, Azure Locally Redundant Storage (LRS) provides a high level of reliability[1]. No personal/sensitive data will be stored in this area, the only personal data present are those referring to the participants in the BIN2BEAN project (name, surname and email). Other personal data (see Paragraph 7) will be stored in private folders only accessible to partners that collected them and need to use them accordingly to the purpose stated in the informed consent.
The SharePoint of the project is only accessible to authorized partners.
Later versions of the DMP will provide more information about the instructions supplied to partners so that personal data will not be shared in this Cloud.

6.2 Open repository and open access publication

BIN2BEAN aims to share its data in a way that is "as open as possible, as closed as necessary". Nevertheless, to preserve confidentiality of the results obtained within the project activities, each partner will be able to decide when and if to make them public. Project documents and data can be uploaded without made them public on the Sharepoint – Cloud of the project. Furthermore, if needed, private folders can be created on the Sharepoint to limit the access to confidential information.
Regarding open access publication on open repository, BIN2BEAN will select a repository that allows for different type of access (open, closed, embargoed, restricted) to maintain the security and confidentially of some information.

6.3 Personal data

Data security of personal data will be ensured by each partner in compliance with the applicable EU, international and national laws as described in Paragraph 7 of this document and in D8.2 - Ethics Requirements.

[1] Introduction to SharePoint and OneDrive in Microsoft 365. https://learn.microsoft.com/en-us/sharepoint/introduction

6.4 Implementation status at M18

The project places a strong emphasis on data security and ethical handling of personal information. The SharePoint Cloud has demonstrated reliable functionality to safely store personal data, with no data breaches reported. Indeed, the SharePoint allows for controlled access to specific folders, ensuring that only authorised partners and staff members can access sensitive information. This measure, in particular, has been implemented to store contact information of StaFo members to which only the project coordinator and EQY, as the partner responsible for managing the StaFo, have access.
A similar practice can be requested by any partners to safely store the personal data they collect through survey or workshop participation.
If personal information is not needed for further follow-up, partners are requested to anonymize or pseudonymize this data before uploading them on the SharePoint.

7. Ethics

Several project activities will involve gathering and processing personal data, namely contact details (name/surname/email address and, when relevant, phone number, organization name and organization address) for getting feedback from participants and carrying out follow-up activities. In particular, activities for which the handling of personal data is foreseen include:

- *WP1 – Living Labs creation and replication*: contact details to reach out for potential stakeholders in the LLs and for further follow-ups.
- *WP2 - Mapping local, national and EU contexts and opportunities on bio-waste collection and recycling into soil improvers*: contact details to reach out for potential stakeholders in the StaFo and for further follow-ups; contact details collected through surveys to cities and different groups of stakeholders for the mapping activities.
- *WP3 - Evaluation framework for the safety and environmental performance of soil improvers and their production phase*: stakeholders will be contacted through LL leaders or EQY as the partner responsible for managing the StaFo ensuring that personal contact details are protected.
- *WP4 - Assessment of end-user's acceptance and selection of the most relevant solutions to boost, through decision-making tools for cities and end-users*: stakeholders will be contacted through LL leaders or EQY as the partner responsible for managing the StaFo ensuring that personal contact details are protected.
- *WP5 - Development of local business models and go-to-market strategies for solutions selected through the scoring system*: contact details and information about the entrepreneurs for the development of business models and their participation into training and peer-learning activities; contact details, postal addresses, other information for statistical purposes (e.g. age,

sex, family information) collected through surveys for the assessment of the willingness to adopt.

- *WP6 – Production of policy guidelines and roadmaps for the deployment of soil improvers from bio-waste in urban areas*: contact details of local policymakers that will participate in the policy forums and will test the roadmaps in their cities; information collected through local call for projects.
- *WP7 – Communication, dissemination and exploitation strategy*: contact details of participants in the communication activities in order to contact them with details about workshops/events and send follow-up emails.
- *WP8 – Project management*: contact details of the project partners.

Personal data will be collected, processed, and retained in the form of individual transcripted interview, online survey questionnaires aggregated as datasets, workshop audio visual recordings and transcripts, and contact lists.

The management, handling, storage, and use of personal data, thus, represent a point of attention for the BIN2BEAN project as part of its engagement on ethics. This issue will be properly addressed by following the General Data Protection Regulation (GDPR, Regulation EU 2016/679) and any applicable national laws in the countries in which it operates. The key principles, which each partner follows are: i) fair and lawful processing; ii) purpose limitation and iii) data minimisation and data retention. As described in D8.1 – Ethics requirements, all project partners were asked to sign a declaration for GDPR compliance to ensure that all personal data collection and processing in the research design of the BIN2BEAN project will be carried out according to the EU and (if applicable) national legislation and requirements.
Specifically, in line with article 5 of the GDPR, the following principles will be applied to the personal data:

a) *Lawfulness, fairness and transparency:* As detailed in D8.1 – Ethics requirements, potential participants to research involving human subjects (e.g. questionnaires, interviews etc) will receive an informed consent to be signed before the start of the activity. The document will provide adequate information about the purpose, modalities, possible risks and benefits of the study, as well as inform about the type o personal data that will be collected, the purpose of collection and how the data will be used and stored in order to allow the potential participants to make a choice about whether or not be involved in the activity and share their personal data. A copy of those electronic documents will be stored on the data management storage system.
b) *Purpose limitation:* Personal data will only be collected for specific, explicit, and legitimate purposes in relation to the activities listed above. The purpose of data collection and processing will be clearly stated in the informed consent.
c) *Data minimisation:* only data that are relevant to the project's aim will be collected. Collecting personal data through multiple-choice and close-ended

questions will limit the risk of sharing unnecessary personal data by research participants.

d) *Accuracy:* Personal data will be periodically checked for consistency and any misleading or incorrected data will be corrected or, if not possible, erased as soon as possible. To ensure accuracy, personal data will be stored with metadata identifying the source and the timeframe for which the data applies. Respondents have also the right to check the consistency of their personal data and, eventually, ask to modify, complete or delete them if inaccurate.

e) *Storage limitation:* all personal data, especially contact emails, that will no longer be used for project purpose will be immediately deleted. Furthermore, at any point, participants can ask to have their contact details to be removed. Other personal data useful for statistical analysis or for research purpose (for example age, gender, etc...) will be made anonymous as soon as possible or, at least, pseudonymised. If data has been accurately anonymized, data will be analysed and shared within project deliverables or stored in an open repository.

Other elements that will be considered when handling personal data are:

a) *Data anonymisation:* concerning qualitative data, anonymisation involves the removal of all names, pseudonyms, specific occupational information, physical or electronic addresses, identification numbers, or other personal identifiers. Concerning quantitative data, anonymisation involves processing, analysing, and reporting results in aggregated form to ensure that specific participants cannot be identified. Thus, no individual's name will be associated with any published or unpublished report of this study. Anonymisation will be performed as soon as personal data will no longer be useful for the project purposes.

a) *Data storage:* the Consortium will ensure that appropriate technical and organisational measures are taken to protect all personal data against accidental or unlawful disclosure, access, alteration, destruction, or loss. In particular, personal data will be stored in secure files on local servers, compliant with GDPR and current EU data safety policies, of the partners responsible for the data collection and analysis and organisational measures will be taken to protect all personal data against accidental or unlawful disclosure, access, alteration, destruction, or loss.

b) *Transfer of data:* partners can grant access to personal and sensitive personal data only to those who have to process these data for the specific purposes stated in the informed consent

ITB, as the project coordinator, will have the role of data controller, with the obligation of determining the purposes and means for the processing of personal data. The data controller will oversee the implementation of the Data Management

Plan and its updates and will be the point of reference for the subjects whose personal data are collected and managed within the context of the project activities. At ITB, data is stored locally on employees' workstations, as well as on a secure server. Individual workstations are backed up daily via the company's network. The service provider for IT and server management follows a professional backup and data safety policy.

8. Other issues

As part of the Mission Soil projects, BIN2BEAN is expected to contribute to the development of the Mission Soil Platform which is tasked to track the progress and showcase relevant information on the projects.
The BIN2BEAN project is expected to share with the Platform the following information:

- List of Work Packages
- List of Public Deliverables
- List of Milestones
- Annex 1 – Part B – Section 2: Impact (sub chapters 2.1, 2.2 and 2.3)
- Continuous reporting

For the first four points, no sensitive information is foreseen, while the continuous reporting section may contain sensitive and confidential information related to companies and solution providers that may wish to keep their technology/solution confidential. Specifically, related to the "continuous reporting" the following information will not be shared with the Platform for the above-mentioned reasons:

- Confidential deliverables.
- Closed datasets: only metadata such as title and keywords will be shared for these datasets.
- Results will be shared without including any potentially confidential information related to specifics on the products and processes developed by the solution providers (e.g. details on the business models/plans developed).

The interaction with the Platform is managed directly by the EC which will provide to the Platform access to projects information in line with Art. 13 and 16 of the BIN2BEAN Grant Agreement. The disclosure of sensitive information is protected by a confidentiality clause between the parties involved.

9. Implementation status at M18: lessons learned

The first 18 months of the BIN2BEAN project have underscored the critical importance of balancing transparency with privacy, fostering collaboration, and embracing flexibility in data management practices.
In particular, working closely with stakeholders highlighted the need to handle sensitive information ethically while ensuring its utility for analysis. Working towards this balance required the implementation of rigorous privacy protocols, such as enhanced anonymization techniques and strict adherence to GDPR requirements. Informed consent procedures became crucial to ensure transparency, build trust and reinforce the project's integrity.
At the same time, collaboration emerged as a cornerstone of success, with the centralized SharePoint platform becoming an essential hub for partners to share,

access, and review data, supported by regular meetings for mutual alignment. However, these collaborative efforts also revealed the need for more flexible data-sharing workflows to accommodate the diverse needs of partners and adapt to evolving project demands, integrating new tools, responding to partner feedback, or addressing unforeseen challenges.

These lessons have not only improved current practices but also served as a guide for refining the DMP, enabling BIN2BEAN to remain responsive to emerging challenges while maintaining its commitment to ethical, collaborative, and effective data management.

Bin2Bean

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