



HarvREST
Greener Farming with RES

D1.3

Project Management Plan (first version)

29 / 02 / 2024



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1.0	29/02/2024	Final version submitted to EC	CIRCE

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This project has used a standard methodology already developed in the NENUPHAR project (Grant Agreement number: 101082169). *Ad hoc* modifications were added to comply with the conditions of the Grant Agreement for HarvRESt project (Grant Agreement number: 101136904).

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ABBREVIATIONS

AVPP	Agricultural Virtual Power Plant
BM	Business model
C&D	Communication and Dissemination
CA	Consortium Agreement
CWA 17898:2022	Methodology to quantify the global agricultural crop footprint including soil impacts
DLV	Deliverable
DSS	Decision Support System
EC	European Commission
EU	European Union
GA	General Assembly
GDPR	General Data Protection Regulation
IPR	Intellectual Property Rights
KPI	Key Project Indicator
MCDA	Multi Criteria Decision Analysis
MS	Milestone
PC	Project Coordinator
PGEP	Project's Gender Equality Plan
PMP	Project Management Plan
PU	Public
QMP	Quality Management Plan
R	Document, report
RES	Renewable Energy System
SEN	Sensitive
SME	Small and Medium Enterprise
SSH	Social Sciences and Humanities
TP	Task Participant
UC	Use case
WBS	Work Breakdown Structure
WP	Work Package
WPL	Work Package Leader

1. EXECUTIVE SUMMARY

Deliverable 1.3, Project Management Plan is the first version of its kind, which overviews the objectives of the HarvREST Project, breaks down the work structure and details the participants and their role within the project. Interactions between work packages are also shown, as well as check points for the control progress and the specific objectives and expectations.

As a living document, this deliverable will be updated twice through the project lifespan.

2. INTRODUCTION

Competitive conflicts for land use between the energy and food sectors have appeared, which could be mitigated by the vertical integration of Renewable Energy Sources (RES) in farms through new circular business models. By this approach, farms will become climate neutral, optimising their production and reducing their impact on natural resources and biodiversity, on top of providing energy services to communities and diversifying their economic income.

HarvREST will try to solve this problem improving the existing knowledge of the use of RES in the agro food sector. For that an Agricultural Virtual Power Plant will be developed able to run different scenarios and farm configurations to determine the best operation procedures for a given RES solution. This data will be then provided to a decision support system able to weight trade-offs and key indicators to provide ad-hoc recommendations to farmers and policy makers, thus enabling the consecution of improved production rates on renewable energy, food & feed within agro communities.

For the successful execution of HarvREST and implementation of recommendations, a multi-actor approach fostering co-creation sessions together with the provision of training materials for farmers empowerment will be implemented. The full approach of HarvREST will be supported and executed at 4 use cases representing different topologies of farms, a diversity of stakeholders and organizational structures, distinct geographical conditions and a wide variety of RES technologies.

In this document, the initial version of the HarvREST Project Management Plan (hereafter referred to as PMP) is designed to ensure that all partners are aligned towards common objectives. It achieves this by delineating various work packages, their interconnections, and task relationships.

The primary and specific objectives of the project, along with a timeline of activities and checkpoints for monitoring progress, are established to minimize misunderstandings, conflicts, and resource utilization.

Deliverable 1.3, the Project Management Plan (PMP), represents the first edition of its kind. It provides an overview of the HarvREST Project's objectives, breaks down the work structure, and delineates the roles of participants. It also illustrates interactions between work packages, checkpoints for monitoring progress, and specific objectives and expectations.

This PMP will evolve alongside the project's advancement. At any given time, it will accurately reflect the current state of consortium agreements regarding task and subtask schedules, responsible partners, and dependencies on other tasks and outcomes. The PMP will undergo two additional updates as outlined in Annex I of Grant Agreement No. 101136904.

3. TEAMS COMPOSITION AND ROLES PER ENTITY

This section introduces the entities that participate in HarvREST project and their role and participation within the lifetime of the project (Table 1).

Table 1. Entities participating in HarvREST and their role

Category Level 1	Category Level 1
CIRCE	As Project Coordinator, CIRCE will ensure the correct execution of the project in terms of time, quality and costs (WP1). CIRCE also leads WP6 where the development of HarvREST AVPP and DSS based on a MCDA will be done. Besides, CIRCE is actively participating in WP5 in order to obtain both a library of renewable alternatives for agricultural communities and the HarvREST hybrid models for the definition of optimal operation modes.
BETA Technological Centre (UVic-UCC) (BETA CT)	BETA CT is responsible for the coordination of WP2: Knowledge and perceptions gathering through a multi-actor approach and WP4: Sustainable practices on agro-communities. The main activities are linked to (i) the characterisation of HarvREST use cases through a multi-actor approach (ii) the establishment of the use cases working groups, and iii) the arrangement of HarvREST laboratory set-ups and trials. For this last task, we will analyse the experimental testing of the selected mitigation practices at the different demos and have a general overview of the different measures related to the use of RES technologies in agricultural production, participating as well in the development of the Agro-KPIs. Furthermore, BETA CT will be the technical partner linked to the Spanish use case in Torre Santa Maria together with SORIGUÉ.
NORCE	The main role of NORCE will be tightly connected to the Norwegian Case Study with GGE as a pilot. The focus of the research institute is on the technical aspects to the closely integrated energy systems of the pilot already including different energy sources and storage capacity but also aiming at the integration of additional ones (biogas, hydro, wind) to form a system to cover all energy demand of the farm and local meat production. NORCE will be therefore involved into WP1, WP3 to some extent, strongly into WP2, and WP5 as well as into WP5, WP7 and WP8.
TECNOALIMENTI (TCA)	Italian Case Study supporting partner/ Stakeholders' engagement & dissemination
WHITE RESEARCH (WR)	As leaders of WP3 "Stakeholder engagement strategies for the generation of cooperative agro-communities", WR will be responsible for the development of the HarvREST multi-actor engagement strategy, the project's capacity-building program, and designing awareness-raising campaigns for all the User Case sites. WR will also be active in WP2, where it will be responsible for the analysis of socio-economic context, needs and framework conditions in four target rural areas in Italy, Spain, Norway and Denmark. The analysis will allow the project to understand the needs of farmers and the factors that may hinder or enable the adoption of RES.

SUITE5	SUITE5 will lead WP5 “Modelling and optimization of renewable alternatives for agro communities” altogether, whose main goal is to compile information on available RES alternatives for farms in order to generate models for optimization of hybrid energy systems and the smart algorithms required for their management. In particular, in WP5 SUITE5 will lead the design of AI analytics pipelines which will aid the forecasting of RES production at farm level; lead the development of smart energy systems & algorithms for the data-driven energy performance optimization of agricultural energy systems; and strongly contribute to the development of HarvREST hybrid models for the definition of optimal operation modes. Furthermore, SUITE5 effort will be allocated in WP2 for the definition of the KPIs which characterize & describe the farm’s performance from a production and sustainability point of view and in WP6 for the development of HarvREST AVPP and DSS based on a MCDA approach. SUITE5 will also contribute horizontally to the dissemination and exploitation activities of the project.
EnGreen (EnG)	EnGreen will supervise the activities of WP7 being responsible also for the identification of suitable business models able to leverage farming activities to a cleaner production. Furthermore, EnGreen will be responsible for the IPR components of the project as well as for the evaluation of the overall impact of HarvREST project.
CONTERRA (CT)	Apart from cross cutting WP1 and WP2 ConTerra main activities will rest in WP4 and WP7. Leading Task 4.4 ConTerra will develop a tool enabling the user to map potentials and bottlenecks for biogas for RES at farm level. The tool will be developed with an off set in Danish settings and access to relevant farm specific data gathered in other use cases. ConTerra will likewise be active in WP7 focusing on support for the transfer of knowledge, scale-up and deployment of HarvREST results at EU-level.
CONFAGRICOLTURE (CONFAGRI)	Confagricoltura's main role will be to participate in the Italy Case Study, stakeholder engagement, and dissemination through involvement in WP2, WP3, WP6, WP7, and WP8.
Fattoria Solidale Del Circeo (FSDC)	As an affiliate of Confagricoltura, FSDC will be a partner in the Italy Case Study with a key role in the co-creation sessions, experimental trials, and final validation of HarvREST use case.
VIÑAS DEL VERO (VdV)	Effects on vineyard production through a digital based management and optimization of RES assets will be assessed. These activities will also include the electrification of machinery, thus exploring the potential in terms of cost and carbon footprint reduction of electrification and how it can be exploited together with green hydrogen or methanation techniques at farm level. Additionally, SORIGUÉ’s bioproducts for improving soil quality will be tested on the site (T.4.3).
VIÑEDOS DEL RIO TAJO (VRT)	The task of Viñedos del Rio Tajo will be the development of an experimental study of the effects of agro photovoltaics in the vineyard, studying the impact on the plant based on parameters defined in Task 4.2.

SORIGUÉ (ACSA)	Apart from cross cutting WP1 and WP8, SORIGUÉ main activities will be in WP2, WP4, WP6 and WP7. WP2: Provide some data for the socioeconomic analysis, install sensor system and transmit information to partners about the biogas/biomethane plant we are operating on a farm. Study theoretically the methane production from recycled CO ₂ and green H ₂ . Engage of stakeholders related to our UC3 (WP3) and participate in working groups. WP4: promoting nutrient recovery through the application of digestate treatment. Implementation of CWA 17898:2022 methodology for assessing soil quality. WP6: To feed the DSS and AVPP with our experimental data. WP7: apply recommendations to our farm from different HarvREST outcomes generated. To study the replicability potential in other SORIGUÉ's facilities.
GGE	The SME GGE represents the Norwegian Pilot consisting of a farm plus an on-site and integrated butcher. The focus is on covering at least all local energy demand by a mix of locally available renewable sources (solar, wind, bio-mass & hydro) as well as incorporating local energy storage for balancing. The aim is besides providing information and data and integrating and demonstrating technologies developed during the project in promoting the concept to be disseminated and replicated. This will be done by making use of the network of GGE. GGE will be therefore involved as follows: strongly in WP2, WP6 & WP7 but also into WP1, WP3 and WP8.
FOOD & BIO CLUSTER DENMARK (FBCD)	Food and Bio Cluster Denmark (FBCD) holds the role of work package leader for WP8: Dissemination, Communication, and Exploitation. In addition, FBCD will actively participate in other work packages to support the case study and contribute to stakeholder analysis and involvement.
CLIMATE-KIC (CKIC)	CKIC will map the best practices and initiatives on farms decarbonization and will benchmark analysis of Business Models developed by start-ups and early market SMEs, also performing a gap analysis of perceived risks linked to early capital investments. Moreover, CKIC will lead the strategy for advising and providing technical guidance on EU legislation and policy recommendations, also developing the training material related with policy material Finally, CKIC will develop the Replication Handbook and several practice abstracts to show the activities performed in the project.

HarvREST will be executed by a well-balanced and multi-disciplinary consortium with complementary competencies composed by 14 partners and 2 affiliated entities from 7 European countries (Figure 1), particularly 4 research organisations (CIRCE, BETA CT, NORCE and TCA), 3 associations (CONFAGRI, FBCD and CKIC), 8 SMEs (WR, SUITE5, EnG, CT, FSDC, VdV, VRT and GGE) and 1 large company (SORIGUÉ). CIRCE due to its wide experience in EU projects of the energy and agricultural fields is the coordinator and will ensure correct execution. The consortium is a high-quality partnership fully capable to attain the targeted objectives and has been selected to include key actors essential to create technological advances and synergies to deliver solutions to facilitate and promote the uptake of RES technologies at farm level across the EU. HarvREST will involve local actors and stakeholders of the agro industry covering the food production value chain through the direct participation of 5 agro communities (Use cases demographically representative) and indirect of

hundreds through the nexus of CKIC and the rest of partners, product processors and market orientators involved.

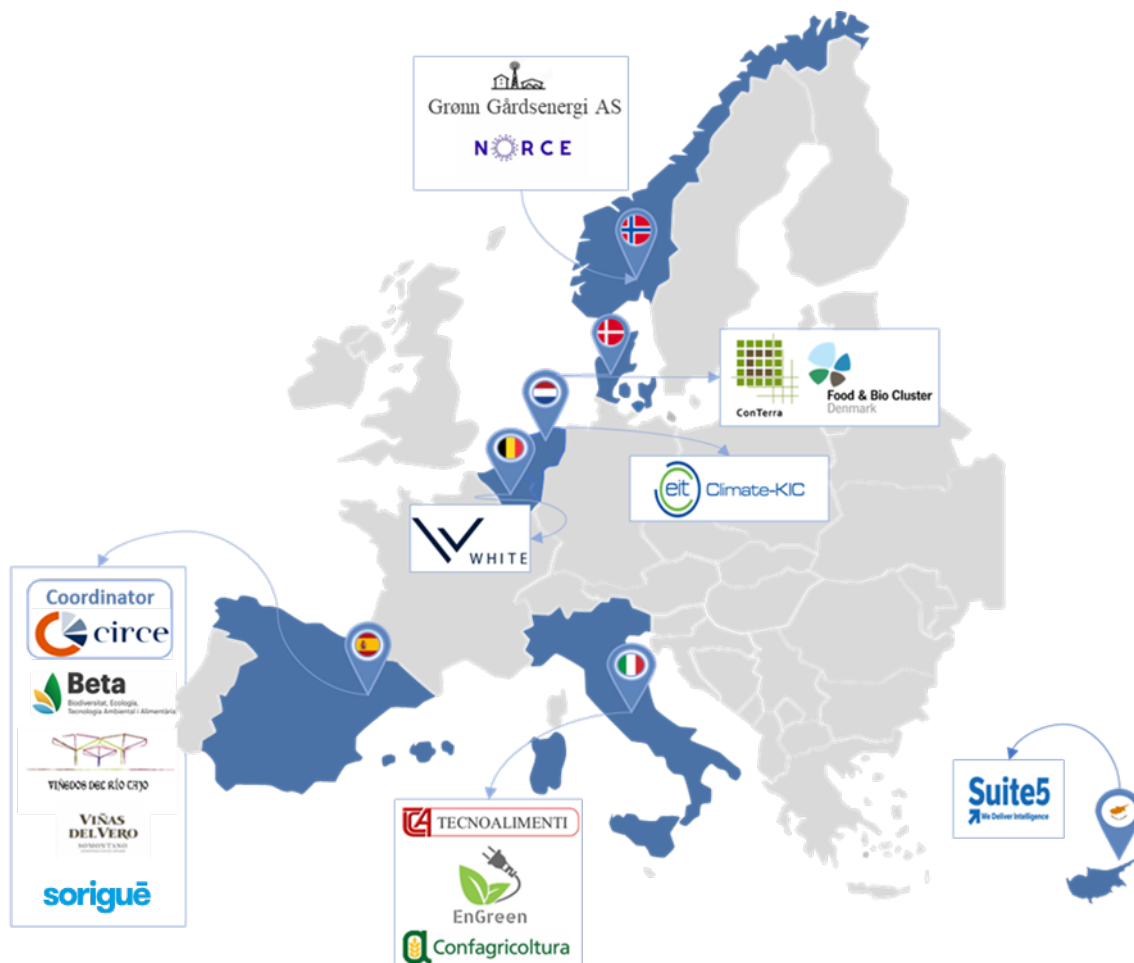


Figure 1. Map of HarvREST consortium

4. WORK BREAKDOWN STRUCTURE (WBS)

HarvRESt spans a duration of 36 months and comprises 8 different Work Packages (WPs). The initial package focuses on Project Management and Coordination, while WPs 2 through 5 are primarily technical. WP6 is dedicated to the development of HarvRESt AVPP and DSS, whereas WP7 is designated for assessment, knowledge transfer, and recommendation development. Finally, WP8 is geared towards achieving extensive project coverage and dissemination, with a specific emphasis on result exploitation too.

The duration of these work packages can be checked in HarvRESt Gantt (Figure 2). This Gantt will be updated through the project's life cycle.

Then, a detailed description of the work breakdown per WP and Task can be found in the following sections.

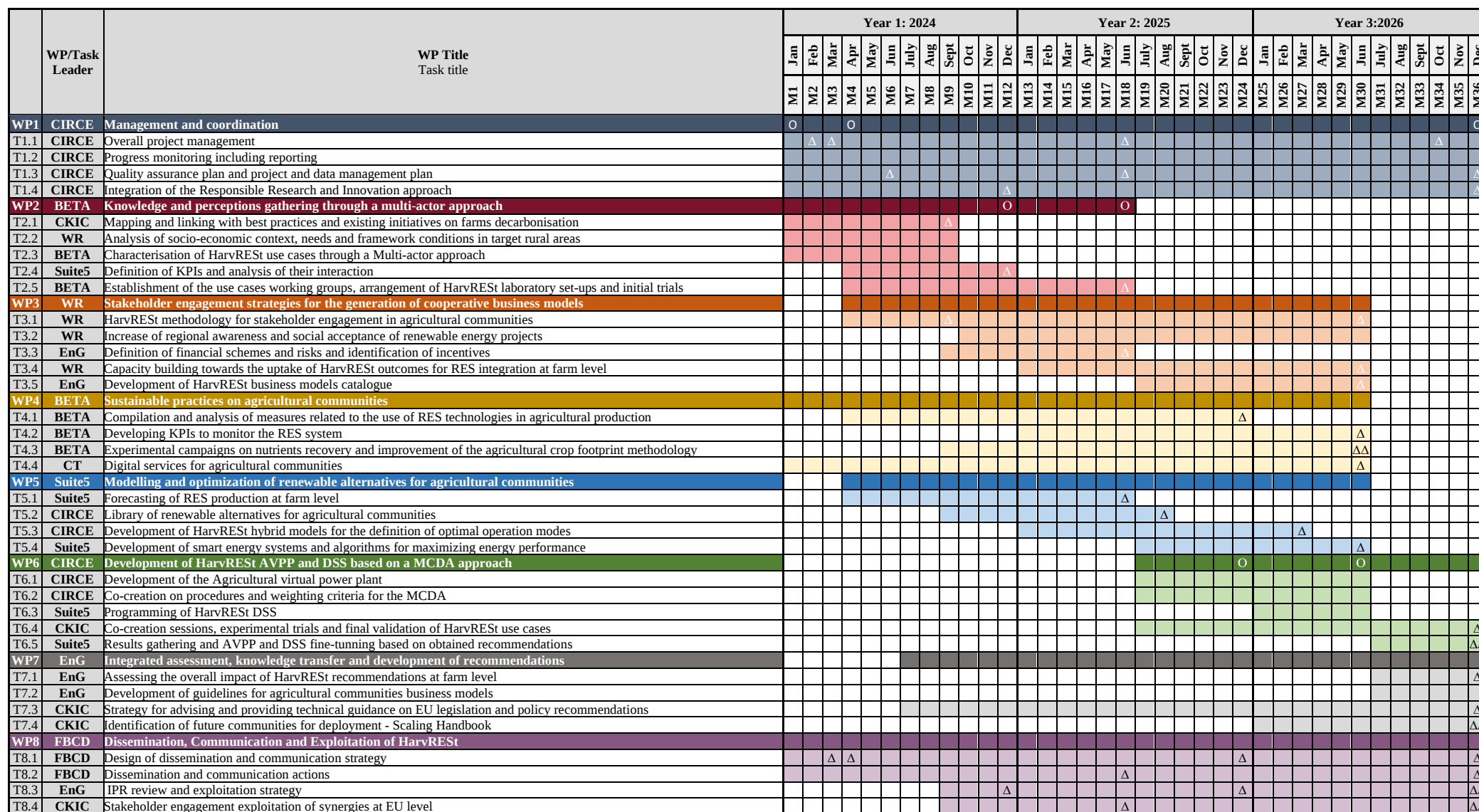


Figure 2. Gantt structure for the HarvRESt project

4.1 WP1: Management and Coordination (CIRCE, M1-M36)

4.1.1 WP1 objectives

The **main objective** of this work package is to develop an effective and comprehensive administrative, financial, technical and legal management to ensure the successful execution of HarvREST

As for its **specific objectives**, this WP will:

- 1) Ensure the achievement of all project objectives in terms of time, quality and costs.
- 2) Set the appropriate coordination and management tools, methods and decision-making processes.
- 3) Perform smooth and effective management and coordination of the consortium guaranteeing joint understanding among the project partners, ensuring the right functioning of the governing bodies established.
- 4) Carry out periodic communication and high-quality technical and financial reporting of the project to EC.
- 5) Work together during the whole research and innovation process with the main societal actors.
- 6) Ensure the General Data Protection Regulation (GDPR) when treating with data external to the project.

4.1.2 WP1 Gantt Chart

Starting in M1 and divided into 4 tasks, WP1 will be extended from M1 to M36 (Figure 3).

	WP/Task Leader	WP Title Task title	Year 1: 2024												Year 2: 2025												Year 3: 2026											
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
			M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
WP1	CIRCE	Management and coordination	O		O																																O	
T1.1	CIRCE	Overall project management		Δ	Δ															Δ															Δ			
T1.2	CIRCE	Progress monitoring including reporting																																				
T1.3	CIRCE	Quality assurance plan and project and data management plan						Δ											Δ																	Δ		
T1.4	CIRCE	Integration of the Responsible Research and Innovation approach										Δ																									Δ	

Figure 3. HarvREST Project WP 1 Gantt chart

4.1.3 WP1 deliverables

This WP is comprised of the following **deliverables**, all of them with CIRCE as lead beneficiary:

- **D1.1 Project Handbook (CIRCE, M3, R, SEN).** Internal document setting the basis for governance structure, communication channels and methods, reporting to task and WP leaders, Project Coordinator and the EC, conflict solving methods and the Quality Management Plan (QMP).
- **D1.2 Data Management Plan (first draft) (CIRCE, M3, DMP, PU).** This deliverable will set the basis for the Dissemination and exploitation but also the procedures for the sharing of data of the project. This is the initial draft.
- **D1.3 Project Management Plan (first version) (CIRCE, M2, R, PU).** Detailed Project Management Plan with a Gantt chart and a Work Breakdown Structure (WBS). It will include a schedule per task, responsible partner related subtasks, related deliverables, and dependencies on other tasks. Is the current document.

- **D1.4 RRI First report (CIRCE, M12, R, PU).** This deliverable will report the description of the coordinator's and partner's responsibilities in the HarvRESt project, emphasizing the importance of addressing innovation from multiple perspectives and promoting Responsible Research and Innovation (RRI) practices. It also includes the Project's Gender Equality Plan (PGEP). This is the first report.
- **D1.5 Data Management Plan (mid-term update) (CIRCE, M18, DMP, PU).** This is the mid-term version.
- **D1.6 Project Management Plan (mid-term) (CIRCE, M18, R, PU).** This is the mid-term version.
- **D1.7 Project Management Plan (final version) (CIRCE, M34, R, PU).** This is the final version.
- **D1.8 Data Management Plan (final version) (CIRCE, M36, DMP, PU).** This is the final version.
- **D1.9 RRI Progress Report (CIRCE, M36, R, PU).** This is the final version.

4.1.4 *WP1 milestones and means of verification*

These are the **milestones** associated with the first work package that will indicate the successful execution of the project. All of them lay under CIRCE's responsibility.

- **MS1: Project Kick-off meeting (M1, WP1, CIRCE).** Means of verification: Meeting minutes delivered. These minutes will be sent to the Project Officer by e-mail.
- **MS2: HarvRESt initial documentation ready (M4, WP1-WP2, CIRCE).** Means of verification: Project Handbook (D1.1) and C&D Plan (D8.1) approved by the PC and the GA and submitted to the EC. Use cases start the arrangement of their set-ups. D8.1 will be published in the HarvRESt website once approved by the EC.
- **MS7: Finalisation of HarvRESt (M36, WP8-WP7-WP1, CIRCE).** Means of verification: All deliverables checked and approved by the WP leaders and the PC. HarvRESt partners implementing D&C actions and replication activities out of the project scope defined and completed. All public deliverables published in the HarvRESt website once approved by the EC.

4.2 **WP2: Knowledge and perceptions gathering through a multi-actor approach (BETA CT, M1-M18)**

4.2.1 *WP2 objectives*

This WP's **main objective** is to create a solid knowledge basis for the project execution relying on mapping and stakeholder engagement activities in line with the set-up and beginning of the activities linked to the use cases.

Its **specific objectives** are listed next:

- 1) To map good practices and initiatives on RES integration at farm level.
- 2) To define the current framework at EU level affecting RES practices.
- 3) To create a network of stakeholders in each use case to follow a multiactor approach from the very beginning of the project and to start working on the activities expected for each use case.
- 4) To define the preliminary list of KPIs to be calculated, monitored and assessed along the project.

- 5) To provide a continuous input to the first phase of development of the three pillars of the project (WP3 to 5).

4.2.2 WP2 Gantt Chart

Starting in M1 and divided into 5 tasks, WP2 will be extended from M1 to M18 (Figure 4).

	WP/Task Leader	WP Title Task title	Year 1: 2024												Year 2: 2025												Year 3:2026											
			Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
			M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
WP2	BETA	Knowledge and perceptions gathering through a multi-actor approach										O							O																			
T2.1	CKIC	Mapping and linking with best practices and existing initiatives on farms decarbonisation								A																												
T2.2	WR	Analysis of socio-economic context, needs and framework conditions in target rural areas																																				
T2.3	BETA	Characterisation of HarvRESt use cases through a Multi-actor approach																																				
T2.4	Suite5	Definition of KPIs and analysis of their interaction											A																									
T2.5	BETA	Establishment of the use cases working groups, arrangement of HarvRESt laboratory set-ups and initial trials																	A																			

Figure 4. HarvRESt Project WP2 Gantt chart

4.2.3 WP2 deliverables

WP2 has the following **deliverables** associated:

- **D2.1 Mapping on RES integration in farms at EU level (CKIC, M9, R, PU).** Report describing the overall framework conditions for RES integration at farm level through Europe and at HarvRESt use cases, analysing the needs of local stakeholders, the conditions of the legal and socio-economic framework, and the perceived challenges in the adoption of renewable energies in the pilot areas. Moreover, it will highlight existing best practices and initiatives already available.
- **D2.2 HarvRESt monitoring KPIs for use cases (SUITE5, M12, R, PU).** Comprehensive list of indicators and methodology for their monitoring by the use cases along the project execution to characterize and describe farm performance from a production and sustainability perspective, encompassing energy and food production, as well as environmental, economic, and social aspects.
- **D2.3 Use cases monitoring and experiences compilation (BETA CT, M18, R, SEN).** Set of data monitored at the use cases according to D2.2 and preliminary experiences compilation on renewable energy technologies on demo sites.

4.2.4 WP2 milestones and means of verification

These are the associated **milestones** for the WP2, under BETA CT's responsibility:

- **MS2: HarvRESt initial documentation ready (M4, WP1-WP2, CIRCE).** Means of verification: Project Handbook (D1.1) and C&D Plan (D8.1) approved by the PC and the GA and submitted to the EC. Use cases start the arrangement of their set-ups. D8.1 will be published in the HarvRESt website once approved by the EC.
- **MS3: Project baseline and key inputs like monitoring KPIs developed (M12, WP2, BETA CT).** Means of verification: D2.1 & D2.2 delivered where overall framework, characterization of use cases and HarvRESt monitoring KPIs were developed. These deliverables will be published in the HarvRESt website once approved by the EC.

- **MS4: First stage of use cases monitoring finalised (M18, WP2-WP7, BETA CT).** Means of verification: D2.3 delivered. On this basis, the work for advising and providing technical guidance on EU legislation has started.

4.3 WP3: Devices providing flexibility (M6-M25)

4.3.1 WP3 objectives

WP3 **main objective** is to generate the overall HarvRESt methodology for engagement, increase of awareness and co-creation including capacity building, as well as HarvRESt financial schemes and business models.

Closely looking at its specific objectives:

- 1) Develop HarvRESt multi-actor engagement strategy.
- 2) Support farmers and key stakeholders aiming at raising awareness.
- 3) Analyse existing financial schemes to be applied to agro context.
- 4) Develop HarvRESt capacity building programme.

4.3.2 WP2 Gantt Chart

Starting in M3 and divided into 5 tasks, WP3 will be extended from M3 to M30 (Figure 5).

	WP/Task Leader	WP Title Task title	Year 1: 2024												Year 2: 2025												Year 3:2026											
			Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
			M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
WP3	WR	Stakeholder engagement strategies for the generation of cooperative business models																																				
T3.1	WR	HarvRESt methodology for stakeholder engagement in agricultural communities																																				
T3.2	WR	Increase of regional awareness and social acceptance of renewable energy projects																																				
T3.3	EnG	Definition of financial schemes and risks and identification of incentives																																				
T3.4	WR	Capacity building towards the uptake of HarvRESt outcomes for RES integration at farm level																																				
T3.5	EnG	Development of HarvRESt business models catalogue																																				

Figure 5. HarvRESt Project WP3 Gantt chart

4.3.3 WP3 deliverables

The following **deliverables** are related to WP3:

- **D3.1 HarvRESt strategy for multi-actor engagement and awareness creation in agro communities (first version) (WR, M9, R, PU).** Methodology and list of actions to engage and create awareness on stakeholders of agro communities that promotes the acceptance of renewable energy sources and fosters collaboration among farmers, energy cooperatives, public authorities, and local energy industries. This is the first version.
- **D3.2 HarvRESt financial context (EnG, M18, R, SEN).** Analysis of financial schemes to be applied to agro context together with identified incentives of specific incentives by country to promote sustainable agricultural and energy practices, including associated risks.

- **D3.3 HarvRESt Capacity building material (WR, M30, R, PU).** Compilation of training material on energy, agronomic, financial, regulatory and main results of HarvRESt to empower farmers and rural actors to leverage the HarvRESt assets and services.
- **D3.4 Business models catalogue (EnG, M30, R, PU).** Report including the list and definition of Business Models identified as relevant for HarvRESt, which will include information on various user sizes, agricultural activities, technologies, evaluation criteria, and examples, along with a comparative analysis of Business Models developed by startups and SMEs in the field of renewable energies.
- **D3.5 HarvRESt strategy for multi-actor engagement and awareness creation in agro communities (final version) (WR, M30, R, PU).** Methodology and list of actions to engage and create awareness on stakeholders of agro communities that promotes the acceptance of renewable energy sources and fosters collaboration among farmers, energy cooperatives, public authorities, and local energy industries. This is the final version.

4.3.4 *WP3 milestones and means of verification*

There are two **milestones** related to this WP:

- **MS5: Finalisation on the detailed analysis of gaps and trade-offs (M24, WP3-WP4-WP5-WP6, CIRCE).** Means of verification: Main outputs for the DSS (financial schemes, trade-offs and linked KPIs, RES library) delivered, hybrid model and AVPP advanced, programming of the DSS already started. D4.1. D4.2 and D5.2 delivered and D4.1 and D5.2 will be published in the HarvRESt website once approved by the EC.
- **MS6: AVPP and DSS Alpha version finalised (M30, WP3-WP4-WP5-WP6, SUITE5).** Means of verification: Functional versions of AVPP and DSS already working and providing recommendations. For verifying this, website and Social media publications will be made with screenshots of the developments. On this basis, the arrangement of the final cocreation sessions at the use cases has started.

4.4 **WP4: Development of the interoperability management platform and business functions (M6-M42)**

4.4.1 *WP4 objectives*

The **main objective** of the fourth work package is to generate knowledge on the interaction of RES and agricultural practices and to generate solutions able to take advantage of positive trade-offs.

Specific objectives of this work package are as follow:

- 1) To gather information and assess the impact of RES on agriculture and soil quality.
- 2) To identify and calculate trade-offs linked to RES integration in farms.
- 3) To understand the effect on soil quality of bioenergy residues.
- 4) To develop digital solutions supporting farmers in exploiting their bioenergy potential

4.4.2 *WP4 Gantt chart*

Starting in M1 and divided into 5 tasks, WP4 will be extended from M1 to M30 (Figure 6).

	WP/Task Leader	WP Title Task title	Year 1: 2024												Year 2: 2025												Year 3:2026											
			Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
			M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	
WP4	BETA	Sustainable practices on agricultural communities																																				
T4.1	BETA	Compilation and analysis of measures related to the use of RES technologies in agricultural production																							Δ													
T4.2	BETA	Developing KPIs to monitor the RES system																																				
T4.3	BETA	Experimental campaigns on nutrients recovery and improvement of the agricultural crop footprint methodology																																				ΔΔ
T4.4	CT	Digital services for agricultural communities																																				Δ

Figure 6. HarvREST Project WP4 Gantt chart

4.4.3 WP4 deliverables

WP4 presents the following deliverables:

- **D4.1 Mitigation Measures Catalogue (first version) (BETA CT, M24, R, PU).** Report including information on relevant agronomic existing measures on RES integration at farm level.
- **D4.2 HarvREST KPIs for agro communities (BETA CT, M30, R, PU).** Shortlist of recommended agronomic and environmental performance indicators together with critical thresholds / tipping points for the agronomic impact, to enable farmers to monitor their farm's performance in transitioning to more sustainable and resilient agricultural systems.
- **D4.3 Standard methodology for measuring impacts of RES integration on crops and soil quality (CIRCE, M30, R, SEN).** CWA 17898:2022 methodology updated to integrate how renewable energies affect crops and soil quality, including water and carbon footprints.
- **D4.4 Tool for the planning of biogas plants at farm level according to the existing potential in the area (CT, M30, OTHER, SEN).** Comprehensive database at farm level (barn/field) displaying all needed parameters to assess the potential and feasibility to promote, design and install small-scale biogas generation units at farm level.
- **D4.5 Mitigation Measures Catalogue (final version) (BETA CT, M30, R, PU).** Report including information on relevant agronomic existing measures on RES integration at farm level. This is the final version.

4.4.4 WP4 milestones and means of verification

WP4 has two milestones associated:

- **MS5: Finalisation on the detailed analysis of gaps and trade-offs (M24, WP3-WP4-WP5-WP6, CIRCE).** Means of verification: Main outputs for the DSS (financial schemes, trade-offs and linked KPIs, RES library) delivered, hybrid model and AVPP advanced, programming of the DSS already started. D4.1. D4.2 and D5.2 delivered and D4.1 and D5.2 will be published in the HarvREST website once approved by the EC.
- **MS6: AVPP and DSS Alpha version finalised (M30, WP3-WP4-WP5-WP6, SUITE5).** Means of verification: Functional versions of AVPP and DSS already working and providing recommendations. For verifying this, website and Social media publications will be made with screenshots of the developments. On this basis, the arrangement of the final cocreation sessions at the use cases has started.

4.5 WP5: Modelling and optimization of renewable alternatives for agro communities (SUITE5, M4-M30)

4.5.1 WP5 objectives

WP5's **main objective** is to compile information on available RES alternatives for farms in order to generate models for optimization of hybrid energy systems and the smart algorithms required for their management.

As for the **specific objectives**:

- 1) Develop forecasting algorithms for RES production.
- 2) Populate a library on RES technologies.
- 3) Generate models and algorithms for hybrid energy systems optimisation and management.

4.5.2 WP5 Gantt chart

Starting in M3 and divided into 4 tasks, WP5 will be extended from M3 to M30 (Figure 7).

	WP/Task Leader	WP Title Task title	Year 1: 2024												Year 2: 2025												Year 3:2026											
			Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
			M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
WP5	Suite5	Modelling and optimization of renewable alternatives for agricultural communities																																				
T5.1	Suite5	Forecasting of RES production at farm level																	Δ																			
T5.2	CIRCE	Library of renewable alternatives for agricultural communities																			Δ																	
T5.3	CIRCE	Development of HarvRESt hybrid models for the definition of optimal operation modes																										Δ										
T5.4	Suite5	Development of smart energy systems and algorithms for maximizing energy performance																																		Δ		

Figure 7. HarvRESt Project WP5 Gantt chart

4.5.3 WP5 deliverables

Next, WP5 associated **deliverables** are listed:

- **D5.1 Forecasting scenarios and algorithms (SUITE5, M18, OTHER, SEN).** Algorithms for short and long-term forecasts and baseline scenarios for HarvRESt that deliver accurate renewable generation forecasts at the farm level, using specific models and algorithms trained with historical data, applicable to various renewable energy penetration scenarios.
- **D5.2 RES technologies library (CIRCE, M20, OTHER, SEN).** Library including models for RES generation and storage technologies with potential to be installed at farm level to serve as a foundation for developing hybrid models and integrating them into an AVPP
- **D5.3 HarvRESt hybrid models (CIRCE, M27, OTHER, SEN).** Virtual model simulating a farm from an energy, agricultural and financial perspective identifying how the integration of hybrid solutions affects the electrical grid and potential energy service opportunities for agricultural communities.
- **D5.4 Methodology for farm based multisource energy management systems development (SUITE5, M30, R, PU).** Report describing the work methodology used for the development of hybrid energy management systems for farms enabling optimized energy performance, cost reduction, and renewable energy trading while promoting interoperability for wider adoption across the EU.

4.5.4 WP5 milestones and means of verification

These are the **milestones** associated with the WP5:

- **MS5: Finalisation on the detailed analysis of gaps and trade-offs (M24, WP3-WP4-WP5-WP6, CIRCE).** Means of verification: Main outputs for the DSS (financial schemes, trade-offs and linked KPIs, RES library) delivered, hybrid model and AVPP advanced, programming of the DSS already started. D4.1. D4.2 and D5.2 delivered and D4.1 and D5.2 will be published in the HarvRESt website once approved by the EC.
- **MS6: AVPP and DSS Alpha version finalised (M30, WP3-WP4-WP5-WP6, SUITE5).** Means of verification: Functional versions of AVPP and DSS already working and providing recommendations. For verifying this, website and Social media publications will be made with screenshots of the developments. On this basis, the arrangement of the final cocreation sessions at the use cases has started.

4.6 WP6: Development of HarvRESt AVPP and DSS based on a MCDA approach (CIRCE, M19-M36)

4.6.1 WP6 objectives

The **main objective** of this work package is to develop main HarvRESt technological results, i.e., the AVPP and DSS, and to validate all the project developments through co-creation sessions and final experimental trials at the use cases, while the **specific objectives** are detailed next:

- 1) Generate HarvRESt MCDA procedures on the basis of the farmers and stakeholders expectations.
- 2) Develop HarvRESt AVPP and DSS.
- 3) Execute the second half of data gathering and experimental trials at HarvRESt use cases.
- 4) Gather final results and acceptance of HarvRESt recommendations

4.6.2 WP6 Gantt chart

Starting in M19 and divided into 5 tasks, WP6 will be extended from M19 to M36 (Figure 8).

	WP/Task Leader	WP Title Task title	Year 1: 2024												Year 2: 2025												Year 3:2026											
			Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
			M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
WP6	CIRCE	Development of HarvRESt AVPP and DSS based on a MCDA approach																					O															
T6.1	CIRCE	Development of the Agricultural virtual power plant																																				
T6.2	CIRCE	Co-creation on procedures and weighting criteria for the MCDA																																				
T6.3	Suite5	Programming of HarvRESt DSS																																				
T6.4	CKIC	Co-creation sessions, experimental trials and final validation of HarvRESt use cases																																				Δ
T6.5	Suite5	Results gathering and AVPP and DSS fine-tuning based on obtained recommendations																																				Δ

Figure 8. HarvRESt Project WP6 Gantt chart

4.6.3 WP6 deliverables

Next, the **deliverables** comprised in work package 6 are detailed.

- **D6.1 Agricultural Virtual Power Plant (CIRCE, M36, OTHER, SEN).** Alpha version of the AVPP including final adjustments according to the co-creation sessions results, for evaluating agricultural and energy solutions, facilitating informed recommendations for agricultural communities.
- **D6.2 HarvRESt Decision Support System (SUITE5, M36; OTHER, SEN).** Alpha version of the DSS including final adjustments according to the co-creation sessions results to optimize investments in agricultural renewable energy, considering energy data, food production, and constraints to determine the optimal size of HarvRESt investments without compromising local agricultural production.
- **D6.3 HarvRESt results and promoted agreements (BETA CT, M36, R, PU).** Report with comprehensive compilation of results and insights from the use cases, with a focus on the overall evaluation of HarvRESt and the final fine-tuning of AVPP and DSS. It will be aligned with the final recommendations within WP7 to ensure consistency in the project's recommendations and guidelines. Additionally, report also gathers inputs from the final co-creation sessions and the description of contractual agreements made by farmers.

4.6.4 *WP6 milestones and means of verification*

It has two **milestones** associated:

- **MS5: Finalisation on the detailed analysis of gaps and trade-offs (M24, WP3-WP4-WP5-WP6, CIRCE).** Means of verification: Main outputs for the DSS (financial schemes, trade-offs and linked KPIs, RES library) delivered, hybrid model and AVPP advanced, programming of the DSS already started. D4.1. D4.2 and D5.2 delivered and D4.1 and D5.2 will be published in the HarvRESt website once approved by the EC.
- **MS6: AVPP and DSS Alpha version finalised (M30, WP3-WP4-WP5-WP6, SUITE5).** Means of verification: Functional versions of AVPP and DSS already working and providing recommendations. For verifying this, website and Social media publications will be made with screenshots of the developments. On this basis, the arrangement of the final cocreation sessions at the use cases has started.

4.7 **WP7: Integrated assessment, knowledge transfer and development of recommendations (EnG, M6-M36)**

4.7.1 *WP7 objectives*

The **main objective** of WP7 is to generate the final materials for supporting the transfer of knowledge and the scale-up and replication of HarvRESt results at European level.

Specific objectives of this work package are:

- 1) To generate main recommendations at farm level and guidelines for business models implementation.
- 2) To develop regulatory recommendations and technical guidance to EU policy makers.
- 3) To develop HarvRESt replication handbook

4.7.2 *WP7 Gantt chart*

Starting in M6 and divided into 4 tasks, WP7 will be extended from M6 to M36 (Figure 9).

	WP/Task Leader	WP Title Task title	Year 1: 2024												Year 2: 2025												Year 3:2026											
			Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
			M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
WP7	EnG	Integrated assessment, knowledge transfer and development of recommendations																																				
T7.1	EnG	Assessing the overall impact of HarvRESt recommendations at farm level																																				Δ
T7.2	EnG	Development of guidelines for agricultural communities business models																																				
T7.3	CKIC	Strategy for advising and providing technical guidance on EU legislation and policy recommendations																																				Δ
T7.4	CKIC	Identification of future communities for deployment - Scaling Handbook																																				

Figure 9. HarvRESt Project WP7 Gantt chart

4.7.3 WP7 deliverables

Deliverables corresponding to work package 7 are listed below.

- **D7.1 HarvRESt set of recommendations (EnG, M36, R, PU).** Final recommendations based on stakeholders insights and analysed impacts and guidelines tailored to the needs of different farm activities, providing a roadmap for the effective uptake of RES energy.
- **D7.2 Regulatory guidance and recommendations (CKIC, M36, R, PU).** Report for the provision of guidance for EU policy makers to update relevant regulations including the CAP.
- **D7.3 Replication Handbook (CKIC, M36, R, PU).** Report describing the initial phase of a scaling strategy for RES integration in farming systems in Europe.
- **D7.4 Policy brief (CKIC, M36, R, PU).** This deliverable will be a summary of the analysis done in Task 7.3 in relation to the policy analysis of relevant agricultural, sustainable energy, circular, bio-based economy, climate and industrial research and innovation (R&I) related policies and strategies at the EU-level and selected Member states.

4.7.4 WP7 milestones and means of verification

This work package has the following milestones associated:

- **MS4: First stage of use cases monitoring finalised (M18, WP2-WP7, BETA CT).** Means of verification: D2.3 delivered. On this basis, the work for advising and providing technical guidance on EU legislation has started.
- **MS7: Finalisation of HarvRESt (M36, WP1-WP7-WP8, CIRCE).** All deliverables checked and approved by the WP leaders and the PC. HarvRESt partners implementing D&C actions and replication activities out of the project scope defined and completed. All public deliverables published in the HarvRESt website once approved by the EC.

4.8 WP8: Dissemination, Communication and Exploitation of HarvRESt (FBCD, M1-M36)

4.8.1 WP8 objectives

Main objective of this work package is to design and implement effective Dissemination, Exploitation and Communication measures aimed at maximising the impacts created by HarvRESt solutions.

As for its **specific objectives**:

- Development of a dissemination, exploitation and communication strategy and plan.
- Design of the project identity and a set of materials for the promotion and communication of the project.
- Ready-to-use knowledge and stakeholder dialogue to disseminate HarvREST results towards key enablers.
- Monitoring and execution of the C&D activities with a continuous engagement of the main target groups.
- Consolidation of the strategy for the exploitation of project results, management of IPR among partners.

4.8.2 WP8 Gantt chart

Starting in M1 and divided into 4 tasks, WP8 will be extended from M1 to M36 (Figure 10).

	WP/Task Leader	WP Title Task title	Year 1: 2024												Year 2: 2025												Year 3:2026											
			Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	July	Aug	Sept	Oct	Nov	Dec
			M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30	M31	M32	M33	M34	M35	M36
WP8	FBCD	Dissemination, Communication and Exploitation of HarvRESt																																				
T8.1	FBCD	Design of dissemination and communication strategy			Δ	Δ																																Δ
T8.2	FBCD	Dissemination and communication actions																																				
T8.3	EnG	IPR review and exploitation strategy											Δ																									Δ
T8.4	CKIC	Stakeholder engagement exploitation of synergies at EU level																		Δ																		Δ

Figure 10. HarvREST Project WP8 Gantt chart

4.8.3 WP8 deliverables

WP8 deliverables are listed next:

- **D8.1 Communication and Dissemination Plan (Initial version) (FBCD, M4, R, PU).** This deliverable includes aspect such as 1) Identification of HarvREST stakeholders/profiling; 2) dissemination methods, channels, associated activities and tools to reach the expected impacts; 3) dissemination procedures; 4) the C&D activities' schedule and complementarities among partners. This is the initial version.
- **D8.2 Dissemination and Communication report (mid-term report) (FBCD, M18, R, PU).** Report on the progress of the C&D activities during the project including the results obtained from the collaboration and synergies with other EU funded projects and platforms. This is the initial version.
- **D8.3 Knowledge management and IPR protection plan (EnG, M12, R, PU).** Document including the definition of the exploitation strategy and pathways, IPR review and management and final IPR manual including agreements among the partners. This is the initial version.
- **D8.4 Knowledge sharing toolkit (EnG, M36, R, PU).** Compilation of main deliverables dealing with knowledge exchange, i.e. D2.1, D3.3-4, D4.1, D5.2, D5.4 D7.1-3.
- **D8.5 Communication and Dissemination Plan (mid-term version) (FBCD, M21, R, PU).** This is the mid-term version.
- **D8.6 Knowledge management and IPR protection plan (mid-term version) (EnG, M24, R, SEN).** Document including the definition of the exploitation strategy and pathways, IPR review and

management and final IPR manual including agreements among the partners. This is the mid-term version.

- **D8.7 Communication and Dissemination Plan (Final version) (FBCD, M36, R, PU).** This is the final version.
- **D8.8 Dissemination and Communication report (Final report) (FBCD, M36, R, PU).** This is the final version.
- **D8.9 Knowledge management and IPR protection plan (final version) (EnG, M36, R, SEN).** This is the final version.
- **D8.10 Practice abstracts - batch 1 (CKIC, M18, R, PU).** This deliverable contains 14 draft practice abstracts. Those are the following:
 - 1) Mitigation measures catalogue
 - 2) KPI's for performance monitoring
 - 3) Soil quality methodology
 - 4) Biogas planning tool
 - 5) Forecasting algorithms
 - 6) HarvRESt hybrid Models
 - 7) HarvRESt smart energy system algorithms
 - 8) HarvRESt AVPP
 - 9) HarvRESt DSS
 - 10) Strategy for multiactor engagement
 - 11) Capacity building material
 - 12) BM catalogue
 - 13) Co-creation guidelines
 - 14) Knowledge sharing toolkit
- **D8.11 Practice abstracts - batch 2 (CKIC, M36, R, PU).** This deliverable contains the final version of the 14 practice abstracts prepared in D8.10.
- **D8.12 Project website (FBCD, M3, OTHER, PU).** This deliverable will be the result of the publication of the website of the project.
- **D8.13 Clustering activity with other funded projects (CKIC, M36, R, PU).** This deliverable will contain a summary of all clustering activities, i.e., joint dissemination events and workshops, joint scientific publications (if possible), best practices, etc.

4.8.4 *WP8 milestones and means of verification*

As for the milestones:

- **MS7:** Finalisation of HarvRESt (M36, WP1-WP7-WP8, CIRCE). All deliverables checked and approved by the WP leaders and the PC. HarvRESt partners implementing D&C actions and replication activities out of the project scope defined and completed. All public deliverables published in the HarvRESt website once approved by the EC.

5. WORK PACKAGE INTERACTION

To achieve the objectives described above, HarvRESt project will be developed in 8 WPs as is showed in Figure 11.

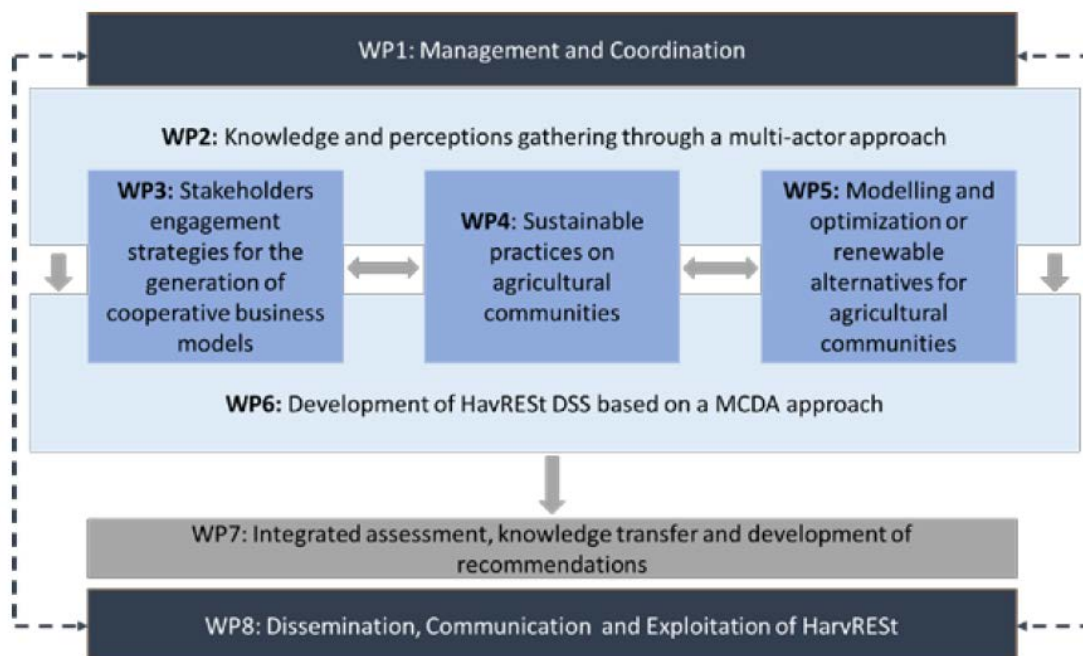


Figure 11. HarvRESt Project WP interaction

All the activities to be developed during the project execution will be supported by a coherent and smooth management and coordination (by the project coordinator), which is articulated under **WP1**. This WP will also provide the necessary tools, methods and governing structure to succeed. This WP aims to develop an effective and comprehensive administrative, financial, technical and legal management in order to ensure the successful project execution.

The project technical activities will start in **WP2**, which will implement a multi-actor approach from the very beginning of the project to gather experiences from key stakeholders and understand main barriers and drivers influencing the uptake of RES at farm level. Accordingly, this WP will act as the first hub of knowledge of HarvRESt, supporting the initial steps of the project Pillars development in WP3, WP4 and WP5 and creating the local ecosystems and laboratory set-ups at the 4 project use cases.

WP3 will carry out HarvRESt developments on stakeholder engagement as well as on financing schemes to develop adequate business models (Pillar 1). In parallel, **WP4** will analyse the impact on RES in agricultural production to adapt sustainable agricultural practices and develop digital solutions facilitating their implementation (Pillar 2), while **WP5** will generate a library of RES technologies to be used as input for the development of hybrid models and smart management systems dealing with diverse energy systems (Pillar 3).

Gathering the information and results obtained in previous work packages, **WP6** will develop HarvRESt agricultural virtual power plant (AVPP) and decision support system (DSS). To this end, models, procedures and indicators defined in each of the three pillars will be combined under a common infrastructure, making use of a MCDA approach to weight main KPIs and obtain the final HarvRESt recommendations to farmers and key stakeholders. At the same time, supporting the final advancements performed in the Pillars (WP3 to 5)

and the validation of both the AVPP and DSS, this WP will include the final experimental trials and co-creation sessions within the use cases.

Within the last year and a half of the project, **WP7** will be collecting all the knowledge and results obtained in the project to generate the final recommendations, guidelines, best-practices and advising strategy on RES integration at farm level. This work will be gathered on HarvRESt replication handbook to support the uptake of the project results.

Finally, a coherent dissemination, communication and exploitation strategy will be defined and implemented from the very beginning of the project in **WP8**. This WP will assure the correct transfer of HarvRESt results to the target stakeholders and will establish synergies with other on-going projects and initiatives.

6. TASK INTERACTION

Defining clear interactions between project tasks is crucial for ensuring smooth workflow and achieving project objectives efficiently. However, it's important to recognize that navigating these interactions can be complex due to the various dependencies and dynamics involved. Clear communication, proper planning, and a thorough understanding of each task's dependencies are essential for successfully managing these complexities and ensuring the project's success.

Figure 12 attempts to clarify all the interactions between the project tasks, indicating which inputs are necessary.

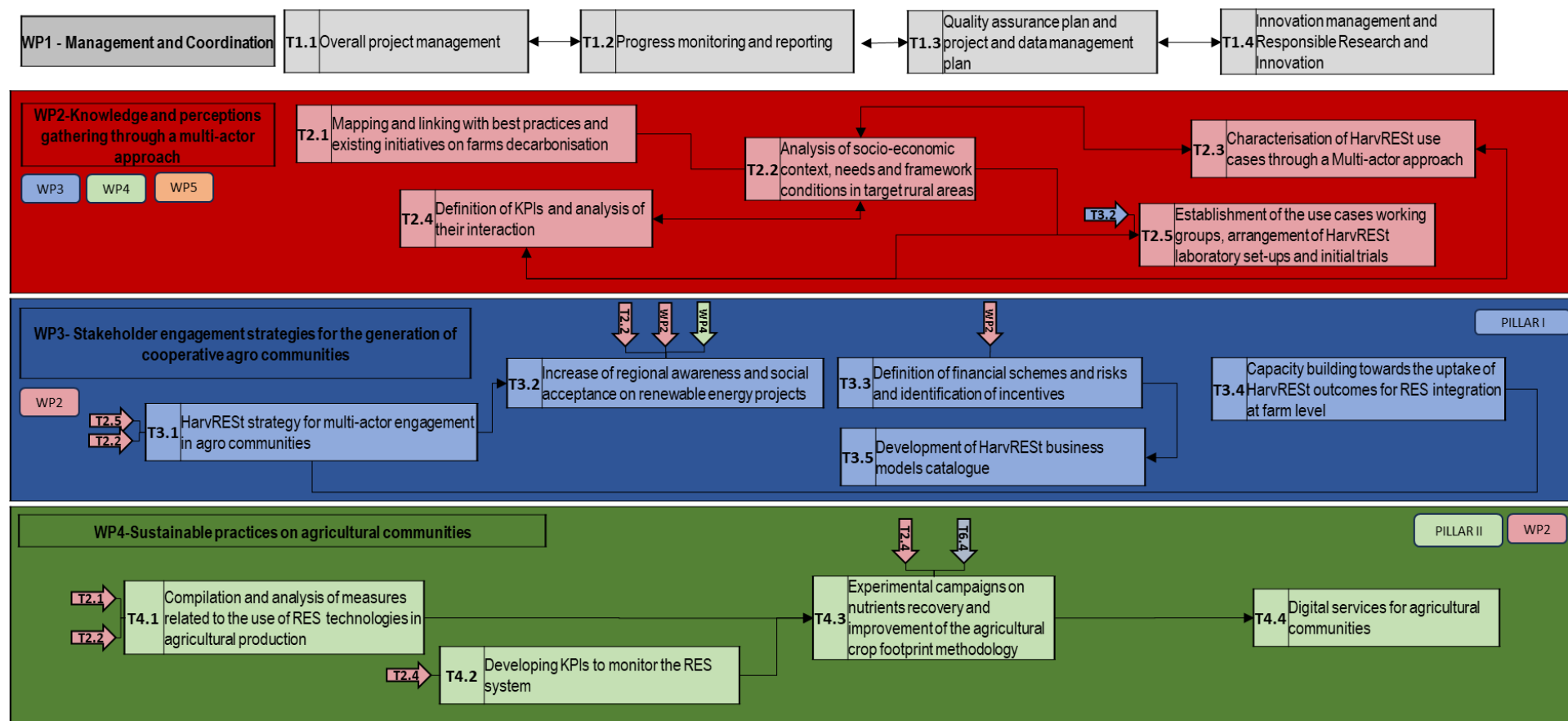


Figure 12. HarvREST Project task interaction (first part)

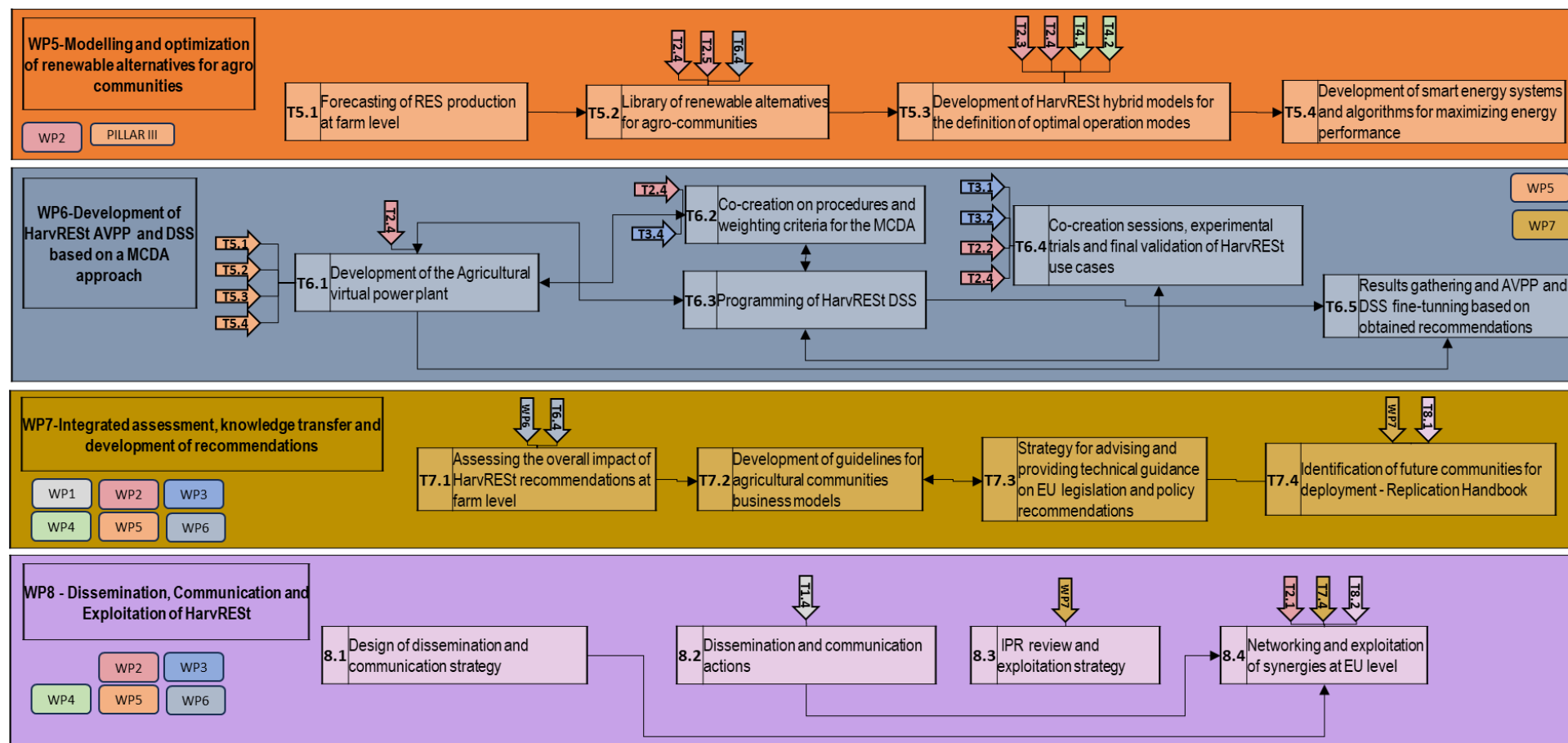


Figure 12. HarvRESt Project task interaction (second part)

7. RISK ASSESSMENT

In the following Table 2, a preliminary list of risks that may occur during HarvREST's implementation is shown, including the contingency plan for each potential risk. This section will be updated during the project execution with any additional risk that may be identified, or that occurs although it was unforeseen.

Table 2. Critical risks & risk management strategy

Risk	Description	WP	Proposed mitigation measure
1	Closing the activity of one company or partner leaving the consortium	WP1	The consortium is highly qualified and would assume tasks from a partner leaving the project. Otherwise, they would find within their large contact network the best partner for assuming the role lost.
2	Poor communication low between partners	WP1	An open and dialectic approach will be applied in all the consortium meetings and correspondence and communication will be promoted and ensured by the project coordinator.
3	Lack of financial resources	WP1	Solvency of project partners has been assessed, ensuring their financial resources during the project execution. Most partners have already participated in national or EU projects, having wide experience and history, which reduces this risk.
4	Error in the estimation of the tasks' duration	WP1	Steering of the project will be frequent. Milestones and deliverables have been placed for control. Under delays detection PC will encourage a review of task procedure and partners to place extra effort.
5	Delay of one partner providing reports or activities	WP1	Estimation of tasks' duration has been made with the agreement of all the partners, so that, as a first approach, the deliverables and development should be given in time. In case of delay of one task, that would suppose the delay of some others, an adjustment on the tasks' duration will be made, aiming at accomplishing the time targets established in the project, asking for additional effort to the partner responsible for the delay.
6	Problems between partners (e.g., IPR, internal disagreement, etc.)	WP1	The project handbook (D1.1) will include all the procedures already accepted in the CA. A democratic and dialectic approach will be applied in all the consortium meetings and correspondence. IPR issues will be discussed and established within a common CA, signed by all the partners.
7	Quality, scope and delay of partners work	WP1	A compulsory Work plan is established with operative plan to be prepared by WP leaders to avoid low quality, loss of direction or too overload actions. In case this is detected, PC will enter in contact with WP leader to revise. Key DLV will always go through a review process including CIRCE and TPs.
8	Regulatory constraints for implementing a solution in a Use Case	WP2	Regulatory framework of each country will be thoroughly assessed (T3.3) to identify and mitigate legislation discrepancies to assure the correct replication of the solutions. When new legislation changes happens or

			barriers are found, recommendations will be made for future regulations (D6.3) and pilots will be adapted if necessary.
9	Unavailability of data that would lead in inefficient optimization of models and platforms	WP2	The HarvRESt team includes experts with deep knowledge in their domains to ensure the avoidance of assumptions or simplifications during modelling. Pilot partners are willing to provide their available data and install necessary equipment for additional data gathering purposes to ensure that no lack of information appears during the course of the project. Complementarily, material from datasets will be used.
10	Foreseen installation of RES technologies or related projects not completed	WP2	In case foreseen installation for the UC are not completed or do not take place, HarvRESt team includes experts that will be able to model additional technologies (such as wind) with historical data and information from previous projects.
11	Lack of interest from stakeholders	WP2	The consortium counts with partners like WR as research experts in the field of SSH, with great engagement experienced and resources to generate interest from the stakeholder's perspective. Moreover, all partners have a trusted network that has expressed interested in the project. Hence, if stakeholders do not accept their participation, the reasons for it must be considered and the engagement research design must be adapted.
12	Difficulties in populating BMs catalogue	WP3	Consortium has already experience in the sector and several BMs have been already identified. NetZero Insight database will support the task, being able to include a wide range of options.
13	Data are of poor quality or not sufficient to properly evaluate the RES impact on agriculture	WP3	HarvRESt consortium has access to numerous bibliographic databases that will allow us to compile all the necessary information for analysing the impacts of RES technology on agricultural production, and for providing the framework for moving beyond the current knowledge.
14	Difficulties in assessing soil quality and nutrient recovery from digestate	WP3	HarvRESt counts with research partners with extensive experience in soil characterization as well as in optimizing and testing biobased fertilizers for improving nutrient recovery from manure and others.
15	Difficulties in measuring the defined indicators for the impact	WP4	Partners have extensive experience and knowledge for measuring all parameters proposed.
16	High variability in the impacts depending on the RES technologies making difficult to have general guidelines	WP4	HarvRESt counts with partners with knowledge to properly analyse the data collected and to elaborate general guidelines.

17	Interoperability problems between components that have been built on heterogeneous frameworks	WP4	Partners will use best practices to prevent interoperability thrust while assessing the design specifications for each component. Compliance with available open standards will ensure standards-based interoperability
18	Inability to define the MCDA weight criteria	WP6	Conflicts on the prioritization of impacts can arise upon the weighting criteria analysis. A mitigation plan to ensure the delivery of concluding results will be drafted and it will mainly consist of the setting of deadlines and thorough managing of the co-creation sessions in which all partners have compromised to participate.
19	Lack of agreement of the co-creation sessions among stakeholders	WP6	Co-creation sessions will be designed to reach a common point between stakeholders. In case it is not possible, experiences will take into account into fine tuning HarvRESt solutions accordingly.
20	Ineffective exploitation strategy and/or business models	WP8	HarvRESt counts with industrial and research partners with experience in developing, implementing and managing similar solutions, as well as business experts like EnG, and other entities with a large portfolio of clients and covering the entire value creation chain, which ensures enough expertise to modify and adapt the exploitation strategy in case it is required.
21	Poor dissemination to the stakeholders	WP8	Wide dissemination of the project will be planned and updated to avoid this risk. All partners will use different channels to draw visitors to the website: social media, newsletter, digital outlets, etc. in addition, the website will be promoted at all the events partners in the consortium attend.
22 (new)	Proposed guidelines do not match with stakeholders expectations	WP7	HarvRESt will count on numerous co-design activities which will bring stakeholders at the very centre of the project. Insights and observation from them will be carefully managed during the whole project execution. Dedicated workshops will be organized for discussing results with stakeholder.

8. CONCLUSIONS

Deliverable 1.3 contains the initial version of the HarvRESt Project Management Plan, intended to serve as a comprehensive guide for the 16 consortium members of HarvRESt. This report is designed to facilitate their understanding of the project's structure and the implementation phases of each Work Package. It includes essential information such as team composition and capabilities, specific objectives and expectations, Gantt Chart, and checkpoints for monitoring work progress, all delineated for each work package.

Given the interdependent nature of HarvRESt's WPs, this deliverable outlines interactions among tasks and work packages to mitigate misunderstandings, conflicts, duplication of efforts, and resource wastage. Each partner or team is encouraged to refine their methods or strategies for information exchange and activity interaction, using this document as a reference.

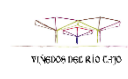
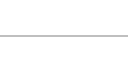
Moreover, the report supplements the Grant Agreement and Consortium Agreement of HarvRESt and should be utilized in conjunction with these documents. As D1.3 describes the methodology of work and identifies potential risks that may evolve during project implementation, two revisions of the management plan will be provided: D1.6 (M18) and D1.7 (M34).



The project

The HarvREST project aims to enhance the sustainable production of renewable energy at farm-level. This approach not only makes farms climate-neutral but also optimizes production, reduces their impact on natural resources and biodiversity, and provides energy services to communities, thereby diversifying economic income. However, deciding how best to integrate renewable energy sources (RES) on a farm is not without its challenges. The decision is a complex one, with many factors to consider. Due to this, HarvREST seeks to identify, understand, and overcome the existing barriers hindering the widespread adoption of this innovative approach. Current initiatives often overlook the complex interactions and factors within the farming and RES context, resulting in ineffective support for decision-making based on accurate projections, estimations, and forecasts. HarvREST will therefore consolidate and enhance existing knowledge, creating an Agricultural Virtual Power Plant capable of running diverse scenarios and farm configurations. This tool will determine the best operational procedures for a given RES solution, providing valuable data to a decision support system. This system will weigh trade-offs and key indicators, offering tailor-made recommendations to farmers and policymakers.

PARTNER		SHORT NAME
	CIRCE Research Centre	CIRCE
	BETA Technological Centre	UVic-UCC (BETA CT)
	NORCE	NORCE
	Tecnoalimenti	TCA
	WHITE	WR
	Suite5 Data Intelligence Solutions Ltd.	Suite5
	EnGreen	EnG
	ConTerra	CT
	Confagricoltura	CONFAGRI

	Fattoria Solidale del Circeo	FSDC
	Viñas del Vero	VdV
	Viñedos del Rio Tajo	VRT
	Sorigué	ACSA (SORIGUÉ)
	Grønn Gårdsenergi AS	GGE
	Food & Bio Cluster Denmark	FBCD
	EIT Climate-KIC	CKIC

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