# DATA MANAGEMENT PLAN, UPDATE M36

30 SEPTEMBER 2025

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# D8.3 DATA MANAGEMENT PLAN, UPDATE M36

| | |
|---|---|
| **Project name** | **Maximising the CO-benefits of agricultural Digitalisation through conducive digital ECoSystems** |
| **Project acronym** | CODECS |
| **Horizon Europe Topic ID** | HORIZON-CL6-2021-GOVERNANCE-01-22 |
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| **Task number and title** | 8.3 - Ethics, Open Science, data management and gender perspective |
| **Work Package Leader** | UNIPI (with support of CNR) |
| **Contributors** | All partners |
| **Project Coordinator** | University of Pisa |

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# CODECS DMP - VERSION 3.0

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| 2.2 | 1 August 2025 | Internal Review | Gina Pavone, Tiziana Nadalutti |
| 2.3 | 1 September 2025 | Types removed and formatting with EC template | Tiziana Nadalutti |
| 2.4 | 16 September 2025 | Comments provided by WP/Task leaders and LLs | CODECS Consortium representatives |
| 2.5 | 25 September 2025 | Integrations from project General Assembly outcomes | Gina Pavone, Tiziana Nadalutti |
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# 1 Administrative references

## 1.1 Project factsheet

| | |
|---|---|
| Project name | Maximising the CO-benefits of agricultural Digitalisation through conducive digital ECoSystems |
| Project acronym | CODECS |
| Horizon Europe Topic ID | HORIZON-CL6-2021-GOVERNANCE-01-22 |
| Project ID | 101060179 |
| Granting authority | European Research Executive Agency |
| Project starting date | 1 October 2022 |
| Project end date | 30 September 2026 |
| Project duration | 48 months |
| Project website | https://www.horizoncodecs.eu/ |

## 1.2 Project beneficiaries

| Beneficiary n. and role | Organisation | Acronym | Country |
|---|---|---|---|
| 1 - COO | UNIPI | UNIPI | Italy |
| 2 - BEN | ACTA | ACTA | France |
| 2.1 - AE | INSTITUT FRANCAIS DE LA VIGNE ET DU VIN | IFV | France |
| 2.2 - AE | INSTITUT DE L'ELEVAGE | IDELE | France |
| 2.3 - AE | IFIP-INSTITUT DU PORC ASSOCIATION | IFIP | France |
| 3 - BEN | CONSIGLIO NAZIONALE DELLE RICERCHE | CNR | Italy |
| 4 - BEN | SZECHENYI ISTVAN EGYETEM | SZE | Hungary |
| 5 - BEN | ASSOCIATION EUROPEENNE POUR L'INFORMATION SUR LE DEVELOPPEMENT LOCAL | AEIDL | Belgium |

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| Beneficiary n. and role | Organisation | Acronym | Country |
|---|---|---|---|
| 6 - BEN | CENTRO INTERNAZIONALE DI ALTISTUDI AGRONOMICI MEDITERRANEI | CIHEAM-IAMB | Italy |
| 7 - BEN | EIGEN VERMOGEN VAN HET INSTITUUT VOOR LANDBOUW- EN VISSERIJONDERZOEK | EV ILVO | Belgium |
| 8 - BEN | ELLINIKOS GEORGIKOS ORGANISMOS - DIMITRA | ELGO-DEMETER | Greece |
| 9 - BEN | CESKA ZEMEDELSKA UNIVERZITA V PRAZE | CZU | Czechia |
| 10 - BEN | GEOPONIKO PANEPISTIMION ATHINON | AUA | Greece |
| 11 - BEN | BIOSENSE INSTITUTE - RESEARCH AND DEVELOPMENT INSTITUTE FOR INFORMATION TECHNOLOGIES IN BIOSYSTEMS | BIOS | Serbia |
| 12 - BEN | UNIVERZA V LJUBLJANI | UL | Slovenia |
| 13 - BEN | ZEMNIEKU SAEIMA | ZSA | Latvia |
| 14 - BEN | UNIVERSITAET HOHENHEIM | UNI HOHENHEIM | Germany |
| 15 - BEN | NEW EDU NO | NEWEDU | Slowakia |
| 16 - BEN | INSTITUT NATIONAL DE RECHERCHE POUR L'AGRICULTURE, L'ALIMENTATION ET L'ENVIRONNEMENT | INRAE | France |
| 16.1 - AE | INSTITUT NATIONAL D'ENSEIGNEMENT SUPERIEUR POUR L'AGRICULTURE, L'ALIMENTATION ET L'ENVIRONNEMENT | Institut Agro | France |
| 17 - BEN | SUSTAINABLE IRELAND CO-OPERATIVE SOCIETY LTD | SUST | Ireland |
| 18 - BEN | NODIBINAJUMS BALTIC STUDIES CENTRE | BSC | Latvia |
| 19 - BEN | AG FUTURA TECHNOLOGII DOOEL SKOPJE | AGFT | Macedonia |
| 20 - BEN | CONSORZIO TUTELA PECORINO TOSCANO | Pec. Toscano | Italy |
| 21 - BEN | EESTI MAAULIKOOL | EMU | Estonia |
| 22 - BEN | CSITA | CSITA | Czechia |
| 23 - BEN | ISO-TECH SP ZOO | ISO-TECH | Poland |

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| Beneficiary n. and role | Organisation | Acronym | Country |
|---|---|---|---|
| 24 - BEN | UNIVERSIDAD DE CORDOBA | UCO | Spain |
| 25 - BEN | UNIVERSIDAD DE ALMERIA | UAL | Spain |
| 26 - BEN | ASOCIACION DE ORGANIZACIONES DE PRODUCTORES DE FRUTAS Y HORTALIZAS DE ALMERIA | COEXPHAL | Spain |
| 27 - BEN | STICHTING WAGENINGEN RESEARCH | WR | The Netherlands |
| 28 - BEN | Laboratoire d'Innovation Territorial Ouest Territoires d'Elevage | LIT OUSTEREL | France |
| 29 - AP | THE JAMES HUTTON INSTITUTE | Hutton | UK |

# 2 Project Overview

The CODECS project is working to realise a vision of “sustainable digitalisation” to contribute to a multi-level transition intertwining social, economic, and ecological aspects. This is achieved by adopting an innovative system based-actor centred approach, and an action research methodology based on coordination of 20 Living Labs (LLs) through interdisciplinary and transdisciplinary teams. It is working to co-develop user-friendly approaches, methods, and tools, in collaboration with farmers and AKIS (Agricultural Knowledge and Innovation Systems) actors, to document both the co-benefits and costs of technologies applied in real contexts. The objective is to improve the collective capacity to understand, assess and foresee the full range of benefits and costs of farm digitalisation, and to build digital ecosystems maximising its net benefits. CODECS project is:

- studying the role of “digital ecosystems” in the rate of uptake of digital technologies and in the distribution of their costs and benefits;
- developing and test 3 indicators (farmers' digital readiness, scaling readiness, digital ecosystem conduciveness) to monitor the level of digitalisation and foresee its potential costs and benefits;
- assessing and compare the full range of social, economic, and environmental costs and benefits of farm digitalisation, identifying synergies and trade-offs between different sources of costs and benefits;
- testing and demonstrating digital technologies in 20 Living Labs through in physical and virtual demonstration.

A CODECS platform has been put in place, grouping all digital tools, methodologies and handbooks and hosting search, demonstration, and assessment tools. At the same time, a knowledge accelerator is being established, articulated into:

- a Science-Policy interface;
- a Demonstration Working Group;
- an AKIS network.

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CODECS has a strong commitment to get an impact in the AKIS domain and in the policy field thanks to a dedicated work package on policy analysis and policy tools, a set of policy briefs and webinars and an engagement strategy at local, national, European level through the above-mentioned Science-policy interface, AKIS network, Living Labs and a network of Demo Farms that they will establish.

LLs cover a key role in fulfilling the project objectives as they are local networks of farmers, knowledge intermediaries, stakeholders, policy makers, technology providers constituted around an emerging problem in the area they are established in, within a given application scenario and willing to develop solutions through collaboration. For instance, “irrigation of permanent crops” is an application scenario, and the problem can be formulated as a question: “how to increase farm’s value creation by minimising irrigation costs and save water? As a matter of fact, their work encompasses all the project activities planned in the diverse Work Packages (WPs).

CODECS is being implemented through 8 WPs: WP3, WP4, and WP5 are dedicated respectively to analysis of Digital Ecosystems (WP3), analysis of Costs and Benefits (WP4), Demonstration and Assessment activities (WP5). These three work packages, that organise the core activities of Living Labs, are supported and complemented by five horizontal work packages: Dissemination, Exploitation, Communication, and Outreach (DECO) strategy (WP1), Conceptual framework and methodology (WP2), Policy tools (WP6), Digital support tools (WP7), and Overall coordination (WP8).

# 3 Data Management Plan in CODECS project

## 3.1 Scope of this DMP

The Data Management Plan is a document that outlines the management and handling of research data both on a daily and long-term basis, establishing early-stage choices about the main aspects of the lifecycle of research outputs. In the CODECS project, the DMP has been established to plan and make careful choices about the necessary data to achieve the project's goals, with the aim of ensuring that data is managed securely and in accordance with the highest standards of quality and ethics, in compliance with all regulations involved.

In the light of the general framework outlined by the European Commission, which promotes open and collaborative science, the data management of this project adheres to the principles of Open Science. In accordance with Horizon Europe guidelines[1], this DMP establishes the rules for responsible management of research data in line with the FAIR principles of ‘Findability’, ‘Accessibility’, ‘Interoperability’ and ‘Reusability’, and according to the principle of "as open as possible, as closed as necessary", in compliance (also) with the European General Data Regulation Policy (GDPR).

The initial DMP was released in March 2023.

The second version provided a clearer delineation of Living Labs activities, introduced adjustments to the data-related tasks across WPs, updated the personal data flow, and detailed materials of legal relevance.

This third version includes further updates to reflect the current status of data production and management, including an updated section on the integration of the gender perspective within the project.

[1] See Horizon Europe Programme Guide: V2.0 – 11.04.2022
https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/guidance/programme-guide_horizon_en.pdf

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## 3.2 Overall structure of the DMP in CODECS project

This document is intended to be a single point of reference for all data-related issues and in general for all CODECS research outputs, from day-to-day data management issues (e.g. the organisation of information and data safety strategies) to all aspects of data sharing and dissemination of results.

For the first version of the DMP, information regarding the data to be handled by consortium partners during the project was gathered through a dedicated questionnaire, answered by WP leaders. The responses obtained were used to structure the first version of CODECS Data Management Plan (D8.1) and the Personal Data Policy. For the second version (D8.2), updates on ongoing data management were gathered through interviews conducted between the contributors of Task 8.3 and the WP leaders in small groups or individually. For this third version information was collected from WP and Task Leaders through dedicated questionnaires. In addition, Living Lab coordinators were consulted, and a live questionnaire was administered during the General Assembly held on 23-24 September 2025, aimed at gathering insights into the current state of gender balance in the implementation of the project.

The CODECS DMP has been established following the Horizon Europe DMP template[2], and thus it contains the following sections:

- data summary, in which all relevant information on data types and their collection or gathering process are described for each WP.
- the data management in CODECS project, where information on the organisation of data management among consortium partners are provided.
- FAIR data management, with information on each component of the FAIR acronym, included details on provisions for metadata, access to data and protection of personal data, licensing, and the modalities through which Open Access to publications are carried out.
- other research output, where a strategy will be outlined for managing and sharing the software and communication materials produced within the project.
- estimated costs, where the allocation of the necessary resources will be planned.
- data security, where choices to secure all project information and the quality assurance process put in place are outlined. Roles and responsibilities are also specified.
- legal and ethical aspects, in which details on the management of personal data are given.
- gender perspective: a self-assessment by the consortium members.
- revisions of the DMP.

# 4 Data Summary

## 4.1 Types of data

In CODECS project data are classified according to the source used, whether primary or secondary, and according to their content, whether texts, tables, or multimedia. Information is included on provenance or data collection processes and on all the aspects relevant for data reuse and how to facilitate it. Besides, a further distinction is made between personal and non-personal research data in order to detail specific treatment related to personal data (see

[2] See Data Management Template (HE): V1.0 – 05.05.2021, downloadable from: https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/how-to-participate/reference-documents;programCode=HORIZON

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"Legal and ethical aspects" section). A personal data policy has been shared among the CODECS project partners for the lawful processing of personal data. In order to answer the research questions and carry out the activities foreseen in CODECS project, both primary and secondary data is being used, in a combination of qualitative and quantitative analysis.

In CODECS the following types of data are described:

- documents (e.g. reports, briefs, deliverables, publications, presentations);
- datasets;
- multimedia;
- software (e.g. Farm Management Information System – FMIS – designed to assist farmers to perform operational planning, implementation and documentation for assessment of performed field work).

Based on the type of collection, a distinction is made between:

- surveys;
- interviews and focus groups;
- measurements (e.g. in-field data collection) and data inventory;
- demonstrations (e.g. activities in Demo Farms and Living Labs, as planned in WPs 3, 4 and 5);
- literature.

With Measurement data we refer to in-field measurement, administrative records, field notebooks, data coming from Farm Management Information Systems (FMIS).

With Demonstrations we refer to testing and showcasing digital technologies within 20 Living Labs, utilizing both physical and virtual platforms to illustrate their functionality and capabilities.

## 4.2 Living Labs and Work packages data overview

In this section, information is provided regarding data management by LLs and individual WPs.

The data production activities of the LLs and WPs are closely interconnected. LLs and WPs/task leaders are responsible for collecting the primary raw data, according to the methodological guidelines provided by specific WPs/task leaders. WP and Task leaders defined and structured the data collection process, designed the methodology, and established the research questions, as well as provided the templates on which data are to be entered. Moreover, the WP/Task leaders provided training sessions to guarantee the data quality standards. The Living Labs involved the local actors and carried out the data collection. The raw datasets were then curated, processed, and further elaborated by the respective WPs to produce structured and analysable outputs. This collaborative workflow ensures consistency and alignment between field-level data collection and research-driven data refinement.

The following two charts provide an overview of data types and collection methods employed by each WP and the LLs. Additionally, the third figure illustrates the overall data flow between LLs and WPs. Subsequently, detailed information outlines the ongoing data management efforts within LLs and WPs throughout the project.

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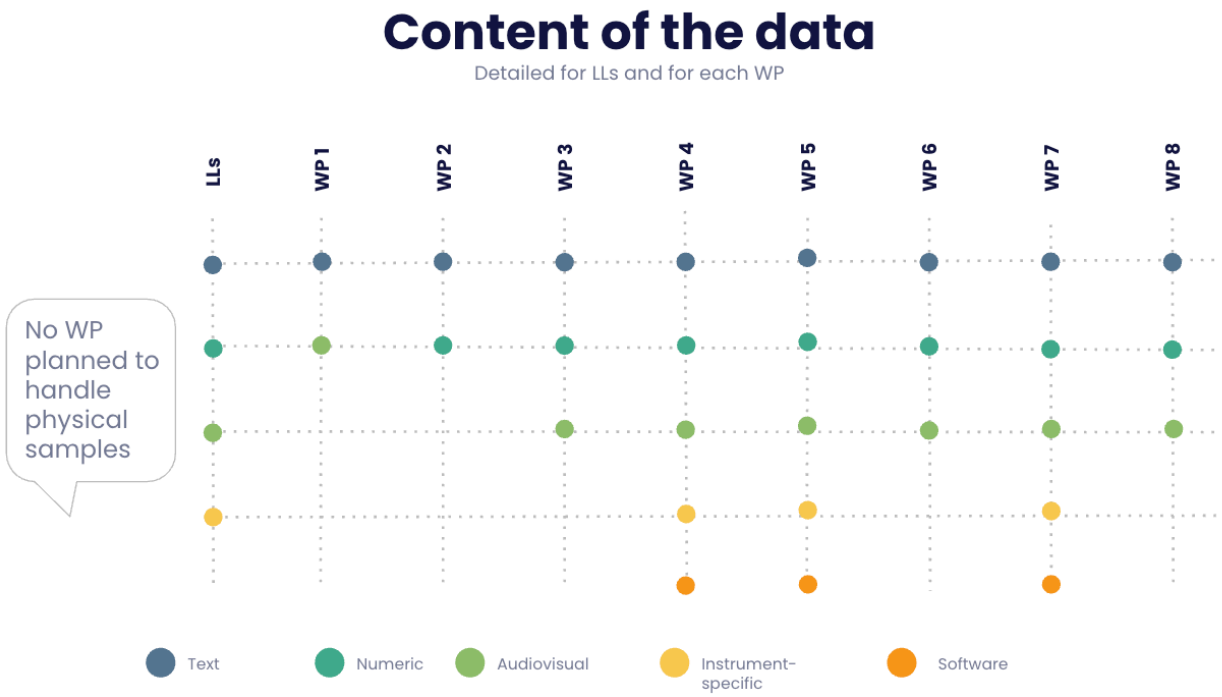


*Figure 1 – Overview of data contents for LLs and for each WP*

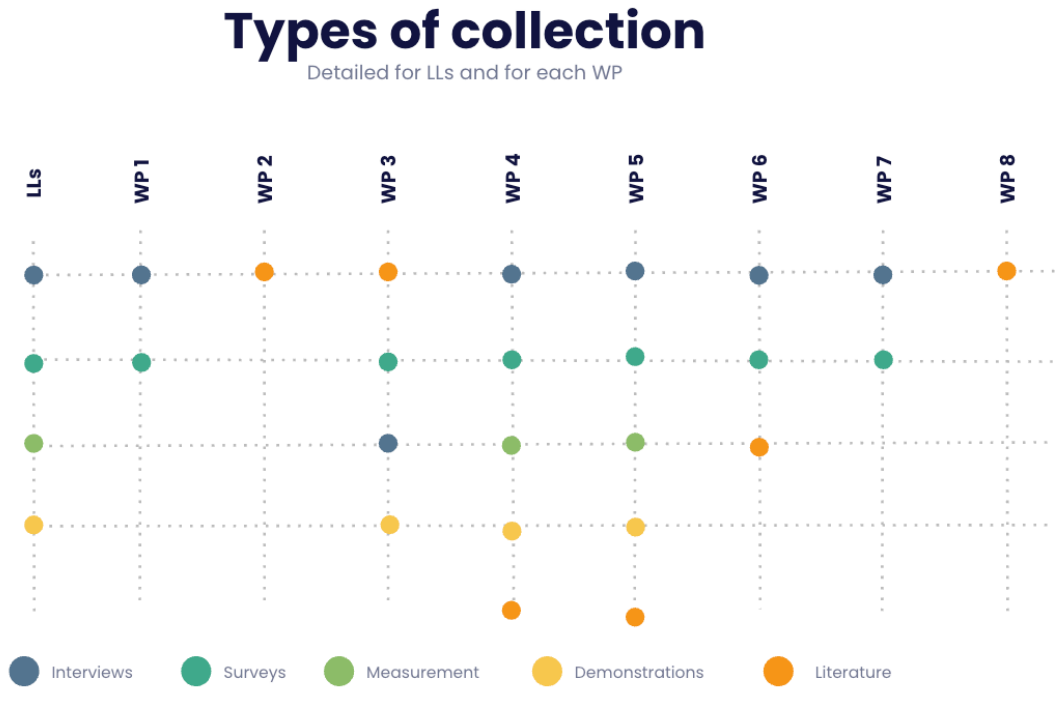


*Figure 2 – Overview of collection modes for LLs and for each WP*

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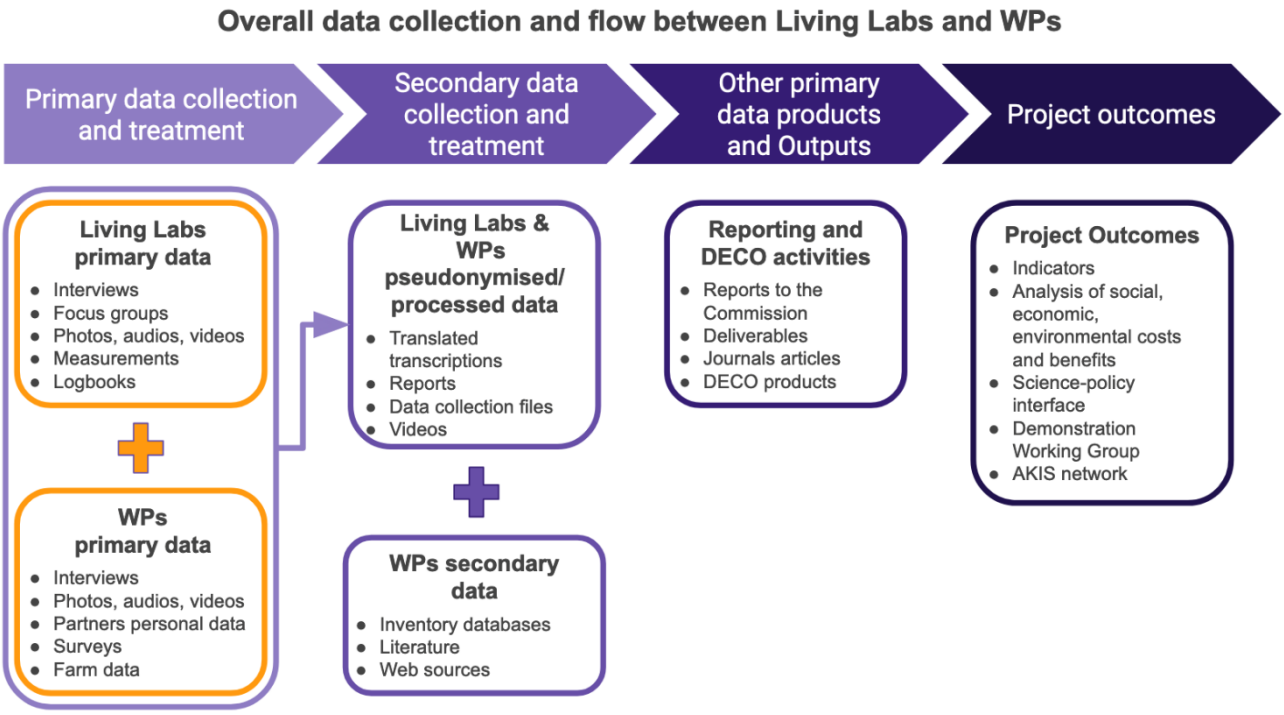


*Figure 3 – Comprehensive data collection and flow between LLs and WPs and expected outputs*

### 4.2.1 Living Labs

The table hereinafter shows what Living Labs are working and what project beneficiaries are managing them. These beneficiaries act as the leaders of their Living Lab.

| LL number | Name of the Living Lab | Country | Beneficiary |
|---|---|---|---|
| 1 | Pecorino Toscano | Italy | UNIPI + Pec. Toscano |
| 2 | Greenhouse smart sensor technology | Serbia | BIOS |
| 3 | Organic table grapes | Italy | CIHEAM-IAMB |
| 4 | Appetit | Poland | ISOTECH |
| 5 | Scottish farms and digital platforms | Scotland | HUTTON |
| 6 | Cloughjordan Food Hub | Ireland | SUST |
| 7 | Agrifood Technology | Belgium | EV ILVO |
| 8 | Almería Agroecology | Spain | UAL + COEXPHAL |
| 9 | Smart Villages Network | Slovenia | UL |

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| LL number | Name of the Living Lab | Country | Beneficiary |
|---|---|---|---|
| 10 | Artificial Irrigation Management System | Slovakia | NEWEDU |
| 11 | LIT Ouesterel | France | ACTA + IFIP |
| 12 | Local beef cattle farming | Latvia | BSC + ZSA |
| 13 | Occitanum – Open Lab Sheep | France | INRAE + IDELE |
| 14 | Occitanum – Open Lab Viticulture | France | INRAE + IFV |
| 15 | Spraying Drones | Greece | AUA |
| 16 | Automation of orchard management | Czech Republic | CSITA |
| 17 | Agri-Digital Bildung | Germany | UNI HOHENHEIM |
| 18 | Grassland Management | Estonia | EMU |
| 19 | RAMAS | North Macedonia | AGFT |
| 20 | Innovative Soil Scanner | Hungary | SZE |

| | | |
|---|---|---|
| **Origin of the data** | ✓ | Primary data |
| | ✓ | Secondary data |
| **Type of collection** | ✓ | Interviews |
| | ✓ | Surveys |
| | ✓ | Measurements |
| | ✓ | Demonstrations |
| | | Literature |
| **Content of the data** | ✓ | Text (e.g., field or laboratory notes, survey responses) |
| | ✓ | Numeric (e.g., tables, counts, measurements) |
| | ✓ | Audiovisual (e.g., images, sound recordings, video, presentations) |
| | ✓ | Instrument-specific (e.g., equipment outputs) |
| | | Software |

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| | |
|---|---|
| **Data volume** | 100 GB |
| **Software needed** | Open Office, Adobe, Microsoft Office Suite |
| **File formats** | DOC/DOCX<br>JPEG/PNG/SVG<br>PDF<br>PPT/PPTX<br>CSV<br>ODT<br>XLS<br>MPx, video formats |

### Primary data collection mode

The original raw data to be produced by the LLs are:

- personal data of the stakeholder involved in project activities and of the possible targets of DECO activities (for all WPs except WPs 6 and 8);
- data on the socio-technical processes related to Living Labs' Focal Action Situations (such as components of the process, interaction with the subsystems of the digital ecosystem, for WP3);
- in-field data related to the environmental effects, the economic costs, the social costs and benefits of the digitalisation (for WP4);
- data of technology performance monitoring (for WP5).

### Source of secondary data

Data sources are field notebooks, farm management information software (FMIS), in-field measurement, administrative records (WP 4).

### Purpose of the data

The Living Labs involve farmers, knowledge intermediaries, stakeholders, policy makers, technology providers who cooperatively discuss specific problems related to the geographic areas they work in, with reference to the theme of costs and benefits of digitalisation of rural areas: they collect and provide data and points of view, discuss and propose solutions of these problems. They therefore contribute to the implementation of the entire project, and they collect and treat data for the activities outlined in the various WPs:

- WP1 - DECO strategy: to write practice abstracts, blog posts and news items as well as to be active on social media;
- WP2 - Participatory theory building: to organise working sessions within Annual Living Lab Workshops;
- WP3 - Participatory assessment of digital ecosystems: to carry out interviews and focus groups, and prepare reports on the outcomes of these activities;

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- WP4 - Estimation of the costs and benefits of digital technologies adoption: to implement on-farm data collection, interviews, surveys, focus groups;
- WP5 - Demonstration and assessment of digital technologies: to set up Demo farms, organise demonstration activities, participate to Demo farm networks, and prepare reports on the outcomes of these activities;
- WP6 - Co-design of scenarios: to organise specific sessions at the 3rd Annual LL Workshop;
- WP7 - Testing, validating and assessing digital tools: to contribute to the survey for users' needs, organise focus groups and the LLs Annual Workshops;
- WP8 - Living Lab coordination: to write and approve the workplan of their activities, carry out online interaction; deliver reports on learning processes.

### 4.2.2 WP1 - Dissemination, Exploitation, Communication and Outreach (DECO) strategy

Lead beneficiary: AIEDL

| | | |
|---|---|---|
| **Origin of the data** | ✓ | Primary data |
| | ✓ | Secondary data |
| **Type of collection** | ✓ | Interviews |
| | ✓ | Surveys |
| | | Measurements |
| | | Demonstration |
| | | Literature |
| **Content of the data** | ✓ | Text (e.g., field or laboratory notes, survey responses) |
| | | Numeric (e.g., tables, counts, measurements) |
| | ✓ | Audiovisual (e.g., images, sound recordings, video, presentations) |
| | | Instrument-specific (e.g., equipment outputs) |
| | | Software |
| **Data volume** | | More than 2 MB, considering both primary and secondary data |
| **Software needed** | | Microsoft Office suite; Adobe; Brevo (for mailing lists), Canva (for photo editing and media graphics elaborations) |

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| | | |
|---|---|---|
| **File formats** | | DOC/DOCX<br>JPEG/PNG/SVG<br>PDF<br>PPT/PPTX<br>MPx<br>MP4/MOV/WMV/WEBM…./ |

#### Primary data collection mode

Interviews are being realised with project partners, Living Lab members, demo farms, Knowledge Accelerator actors, etc. Such interviews can be recorded and used to produce communication materials. Besides data is going to be collected to measure the DECO impact.

Surveys are carried out among project partners, Living Lab members, demo farms, KA actors, etc. with the purpose of understanding optimal ways to reach CODECS target audiences.

Among the activities conducted by WP 1, there is the creation of the project's website: https://www.horizoncodecs.eu/. The website features a Privacy Policy[3], as well as a Cookie Policy[4]. Treatment of collected personal data is illustrated in the Legal and ethical aspects section.

#### Source of secondary data

Materials and resources (e.g. images, templates for slides or infographics) may be taken from the following databases: Artgrid, Adobe, Freepik, Pexels, Pixabay, YouTube Library for Creators, project partners, AIEDL's internal archives, Canva.

#### Purpose of the data

In this WP the purpose of collecting primary and secondary data is to develop the dissemination and communication (DECO) strategy, as well as to produce communication and dissemination materials (videos, interviews, briefings, practice abstracts).

### 4.2.3 WP2 - Fostering capabilities: towards a conceptual and operational framework

Lead beneficiary: WR

| | | |
|---|---|---|
| **Origin of the data** | | Primary data |
| | ✓ | Secondary data |
| **Type of collection** | | Interviews |
| | | Surveys |

[3] https://www.horizoncodecs.eu/privacy-policy/

[4] https://www.horizoncodecs.eu/cookie-policy-eu/

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| | | |
|---|---|---|
| | | Measurements |
| | | Demonstrations |
| | ✓ | Literature |
| **Content of the data** | ✓ | Text (e.g., field or laboratory notes, survey responses) |
| | ✓ | Numeric (e.g., tables, counts, measurements) |
| | ✓ | Audiovisual (e.g., images, sound recordings, video, presentations) |
| | | Instrument-specific (e.g., equipment outputs) |
| | ✓ | Software |
| **Data volume** | | More than 2 MB |
| **Software needed** | | Microsoft Office suite; Adobe; GIS software; Reference software (Endnote, Mendeley); SurveyMonkey; VARI; Microsoft SQL server |
| **File formats** | | DOC/DOCX<br>PDF<br>RDF<br>CSV<br>XLS<br>OWL |

### Source of secondary data

Scientific literature, policy documents, national statistical offices, international statistical offices (OECD, FAO), reporting from other WPs and Living Labs activities, other institutions and/or research facilities.

### Purpose of the data

In this WP the collection of secondary data aims at designing a conceptual framework of what sustainable development means in different agricultural contexts, as well as at developing a methodology to provide guidance for the digital transition in these contexts. In addition, to assess the living labs, reporting about the Living Labs setup and results will be used in the assessments, in order to provide insights into synergies and differences across the living labs.

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### 4.2.4 WP3 - Analysis of digital ecosystems

Lead beneficiary: UAL

| | | |
|---|---|---|
| **Origin of the data** | ✓ | Primary data |
| | ✓ | Secondary data |
| **Type of collection** | ✓ | Interviews |
| | ✓ | Surveys |
| | | Measurements |
| | ✓ | Demonstrations |
| | ✓ | Literature |
| **Content of the data** | ✓ | Text (e.g., field or laboratory notes, survey responses) |
| | ✓ | Numeric (e.g., tables, counts, measurements) |
| | ✓ | Audiovisual (e.g., images, sound recordings, video, presentations) |
| | | Instrument-specific (e.g., equipment outputs) |
| | | Software |
| **Data volume** | | More than 500 MB |
| **Software needed** | | Microsoft Office suite; OpenOffice; Adobe |
| **File formats** | | DOC/DOCX<br>JPEG/PNG/SVG<br>PDF<br>PPT/PPTX<br>MPx<br>XLS |

#### Primary data collection mode

Primary data are collected through workshops, online/video/phone interviews, and focus groups directly carried out with different actors (such as agtech providers, agricultural engineers, researchers, farmers, among others), in addition to surveys and interviews aimed at the LL coordinators. Moreover, analyses, reports, and articles will be produced based on these results for representing the socio-ecological context and the socio-technical processes of the different Living Labs.

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#### Source of secondary data

Secondary data derive from scientific literature, government statistics and reports from other research facilities.

#### Purpose of the data

In WP3 primary data is collected for the purposes of mapping the socio-ecological context. Measures, criteria and indicators, graphical representations will be created for Living Labs. Components of the socio-technical process modelling are going to be represented. Besides, based on the data of the different tasks to be performed, a comparative analysis of digital ecosystems is being carried out. Also, data on the role of AKIS systems is being gathered.

Secondary data is also needed to complement the comparative assessment of digital ecosystems.

Analyses, reports, and articles are being produced based on the results of the WP activities.

### 4.2.5 WP4 - Costs and benefits analysis – assessment of the potential of digital technologies in agriculture

Lead beneficiary: INRAE

| | | |
|---|---|---|
| **Origin of the data** | ✓ | Primary data |
| | ✓ | Secondary data |
| **Type of collection** | ✓ | Interviews |
| | ✓ | Surveys |
| | ✓ | Measurements |
| | ✓ | Demonstrations |
| | ✓ | Literature |
| **Content of the data** | ✓ | Text (e.g., field or laboratory notes, survey responses) |
| | ✓ | Numeric (e.g., tables, counts, measurements) |
| | ✓ | Audiovisual (e.g., images, sound recordings, video, presentations) |
| | ✓ | Instrument-specific (e.g., equipment outputs) |
| | ✓ | Software |
| **Data volume** | | More than 2 GB (both primary and secondary) |
| **Software needed** | | Microsoft Office suite, NVivo, SPSS, SimaPro |

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| | | |
|---|---|---|
| **File formats** | | DOC/DOCX<br>JPEG/PNG/SVG<br>PDF<br>PPT/PPTX<br>MPx<br>.MOV<br>XLS |

### Primary data collection mode

Primary data are collected through quantitative data collection, web surveys, measurements and inventories (e.g., Life Cycle inventories and economic analyses).

### Source of secondary data

Ongoing activities involve leveraging scientific literature, reports, existing inventory databases, and statistical indicators for the ongoing Cost & Benefits (C&B) analysis of the use of Digital Technologies at the farm level within the CODECS Living Labs. These data contribute to the ongoing Cost & Benefit analysis (eco, environmental, social) of digital technology use at the farm level within the CODECS Living Labs.

### Purpose of the data

Data collection allows performing analysis on:

- Cost & Benefit perceptions of the use of digital technologies in agriculture;

Environmental impact of the use of digital technologies in the Living Lab's focal action situation based on comparative Life Cycle Assessment (LCA);

- Economic costs and benefits analysis of the digitalisation process at farm level;
- The social/human-centred costs and benefits of digitalisation in agriculture for the farmer/user.

## WP5 - Demonstration of Costs and Benefits of digitalisation and technology assessment

Lead beneficiary: ACTA

| | | |
|---|---|---|
| **Origin of the data** | ✓ | Primary data |
| | ✓ | Secondary data |
| **Type of collection** | ✓ | Interviews |
| | ✓ | Surveys |
| | ✓ | Measurements |

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| | | |
|---|---|---|
| | ✓ | Demonstrations |
| | ✓ | Literature |
| **Content of the data** | ✓ | Text (e.g., field or laboratory notes, survey responses) |
| | ✓ | Numeric (e.g., tables, counts, measurements) |
| | ✓ | Audiovisual (e.g., images, sound recordings, video, presentations) |
| | ✓ | Instrument-specific (e.g., agricultural machinery outputs) |
| | ✓ | Software (e.g., mobile applications, digital platforms) |
| **Data volume** | | More than 1 GB |
| **Software needed** | | Microsoft Office suite; Adobe; GIS software; Living-Lab-Specific DSS and FMIS |
| **File formats** | | DOC/DOCX<br>JPEG/PNG/SVG<br>PDF<br>PPT/PPTX<br>.SPH<br>CSV<br>TSV<br>ODT<br>TXT<br>XLS |

### Primary data collection mode

Primary data at the scale of Demo Farms is collected through FMIS (Farm Management Information Systems), DSS (Decision Support Systems), agricultural machinery, online surveys, online/video/phone interviews with different actors, such as agtech providers, agricultural engineers, researchers.

Moreover, primary data is collected also during Demo events using the WP5 Demo assessment grid and carrying out interviews and surveys.

### Source of secondary data

The sources of secondary data used for WP 5 activities are:

- WP3 and WP4 processed data;
- national statistical offices;
- scientific literature;

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- agricultural technical institutes (applied research) literature;
- engineering consulting firms;
- private companies.

**Purpose of the data**

Primary and secondary data are collected to create a demonstration network and to produce tailored demonstration guidelines addressed to the Living Labs with the aim of measuring and demonstrating the costs and the benefits of adopting technologies in the scope of the Living Labs along the CODECS project.

Data formats and contents collected during WP5 activities depends on LLs capacities to provide inputs from their Demo farms where they showcase technologies responding to value creation, efficiency, human capital, productivity, natural resource uses.

When carrying out Demonstration activities, the Living Labs will gather qualitative and quantitative information using the Assessment grid and the post-demo surveys provided on CODECS Demonstration guidelines D5.1 - Handbook of demonstration of digital technologies. The information collected from demonstration events will serve as inputs for WP3 and WP4 analysis of the costs and the benefits of demonstrated technologies within their Digital ecosystem.

### 4.2.6 WP6 - Policy analysis and roadmap

Lead beneficiary: BSC

| | | |
|---|---|---|
| **Origin of the data** | ✓ | Primary data |
| | ✓ | Secondary data |
| **Type of collection** | ✓ | Interviews |
| | ✓ | Surveys |
| | | Measurements |
| | | Demonstrations |
| | ✓ | Literature |
| **Content of the data** | ✓ | Text (e.g., field or laboratory notes, survey responses) |
| | ✓ | Numeric (e.g., tables, counts, measurements) |
| | ✓ | Audiovisual (e.g., images, sound recordings, video, presentations) |
| | | Instrument-specific (e.g., equipment outputs) |
| | | Software |
| **Data volume** | | Around 200 MB for both primary and secondary |

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| | | |
|---|---|---|
| **Software needed** | | Microsoft Office suite |
| **File formats** | | DOC/DOCX<br>PDF<br>XLS |

#### Primary data collection mode

Original data are being collected through surveys, interviews, questionnaires, and self-administered questionnaires, semi-structured interviews, workshop discussions.

#### Source of secondary data

Scientific literature, reports, policy recommendations, and publications on the state of digitalisation (and rural digitalisation) in partner countries.

#### Purpose of the data

Through the review of existing policies regarding digitalisation in agriculture and rural areas, a report in Policy environments for digitalisation in Europe is going to be produced.

A survey to AKIS actors is going to study how they can support the diffusion of evidence about digital technologies Cost & Benefit.

### 4.2.7 WP7 - CODECS platform

Lead beneficiary: AUA

| | | |
|---|---|---|
| **Origin of the data** | ✓ | Primary data |
| | ✓ | Secondary data |
| **Type of collection** | ✓ | Interviews |
| | ✓ | Surveys |
| | | Measurements |
| | | Demonstrations |
| | | Literature |
| **Content of the data** | ✓ | Text (e.g., field or laboratory notes, survey responses) |
| | ✓ | Numeric (e.g., tables, counts, measurements) |

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| | | |
|---|---|---|
| | ✓ | Audiovisual (e.g., images, sound recordings, video, presentations) |
| | ✓ | Instrument-specific (e.g., equipment outputs) |
| | ✓ | Software |
| **Data volume** | | More than 100MB |
| **Software needed** | | Microsoft Office suite; Adobe; Visual Studio Code, Mongo DB as DBM software |
| **File formats** | | DOC/DOCX<br>JPEG/PNG/SVG<br>PDF<br>JSON<br>MP4<br>CSV<br>XLS<br>PNG<br>WMV |

### Primary data collection mode

Surveys and interviews will be realised to collect the CODECS platform user needs.

### Source of secondary data

Secondary data will be collected from already existing inventories of other projects delivering information about digital farming technologies.

### Purpose of the data

The WP7 will produce the CODECS platform, intended as a single-point-of-access for:

- A meta-inventory of digital technologies offering an overview of technologies across different domains tailored to the user needs and requests. The meta-inventory is built on existing repositories FAIRshare, SmartAKIS, DESIRA and is currently expanding to host more open-source EU repositories.
- A dataset inventory offering storage abilities to CODECS research outputs (analysis of data collected from LLs) and open access to the material for CODECS stakeholders.
- The Digital technology impact assessment toolkit encompassing a technology, economic, environmental and multicriteria assessment calculator.

The CODECS platform is intended to act as a quality-checked database where all the project outputs and results are going to be gathered and showcased.

A dedicated data entry tool has been established for specific consortium partners. This process entails specific partners who, after completing authentication and obtaining authorisation from WP7 platform admins, can upload

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processed and pseudo-anonymised data from the Living Labs (LLs). The uploaded data are made public on the platform.

### 4.2.8 WP8 - Coordination

Lead beneficiary: UNIPI

| | | |
|---|---|---|
| **Origin of the data** | ✓ | Primary data |
| | ✓ | Secondary data |
| **Type of collection** | | Interviews |
| | | Surveys |
| | | Measurements |
| | | Demonstrations |
| | ✓ | Literature |
| **Content of the data** | ✓ | Text (e.g., field or laboratory notes, survey responses) |
| | ✓ | Numeric (e.g., tables, counts, measurements) |
| | ✓ | Audiovisual (e.g., images, sound recordings, video, presentations) |
| | | Instrument-specific (e.g., equipment outputs) |
| | | Software |
| **Data volume** | | More than 10 GB |
| **Software needed** | | Open Office, Adobe, Microsoft Office Suite |
| **File formats** | | DOC/DOCX<br>JPEG/PNG/SVG<br>PDF<br>PPT/PPTX<br>CSV<br>XLS<br>MPx |

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### Primary data collection mode

The original data to be produced by this WP will be:

- textual data, produced through reports, project deliverables, timelines and work plan preparation;
- numeric and tabular data, derived from the update on financial aspects and project scientific progress.

### Source of secondary data

Data provided by the other WPs and by the LLs to carry out the project management and consortium coordination.

### Purpose of the data

The data will be used to ensure:

- project efficient management, financial monitoring and reporting;
- compliance with research ethics and open science, and a proactive approach to gender dimension;
- coordination of Living Labs and monitoring of the learning process.

# 5 Data Management inside the consortium

Given the multidisciplinary nature of the project and the international dimension of the consortium, adopting a clear organisation of information is essential for the proper management of research data. The consortium decided to use Microsoft 365 and its integrated services Teams and OneDrive to manage:

- internal communications (through Teams);
- meetings planning, holding, recording (through Teams);
- files storage and management through the connection with Microsoft One Drive cloud storage service, which is also integrated in Teams.

To make quicker and easier the collaboration withing each working group of the project, a team named CODECS was created in Teams, with a channel for each WP, except for WP8: in this last case there is one channel for carrying out the management activities (Steering Committee) and one for coordinating the Living Labs (Living Labs coordination); the name of the channel of WP1 is DECO Taskforce. The other channels names are composed in this way: Ch + number of the WP + keyword of the WP. There are therefore the following channels:

- General;
- Ch WP2 Conceptual framework;
- Ch WP3 Digital ecosystem;
- Ch WP4 Costs and benefits;
- Ch WP5 Demo farms;
- Ch WP6 Policy analysis;
- Ch WP7 Platform;
- DECO Task force;

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- Living Labs coordination;
- Steering Committee.

The structure of the team and its channels as it appears in Teams is shown in the figure hereinafter.

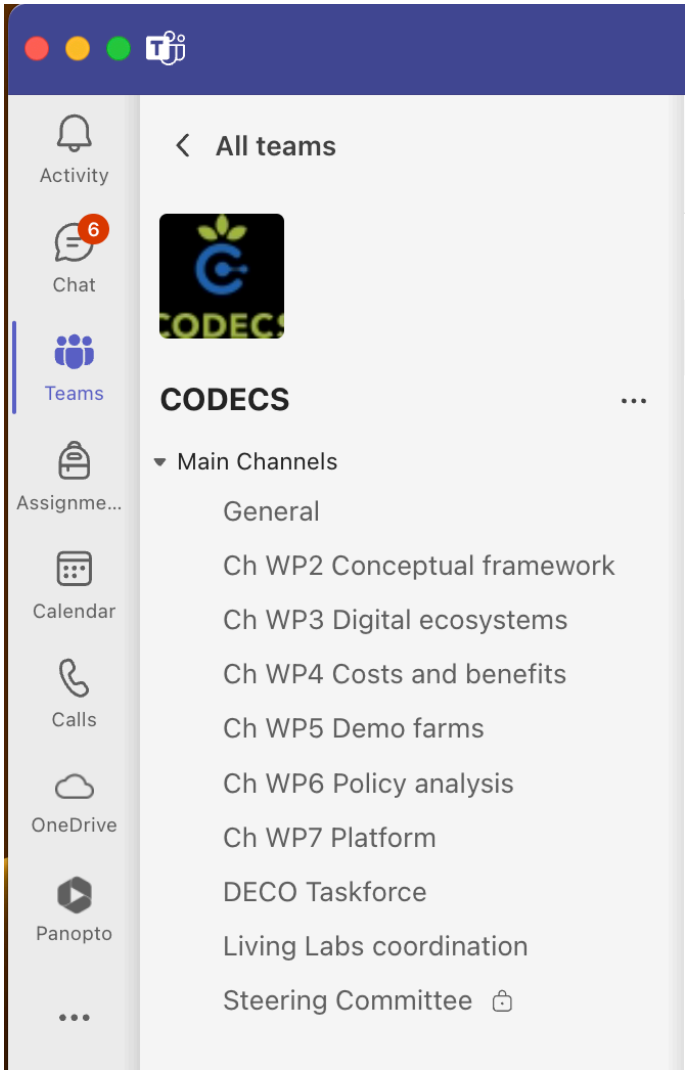


*Figure 4 – Channels of the team CODECS*

Except for the General one, the channels host discussions internal to the groups they are created for and allow to internally store temporary working files, whose use is not of particular interest of the project as a whole and that are deleted once a working step is completed.

The channel General is used for discussions and meetings involving the entire consortium, as well as to store and manage the project data relevant for the work of the entire project.

A clear convention for file naming has been adopted, as well as an agreed-upon folder structure, documented with a read-me file located at the root folder.

## 5.1 Folder structure

The team main folder is called Documents: it contains 1 folder for each channel, General included, as shown in the

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figure hereinafter.

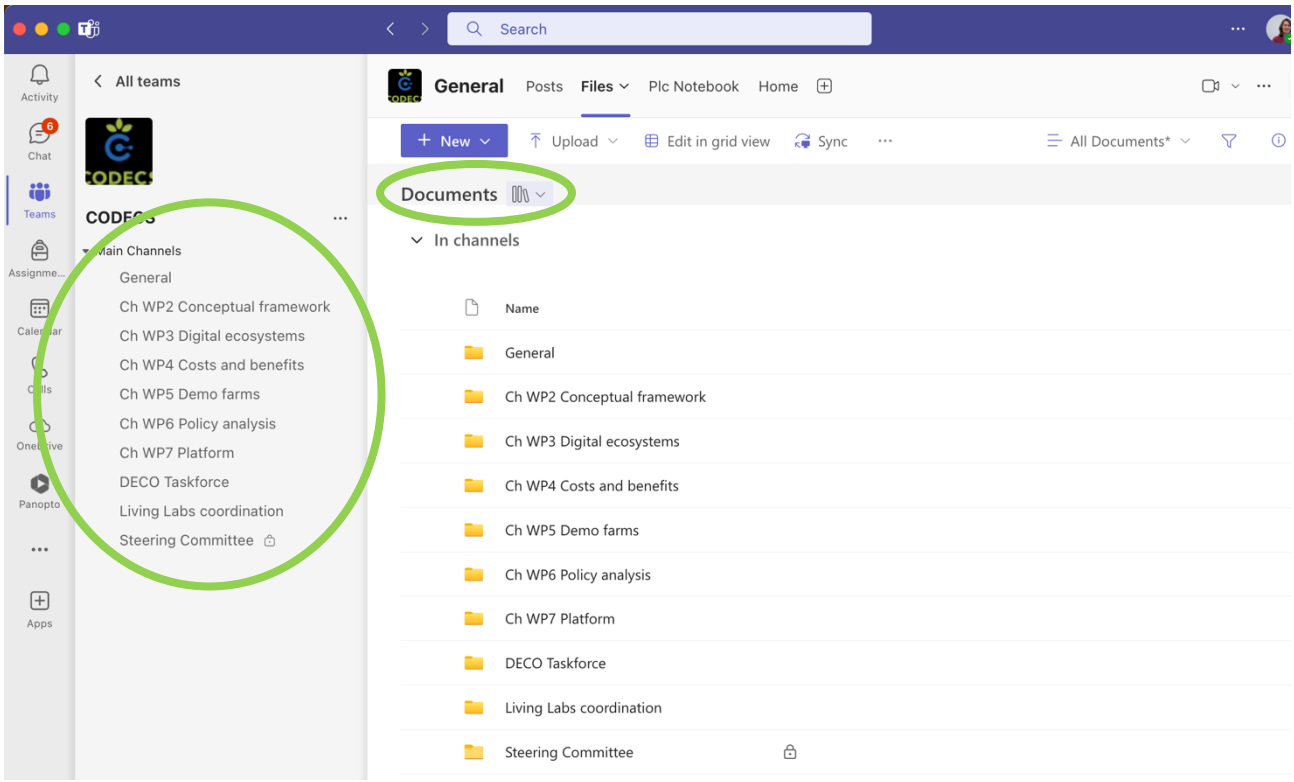


*Figure 5 – Folders of the Channels as they appear in Teams*

The working groups store and manage their internal working files in the folders of the channel they use (e.g.: notes of internal meetings, drafts of the documents to be prepared, presentations, internal mailing lists): if these files become relevant for the entire consortium, they must be copied in the appropriate folder in the General channel and their names must be modified in accordance with the rules outlined in paragraph 5.2. The management of files and data in the channels is out of the competence of the Project management as a whole, except for the files saved/to be saved in the channel General. Here, the folders are structured as follows:

- 0_Bibliography
- 1_Proposal&Evaluation
- 2_Agreements_GA-CA-3rdParty
    - ConsortiumAgreement
    - GrantAgreement
- 3_Delivered
    - ApprovedDeliverables (for Deliverables accepted by the Commission)
    - ApprovedReports (for accepted version of Reports to the Commission)
- WP number_ + keyword(s) identifying the WP. Activities or content, for example:
    - Interviews / Surveys:
        - Country
        - Year
    - Literature

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- Training
- Draft deliverable

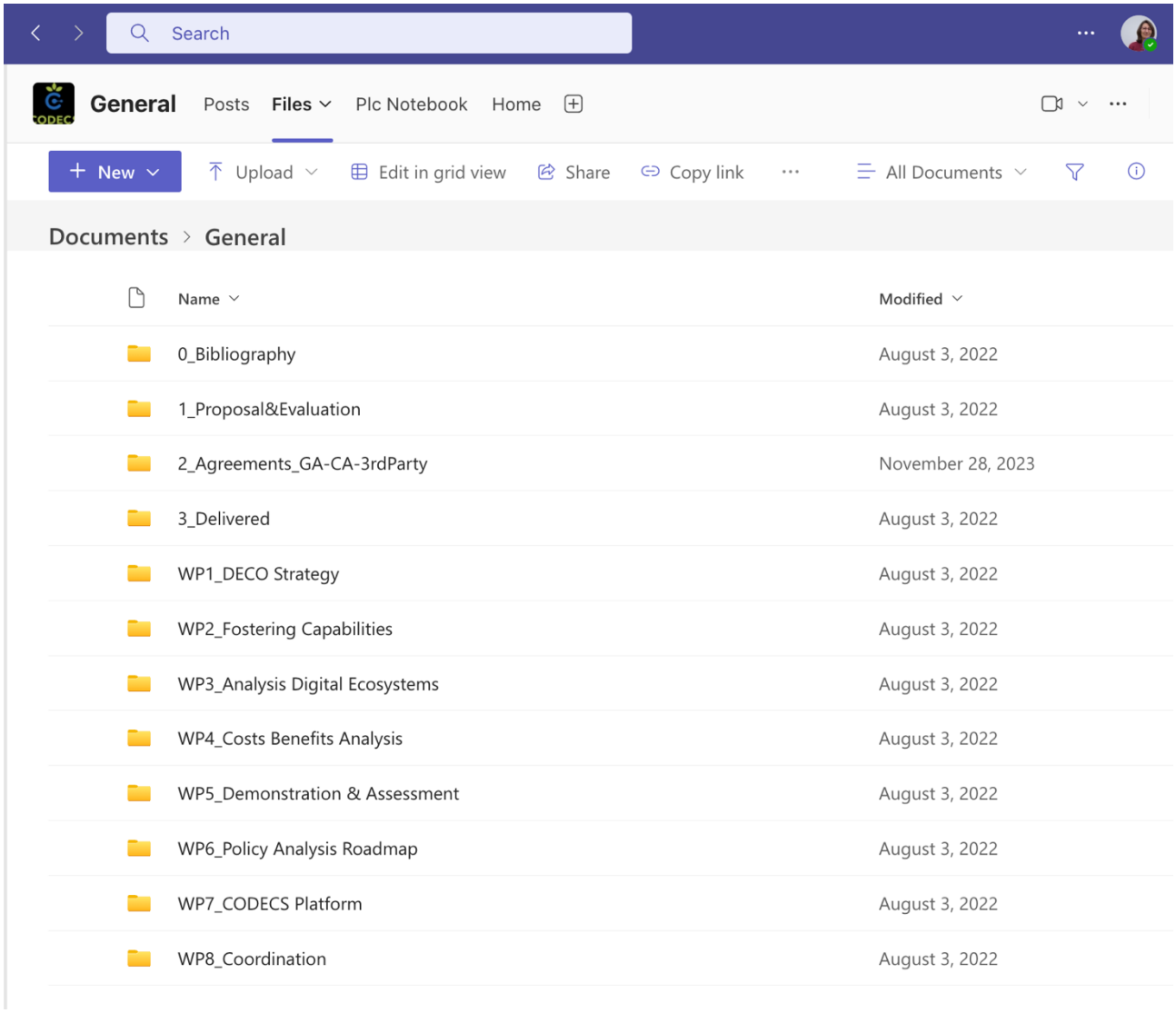


*Figure 6 – Folders in General as they appear in Teams*

## 5.2 File naming

Overall, the folders' structure allows to easily find the files as they are saved in the storage areas on the basis of the project structure, as explained in the above paragraph 5.1.

All files of particular relevance with regards to the project outputs as defined in the Grant Agreement are findable using the following file naming convention:

DocumentType_: **only if needed**. Only for files having particular relevance for the project: data, deliverables, policy briefs, reports, working papers. The document types are shortened as follows:

- DATA – short name DATA
- DELIVERABLE – short name DELNumberOfTheDeliverable
- POLICY BRIEF – short name PB

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- REPORT – short name REP
- WORKING PAPERS – short name WPP

Title_

VersionNumber_: if needed. The format is VNumberOfTheVersion

DateOfRelease: the date format is DDMMYYYY

File extension

Example of file naming: DEL8.2_DataManagementPlanUpdateM18_V1_31032024.pdf

The table below shows the file name in its components:

| DocumentType_ | Title_ | VersionNumber_ | DateOfRelease | Extension |
|---|---|---|---|---|
| DEL8.2_ | DataManagementPlanUpdateM18_ | V1_ | 31032024 | .pdf |

## 5.3 Selection Criteria for long-term preservation

To facilitate the reproducibility of the results and to increase the reusability of the data, these must be preserved in the long term through a reliable repository. For the choice of repository and its characteristics, see the section FAIR data management.

As CODECS project uses different types of data, the following rules apply for long-term preservation:

- Primary data collected in the project will be preserved.
- Secondary data, already available from other sources and provided with a persistent and unique identifier (PID), will not be preserved.
- Secondary data that, for the purposes of the project, are rearranged into original datasets (as for instance statistical data, even if data themselves have not been changed), will be preserved.
- Datasets whose data will be cited by any of the publications, reports, or deliverables, will be preserved.

To facilitate versioning, at different stages of the research life-cycle, depending on the level of processing, data in CODECS project may be referred to as:

**Raw data**: unprocessed data, eventually with full personal information (non-anonymized data).

**Processed data**: recodes, transformations, selections, or enrichment of the anonymized data, which are all captured and described in metadata and documentation files.

**Stable data**: processed data, on which no new data are added. These are preferably selected for long-term preservation.

In addition, personal data may be referred to as:

**Pseudonymised data**: raw data in which any personal identifiers are removed, but whose link to the data allowing identification is located separately.

**Anonymised data**: raw data in which any personal identifiers are removed.

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# 6 FAIR Data Management

The acronym FAIR - standing for Findable, Accessible, Interoperable, Reusable - and the FAIR principles are widely acknowledged in the scientific community as the model to follow to optimise the dissemination and exploitation of scientific resources. The aim of FAIR principles is to increase the possibility of finding, understanding, and using research data for anyone who can benefit from it.

This section describes the choices and actions for the CODECS project to be in line with the FAIR principles.

In accordance with the Grant Agreement, research data management within CODECS project follow the principle of "as open as possible, as closed as necessary".

## 6.1 Findability

A dedicated community in the Open Access **repository** Zenodo have been set up to facilitate the discoverability of CODECS research outputs and to guarantee long-term preservation.

The community can be reached at the following link:
https://zenodo.org/communities/codecs/records?q=&l=list&p=1&s=10&sort=newest

The policy of the Zenodo repository is available at the following link: https://about.zenodo.org/policies/

A guide for advanced search is provided here: https://help.zenodo.org/guides/search/

For the unique identification of products, on Zenodo a **Digital Object Identifier (DOI)** can be issued for each deposited product. Alternatively, an already registered DOI can be entered (for example if the publisher already provided a DOI for a publication). In addition, the use of **ORCID** as researchers' PID is supported.

Persistent identifiers also enable the proper citation of research artifacts and a standard citation is provided by Zenodo in order to facilitate the reuse and repurpose of the dataset while ensuring proper credit and recognition to the author(s).

Zenodo's **metadata** is compliant with DataCite's Metadata Schema minimum and recommended terms, with a few additional enrichments. Supplementary metadata will also be added and attached in .txt files whenever necessary to accurately describe the resource and make it fully understandable and reusable. Whenever possible the Data Documentation Initiative (DDI) metadata standards[5] will be used to document survey data and other data emerging from the activities of the Living Labs (social, behavioural, economic). For agricultural concepts, terms, definitions, the AGROVOC[6] multilingual controlled vocabulary will be considered.

In Zenodo the metadata of each record is **indexed** and searchable directly in the repository search engine immediately after publishing; the metadata of each record is also sent to DataCite servers during DOI registration and indexed there. Moreover, Zenodo's records are indexed in OpenAIRE, the Open Access Infrastructure for Research in Europe helping researchers report their publications to the EC Participant Portal and comply with the European Commission Open Access Policy. In fact after the records' metadata are harvested from OpenAIRE, they also become available on the EC participant portal.

The Zenodo community administrator will also take care that all the research outputs are properly linked to the CODECS project in OpenAIRE, so as to facilitate monitoring of results.

In addition, and in particular when required by partners' institutional policies, products may also be deposited in institutional repositories.

Below the list of Zenodo's metadata, with description.

[5] https://ddialliance.org/

[6] https://agrovoc.fao.org/browse/agrovoc/en/

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| Macroarea | Metadata field | Description |
|---|---|---|
| | Upload type* | Can be: publication, poster, presentation, dataset, image, video/audio, software, lesson, physical object, workflow, other |
| Basic information | Digital Object Identifier* | Can be cited an already existing one or newly issued |
| | Publication date* | Format: YYYY-MM-DD |
| | Title* | The title of the resource |
| | Author(s)* | The name(s) can be complemented with affiliation and ORCID |
| | Description* | Textual explanation and details |
| | Version | Mostly relevant for software and dataset uploads. Any string will be accepted, but semantically-versioned tag is recommended |
| | Language | Primary language of the record |
| | Keywords | Selected words to facilitate discoverability |
| Licence | Access right* | Can be: open access; embargoed access; restricted access; closed access |
| | Licence* | The licence specifying the condition for the reuse of the resource |
| Funding | Grants | Allows to specify the Research Funding Organization and grant number |
| Related/alternate identifiers | Related identifiers | Allows to specify identifiers of related publications and datasets |
| Contributors | Contributors | The name(s) can be complemented with affiliation and ORCID |
| References | Reference | Supports linking other resources (also external to Zenodo) |
| Journal | Journal title | Can be specified: journal title; volume; issue; pages |
| Conference | Conference title | Can be specified: conference title; acronym, dates, place, website, session, part |
| Book/Report/Chapter | Publisher | Can be specified: publisher; place; ISBN; book title; pages |
| Thesis | Awarding university | Can be specified: awarding university, supervisors |
| | Supervisors | The name(s) can be complemented with affiliation and ORCID |
| Subjects | Subjects | Here subjects can be specified from a taxonomy or controlled vocabulary. Each term must be uniquely identified (e.g. a URL) |

*Mandatory fields

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### 6.1.1 Enriching metadata

Depending on the type of data managed within the CODECS project, the following additional metadata can be added.

#### Documents

All CODECS **documents** will display the following information on one of the initial pages:

| Field | Content / description |
|---|---|
| Project name | Maximising the CO-benefits of agricultural Digitalisation through conducive digital ECoSystems |
| Project acronym | CODECS |
| Horizon Europe Topic ID | HORIZON-CL6-2021-GOVERNANCE-01-22 |
| Project ID | 101060179 |
| Project website | https://www.horizoncodecs.eu/ |
| Document type | Report / Deliverable / Briefing / etc. (see the complete list of document types at paragraph 4.1) |
| Title | The title of the document |
| Status | Draft / Final version /Final Version accepted by the Commission |
| Version number | |
| Dissemination level | Internal/Public… |
| Date of creation | DDMMYYYY |
| Date of release | DDMMYYYY |
| Author(s) | |
| Contributors | |
| Internal reviewers | |
| Work package Leader | |
| Project Coordinator | |

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| Field | Content / description |
|---|---|
| Keywords | |

### Dataset inventory in CODECS platform

The CODECS platform will host an inventory of dataset, which will be described with the following metadata:

| Property | Type | Notes | Description |
|---|---|---|---|
| **Mandatory metadata** | | | |
| Name | Text | - | A descriptive name for the dataset that reflects its content and purpose. |
| Sector (AGROVOC) | Text | List of open text | The domain where the dataset belongs to, e.g., agriculture, rural areas etc. |
| Abstract | Text | Open text or WYSIWYG | A short description that summarizes the dataset. |
| Description | Text | Open text or WYSIWYG | What the dataset contains, its source, and its potential uses. This can include information about data collection methods, variables, and any pre-processing steps. |
| Keywords (AGROVOC) | Text | List of AGROVOC and list of open text | Relevant keywords or phrases that describe the dataset's subject, content, and potential applications. In the CODECS platform it will be supported by AGROVOC, a multilingual controlled vocabulary covering all areas of interest of the Food and Agriculture Organization of the United Nations (FAO). |
| Date of release | Date Datetime | - | The date when the dataset was initially published or made available. |
| Data format | Text URL | List (multiple choice) | The file format in which the dataset is provided, such as CSV, JSON, Excel, jpeg, etc. |
| Creator | Organisation Person | Organisation<br>List (name, link)<br>Name: text<br>Email: text<br>Link: url | The individual or organisation responsible for creating and/or maintaining the dataset. The contact information of the creator is given within this property. |

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| Property | Type | Notes | Description |
|---|---|---|---|
| Licensing Scheme | URL | https://creativecommons.org/share-your-work/cclicenses/ | CC0 or CC-BY |
| **Optional metadata** | | | |
| Data collection method | Text | Open Text | The approach, technique and any relevant information on the method used to gather information within a dataset |
| Version | Number<br>Text | - | Each new version of a dataset may include minor documented revisions. Major updates, improvements, corrections, or additions to the data will be addressed in creating new entries of the datasets |
| DOI | Text | - | Persistent link provided by Zenodo |
| OECD Frascati classification | Text<br>Number | - | Categories of R&D activities |
| External data source | URL | - | The origin of dataset produced outside the project |
| Data usage/ Audience | Text | List | Target audience and/or user demographics |

### Other datasets and multimedia

To supplement the information expressed through the Zenodo repository metadata, additional metadata will be attached with a documentation file in .txt format. In this metadata, all the information needed to understand and enhance the reusability of the dataset will be added. If metadata standards suitable for the resource, especially disciplinary ones, will be identified, this will be indicated in the documentation .txt file.

Additional metadata may include:

| Metadata field | Description |
|---|---|
| Mode of collection | The procedure, technique, or mode of inquiry used to attain the data.<br>Vocabulary: DDI controlled vocabulary on mode of data collection: https://ddialliance.org/Specification/DDI-CV/ModeOfCollection_3.0.html |
| Country/ies of reference | To which country(ies) does the resource pertain |
| Year(s) of reference | To which year(s) the content of the resource refers |

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| Metadata field | Description |
|---|---|
| Data collection start date | Indicates the start of data collection |
| Data collection end date | Indicates the end of the data collection |
| Last Update | Indicates the date the resource was last modified |
| Data type | Dataset / Multimedia |
| Data formats | E.g.text / numbers / images / 3D models / audio files / video files / / surveys / maps / scientific articles .txt; .csv; .shp; .pdf, .stadat, .wav; .mp3; mp4 etc. |
| Data origin | Primary or Secondary |
| Source | The source of secondary data reused in CODECS project. Ideally a PID or URL can be added to the original source. |
| Licence | The original licence of secondary data |
| Software | If specific software is needed to access/process the data. If multiple are available, one is sufficient. Open Source or Free ones are preferred. |
| Data size | Known data size |
| Data version | Can be: raw data; pseudo anonymised personal data; anonymized personal data; processed data (see Personal data policy and paragraph 4.3) |
| Specific metadata for Video | This may include:<br>Type of product (interview, video-news release, documentary, stockshots, clips, etc); Director (if any); Place of the event; Start date of shooting; End date of shooting; Start date of distribution (if any) End date of distribution (if any); Script or short list with names and functions of the personalities filmed and clear identification (e.g.: from left to right; 2nd from left; etc.); **Links** and other useful information/website where the product can be viewed or downloaded; **Technical aspects** (such as format, sound transmission, etc) |
| Specific metadata for images | This may include:<br>**Date** when the photo has been taken; **Place** where the photo has been taken; **Event description**; Description of each photo with **names and functions** of the personalities photographed and clear identification (e.g.: from left to right; 2nd from left; etc.); Name of the **photographer**; **Links** and other useful information/website where the product can be viewed or downloaded; **Technical aspects** (such as format, resolution, etc.) |

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| Metadata field | Description |
|---|---|
| Specific metadata for audio | This may include:<br>Date when the audio was recorded; **Place** where the photo has been taken; **Event description**; **names and functions** of the personalities audio-recorded; Name of the interviewer/speaker/presenter; **Links** and other useful information/website where the product can be heard or downloaded; **Technical aspects** (such as format, etc.) |

**Software**

The Software that will be produced within the project to collect or analyse data will be shared through Zenodo repository, within the CODECS project community. It will be appropriately documented according to current standards (see section "Other research outputs"), and versioning procedures will be applied, if needed.

## 6.2 Accessibility

For long-term preservation and to increase the discoverability of the project results, the catch-all repository Zenodo has been chosen. Thus, the record metadata are always publicly available and licensed under **public domain** and no authorization is needed to retrieve them. At the same time, metadata contains the DOI of the record and they allow the user to reach the data itself.

### 6.2.1 Access to literature

CODECS project will comply with European Commission Open Access mandate on scientific literature by depositing a copy of each published article derived by the project activities that will undergo a peer-review process. All deposited articles will be assigned an open access right at the time of publication (no embargo period will be applied to scientific publications).

Green Open Access (i.e., self-archiving a version allowed for deposition in OA) will be the preferred route, although a specific budget to publish in Gold Open Access journals is reserved (only for full Open Access Journals, see paragraph "Estimated costs" for APCs).

Beneficiaries will ensure that they retain sufficient rights to provide Open Access to the scientific literature they will produce in the CODECS project.

The corresponding author of the published paper is responsible for depositing the open access version of the paper that is compliant with the publisher policy and the European Commission mandates.

As soon as possible after paper acceptance, and at the latest at the time of publication, the corresponding author should deposit in compliance with EC Open Access mandate and publisher Open Access policy, the version of the article that is permitted for open access in the Zenodo repository, include reference to the CODECS grant in the metadata, and set the open access to the file containing the machine-readable version of the article.

The use of Open Research Europe publishing platform will be encouraged, as well as the beneficiaries' participation in open peer review processes.

All articles should contain the reference to the project, possibly in the “funding” or “acknowledgment” sections. Suggested form is the following:

“This [article/chapter/report/result/equipment] is part of the CODECS project - "Maximising the CO-benefits of agricultural Digitalisation through conducive digital ECoSystems". The project has received funding from the European Union’s Horizon Research and Innovation Actions under the HORIZON-CL6-2021-GOVERNANCE-01 call, grant agreement No 101060179.”

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Specific training has been provided on all issues related to Open Science and Research Data Management (see the section on training in the paragraph "Quality assurance processes").

### 6.2.2 Access to data

The data collected or produced within the CODECS project will be made accessible through the Zenodo repository (see the paragraph 5.1 "Findability").

In accordance with the Grant Agreement, unrestricted and royalty-free access will allow third parties and the general public mining, exploitation, reproduction, and dissemination of research data generated by CODECS, thus maximising the impact on the scientific community.

Should the need arise, embargo periods will be clearly declared, accounting the need to balance openness and exploitation, protection of scientific information, commercialization, IP Rights, security, and preservation questions.

Open access will be granted to all data selected for deposition as soon as possible and considering proper versioning, or at the latest as soon as they are considered stable. For data continuously updated throughout the project, an annual deposit is established, incorporating appropriate versioning actions. See paragraph 4.3 "Selection criteria for long-term preservation" for further details.

As the CODECS project aims to collect primary data through interviews and surveys, all personal data are being treated in compliance with ethical standards and in full respect with the provisions of the GDPR.

In all cases where personal data are to be handled for research purposes, these will only be shared following anonymisation or pseudonymisation process, as described in the article 4(5) of GDPR.

If the data contain sensitive or person-identifying information, appropriate choices will be made (anonymization using specific software such as AMNESIA - https://amnesia.openaire.eu/ - or restricted or closed access).

If the restricted access option is chosen, guidance will be provided in the deposited item, clarifying who can request access, under which conditions, and to whom to address the request.

## 6.3 Interoperability

In order to enrich metadata and to achieve interoperability with other data, the resources listed in initiatives such as the RDA Metadata Standards Catalog (https://rdamsc.bath.ac.uk) and the FAIRsharing registry of standards and semantic artifacts (https://fairsharing.org/search?fairsharingRegistry=Standard) will be taken into account for the retrieval of specific controlled vocabularies.

For data description, AGROVOC, a multilingual controlled vocabulary encompassing all domains of interest for the Food and Agriculture Organization of the United Nations (FAO), will be used whenever suitable.

In addition to disciplinary related resources, Zenodo uses vocabularies for licences (provided by Open Definition), funders (by FundRef), and grants (by OpenAIRE).

To enrich the contextual knowledge about the data, while depositing a new research output, whenever suitable an attempt will be made to link and reference other related products with the appropriate metadata field, with the goal to create as many meaningful links as possible between (meta)data resources.

## 6.4 Reusability

Beneficiaries commit to attach additional documentation whenever it is necessary to add information to the metadata provided, in order to make the resources more understandable and thus to increase opportunities of data reuse.

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### 6.4.1 Documentation

Within the consortium, the documentation is being stored together with the data, in the corresponding data subfolder. For deposition and public sharing, the documentation is attached in the form of a readme file in .txt or other text format. The readme files eventually complements with information on methodology, codebooks, machinery settings, data cleaning, analyses, variable definitions, units of measurement, etc.

The project outputs will be reusable by third parties also after the end of the project. To this end, data and metadata are retained for the lifetime of the Zenodo repository.

The chosen repository also allows DOI versioning allowing to:

- edit/update the record's files after they have been published;
- cite a specific version of a record;
- cite all of the versions of a record.

### 6.4.2 Licences

To permit the widest reuse possible, CODECS outputs will be made freely available with a licence of the Creative Commons framework.

The data produced by the CODECS project will be made available under the latest available version of the Creative Commons Attribution International Public License (CC BY) or Creative Commons Public Domain Dedication (CC0) or a licence with equivalent rights.

Immediate open access is provided to the deposited publication via the Zenodo repository, under the latest available version of the Creative Commons Attribution International Public Licence (CC BY) or a licence with equivalent rights; only for monographs and other long-text formats, the licence may exclude commercial uses and derivative works (e.g. CC BY-NC, CC BY-ND).

If any of the data to be collected will be subject to commercial exploitation, the DMP will be immediately updated with full details of the type of data involved and the type of exploitation that will be applied.

### 6.4.3 Standard citation

When the data are deposited and access granted for reuse, a standard citation is provided in order to facilitate reuse and repurpose of the dataset while ensuring proper credit and recognition to the author. Zenodo provides standard citations in different styles, and which can be exported in different formats, all containing basic metadata (author, title, date) and a resolvable DOI.

# 7 Other research outputs

No physical products such as samples, new materials, reagents or similar are produced in the CODECS project. This section therefore gives details on the management of other digital products resulting from the project work and activities, in addition to the data, scientific literature and the so-called grey literature (i.e. everything beyond academic publishing in the narrow sense).

## 7.1 Software

All relevant software and computer code that will be produced in CODECS project to collect and analyse data will be properly documented and openly shared through the Zenodo repository.

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Licences are essential to establish the conditions for re-use, modification or distribution of the software as well. Once it has been ascertained who owns the intellectual property of the software created (the researcher(s) or the institution they work for), it will preferably be released under a Free and Open Source Software (FOSS) licence[7] between the ones listed by the Open Source Initiative: https://opensource.org/licenses/

For anyone to be able to read and understand the research software, the next points will be followed as far as possible:

- variables and functions names will be as self-descriptive as possible;
- proper code commenting will be realised while developing;
- a readme file in .txt format will be attached, including all irrelevant information (e.g. how to install and configure the software, if a full documentation is available and where it is possible to find it, if a quick-start guide has been released etc.);
- proper version control both of the software and of its documentation will be applied using Zenodo versioning functionalities.

## 7.2 Communication materials

One of the project goals is to enable a two-way communication between researchers, all relevant stakeholders, the widest scientific community and society at large. A variety of outputs are envisaged for dissemination purposes: articles, newsletters, reports and videos. Besides, social media accounts are managed.

Moreover, a project website has been developed for the project results to be publicised. It can be reached at the following URL: https://www.horizoncodecs.eu/.

The website server is hosted by Siteground with IP 35.214.213.135. The appropriate cookie policy is displayed on the website. Whenever possible, the DOIs of products published elsewhere and deposited on Zenodo will be referred. The project data, properly anonymised if needed, may also be displayed on the project website, always referencing the deposited version in the repository with the appropriate PID.

For the protection and management of personal data, please refer to the ethics section. Whereas for the selection of material to be eventually deposited in Zenodo, please refer to the specified criteria (see paragraph 6.1).

# 8 Estimated costs

The following costs are estimated:

1. Planned budget for long-term preservation: no costs are expected for using the Zenodo repository.
2. Purchase of the following supplies and software for the communication and dissemination strategy:
   - Artgrid: 18,60 EUR/month;
   - Freepik: 8,06 EUR/month;
   - Sendinblue: 49 EUR/month;

[7] Morin A, Urban J, Sliz P (2012) A Quick Guide to Software Licensing for the Scientist-Programmer. PLoS Comput Biol 8(7): e1002598. https://doi.org/10.1371/journal.pcbi.1002598

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- Total: 75,66 EUR/month, that is 3.631,68 EUR for the whole project (48M).

3. Publication costs: Gold Open Access will be considered when publishing in leading international journals. An estimated budget of 20.000 euros has been allocated for the APCs in fully Open Access publication venues.
   - Beneficiaries are aware that publication fees are only eligible when publishing in full open access journals.
   - The Green Open Access will be practiced in case a subscription-based venue will be chosen for publication.
   - The Open Research Europe publishing platform will also be considered.
4. 50 euros for a 1 TB Hard disk for data storage.
5. Other infrastructure or software costs that are not detailed here are considered in-kind by the consortium institutions.

# 9 Data security

This section addresses data storage during the project, the foreseen backup strategy and specifies who does what. Moreover, the initiatives and processes to ensure data quality are outlined.

## 9.1 Roles and responsibilities

Researchers, technicians and Living Lab participants will be in charge of **collection** of research data.

Both Living Lab coordinators, acting as supervisors, and researchers will deal with data quality assurance. With specific reference to personal data it is clear that the security of personal data and the compliance with the GDPR are in charge to the data controller (art.4, n.7 controller 'means the natural or legal person, public authority, agency or other body which, alone or jointly with others, determines the purposes and means of the processing of personal data; where the purposes and means of such processing are determined by Union or Member State law, the controller or the specific criteria for its nomination may be provided for by Union or Member State law').

If needed, institutional staff, such as data management staff, could be involved in the management of research data.

All data will be on servers that are password protected with secure online access and authentication measures.

The project coordinator (UNIPI) will be responsible for granting access to the data in the shared project folders, while the list of authorised staff will be provided by the project leader of each partner institution.

The project coordinator is responsible for the quality of the DMP and for its implementation during the project's lifetime.

Within the project consortium, all the involved beneficiaries are responsible for:

- uploading all data related to the project into the designated data repository; verifying that sufficient metadata are provided;
- ensuring that data structure, naming, etc. comply with the DMP.

Besides:

- Cnr-Ifac is responsible for managing personal data protection and ethical issues.
- UNIPI (with CNR-Isti support) is responsible for the update of this DMP whenever any significant change occurs and at scheduled mandatory updates.

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## 9.2 Data storage and back-up

The data is being stored in institutional servers and cloud services during the collection phases. All the data relevant for the activities of the consortium are stored and managed by the Microsoft 365 platform and cloud service provided by the project coordinator (UNIPI).

This cloud environment is based on Microsoft Azure technology. The disaster recovery solution is based on the backup solutions offered by Microsoft Azure cloud services, which are GDPR compliant. In addition, the project coordinator ensures at least six-monthly back-ups of all project data stored in non-Microsoft infrastructure.

## 9.3 Quality assurance processes

Since CODECS project includes data collection from different stakeholders through living labs, specific training materials and activities are underway in order to ensure the highest level of quality. Training activities are being carried out periodically, with a focus on how to collect data and how to assure data quality.

In addition, manual control, **pre-processing and cleaning** steps are being implemented on unstructured raw data whenever necessary.

Proper trainings have been already provided on **legal and ethical aspects and on open science**.

In particular, the first training session was about personal data and its aim was to make the beneficiaries aware of the roles and responsibilities to properly process this kind of data in compliance with the relevant legislation. In addition, some instructions were given with respect to the involvement/recruitment of individuals in CODECS research activities, namely the necessity to obtain complete and legitimate consent from the data subjects, the respect of confidentiality and the safeguard of the voluntary nature of participation of all persons interviewed.

Furthermore, they have been trained on the different pre- and post-peer-review versions (preprint, Author's Accepted Manuscript - AAM - and the Version of Record - VoR), on the Rights Retention Strategy, and on the use of tools to check editorial policies such as Sherpa Romeo, specifying that publication fees are only eligible when publishing in full open access journals. The slides used in the trainings have been made available to the partners in the proper project folder, and publicly shared in the Zenodo community.

# 10 Legal and ethical aspects

In CODECS project a comprehensive framework for managing personal data was developed to effectively trace how LLs handle such data and how this impacts project activities, particularly those involving natural persons.

The data flow, as depicted in Figure 7 “Overall dataflow between LLs and WPs”, incorporates LLs activities in data collection, including their handling and pseudonymisation role in managing personal data. The figure illustrates the kind of personal data collected and provides an overview of their moving that is functional to address the data protection in CODECS as in the privacy-by-design tools described in the next paragraph.

Various activities are organised within LLs as requested by the different Work Packages and task leaders and the main occasions for the data collections are the focus groups, interviews, questionnaires, surveys and observations. For instance, through the participation list at the LL annual workshop, the following personal data are being collected: name, surname, occupation, eventually personal contact (email) and signature. Even the Demo activities could be occasions to collect this kind of data (e.g. name, surname, contacts). As far as interviews are concerned (for C&B analysis at farms level) personal data can be collected such as name, surname, position, address, income. No special categories of personal data are used. The data subjects involved are mainly those acting in the LLs, that is, participants in the LL annual workshop, farmers that are interviewed and other actors involved in the Focal Action Situation that are interacting for the purposes of the project.

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Against this background, the LL coordinators collect personal data and consent forms, then pseudonymise these data before sending them to the WPs. The LL coordinator will keep at the level of the LLs the link between the real ID and the anonymised ID. More precisely, these data will allow to retrieve – if necessary – the link between the involved stakeholder and the information related to him/her. For example, when in a focus groups, the farmer is pseudo-anonymised by means of an ID (ID: FARM 1) that makes possible to retrieve who he is if new questions occur. Data are stored in a folder within a targeted space by the LLs coordinators who also set the appropriate security measures.

When it comes to the participation of individuals, information sheets and consent forms are provided by the WP leaders: such documents are meant to explain the research activities and their scopes. Data are pseudonymised before being sent to the WPs and the data subjects are referred to specific assigned IDs, e.g.: FARM1 instead of the name of the 1st farmers; SH1 instead of the name of the 1st stakeholder; CIT1 instead of the name of the 1st citizens etc.. The link between the real ID and the pseudo-anonymised ID is kept with the raw data and held by the LLs coordinators.

Considering the management of personal data (i.e. name, position, country of origin and organisation) by WPs (as indicated in the picture below *"Personal data management by WPs"*), these data refer to project stakeholders, research participants and project staff and the processing activities are video recording, event registration documents, storage, data collection. The majority of WPs (WP1, WP6, WP7 and WP8) will not transfer data to third countries, WP5 maybe will take this issue into consideration for open demonstration events.

The project website (https://www.horizoncodecs.eu/) also hosts a personal area, accessible with personal credentials only after registration and approval. This section is used to register demo farms and to report demo events. Data collected in this section is visible only to personnel associated with WP1 and WP5, whereas information on demo events can be disseminated or collected for reporting purposes only, according to a choice made in the backend form.

The CODECS project also features a platform (https://www.digital-agriculture.horizoncodecs.eu/) that hosts a personalised section exclusively available to designated consortium partners. Access to this area is contingent upon approval from WP7 and is subject to an authentication process.

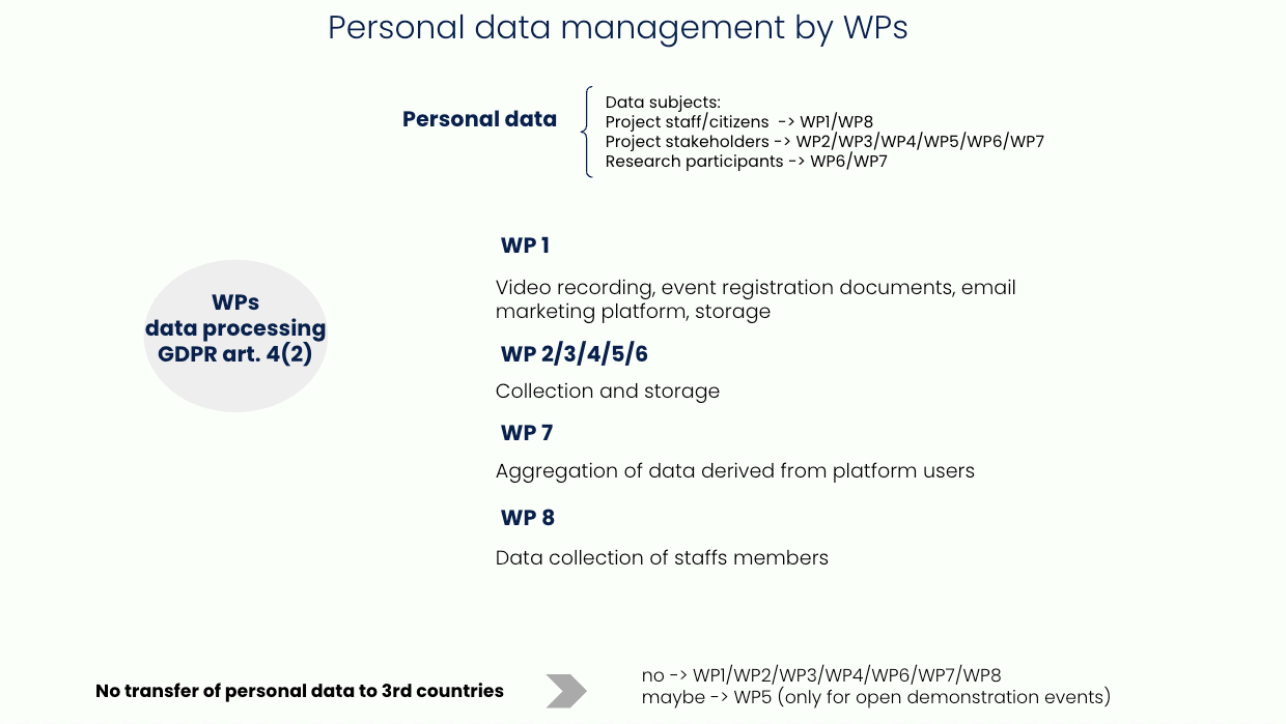


*Figure 7 – Personal Data flow for WPs*

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## 10.1 Privacy-by-design tools: Personal data policy ad Ethics requirements

As indicated in the first version of the DMP and pursuant to the activities implemented within CODECS, a Personal Privacy Policy was elaborated to support the partners in processing personal data. This document aims at raising awareness of the legal and ethical requirements when processing personal data across the projects activities towards the achievements of results. The main goal of the Personal Privacy Policy is to equip the CODECS consortium with an instrument providing indications on the relevant implications in handling personal data.

The Privacy Policy is structured in sections that should be consulted along with the attachments that consist of practical forms and sheets to be used for research activities.

In accordance with EU legislation, namely the Regulation EU 2016/679 on the protection of natural persons about the processing of personal data on the free movement of such data repealing Directive 95/46 (hereinafter referred to as GDPR) as well as the applicable laws, recommendations and authorisations issued by the Supervisory Authorities, the sections of the Personal Privacy Policy describe the notions and legal requirements for the lawful and secure processing of personal data within CODECS. The Personal Privacy Policy includes the following attachments:

- Attachment 1. General Information on the Treatment of Personal Data for the CODECS Project;
- Attachment 2: CODECS Table Purpose of Processing: Scientific Research;
- Attachment 3: CODECS Table Purpose of Processing: Communication and Dissemination;
- Attachment 4: Information on the Treatment of Personal Data for Stakeholders;
- Attachment 5: Informed Consent for Stakeholders;
- Attachment 6: Informed Consent for Speakers Invited to Conventions and Events;
- Attachment 7: Informed Consent of Conventioneers/Persons Attending Events.

The release of the Personal Privacy Policy was preceded by a training seminar describing its correct implementation and a constant support for its use was ensured by the coordination.

Special attention has been put on informed consent as pivotal for legitimate processing of personal data and CODECS partners were made aware that consent to the processing of personal data for research activity is separate from consent to (and to be involved in) research activity. This implies that when it comes to research activities involving the participation of individuals, the Personal Privacy Policy must be read jointly with the Ethics Guidelines made to support CODECS partners when recruiting/inviting people to join the activities of the project. In this case, partners are invited to make use of the provided attachments to the Ethics Guidelines and more precisely:

- Information sheets for participants;
- Informed consent forms;

In all activities realised, the above-mentioned sheets must be delivered jointly with the Attachment 1. General Information on the treatment of personal data for the Codecs Project of the Personal Privacy Policy.

The attachments of both the Personal Privacy Policy and the Ethics requirements were also put at the CODECS partners' disposal through the shared folder of the project. Moreover, the attachments and forms also include instructions for their compilation in comments.

The CODECS partners are made aware of the necessity to use the above-mentioned attachments and forms. Partners are responsible for the use of forms other than those above mentioned and provided. Partners assume responsibility that the content of different forms, which are not the ones above mentioned and provided, complies with the legal requirements for the processing of personal data.

Based on meetings with WPs, it emerges that the processing of the personal data, which comes from the activities of the LLs, the website, the contacts with the stakeholders, is co-determined by all Consortium members. Therefore, pursuant to art. 26 GDPR and as agreed in the CODECS Consortium Agreement (art. 4.4.) a Joint controller agreement has been set. The reference to the joint controllers has already been inserted in the consent forms and

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information sheet for the project activities. In case, partners intend to use other forms and information sheets than those provided by the coordination and under their responsibility, they are strongly invited to indicate as follows: "The Parties of CODECS shall act as joint controllers for the processing of personal data in accordance with art. 26 GDPR".

# 11 Gender perspective

## 11.1 The rationale for the gender dimension within the DMP

In the first version of the DMP, gender-related aspects were addressed through a preliminary survey circulated among CODECS partners. The survey focused on gender balance within the organisational and operational structure of the Work Packages (WPs), aiming to assess whether participation occurred on equal footing. It also sought to understand partners' awareness and consideration of gender issues in the context of research and training activities.

To update this section, a new set of questions was posed during the General Assembly held in Ljubljana from 23 to 24 September 2025. These questions were addressed to all participants and aimed to actively engage them in reflecting on gender-related dynamics within the project, including inclusivity, representation, and the integration of gender perspectives in ongoing activities.

A questionnaire was presented, and responses were collected anonymously. Below is a summary of the questions posed, and the insights gathered from participants. Hereinafter the questions:

- **In your opinion, how inclusive is the project environment for people of all genders?** *(Score 1-5: from Not at all to Very inclusive)*
- **Have you observed any unconscious biases or barriers related to gender in project activities or interactions?** *(Yes / No / Not sure – with optional comment box)*
- **What do you think could help improve gender balance in research teams and decision-making roles within the project?** *(Key word - Open text)*
- **Do you feel that gender diversity is valued and encouraged in this project? Why or why not?** *(Open text)*
- **Do you feel that gender diversity is valued and encouraged in the activities carried out in the frame of the LLs activities? Why or why not?** *(Open text)*

## 11.2 Analysis of the information provided on the gender perspective

The responses to the questionnaire suggest that the project environment is widely perceived as inclusive and balanced in terms of gender. Most participants rated the inclusivity highly and expressed that gender diversity is both valued and naturally integrated into the project's structure and activities. While some respondents proposed improvements such as gender equality training, mentorship, and monitoring, many felt that no specific measures were needed due to the already positive environment. Living Lab activities received mixed feedback, with recognition of female involvement but also acknowledgment of male dominance in farming roles. Reports of unconscious bias

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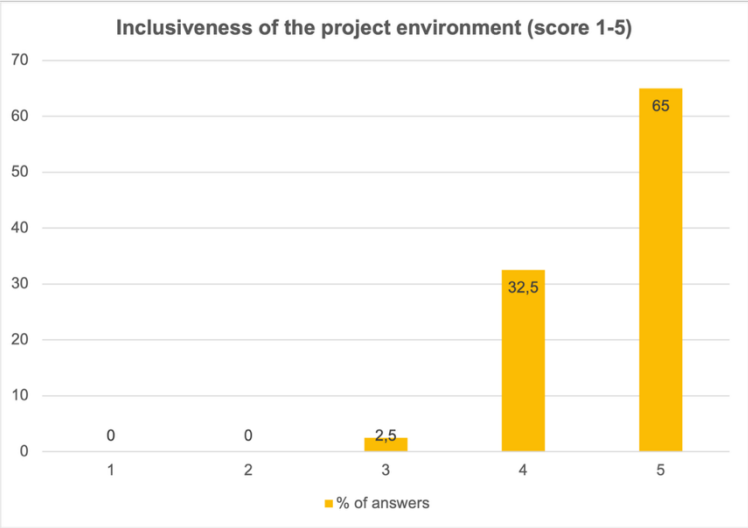
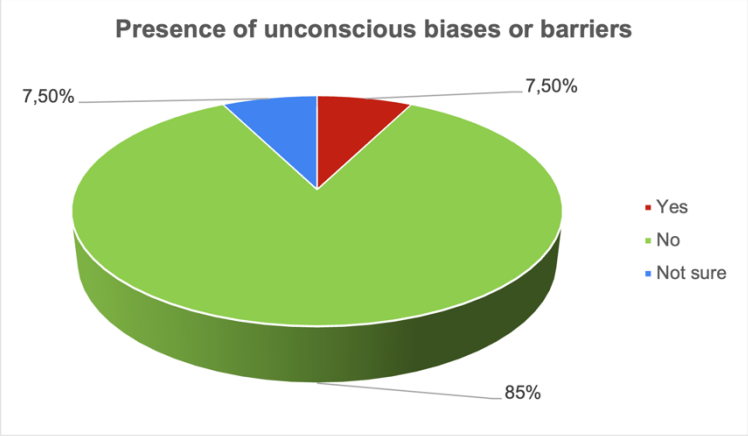
were rare, though a few noted subtle dynamics in group interactions. For a detailed breakdown of responses, please refer to the below charts and the accompanying tables.




| What do you think could help improve gender balance in research teams and decision-making roles within the project? | Do you feel that gender diversity is valued and encouraged in this project? Why or why not? | Do you feel that gender diversity is valued and encouraged in the frame of the LLs activities? Why or why not? | Comment on the question on unconscious biases or barriers related to gender in the project |
|---|---|---|---|
| I do not know | Yes, there is attention on this aspect | Yes, women are also LL coordinator, researcher... | NA |
| Gender equality training: why and how | Yes | Yes | Biases are more related to having a opinions heard by the more extroverted and outspoken person (no matter of the gender voicing opinion publicly can be stressful) |

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| What do you think could help improve gender balance in research teams and decision-making roles within the project? | Do you feel that gender diversity is valued and encouraged in this project? Why or why not? | Do you feel that gender diversity is valued and encouraged in the frame of the LLs activities? Why or why not? | Comment on the question on unconscious biases or barriers related to gender in the project |
|---|---|---|---|
| The current balance is ok | I think there is a lot of presence of women in task or wp leads | It is encouraged, but not too many farmers are women | NA |
| I think it is working well | Highly valued in this project, more than in other projects that I am part of | Yes, I am not part of LL, but it looks like this is encouraged | No, I did not observe anything like that |
| Having more women involved in research activities | Yes, I think it's valued | I have not enough information to answer this question | NA |
| Better information and adaptability | Yes. The project is managed by a man but the real core of it is leaded by women | Yes. I don't see big differences in explaining and managing the LL activities | NA |
| Don't know | Don't know | Don't know | NA |
| no suggestions | Yes, a lot of female WP leaders | Not really | NA |
| Provide gender equality training | I feel that it is valued and encouraged. Although, agricultural research is composed mainly by male personnel, the project team seems to present a similar number for each gender (including in leadership roles). This balance is likely to promote more equal values to each gender's contributions | Depends. It seems that many LL are represented by female participants. On the other hand, most of the farmers are represented by males | NA |
| Don't know | Yes | Yes | No comment |
| Setting up targets for numbers of women leading WPs (though I think it is probably already fairly equal?) | Yes - there are lots of women in the consortium group, but I do not know if it's because of chance | Not explicitly. It should be more so. It isn't mentioned, and farmers are often male | Simply because farmers are often male - not intentional |

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| What do you think could help improve gender balance in research teams and decision-making roles within the project? | Do you feel that gender diversity is valued and encouraged in this project? Why or why not? | Do you feel that gender diversity is valued and encouraged in the frame of the LLs activities? Why or why not? | Comment on the question on unconscious biases or barriers related to gender in the project |
|---|---|---|---|
| Systematic monitoring of gender indicators within each WP and Living Lab<br>Promoting visibility of female experts and role models across project communication | Yes, gender diversity is valued in CODECS, as shown by the presence of women in coordination teams, regular attention to inclusive language, and efforts to foster a collaborative environment | Yes, women are actively involved in coordination, research, and field testing, especially in areas like data collection, stakeholder engagement, and communication. However, further steps could be taken to empower women in technical development, e.g. AI modelling or sensor integration | NA |
| I think no improvement is needed | Yes because there are given opportunities to everyone to participate | Yes because there are given opportunities to everyone to participate | |
| I think that the environment is already very good in aspect of gender inclusivity | Yes, because the opinion of both genders is very important. The farms are mostly family businesses | It is not very important because we need expert reflection | NA |
| I don't think the project itself can do something about it. It's more about how the research teams are built | it's neutral | It isn't very addressed as is | NA |
| En scientific research I don't see big problems on gender balance. At farm level is totally different | I think there are not problems | I don't work in any | NA |
| I don’t think there is an imbalance | It is valued. Maybe encouraged also, but am not aware of (which is OK, implicit encouragement is sometimes better) | It is valued and encouraged in our LL. | NA |
| Promotion of good practices and success stories | Yes as I didn't notice that diversity is an issue in CODECS | It is not encouraged neither hindered. It was not the topic among our LL. We were focused on other dimensions | Not so far |
| No need of gender balance just no gender discrimination | Not specifically, no gender selection to take part in the project | Not especially in a way or another. We can note that the agriculture sector is still mainly masculine | No gender difference exists facing digitalisation issues |
| Analysis and feedback | Yes, because it appreciates all the participations | No, it’s indifferent | NA |

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| What do you think could help improve gender balance in research teams and decision-making roles within the project? | Do you feel that gender diversity is valued and encouraged in this project? Why or why not? | Do you feel that gender diversity is valued and encouraged in the frame of the LLs activities? Why or why not? | Comment on the question on unconscious biases or barriers related to gender in the project |
|---|---|---|---|
| NOTHING | Gender diversity is not valued nor encouraged, as I think that there is absolutely NO issue of gender balance/diversity in this project. A lot of women are WP leaders (more than men!!) | Gender diversity is not valued not encouraged i LL activities, as there is no real issue related to gender value in the LL | NA |
| Talking about it | Yes, the gender is balanced | Yes, same as above | NA |
| NA | Yes, quite a good diversity level | NA, I'm not involved enough in the LLs to have a point of view on the processes within them | NA |
| No needs for improvement | yes, there is a good gender balance and people cover different roles independently than the gender diversity | Not necessarily, however many LLs coordinators are women | NA |
| Gender neutral language | Yes valued, not sure if it is encouraged | We try, but are not always successful | NA |
| Mentorship | I think codecs is gender neutral | Not involved in LLs | NA |
| I think, the project has very good gender balance | Yes. Everybody has opportunity | Yes. Everybody has opportunity | NA |
| Diversity of partners: NGO, research, tech company... | Don't really know | Yes, I think so | NA |
| I think there is a good gender balance in the research teams | The project values and encourages gender diversity as it pays attention to fully involve women in all its activities: this meets the project vision | I don't see particular effort to value and encourage the gender diversity, but as a matter of fact there is a good number of women actively participating at the project activities | Unconscious biases/barriers are sometimes clear when speaking in groups as men in some cases talk over women |
| Periodic assessments and surveys that allow us to identify any emerging issues | I do not think that gender is an issue in this project (as regards the project team) | I do not think that it is explicitly addressed | Maybe ask about whether people have experienced discrimination or have somehow been affected by biases |

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| What do you think could help improve gender balance in research teams and decision-making roles within the project? | Do you feel that gender diversity is valued and encouraged in this project? Why or why not? | Do you feel that gender diversity is valued and encouraged in the frame of the LLs activities? Why or why not? | Comment on the question on unconscious biases or barriers related to gender in the project |
|---|---|---|---|
| In my opinion the CODECS project is well balanced in terms of gender. The working teams always include both, male and female equally. Additionally, in my knowledge there weren't any situations in which someone is degraded or not valued because of their gender. The decisions, opinions, work and roles of each person are highly respected among all partners, regardless the gender | Yes, it is valued, because the activities are dedicated to teams, which consist of men and women equally | Yes, it is valued. As a Living Lab representative, in our LL people responsible for organizing and managing the LL are 2, 1 male and 1 female. Also, we always make sure to include diverse stakeholders, at least we make sure 1/3 are female | NA |
| Strong mentoring programs, and supportive work–life balance policies | Yes, when we look at the composition of the team, individual partners support gender diversity with their approach | yes, there is a lot of room for the development of both women and men, the teams are gender diverse and this brings new perspectives on solutions to projects - the perspective of men and the perspective of women - often very different, but a comparison of perspectives is necessary | Definitely not |
| In general, I don't like any specific measures about gender balance, equality, or similar, rather prefer expertise | Don't know | Don't know. I don't have issues with gender | NA |
| From my experience, I don't think gender balance is an issue that needs improvements in the project | From my experience, gender diversity is valued and happens naturally within the project activities | I have not been involved in LL activities | NA |
| No issue | There is no issue known to me | There is no issue known to me | There is no issue known to me |
| Develop a plan of current DM and see if there is a need to balance it | Yes, many partner have women at high position in the DM process as well as many collaborators | Yes, many living labs are coordinated by women | NA |
| Having dedicated discussions | Yes, but more could be done. Non-binary is never mentioned. Short presentation slots could be dedicated to presentation of these themes and exchange | I saw many gender balanced meetings but usually with men as leaders | NA |

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|---|---|---|---|
| Gender balance could be improved by continuing to ensure transparent selection processes, encouraging diverse participation, and supporting flexible working arrangements | Gender is not something that seems to be particularly emphasized in this project | I haven't really noticed gender being emphasised in LLs | NA |
| It is very important to include both gender aspects, therefore both genders should be included in all the related activities | I would say by the gender structure the project team is balanced. | I think it is, since in the team that is implementing LL we have gender diversity, as well as on the demo farm | Agriculture is mainly traditional, and therefore more inclined to the male gender |
| Achieved | many women leaders of various tasks and WPs | A little less so, depending on the LL, given that some LL involve more traditional farmers | Some LL members still treat women as "helpers" and not leaders, but nothing too serious |

# 12 Revisions of the Data Management Plan

The present Data Management Plan will be mandatorily updated at M48 (September 2026) of the CODECS project. It will also be updated whenever any relevant change occurs.

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