



# D9.3 Data Management Plan

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<b>LEAD BENEFICARY NAME</b>	CTIC CITA
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## Glossary, abbreviations and acronyms

<b>DMP</b>	Data Management Plan
<b>ERP</b>	Enterprise Resource Planning
<b>FAIR</b>	Findable, Accessible, Interoperable and Reusable
<b>FAIR</b>	Findable, Accessible, Interoperable and Reusable
<b>GDPR</b>	General Data Protection Regulation
<b>LCA</b>	Life Cycle Analysis
<b>MES</b>	Manufacturing execution system
<b>MOM</b>	Manufacturing Operations Management software
<b>NDVI</b>	Normalized Difference Vegetation Index
<b>SLAM</b>	Simultaneous Localization and Mapping



# 1. Introduction

## 1.1. Objectives

The procedures that will be followed in BBTWINS project for data collection, storage, protection, retention and destruction will comply with national and EU legislation (in particular Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data).

The data will be collected and managed following strict procedures to avoid misuse and to respect rights of the data owners guaranteed by EU law.

This Data Management Plan aims to provide an analysis of the main elements of the data management policy with regard to all the datasets that will be generated by the project and provide a solid procedure to guarantee open and free access to them.



## 2. Data Summary

### 2.1. Purpose of the Data collection

The aim this DMP is to assess all the project data requirements and to enhance the utilization of the project data.

This DMP is a 'living' document and can be modified according to the project needs. This document will be updated and extended, if needed, through the lifecycle of BBTWINS project. Every time the document is updated, all the partners will be duly informed about the updates and the changes made with respect to the previous version.

### 2.2. Relation to the objectives of the project

The following objectives of the project have relation with this document:

- Objective 1: To properly characterize each step of the agri-food value-chains, gathering information at process level
- Objective 2: To improve feedstock availability and sustainability for bio-based operations
- Objective 3: To provide novel bio-based products from feedstock valorization
- Objective 4: To develop BBTWINS virtual tools for informing decision-making and optimizing bio-based processes in agri-food value chains
- Objective 5: To provide end-to-end traceability of the products from raw materials to the end users
- Objective 6: To validate the BBTWINS digital tools in a relevant and real-life environment
- Objective 7: To contribute to the reduction of GHG emissions and environmental impacts in the agri-food sector

### 2.3. Types and collection of data

BBTWINS will develop two digital twins that will be fed by several types of data from the project partners, especially from PORTESA and DIMITRA. Data coming from several sources such as Enterprise resource planning software (ERPs), Manufacturing execution system (MES), and Manufacturing Operations Management software (MOM) (on-premises data), and near real-time data will be considered. Crop-data will be collected using in situ sensors, sensors for farm



machinery and remote sensing (i.e., cameras on board tractors, satellite data). The project also envisaged Life Cycle Analysis, which in turn requires data of several kinds.

Deliverable D1.1 includes a first, preliminary description of the main parameters (or data) to be captured for the digital twin. The two partners providing most of the key data will be PORTESA and DIMITRA. In addition, other data is already being collected by these two partners for their own business processes and will be incorporated in the digital twin.

### 2.3.1. RAW FEEDSTOCK AND LIVESTOCK DATA

- Plant's NDVI (Normalized Difference Vegetation Index) maps captured using optical sensors embedded in farming machinery, drone flight, satellite imaging...).
- Fruit dimensions, colour and yield (i.e. counting) using optical sensors drone flight, satellite imaging depending on the crop conditions and location.
- Livestock dimensions using 3D cameras/lidar sensors
- Livestock amount, race, sex, age, and sanitary status
- Pig feed quantities in silos at selected facilities
- Meteorological information: in-field weather stations, regional weather stations, forecasts.
- Additional data sources (presence of pests, phytosanitary/fertilizers applied, etc.) will be considered depending on their availability at chosen locations.
- Orchards 3D models using SLAM (Simultaneous Localization and Mapping)

### 2.3.2. ON PREMISES REAL TIME DATA

Regarding different processing parameters, materials and energy consumption, as well as information coming ERPs, MES and MOM.

- Production schedules and amounts at feed mill
- Customer orders from farms to feed mill
- Transport operations data on amounts, schedules and routes along the pork meat value chain, including transport of pig feed, pigs, fresh meat products, hams and shoulders, cured meat products, and slurry.
- Data on capacity and number of available trucks and drivers.



### 2.3.3. PRODUCTS, BIOMASS AND PROPOSED BY-PRODUCTS CHARACTERIZATION DATA

Coming from quality tests and different chemical analysis. It will be also based in and architecture that will allow the deployment of components of the partial developments such as logistics optimization, blockchain, digital twin, ...)

### 2.3.4. GEOGRAPHIC DATA.

Geographical data such as the locations of production facilities, and transport distances and driving times between facilities

### 2.3.5. EXTERNAL USER DATA

The collection, use, and disclosure of data also plays a pivotal role in meeting the objectives set out in WP8 Communication and Dissemination, which is managed by REVOLVE.

The deployment and management of the BBTWINS project website (D8.9) that hosts all public deliverables, ongoing work, developed tools and other digital products belonging to the project is compliant with GDPR and prompts all users to either accept or reject the use of cookies on the website. A link to an in-depth explanation of the types of the data collected, how it is collected, its usage and storage as well as a contact point for questions or actions that concern a visitor's data as set out the BBTWINS Privacy Policy:

BBTWINS Website Privacy Policy: <https://bbtwins.eu/privacy-policy/>

Data Protection Officer Contact: [dpo@revolve.media](mailto:dpo@revolve.media)

The BBTWINS also includes a subscription option for users to sign up to receive BBTWINS updates through an e-newsletter offered through Mailchimp, an e-marketing service software. This processed data includes the name, email, country, company and stakeholder details of the subscriber, who must consent to the BBTWINS privacy policy. This personal information is managed by REVOLVE's internally and is not disclosed to the public but is solely used for project communications through the Mailchimp platform.

Data collection and visualization will be a key component of WP8 in terms of physical and digital project communications and its derivatives including the website, press releases, newsletters, events, posters, leaflets, videos, and multimedia (sharables, digital journeys, etc.). This information will include the results from the respective case studies and the ongoing work within the work packages at are non-confidential.



## 3. FAIR DATA

### 3.1. Making data findable, including provisions for metadata

To make the data easily findable a MS TEAMS Repository has been created. Each WP Leader is responsible for the contents of corresponding WP folder in the MS TEAMS Repository and to be able to find the data easily each dataset is referred with a unique name.

ProjectName.DatasetName.Version, where

- The ProjectName is BBTWINS, in order to clearly identify for all datasets the origin.
- The DatasetName represents the full name of the dataset.
- The Version represents the number of modifications that had been done.

Metadata is data about the research data itself. It allows other researchers to find the data and is essential for the reuse of the data. Detailed metadata is useful for other researchers as they can find relevant information for their studies. Metadata (data type, location, etc.) will be loaded in a standardized way. This metadata will be kept separate from the original research data.

### 3.2. Making data openly accessible

Open data will be stored in an Open Access repository integrated within the OpenAIRE infrastructure (<https://www.openaire.eu/>), such as ZENODO (<https://zenodo.org/>) or others. The methodology will be the following one:

1. *The research group publishes the article in the journal, conference or publisher of their choice.*
2. *They add the final peer-reviewed manuscript to an open access repository. There will be different options:*
  - i. *Open Access journal or conference (gold open access)*
  - ii. *Self-archiving (green open access), in case the host institution of the author has an institutional repository for open access publications, integrated with OpenAIRE platform.*
  - iii. *Last archiving resort (Zenodo or equivalent) if the two previous options cannot be used.*
3. *Registration of the publication in OpenAIRE portal linking it with BBTWINS project. Every partner will be responsible of providing an open access option to every scientific document published.*



### 3.3. Making data interoperable

Data interoperability addresses the ability of systems and services that create, exchange and consume data to shared expectations for the contents, context and meaning of that data.

During the project new data will be identified so further information on making data interoperable will be outlined in subsequent versions of the DMP. Specifically, information on data vocabularies or methodology to follow to ease the interoperability.

### 3.4. Increase data re-use

According to the European Commission, open access is the practice of providing online access to scientific information that is free of charge to the user and is reusable. It is now widely recognised that making research results more accessible to all contributes to better and more efficient science, and to innovation in the public and private sectors

By storing the data in an Open access repository, such as ZENODO, BBTWINS will contribute to the reusability of the project data.



## 4. Allocation of resources

The allocation of resources dedicated to data management within the BBTWINS project are foreseen to be in line with the provisions of the Grant Agreement (GA).

CTIC CITA as coordinator of the project will be in charge of the Data Management in the project and will implement all the necessary measures to ensure continues updates and coordination with what is establish in this DMP.

CTIC CITA will be responsible of the data repository with the following obligations:

- Definition, creation, update of repository structure
- Co-creation with the project partners of the data repository's folders/sub-folders for each user group and document type
- Ensure appropriate versioning, metadata, access and level of dissemination

# 5. Data Security

To assure the security of the data the following aspects will be taken into account:

- Store data in at least two separate locations to avoid loss of data;
- Encrypt data if it is deemed necessary by the participating researchers

Initially, the project data will be stored in the MS TEAMS repository with limited access to the BBTWINS consortium.

The GDPR requires to implement appropriate technical and organizational measures to ensure a level of data security that is commensurate to the risks faced by the data subjects of unauthorized access to, or disclosure, accidental deletion or destruction of, their data (art.32 GDPR). In BBTWINS project all personal data that will be collected and processed will take into consideration the seven key principles of the GDPR:

- Lawfulness, fairness and transparency
- Purpose limitation
- Data minimization
- Accuracy
- Storage limitation
- Integrity and confidentiality
- Accountability



## 6. Ethical aspects

The following issue arisen from the Ethics Review, and mainly related with the Data Management of the project, will be specifically addressed in the deliverable D10.1 to be submitted on M6:

### 6.1. POPD-Requirement No.1 Protection Of Personal Data

The host institution must confirm that it has appointed a Data Protection Officer (DPO) and the contact details of the DPO are made available to all data subjects involved in the research. For host institutions not required to appoint a DPO under the GDPR a detailed data protection policy for the project must be submitted as a deliverable.

The beneficiary must explain how all of the data they intend to process is relevant and limited to the purposes of the research project (in accordance with the 'data minimization' principle). This must be submitted as a deliverable.

A description of the technical and organizational measures that will be implemented to safeguard the rights and freedoms of the data subjects/research participants must be submitted as a deliverable.

Detailed information on the informed consent procedures in regard to data processing must be submitted as a deliverable.

Templates of the informed consent forms and information sheets (in language and terms intelligible to the participants) must be submitted as a deliverable.

In case the research involves profiling, the beneficiary must provide explanation how the data subjects will be informed of the existence of the profiling, its possible consequences and how their fundamental rights will be safeguarded. This must be submitted as a deliverable.

The beneficiary must evaluate the ethics risks related to the data processing activities of the project. This includes also an opinion if data protection impact assessment should be conducted under art.35 General Data Protection Regulation 2016/679.