D5.2 – User cases guidelines and demonstration plans, v2

M24/AUG 2025

Funded by the European Union

This project has received funding from the Horizon Europe research and innovation programme under Grant Agreement No 101112838.

Acronym	SoilWise
Project Full Title	An open access knowledge and data repository to safeguard soils
GA number	101112838
Topic	HORIZON-MISS-2022-SOIL-01-01
Type of Action	HORIZON Innovation Actions
Project Duration	48 months
Project Start Date	1-Sep-23
Project Website	www.soilwise-he.eu
Deliverable Title	D5.2 – User cases guidelines and demonstration plans, v2
Delivery Time (DOA)	M24
Deliverable Submission Date	03/09/2025
Status	v2
Dissemination Level	PU - Public
Deliverable Lead	Tuna Coppens (EV ILVO)
Author(s)/Organisation(s)	Tuna Coppens (EV ILVO), Wannes De Man (ILVO), Maria Fantappiè (CREA),
Contributor(s)	EV ILVO, ISRIC, WR, MU, BIOS, ZALF, CREA, DOMG -VL O, INRAE, CIRAD, WE, GAIA, NP, ELO
Peer-Reviewers	Andrea Lachi (CREA), Giovanni L'Abate (CREA), Marc Rosiers (ELO)
Contact	Tuna.coppens@ilvo.vlaanderen.be
Work Package	WP5
Dissemination level	Public
Keywords	SoilWise Repository, User Cases, Demonstration Plans,
Abstract	This deliverable, D5.2, outlines the updated and final planning and demonstration guidelines for User Cases, ensuring that stakeholders can effectively capitalize on the SoilWise Repository. The document details the objectives, methodologies, and steps for demonstration activities, setting the stage for ongoing evaluation and iterative improvement in subsequent project phases.

Disclaimer

The content of this deliverable represents the views of the author(s) only and does not necessarily reflect the official opinion of the European Union. The European Union institutions and bodies or any person acting on their behalf are not responsible for any use that may be made of the information it contains.

In this document, the acronym 'DOMG – VL O' is used to refer to the Department of the Environment and Spatial Development, Flanders, Belgium, as per the partner's request for clarification. It's noted that in the grant agreement, the partner is identified by the acronym VL O (Vlaamse Gewest).

List of Abbreviations

A	Activity
AI	Artificial Intelligence
API	Application Programming Interface
BIOS	Biosense Institute - Research And Development Institute For Information Technologies In Biosystem
C#	Cycle Number
CAP	Common Agricultural Policy
CIRAD	Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement
CREA	Consiglio per la Ricerca in Agricoltura e l'Analisi dell'Economia Agraria
D#.#	Deliverable Number
DEC	Dissemination, Exploitation, Communication
DG AGRI	Directorate-General for Agriculture and Rural Development (European Commission)
DKC	Data and Knowledge Contributors
DM	Data Management
E	Evaluators
EC	European Commission
ELO	European Landowners Organization
EnU	End Users
EU	European Union
EUSO	EU Soil Observatory
EV ILVO	Eigen Vermogen van het Instituut voor Landbouw- en VisserijOnderzoek
FAIR	Findable, Accessible, Interoperable and Reusable
GAIA	Gaia Epicheirein Anonymi Etaireia Psifiakon Ypiresion
INRAE	Institut National de Recherche pour l'Agriculture, l'Alimentation et l'Environnement
ISRIC	Stichting International Soil Reference and Information Centre
JRC	Joint Research Centre (European Commission)
KM	Knowledge Management
KPI	Key Performance Indicator
M	Month
ML	Machine Learning
NP	Neuropublic Ae Pliroforikis & Epikoinonion

P#	Phase number
PU	Public
REA	Research Executive Agency (European Commission)
R&I	Research and Innovation
SO-#	Specific objective (followed by a roman numeric)
SWR	SoilWise Repository
SWUC	SoilWise User Cases
T	Task
TE	Technical expert
UC	User Case
UCL	User Case leader
UI	User interface
DOMG – VL O	Vlaamse Gewest
WE	Wetransform GmbH
WP	Work Package
WPL	Work Package Leader
WR	Stichting Wageningen Research
ZALF	Leibniz-Zentrum fuer AgrarlandschaftsForschung

Table of Contents

List of Tables and Figures

Executive Summary

The SoilWise project, under the Horizon Innovation Actions, aims to develop an open-access soil knowledge and data repository to support users in safeguarding soil across Europe. With 60-70% of European soils currently considered unhealthy, i.e. are losing their capacity to support food production, biodiversity and the regulation of water, nutrient and carbon cycles (EC Proposal for a Soil Monitoring and Resilience Directive). The project addresses the urgent need for reliable and harmonized data to support informed decision-making at various levels, aligning with the EU Mission 'A Soil Deal for Europe' and other related strategies. SoilWise, spanning 48 months and involving 15 partners, is designed to create a scalable, modular repository that leverages AI and ML technologies to make soil data Findable, Accessible, Interoperable, and Reusable (FAIR).

Purpose

This deliverable, D52, marks the second version of the User Case (UC) Guidelines and Demonstration Plans within Work Package 5 (WP5). This work package focuses on planning, demonstrating, and assessing how different user groups—ranging from land managers to policymakers—can capitalize on the SoilWise Repository (SWR). The document outlines the roles, responsibilities, and timelines associated with the demonstration activities across five practice-oriented UCs, each targeting a specific stakeholder group.

Intended audience

This report is primarily intended for SoilWise UC partners actively involved in SWR demonstration planning (design, preparation, execution, evaluation). It is also be relevant for other Mission Soil projects, for other EU and international research & innovation initiatives, and for broader external stakeholders interested in structured procedures and guidelines for demonstration planning and replication.

Key Results

- **Result 1: Guidelines on UC demonstration planning**
  The demonstration process is divided into four key stages: Design, Preparation, Execution, and Evaluation. Each stage is meticulously planned, with clear objectives, stakeholder identification, and anticipated outcomes. A Gantt chart is utilized to visualize the timeline, ensuring all tasks are completed on schedule. This deliverable also details the communication collaboration and monitoring tools essential for harmonizing the efforts of various actors involved in the demonstrations.
- **Results 2: Guidelines on UC evaluation in a KPI framework**
  Evaluation of the UCs is crucial for assessing the impact of the SWR on target groups and refining the repository to better meet stakeholder needs. The evaluation methodology is grounded in a KPI framework developed in collaboration with project stakeholders. The results from these evaluations will feed back into the project's development cycles, ensuring continuous improvement.
- **Result 3: Risk assessment of demonstration planning**
  Risk management is a critical component of the planning process. This deliverable identifies potential risks at each demonstration stage—ranging from insufficient initial descriptions to technical failures during execution—and outlines mitigation strategies to minimize their impact. These include thorough initial assessments, regular stakeholder engagement, and pre-demo testing and validation.

Research and practice implications

The results from D5.2 lays the basis for targeted demonstration of the SWR to external stakeholders, represented throughout the different UCs (from land managers to policymakers). The tailored demonstration planning and evaluation process supports UC partners in running demonstrations consistently and in collecting stakeholder feedback in a structured way.

These insights feed into the technical development of the SWR and show how different stakeholder groups can be capitalized by different stakeholder groups. In practice, the deliverable offers UC partners a framework to engage stakeholders effectively, while also providing input that can support further research and future improvements.

Policy implications

This deliverable has indirect implications for policymakers, who are a key stakeholder group taken into account in SWR demonstrations. By providing UC partners with a structured guide, demonstration planning, and collecting feedback, it ensures that policymakers are systematically included as one of the stakeholder groups. Their input, gathered through these organised processes, may offer useful insights for aligning the SoilWise Repository with policy needs and Mission Soil objectives. While it does not generate policy input itself, it supports a consistent approach to stakeholder engagement and feedback that can complement other project results with potential policy relevance.

Conclusion

This deliverable consolidates the key elements of the UC guidelines and demonstration plans, integrating necessary adjustments and insights gained from the first round of demonstrations. The iterative approach used ensures that the SoilWise project remains aligned with its goals of supporting sustainable soil management practices, and thus contributes to improving soil health across Europe. The document will be updated, if necessary, due to changed circumstances that require alterations to the approaches presented herein.

1 Introduction

1.1 Project Summary

Now more than ever, soil health is an issue that needs to be addressed urgently, as recent assessments state that 60-70% of European soils can be considered unhealthy (Bouman, 2022). The EU Mission 'A Soil Deal for Europe', the EU Soil Strategy and the proposal for a Soil Monitoring and Resilience Directive (5 July 2023) aim to have 75% of EU soils healthy or significantly improved by 2030 and all soils healthy by 2050. Reaching such an ambition requires, among others, access to reliable, harmonised existing and new data and knowledge collected at local, national and EU levels to allow **informed decision-making at all scales to support the proposed Soil Monitoring and Resilience Directive and the EU Soil Strategy**.

☞ **SoilWise aims to develop, test, and deliver a prototype for a long-term knowledge and data repository that is expected to become part of EUSO. Fifteen project partners must design, develop, validate, and demonstrate the solution. Five practice-oriented "user cases" will support the demonstration of the solution, representing six target groups and their needs.**

The SoilWise project will provide an integrated and actionable access point to scattered and heterogeneous soil data and knowledge in Europe, making them FAIR (Findable, Accessible, Interoperable and Reusable) and improving trust, willingness, and the ability to share and re-use soil data and knowledge. In three project development cycles, **co-creation and co-validation by multi-stakeholder groups are at the centre of project activities**.

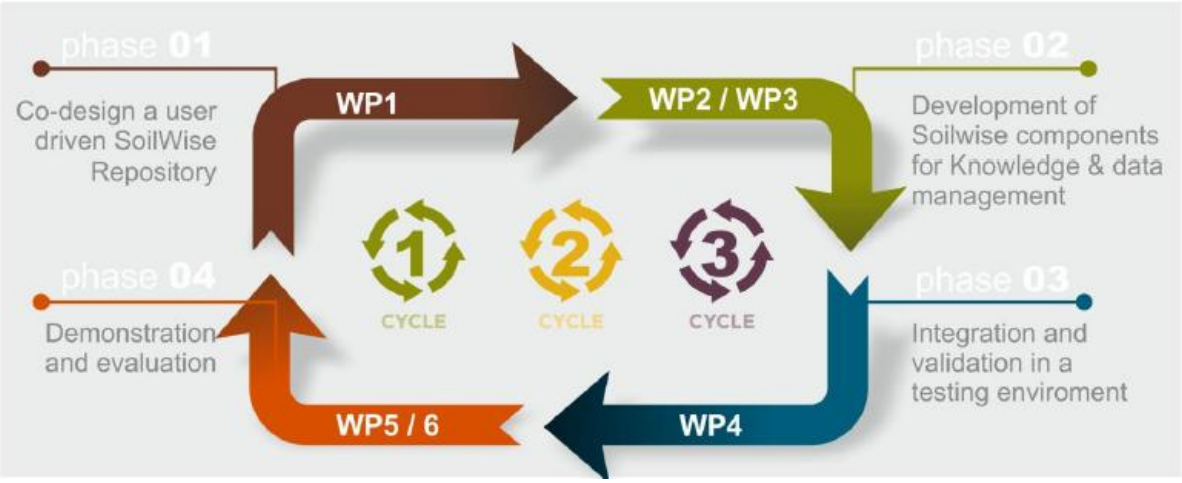


Figure 1. SoilWise process approach is based on three development cycles (C#), each comprising four phases (P#)

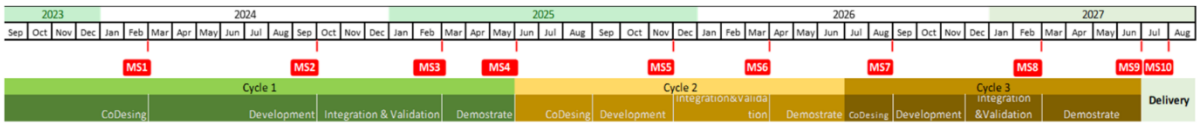


Figure 2 *SoilWise project timeline. The project follows an iterative approach, split into four phases, which are intentionally repeated into three cycles*

SoilWise recognizes the workflows and repositories that users already rely on and aims to make their lives easier by enhancing these processes through the software platform being developed within the project, improving discoverability, usability, and connectivity. An open, modular, scalable, and extensible knowledge and data repository building on existing and new technologies will be provided while respecting data ownership, access policies and privacy. AI and ML techniques will be employed to interlink scattered data and knowledge, automate the processes, infer new knowledge and increase FAIRness. **SoilWise applies infrastructure thinking instead of project thinking to design a repository that will be operational for at least a decade to support EUSO evolvement accordingly**. The SoilWise repository and community are designed to be a joint starting point and common ground for countries, the European Commission, and other stakeholders to jointly guide soil and related spatial policy and informed decision-making towards the 2030 goals of the Green Deal, achieve healthy soils in 2050 and ensure broad uptake and implementation by land managers, policy, research, and industry.

All personal data acquired through SoilWise is processed in strict accordance with the relevant EU privacy regulations, underscoring our unwavering commitment to upholding the highest standards of data privacy and security for our users. This dedication is a cornerstone of our project.

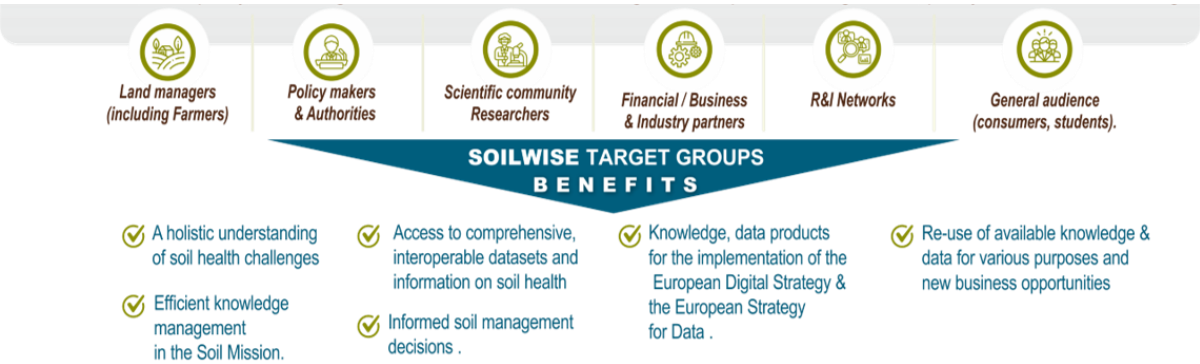


Figure 3 SoilWise actors

1.2 Deliverable scope and structure

Deliverable D5.2, titled "User Cases Guidelines and Demonstration Plans, v2," is a comprehensive document designed to facilitate the planning, deployment activities of User Cases (UCs) within the WP5 “User Cases planning, demonstration and assessment” of the SoilWise project.

☞ **WP5 tackles the topic text scope: “Provide examples for practice-oriented “user cases” to show how potential users (e.g. researchers, land managers, businesses or public authorities, decision-makers) can capitalise on and re-use existing information and data from the knowledge repository”.**

The deliverable D5.2 validates T5.1's “User cases planning” objectives and is thus an essential component of Work Package 5 (WP5). It aims to ensure smooth and uniform implementation across all UCs by:

- **Providing organisational guidelines for UCs**: Deliver an organisational structure that allows the UCs to continue their activities and ensures smooth and uniform implementation across all UCs. These include standard features and practices and tailored information for each User Case, emphasising the reporting procedures and communication protocols between actors.

- **Initiating the Development of the Demonstration Plans:** Initiate the creation of detailed demonstration plans for each User Case to ensure the successful implementation and organisation of demonstration activities. These plans will support the preparation of UCs in both technical (e.g. dataset availability) and organisational (e.g. roles) aspects.

D5.2, the updated version of the deliverable for User Case planning, reflects the ongoing development progress of the repository in WP2, WP3, and WP4. It remains aligned with the agile approach of the SoilWise project, tracks progress in WP6, and addresses emerging needs identified through interactions with Mission Soil projects, JRC/EUSO, DG Agri, and REA. We need to follow this dynamic approach to manage the risk of developing absolute or isolated UCs that cannot capitalise on the knowledge repository without, in parallel, losing the primary goal, which is to deliver a repository that can be part of EUSO and cover the needs of different stakeholder groups and the project partners.

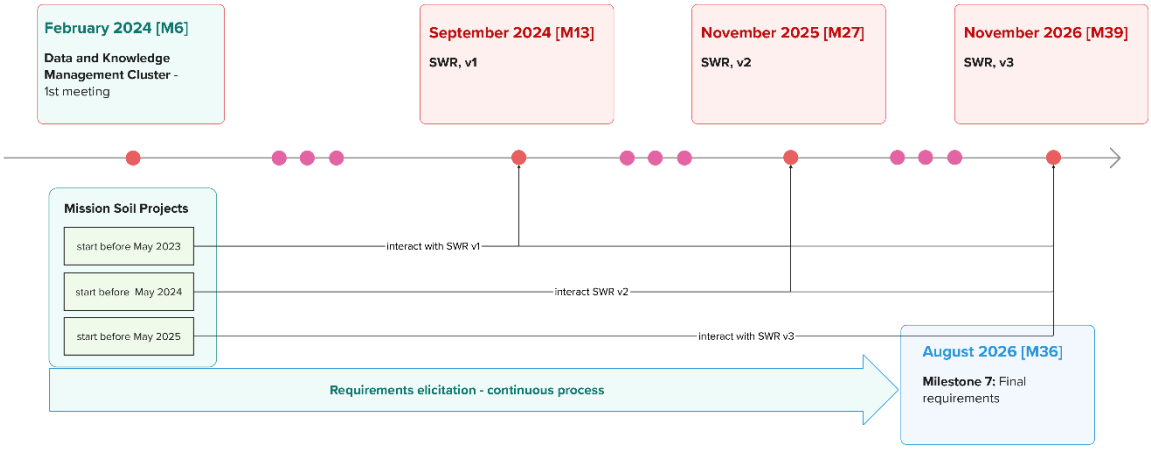


Figure 4 Timeline and milestones of the interaction between the Mission Soil and SoilWise project

This document is comprised of the following chapters:

Chapter 1: Introduction

This chapter provides an overview of the SoilWise project, explaining its goals, scope, and relevance. It introduces the role of Work Package 5 (WP5) in the project, outlining its focus on planning, demonstrating, and assessing how different stakeholders can utilize the SoilWise repository (SWR). The chapter also defines the purpose and structure of Deliverable D5.2, explaining its connection to other project deliverables and its importance in the broader context of the project.

Chapter 2: WP5 - User Cases Planning, Demonstration, and Assessment

This chapter delves into the objectives, activities, and approach of WP5, outlining how it interacts with other work packages. It introduces the practice-oriented "User Cases" that are central to the project and describes the roles of various actors involved in these cases. The chapter also details the deliverables associated with WP5 and how they contribute to achieving the project's goals.

Chapter 3: Planning UCs activities, methodology and guideline, including demonstration planning

This chapter outlines the methodology for planning and executing the demonstration activities within the SoilWise project. It details the steps involved in the demonstration process, including demonstration design, preparation, execution, and evaluation. The chapter also describes the roles and responsibilities of various project partners, ensuring effective collaboration and successful outcomes during each demonstration step. Additionally, it introduces a Gantt chart that visualizes the timeline for the demonstrations, helping to keep the project on track.

Chapter 4: Communication and Monitoring Tools

This chapter discusses the tools and strategies for monitoring progress and facilitating communication within the project. It covers the use of digital platforms for documentation and collaboration, as well as the organization of regular meetings at both the Work Package and User Case levels. The chapter emphasizes the importance of maintaining transparency and coordination among project partners to achieve the project's objectives.

Chapter 5: Evaluation Framework and Methodology

This chapter outlines the evaluation framework and methodology used in WP5 to assess the performance, impact, and added value of the SoilWise Repository (SWR). It explains how User Cases serve as the basis for continuous monitoring, KPI-driven performance analysis, and systematic feedback loops that feed into the co-design and technical development of the SWR.

Chapter 6: Risks and Mitigation Strategy

This chapter identifies potential risks associated with the planning and execution of the SoilWise demonstrations. It discusses various challenges that could arise during the project and proposes mitigation strategies to address these risks. The chapter covers how these strategies will help to minimize the impact on the project's schedule, technical outcomes, and overall success, ensuring the smooth execution of demonstration activities.

Chapter 7: Conclusions

This chapter emphasises the role of structured demonstration planning and evaluation in ensuring consistency, stakeholder engagement, and alignment with the project's objectives.

1.3 Relationship to other project deliverables

Deliverable D5.2 is a revised version of D5.1 and it is intricately connected to several other deliverables within the SoilWise project, ensuring a cohesive approach to achieving project objectives:

Items highlighted in red indicate deliverables already delivered. The months in brackets show the planned submission dates.

- **D1.1, D1.2** – Usage Scenarios, requirements, v1, v2 (**M5**, M36)
- **D1.3, D1.4** – Repository Architecture, v1, v2 (**M8,** M42)
- **D1.5**, D1.6 – Repository GM, v1, v2 (**M21**, M42)
- **D2.5, D2.6** – Report on strategy for FAIRness on soil data, v1, v2 (M27, M42)
- **D3.5, D3.6** – Report on strategy for effective soil KM, v1, v2 (M27, M42)
- **D4.1, D4.2, D4.3, D4.4** – Repository infrastructure, components and APIs, v1, v2, v3, v4 (**M13, M18,** M31, M47)
- **D4.5**, D4.6, D4.7 – Repository Data and Knowledge Resources, v1, v2, v3 (**M21**, M34, M46)

- **D5.1, D5.2** - User cases guidelines and demonstration plans, v1, v2 (**M12,** M24)
- **D5.3, D5.4, D.5.5** – Deployment and Evaluation Report, v1, v2, v3 (M21, M34; M46)
- **D5.6** – Usage best practices and replication guidelines (M47)
- **D6.2, D6.3, D6.4** – DEC and Capacity Building Plan and Report, v1, v2, v3 (**M3, M18**, M48)
- **D6.5**, D6.6 – IPR, Business Model Report and Policy Brief, v1, v2 (M24, M47)

Deliverable D5.2, as the updated and revised version of **D5.1,** serves as the foundation for the activities in **Tasks 5.2 and 5.3** and directly shapes the content of the deployment and evaluation reports (**D5.3, D5.4, and D5.5**).

As **D5.3 and D5.4** provide input to key project processes and activities such as co-design, validation, development of best practices and replication guidelines and the business plan & policy brief, **D5.2** indirectly supports related deliverables, including **D1.2**, **D5.6** and **D6.5 (Business Plan and Policy Brief)**.

2 WP5 - User Cases planning, demonstration and assessment

2.1 WP5 Objectives, Activities & Approach

WP5, led by EV ILVO, focuses on the UCs' planning, demonstration, and evaluation. Its aim is to support the SoilWise UCs in showing with demonstration and evaluation, how the (re)use of the SWR can be capitalised by different stakeholder groups. WP5 also collects and shares the resulting knowledge and develops guidelines to enable replication of the results across Europe.

(Phase 4: Demonstration and evaluation). It builds on the outcomes of Phase 1 (WP1), Phase 2 (WP2 and WP3), and Phase 3 (WP4).

WP5 is divided into 4 Tasks:

- T5.1 User cases planning, M7-M22 (EV ILVO, ISRIC, WR, BIOS, ZALF, CREA, VL O, INRAE, CIRAD, WE, GAIA, NP, ELO).
- T5.2 User Cases implementation and demonstration, M13-M46 (EV ILVO, ISRIC, WR, BIOS, ZALF, CREA, VL O, INRAE, CIRAD, WE, GAIA, NP, ELO).
- T5.3 User Cases impact analysis, M18-M46 (CREA, ISRIC, WR, BIOS, ZALF, VL O, INRAE, CIRAD, WE, GAIA, NP, ELO)
- T5.4 Best practices and replication guidelines, M31-M48 (GAIA, EV ILVO, BIOS, CREA, VL O, NP).

Each of the four tasks supports the following specific objectives (SO) of WP5:

SO I. To organise and facilitate the deployment and integration activities of the SoilWise User Cases (T5.1).

This refers to performing the activities of T4.3 which is related to the solutions & repository validation and population within phase 3, and after performing the demonstrations within WP5, UCs partners are expected and have been foreseen to perform activities that will allow interaction with the SoilWise repository with their infrastructure, software tools, existing system, etc. This can be and it is not restricted to the interaction (or integration) with the SoilWise repository by using the UI and its API after the (re)deployment of the new or existing solutions. This specific objective includes the planning of the activities related to the collection and preparation for use of the needed data sets.

☞ ***T5.1 will organise the execution of those activities, facilitating and supporting the User Cases actors and especially the User Cases leaders to set up an organisational structure, deliver impact indicators and ensure the establishment of effective communication channels.***

SO II. To coordinate and support the SoilWise User Cases in their demonstration activities (T5.2).

After the planning, the User Cases actors, led by the User Cases leaders will perform all necessary preparatory activities, to demonstrate the use of the SoilWise repository to the stakeholders targeted in their use case. The preparatory activities occur within T4.3 and T5.2, following the planning delivered by T5.1.

- ***T5.2 is responsible for monitoring the demonstration performance (or the successful execution of the demonstrations) and supporting the actors when needed, for example, by keeping everyone updated on the evolutions and coordinating the demonstration activities to achieve the needed alignment with the development team, the stakeholders, and the target groups they represent, including JRC/EUSO.***

SO III. To monitor and evaluate how user cases target groups can capitalize (T5.3).

This activity is critical in the context of the call text. It requires presenting, in a transparent, standardised, and simple way, how different target groups can capitalise on the SoilWise repository as part of EUSO, illustrated through the User Cases.

- ***A KPI approach can support this, but the goal is not to create a burdensome monitoring framework. Instead, the aim is to use storytelling to explain how the SoilWise repository can transform current practices and highlight the measured benefits identified from practical user cases. Considering the agile approach, dynamic interaction with Mission Soil projects, and EUSO's and other stakeholders' emerging requirements, KPIs will be formulated after the first cycle and after gathering feedback from the initial demonstrations.***

SO IV. To share the resulting knowledge and creation of guidelines for replicating results across Europe (T5.4).

T5.4 will analyse the UCs' results and develop a report containing best practices for the use of the SWR and replication guidelines.

- ***This will practically serve a) the sharing of knowledge and good practices on how to use the SWR with the larger external target audience of EUSO and b) the future development of usage plans for efficient soil Knowledge and Data management for cross-target groups. The report will consider the needs of other relevant projects under the Mission Soil (such as SOLO, AI4SoilHealth, ECHO, HuMUS and others) as well as other target groups from the five user cases of the project. The report will also include guidelines on agreeing with terms for preparing access to project results.***

2.1.1 Interaction and collaboration with other WPs

The interaction of WP5 with the other work packages (WPs) is illustrated as a dynamic and iterative process centred around the UCs. WP5 begins with **Task 5.1 (UC Planning)**, which lays the foundation for the implementation, demonstration and evaluation activities in **Task 5.2 and Task 5.3**. In the early phase of Task 5.2, **WP4** and **WP6** play a crucial role, working with stakeholders from the five UCs, specifically through **Task 4.3 (Testing and Validation)** to define and **Task 6.2 (Stakeholder Engagement)**, to define and refine the demonstration scenarios.

During the demo events, the added value of the SoilWise repository (SWR) is presented both to directly involved stakeholders (e.g. UC partners and target users) and to a broader audience of interested actors. Each of these demo events is target at a specific user group and showcases the most relevant functionalities for this user group identified during the preparation of the demonstration. Feedback collected during the demonstrations serves two key purposes: (1) it supports **Task 5.3 (UC Evaluation)** by assessing the perceived usefulness and impact of the SWR for end users, and (2) it informs future development by generating new requirements and user needs. These insights are channelled back into **WP1 (Co-Design)** to shape the next iteration of development. The newly

formulated or modified user stories are then prioritized (WP1), further developed (WP2, WP3) and tested (WP4), and cycled back into WP5 for continued validation and demonstration.

WP5 plays a important role , in bridging technical development and stakeholder needs by translating real-life user feedback from demonstrations into inputs for the development work, Through structured planning, demonstration, evaluation, and feedback loops, it ensures that UCs evolve in close coordination with the other WPs, particularly WP1, WP4, and WP6. This cyclical process reinforces continuous improvement, relevance, and stakeholder alignment throughout the project lifecycle.

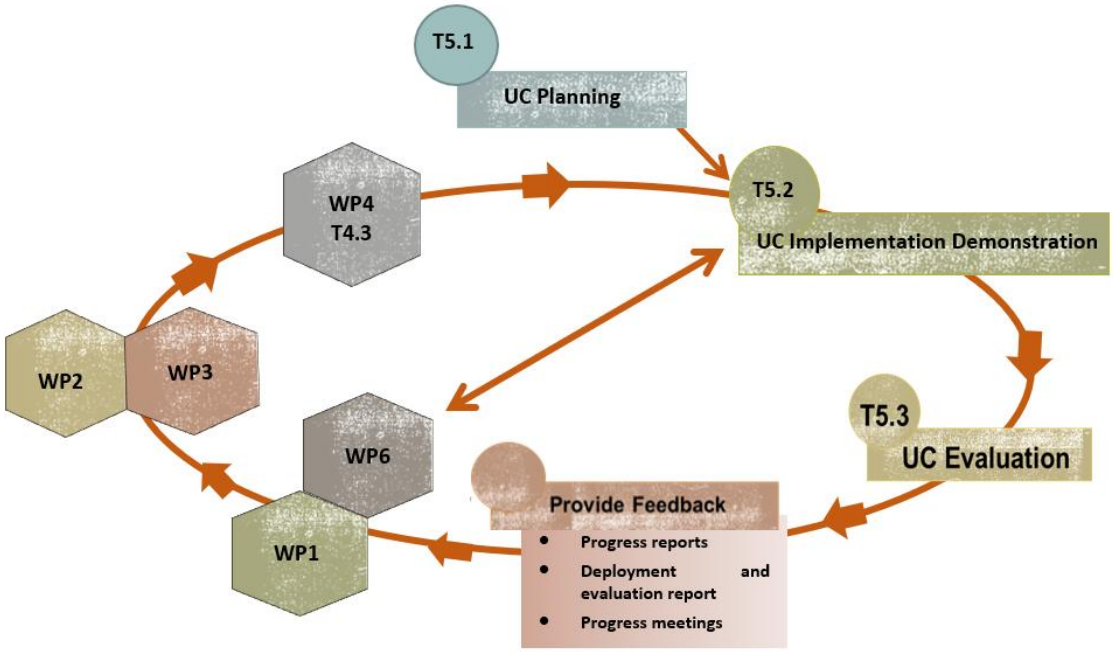


Figure 5 WP5 tasks interactions with other WPs.

2.1.2 WP5 Deliverables

Table 1 WP5 Deliverables

No.	Name	Due date	Description	Status
D5.1	User cases guidelines and demonstration plans, v1	M12	Plans defining **reporting procedures** and the **communication protocol** together with details of the **operation** and the **planning** for a **demonstration**.	Approved
D5.2	User cases guidelines and demonstration plans, v2	M24	Plans defining **reporting procedures** and the **communication protocol** together with details of the **operation** and the **planning** for a **demonstration**.	Submitted
D5.3	Deployment and Evaluation Report, v1	M21	The **implemented user cases** and a short report describing them are included. The report will be updated to reflect the **outcomes of Phase 4's evaluation** process.	Submitted

D5.4	Deployment and Evaluation Report, v2	M34	The **implemented user cases** and a short report describing them are included. The report will be updated to reflect the **outcomes of Phase 4's evaluation** process.	/
D5.5	Deployment and Evaluation Report, v3	M46	The **implemented user cases** and a short report describing them are included. The report will be updated to reflect the **outcomes of Phase 4's evaluation** process.	/
D5.6	Usage best practices and replication guidelines	M47	A report with the **methodological guidelines** that will support the replication of results across Europe supporting the operation of EUSO.	/

2.1.3 WP5 Actors

Table 2 WP5 Actors

No	Name (Short name)	Participation in Tasks and User Cases
1	Eigen Vermogen Van Het Instituut Voor Landbouw- En Visserijonderzoek (EV ILVO)	WP Leader and Task Leader of task 5.1 UCs planning and task 5.2 UCs implementation and demonstration. ILVO participates in UCs 1 and 4.
2	International Soil Reference and Information Center (ISRIC)	ISRIC contributes to UC2 and UC3.
3	Wageningen Research (WR)	WR leads UC1.
4	Biosense Institute (BIOS)	BIOS participates in UC5.
5	Leibniz-Zentrum Fuer Agrarlandschaftsforschung (ZALF)	ZALF participates in UC4.
6	Consiglio per la Ricerca in agricoltura E L'Analisi Dell'Economia Agragria (CREA)	CREA leads T5.3 UCs impact analysis. CREA leads User Case 3. Participates in the planning phase of the User case demonstration.
7	Vlaamse overheid Departement Omgeving (DOMG)	DOMG leads UC4 and participates in UC3.
8	Institut National de Recherche pour L'Agriculture, L'Alimentation et L'Environnement (INRAE)	INRAE participates in UC2.
9	Centre de Cooperation International en Recherche Agronomique pour le Development (CIRAD)	CIRAD leads UC2.
10	WeTransform (WE)	WE participate in UC5.
11	GAIA Epicheirein	GAIA is the Task leader of task 5.4,"Best practices and replication guidelines". GAIA leads UC5.
12	Neuropublic Ae Pliroforikis & Epikoinonion (NP)	NP participates in UC5.
13	European Landowner Organization (ELO)	ELO participates in UC1 and UC5

2.2 Practice-oriented "User Cases"

These five UCs serve to directly involve relevant stakeholders. By working closely with these stakeholders, we can test the SWR's effectiveness in real-world scenarios and explore potential synergies. Successful outcomes can be scaled to a wider range of stakeholders and regions. The five UCs described in the project are presented in Table 3.

Table 3 SoilWise User Cases Overview and Description

User Case UC01: Soil Health Performance Indicators for Land Managers	
User Case Leader	**WR**
Other Participants	EV ILVO, ELO
Objectives	To enhance soil health indicators and management advice by integrating diverse soil data sources, including EU, national, and private repositories. This project aims to showcase the benefits of expanded access to soil data, particularly data made FAIR-compliant through SoilWise/EUSO, for local soil management.
Key Actions	Accessing data and knowledge on improving soil health for sustainable impact.
Potential Users	Land managers, landowners, farmers, policy makers and other businesses
Expected Outcomes	• Improved soil health assessments. • Better decision-making for land managers. • Demonstration of business model development supported by SoilWise.
User Case UC02: Leveraging a Network of Soil R&I Knowledge and Data	
User Case Leader	**CIRAD**
Other Participants	INRAE, ISRIC
Objectives	To link existing R&I project networks and data repositories to the SoilWise repository (SWR), ensuring interoperability and minimizing duplication of efforts.
Key Actions	• Answering to the Mission Soil stakeholders needs to enhance access to soil-relevant knowledge and data. This implies the creation of guidances on how to publish a FAIR dataset and how to manage project's websites after projects ends. • To populate the EUSO with comprehensive datasets and information : improving the harvesting process to make Mission Soil productions findable on SoilWise and proposing, trough the guidances, to promote the future soil metadata template to make datasets suitable for an integration of the EUSO dashboard.
Potential Users	Researchers, land managers, business actors, and public authorities.
Expected Outcomes	• Increased user engagement • Persistent availability of project results • Enhanced interoperability of repositories
User Case UC03: Policy Making & Evaluation to Safeguard Soil	
User Case Leader	**CREA**
Other Participants	VL O, ISRIC, JRC

Objectives	To address challenges faced by governmental bodies in meeting soil-related reporting obligations, and to streamline data sharing, access, and reporting workflows to align with EU and global standards.
Key Actions	• Testing SoilWise components for data collection and assessment • Developing tools and documentation for improved reporting pipelines • Compare, standardize, complete, make available and easily usable the soil ontology inside the developed tools • Engage the network of governmental bodies and authoritative institutions in MS countries demanded for soil protection, soil monitoring, soil data collection and maintenance, implementation of INSPIRE directive, (such as EIONET, EJPSOIL national hubs, GSP-INSII-ESP) with interactive workshops, questionnaires and other interactive means.
Potential Users	National and local governments, and agencies.
Expected Outcomes	• Improved data discoverability. • More efficient reporting processes. • Enhanced quality of reporting results.
User Case UC04: Enhanced Capacities of Public Authorities and LLs Actors	
User Case Leader	**VL O**
Other Participants	ZALF, EV ILVO
Objectives	To improve the FAIRification of soil data for effective reuse and knowledge generation by addressing challenges in adopting FAIR principles: • User friendliness of FAIRification tools • Incentives for FAIRIfying (visibility, recognition, quality feedback, ….) • Trade-off between quantity and quality This is done trought the following objectives: • Testing of the SWR best practices and SWR solutions for FAIR data and knowledge providers • Testing the tools setup to assist in the improvement of the content quality and Fairness of the data and knowledge • .
Key Actions	Testing solutions for minimal metadata entry, automated metadata population, automated metadata quality indicators and feedback mechanisms to users about metadata quality.
Potential Users	Living labs, LTE's and public authorities who act as data and knowledge providers.
Expected Outcomes	• Community of users with an increased sense of ownership of the repository • Improved balance between costs and benefits for data providers and users • Improved content quality of the repository, improved search experience; high-quality content first • Solutions (tools), approaches and practices that make publishing knowledge, data and projects in a FAIR way easier and encourage organisations to make the step to complete FAIR publication

User Case UC05: Repository for New Products, Technologies, and Services	
User Case Leader	**GAIA**
Other Participants	WE, ELO, BIOS, NP
Objectives	To develop the SoilWise business and governance model, benefiting stakeholders such as farmers, landowners, and service (technology, advisory, etc.) providers, and ensuring sustainability after project completion.
Key Actions	• Exploring business opportunities from the SoilWise repository (SWR) for smart farming and CAP products. • Investigating how stakeholders can benefit as data providers and consumers.
Potential Users	Farmers, landowners, and service providers, i.e.; third party services built on top of the functionalities of the repository.
Expected Outcomes	• Prioritized aspects that create added value for data providers and users. • Evaluation of SWR's added value to users.

It is important to note that in **D1.1 - Usage Scenarios, Requirements, v1,** we have outlined the user stories for each of the UCs. These stories describe the core functionalities of the repository, providing a foundation to support the UCs and their subsequent demonstrations. This strategy not only endorses the SWR co-design activities but also initiates the design of the UCs at an earlier stage, stimulating the UCs actors to identify their actual needs while considering the needs of the target groups they represent.

3 Demonstration planning methodology and guideline

The demonstration planning methodology for SoilWise is designed to ensure that the planned activities are executed systematically, with clear objectives, stakeholder involvement, and measurable outcomes. It follows an iterative approach, integrating feedback loops to refine and improve the demonstrations at each stage. This ensures that the demonstrations are not only effective in showcasing the capabilities of the SoilWise Repository (SWR) but also adaptable to the evolving needs of the different user groups involved. The methodology emphasizes collaboration between user case leaders (UCLs), partners, and technical teams to create a cohesive plan that aligns with the overall project goals. By leveraging standardized tools and templates, it facilitates consistent documentation and evaluation across all user cases (UCs), enabling a comprehensive assessment of the SWR's impact.

In addition, the methodology ensures that demonstration planning does not focus solely on the final event but addresses the entire process, covering all UC activities required for a successful demonstration and outcome. This includes the period from the end of validation through UC planning and implementation, leading up to the demonstration event itself and extending into the evaluation phase, where lessons learned and impacts are captured. This also includes organisational, operational, and evaluation activities such as reporting, as well as organising workshops and meetings to support communication and collaboration between UC actors and other WPs. This structured approach makes planning more manageable and ensures that all UC activities collectively demonstrate the practical value and usefulness of the SWR.

3.1 Demo Steps

To ensure efficient planning and monitoring, we have identified the required activities, considering the project development cycles (3 cycles, see Figure 6) and the steps each user case needs to take, starting from the collection of the needs to support the co-design process and ending to the evaluation of how the SoilWise repository can support the different stakeholder groups performing their activities.

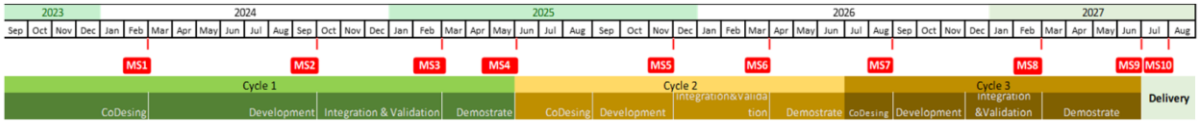


Figure 6 SoilWise project cycles

For each of the demonstration steps, we listed the activities and defined the primary responsibilities, considering not only who the UC actors and UCLs are but also at which WP and Task the activities take place in a way to align WPs and reduce the administrative burden.

The project's demonstration steps are divided as follows:

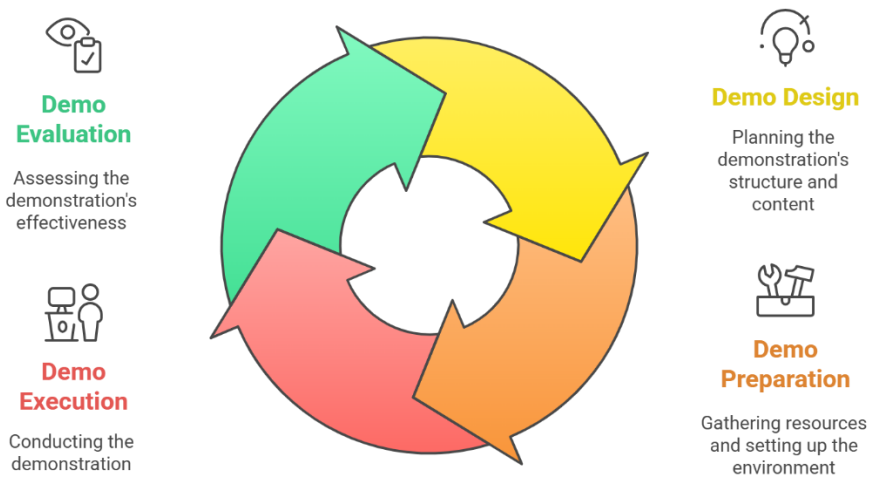


Figure 7 Steps each User Case needs to follow for the demos, including the evaluation process.

3.1.1 Demo design

Within this step, we need to design the demonstration scenarios, considering the updated and improved User Case description, as those will result until the end of each cycle and prepare the demonstration plan. The demo design step explores relevant demonstration formats based on stakeholders needs, such as interactive workshop-style sessions, questionnaires, delivery of guidance documents, etc. UCLs must deliver a demo preparation, execution, and evaluation plan (schedule) at each iteration. These plans need to support flexibility and the easy management of the demos and allow all involved partners and actors to understand and be aware of what must be done, by whom, when, and why. For example, considering that WP2, WP3, and WP4 partners act as technology providers, it's essential to plan to list what or which asset or service needs to be available and ready for the demos and when. Additionally, the plans need to provide info on which activities related to WP6 need to take place and to whom those activities are concerned or when it will be possible for the evaluation to take place. The design and the plans will be updated at every iteration, considering the SWR development improvement, the feedback, the raised needs, etc. Each iteration starts with assessing the SWR, refining the user case descriptions, and designing the demonstration scenarios in alignment with project objectives and stakeholder needs. This is then followed by a flexible and practical activity planning and scheduling process that can be easily managed and organised by the actors, while taking into account the specific requirements of each User Case.

3.1.2 Demo preparation

After performing the User Case design (or planning), the User Case partners, led by the User Case Leader, need to start performing all the required activities for the demo execution. For example, collect and prepare the necessary data, information that are going to be used, engage the stakeholders that will join the demo execution, prepare the needed material, fix where the demo will take place, etc. Those activities can be unique for each User case, but synergies may also occur if this supports specific UCs or project objectives. Activities related to the demo preparation do not only happen within T5.2. As initially planned, data collection, integration, and solution development activities occur within T4.3. Additionally, WP6 and T6.2 support some other activities related to stakeholder engagement.

3.1.3 Demo execution

The execution step is the core of the demonstration process, where the planned activities are brought to life and the SoilWise repository (SWR) is tested in real-world scenarios. This step occurs during the fourth and final phase of the first iteration cycle (M19-M21) and involves the hands-on implementation of the demonstration plans developed in the earlier stages.

This step's objective is to successfully execute the demonstration activities, ensuring that the SWR operates as intended and that the participants can effectively engage with the tools and processes provided. This step is critical in showcasing the SWR's practical application and gathering operational data that will inform subsequent evaluation and refinement of the system.

By the end of this step, the demonstration should provide clear evidence of the SWR's capabilities, reveal any operation challenges, and offer insights into how the system can be improved in future iterations.

3.1.4 Evaluation

This step aims to perform the UCs impact analysis, and it mainly involves the evaluation activities of T5.3 related to the evaluation of the UCs as those are described, at which we want to know how UCs different target groups can capitalize on the (re)use of the SWR. For the evaluation, T5.3 will use collaborative tools and develop use report templates to distribute to the UCLs following the planning. The evaluation will be based on defined KPIs (T5.1) that understandably reflect the potential impacts the SoilWise repository can have on UC target groups. The first version of the KPIs will be described in D5.3, and we will use an agile methodology to define them. The evaluation results of the iteration process will be feedback into WP1, to feed the co-design Phase 1 and the SoilWise repository evolvement. T5.3 leader will define the means to interact with the UCs, following the planning and closely collaborating with the UCLs and the WP5 leader.

3.2 Responsibilities and roles in each demo step

The demonstration process within the SoilWise project is a coordinated effort across four key phases—**Design, Preparation, Execution, and Evaluation**—The Work Package 5 Leader (**WP5 Leader**) oversees timelines, risks, and overall coordination, ensuring that all activities align with the project's strategic objectives. The Task Leader (**TL**) is instrumental in establishing the planning framework, fine-tuning KPIs (**T5.3**), and managing stakeholder interactions with support from **WP6**. The User case Leader leads the setup, integration, and execution of the demos, working closely with User case Partners, who contribute necessary resources, data, and support throughout the process. Technical Providers (**WP2, WP3**) are responsible for ensuring seamless technology integration and providing ongoing technical support, while **WP4** monitors the integration, resolves issues, and ensures that technological components are fully operational. **WP6** plays a crucial role in stakeholder engagement, communication, and the dissemination of results, ensuring that insights are effectively shared and applied in preparation for the next iteration. Together, these roles ensure that each phase transitions smoothly into the next, culminating in a comprehensive evaluation that informs future project activities. A more detailed matrix of responsibilities is presented in Table 4.

Table 4 Roles and responsibilities per demonstration step

	Design	Preparation	Execution	Evaluation
WP5 Leader *(EV ILVO)*	◦ Monitor & facilitate the execution of activities (timeline, risks, cooperation UCs/WPs)	◦ Oversee demo preparation (timelines, risks); ◦ Provide strategic guidance ◦ Ensure effective coordination of preparation activities across different UCs ◦ Facilitate communication between the UCLs and other WPs to ensure that all necessary resources and support are available.	◦ Supervise the execution phase (timelines, risks) ◦ Make any necessary interventions	◦ Oversee the evaluation process (i.e. all conducted according to plan & accurately documented results ◦ With TLs/UCLs: ensure that the evaluation activities are aligned with the project's strategic goals ◦ Ensure that feedback from the evaluation is used to inform future project activities and iterations
T5.1 Leader *(EV ILVO)*	◦ Establish the planning framework ◦ Supervise the creation of timelines ◦ Manage risk ◦Supervise stakeholder involvement to ensure that all preparatory activities are aligned with project goals.	◦ Follow up UC preparation activities; ◦ observe what works/what doesn't; ◦ adapt or update the plan accordingly.	◦ Monitor UC activities during demos; ◦ Track consistency with planned methodology; ◦ Follow up on deviations.	◦ Compile progress information across UCs; ◦ Provide analysis of performance trends; ◦ Feed lessons back into WP5 framework.
T5.2 Leader *(EV ILVO)*	◦ Contribute to structuring the demo plan; ◦ Integrating practical considerations.	◦ Fine-tune KPIs ◦ Update stakeholders ◦ Monitor demo preparation ◦ Provide guidance to UCLs and partners to ensure smooth & efficient preparation phase	◦ Oversee demo execution ◦ Ensure KPIs are met ◦ Coordinate with stakeholders.	◦ Compile progress information across UCs; ◦ Provide analysis of performance trends; ◦ Feed lessons back into WP5 framework.
T5.3 Leader *(CREA)*	◦ Contribute to structuring the demo plan. ◦ Integrate the impact evaluation framework. ◦ Ensure KPI use is included. ◦ Contribute feedback collection mechanisms. -	◦ Follow up UC preparation activities; ◦ Fine-tune KPIs ◦ Provide tools and guidance for collecting stakeholder feedback.	◦ Oversee demo execution ◦ Ensure KPIs are met ◦ Coordinate with stakeholders.	◦ Coordinate the evaluation process ◦ Oversee the information collection and analysis ◦ Compile actionable feedback for future iterations

UC leaders	◦ Deliver comprehensive demo plan at each iteration, detailing the preparation, execution, and evaluation activities, ensuring that it is adaptable and easy to manage ◦ Lead the setup and integration of UCs, ensuring clear communication with the WPL and partners, resolving issues, and identifying potential operational drawbacks; ◦ Report on the performance and readiness of the demonstrators.	◦ Oversee the preparation activities for their respective UCs ◦ Organize the collection and preparation of necessary information ◦ Coordinate stakeholder engagement with support from WP6 ◦ Prepare informational materials ◦ Ensure that all logistical arrangements for the demo are in place.	◦ Lead the execution of the demonstration activities ◦ Coordinate all aspects of the demo, ensuring that the plans are implemented as designed ◦ Facilitate communication among all participants ◦ Manage any arising issues ◦ Monitor the overall progress of the demo ◦ Ensure that the demo captures all necessary information for subsequent evaluation.	◦ Provide feedback on the performance of the demos ◦ Gather & submit the evaluation templates provided, ensuring that all relevant information is captured accurately ◦ Collaborate closely with the T5.3 leader
UC partners	◦ Define and establish the UCs, ensuring that all necessary resources and tools are identified for the demonstration; ◦ Identify the potential stakeholders that can act as users.	◦ Execute the preparation tasks together with UCLs ◦ Gather and process information ◦ Engage with stakeholders ◦ Contribute to the creation of the materials ◦ Assist in addressing any specific needs or challenges unique to their user case	◦ Present the demo ◦ Collect the information ◦ Facilitate the involvement of stakeholders ◦ Ensure that the demo activities align with the planned objectives	◦ Participate in the collection of data and feedback during the demo ◦ Help filling out the evaluation templates ◦ Contribute to giving insights and observations that are essential for assessing the impact of the SWR
Tech providers (WP2, WP3)	◦ Ensure that all necessary technological assets or services are available and ready for the demos; ◦ Provide clear timelines for when these resources will be available ◦ Work closely with the UCLs to integrate the technology seamlessly into the demonstrations	◦ Prepare & make data, tools, and services available that are required for the demo ◦ Work closely with UCLs to integrate these technological components seamlessly into the demonstration ◦ Provide ongoing technical support to address any issues that may arise during the preparation phase	◦Provide ongoing technical support	◦ Providing technical feedback on the performance of the SWR during the demos ◦ Help identify any technical issues that arose during the demonstration and suggest improvements ◦ Assess how well the SWR met its intended objectives and in recommending enhancements for future iterations
WP4	◦ Ensure that all tools and systems are ready for use according to the demo schedule ◦ Ensure effective communication with demo partners and address any integration issues that arise	◦ Oversee integration preparation and technology updates ◦ Ensure smooth communication ◦ Resolve any identified issues.	◦ Provide technical support during the demo ◦ Resolve integration issues ◦ Monitor progress ◦ Work closely with the Tech Providers and UCLs to ensure that	◦ Resolve any lingering integration issues and provide feedback to WPL and UCL

			the demo runs smoothly and that all systems are fully operational.	
WP6	◦ Collect which stakeholder-related activities need to occur, who is involved, and when these activities should take place ◦ Ensure that the evaluation components are timed correctly within the demo plan	◦ Support demo preparation by creating dissemination materials, promoting the event, and ensuring stakeholder involvement ◦Support the UCLs by organizing stakeholder activities, ensuring that the right participants are engaged, and that all necessary preparatory steps related to stakeholder involvement are completed	◦ Monitor and resolve issues related to stakeholder engagement ◦ Manage the promotion and communication aspects of the demo, leveraging media and social platforms to share progress and results with a broader audience	◦ Communicate and disseminate the results of the demonstration and evaluation reports looking towards the next iteration

3.3 Demonstration plan and timeline

The successful execution of the SoilWise User Cases (UCs) requires careful planning, thorough design, preparation, effective execution, and systematic evaluation. This section describes the process of developing and implementing the demonstration plans, and includes a structured timeline illustrated in a Gantt chart (Figure 9)

Each UC leader is responsible for developing a tailored Demonstration Plan. Each User Case (UC) must align its demonstration activities with its core objectives and ensure that a clear and structured Demonstration Plan is in place. This plan is essential for enabling systematic data collection and supporting effective monitoring and evaluation throughout the implementation process.

Each Demonstration Plan shall include:

- **Clear objective**: a concise statement of the purpose and intended outcomes of the demonstration.
- **Methodological structure**: alignment with the demonstration methodology /Section 3.1 (Demo Design, Demo Preparation, Demo Execution, and Evaluation).
- **Planned activities**: description of the specific tasks to be carried out under each step.
- **Roles and responsibilities**: identification of the partners involved and allocation of tasks in line with their defined roles as defined in Section 3.2..
- **Required resources**: specification of datasets, tools, and knowledge needed to support the demonstration.
- **Timeline and milestones**: a Gantt chart showing the sequencing of activities, dependencies, and key milestones.
- **Evaluation arrangements**: measures for capturing lessons learned, assessing impact, and feeding results into subsequent cycles.
- **Flexibility**: the approach remains adaptable, allowing for adjustments where necessary.
- **Iterative improvement**: continuous refinement is supported, enabling the project to respond to new insights and evolving requirements.

To ensure the Demonstration Plan is responsive to different needs, it is co-developed in close collaboration with UC partners. Their specific needs, perspectives, and objectives are integrated into the plan, providing flexibility to accommodate differing contextsThe finalized UC Demonstration Plan serves as a roadmap for implementation and is embedded within the reporting template. It is used as a reference to monitor the progress of each UC against defined activities and timelines.

3.3.1 Demonstration planning Approach

Figure 8 outlines the sequential steps involved in planning the demonstration activities for the SoilWise UCs.This process ensures that all activities are well-coordinated, feedback is integrated effectively, and the final demonstration plans are comprehensive and aligned with project objectives.

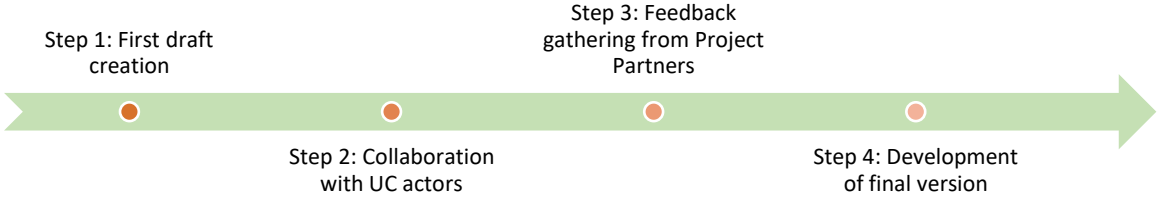


Figure 8 Demonstration planning approach

Step 1 - First Draft Creation. The initial stage involves creating the first draft of the demonstration plan. This draft outlines the proposed activities, timelines, roles, and responsibilities for each UC. The goal is to establish a foundational document that provides a clear direction for the upcoming demonstration.

Activities:

- *Drafting the initial plan based on the objectives of the UC.*
- *Identifying key milestones and outputs.*
- *Proposing preliminary timelines and resource allocations.*

Step 2 - Collaboration with UC Actors. Once the first draft is complete, the next step involves collaboration with the UC actors (e.g., UCLs, UC Partners). This collaboration is crucial for refining the demonstration plan, ensuring that all perspectives are considered, and that the plan is practical and feasible.

Activities:

- *Engaging with UC actors to discuss the draft plan.*
- *Collecting input and suggestions for improvements.*
- *Revising the plan to incorporate feedback from all UC partners*

Step 3 - Feedback Gathering from Project Partners. After refining the plan with the UC actors, the next phase focuses on gathering feedback from the broader project partners, mainly WP2, 3, 4 – technical team and WP6 on stakeholder engagement activities. This step ensures that the demonstration plan aligns with the overall project goals and that any cross-cutting issues are addressed.

Activities:

- *Sharing the revised draft with project partners for review.*
- *Collecting feedback on specific aspects, such as resource allocation, timelines, and technical feasibility.*
- *Making necessary adjustments based on the feedback received.*

Step 4 - Development of Final Version. The final step is the development of the final version of the demonstration plan. This version incorporates all feedback, ensuring that the plan is robust, comprehensive, and ready for implementation.

Activities:

- *Finalizing the demonstration plan with all revisions included.*
- *Circulating the final version to all relevant stakeholders for approval.*
- *Preparing for the execution of the demonstration activities as per the finalized plan.*

This structured approach to planning ensures that the demonstration activities are well-prepared, with input from all relevant stakeholders, leading to successful implementation and valuable outcomes for the SoilWise project.

3.3.2 Gantt chart

A Gantt chart is used to visualize the timeline of activities for each UC, from the initial design phase to the final evaluation. The Gantt chart provides a clear overview of the key milestones and dependencies, helping to ensure that all tasks are completed on schedule.

To support UC partners and promote a degree of uniformity across UCs, a Gantt chart was developed to help structure the individual plans. Activities were defined for each demonstration steps and organized into activity groups. It presents different activity groups and activities, indicating when each activity begins and ends, its planned duration, the dependencies between tasks, key milestones, and the overall start and end dates of the UC implementation phase. This chart serves as a visual reference to guide the development of tailored Demonstration Plans while ensuring overall alignment within the project (see section 4.5 Gantt Chart). Figure 9 presents an Illustrative Gantt chart with defined activities that can be adapted to each UC.

Activities	Partners involved	2025		2026							
		NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG
Demo design		MS6									
A1-Design and Detail the Demonstration Scenarios											
A2-Establish the Demo Plan and Timeline											
A3-Align and Collaborate with Technology Providers											
A4-Identify needed data and components											
A5-Identify Stakeholders											
Demo Preparation				MS7							
A6-Communication and collaboration between the Partners and Tech providers											
A7-Prepare Demo Materials and Resources											
A8-Prepare and Integrate Required Technical Components											
A9-Conduct Internal Testing and Validation											
A10-Engage Stakeholders and Confirm Participation											
A11-Finalize Logistics and Demo Setup											
Demo Execution						MS8		MS9			
A12-Execute the Demonstration as Planned											
A13-Monitor and Troubleshoot During the Demo											
A14-Engage and Interact with Participants											
A15-Capture Data and Feedback for Analysis											
Demo Evaluation									MS10		
A16-Reporting on the progress											
A17-Identify and Define Key Evaluation Aspects											
A18-Select and Prepare Evaluation Tools and Methodology											
A19-Provide Feedback and Baseline information , if needed											
A20-Provide Feedback and Recommendations for Improvement											

A – Activity; MS – Milestone

Figure 9 Example of the Gantt chart mapping all demonstration activities

- **Timeline:**
  - The Gantt chart meticulously outlines the expected timeline for each stage of the demonstration activities. This includes the phases of Demo Design, Demo Preparation, Demo Execution, and Evaluation. Each phase is broken down into specific tasks and sub-tasks, with estimated start and end dates clearly indicated.
  - **Critical Dates and Deadlines:** The timeline highlights critical dates and deadlines that must be adhered to, ensuring that the project progresses smoothly and that all necessary preparations are completed on time. These include key milestones such as the completion of the first draft of the demonstration plan, the start of demo execution, and the submission of final evaluation reports.
- **Milestones:**
  - **Identification of Key Milestones:** Within the Gantt chart, key milestones are prominently marked to signal the completion of significant tasks and phases. These milestones act as checkpoints that allow the project team to assess progress and make adjustments as needed.
  - **Examples of Milestones:** Key milestones might include the finalization of the Demo Design phase, completion of stakeholder engagement activities during Demo Preparation, successful execution of the first demonstration session, and the finalization of the impact assessment during the Evaluation phase. Identified MS in Gantt Chart (table) for each iteration presentend below.

Table 5 Identified Milestones

MS1	delivery of initial prototype
MS2	Complete and approve the demo plan, detailing the demo scenarios, activities
MS3	Completion of Demo preperation
MS4	Successful Execution of the Demo and Collection of Data
MS5	Delivery of D5.3 Deployment and Evaluation Report
MS6	Delivery of improve repository
MS7	Complete and approve the updated demo plan and demo scenarios,
MS8	Completion of Demo preperation
MS9	Successful Execution of the Demo and Collection of Data
MS10	Delivery of D5.4 Deployment and Evaluation Report
MS11	Delivery of improve repository
MS12	Complete and approve the updated demo plan and demo scenarios,
MS13	Completion of Demo preperation
MS14	Successful Execution of the Demo and Collection of Data
MS15	Delivery of D5.5 Deployment and Evaluation Report

In the UC Gantt chart (Figure 9), milestones represent critical events such as:

- Key deliverables (MS1, MS5, MS10, MS15)
- Delivery of prototype (MS1, MS6, MS11)
- Completion of critical activities (MS2, MS3, MS8, MS13)
- Meetings, or events (MS4, MS9, MS14)
- Dependencies:
  - *Task Dependencies:* The Gantt chart is designed to identify and map out the dependencies between various tasks and activities within each UC. This ensures that each stage of the demonstration is completed in the correct sequence, with preceding tasks appropriately supporting subsequent activities.

- *Managing Dependencies:* For instance, the successful execution of the Demo Preparation phase is contingent on the completion of the Demo Design phase. Similarly, information collection during Demo Execution cannot begin until the necessary tools and resources have been prepared and validated. By clearly illustrating these dependencies, the Gantt chart helps in avoiding potential bottlenecks and delays.

The Gantt chart serves as a dynamic tool that can be updated as needed throughout the project to reflect any changes in the timeline or activities.

4 Communication and Monitoring Tools

4.1 Communication and documentation guidelines

A comprehensive communication management plan has been described in D7.1 Project management handbook. This chapter highlights some tools to harmonize cooperation between the different actors described in this deliverable with the goal to support the demonstration activities.

To facilitate collaboration across the project's international team, the following communication tools are essential:

- **File Storage**: All UC-related materials must be stored in the Microsoft Teams WP5 subsite.
- **Email Communication**: Used for regular, direct communication, with dedicated email groups and contact lists available in the WP5 folder on Microsoft Teams.
- **Online Meetings**: Platforms like Google Meet and Microsoft Teams will be utilized for virtual meetings, coordinated through Doodle polls.
- **Physical Meetings**: Although challenging due to geographic distribution, some physical meetings are favorable, including demos
- **Visual Collaboration**: Tools such as Mural and Miro will support visual collaboration during key processes.

To ensure consistent and transparent monitoring of UCs, clear documentation procedures are required. These reports will be the critical and needed inputs for WP5 deliverables. They will help WPLs and other partners to support UC deployment, demonstration and evaluation by indicating improvements if needed. WP5 collected several documents to ease the implementation of the guidelines.

- UC progress report document
- UC demonstration outcome PPT
- Demonstration forms or checklists
- Meeting minutes& agendas
- Github repositories and documentation

4.2 Meeting Structure and Objectives in WP5

To ensure smooth implementation, timely identification of issues, and appropriate mitigation or corrective actions, a monitoring process has been established. This process includes regular and ad-hoc WP5 and UC meetings, progress reporting, and ongoing communication through email exchanges and presentations during meetings, all serving as tools to monitor and track the progress of the UCs.Within WP5, a combination of **regular and ad-hoc meetings** is used to address the evolving needs of UCs. These meetings are essential for monitoring progress, resolving issues, and ensuring smooth demonstration implementation. The primary objectives include:

- Monitoring and documenting UC implementation progress based on the Demonstration Plan, Gantt chart, and milestones.
- Identifying and responding to delays, challenges, and risks through proactive collaboration with the other UC, WP5 partners.
- Providing technical support to facilitate implementation and demonstration processes.

4.2.1 Regular WP5 Meetings

To ensure an effective and multi-actor approach, WP5 has organized **regular meetings** :

WP5 Monthly Coordination Meetings involve WP, Task, and UC leaders, and optionally UC partners. Managed by the Task 5.2 Leader and WP5 Leader (EV-ILVO), they may shift to a bi-monthly frequency depending on project needs. Their purpose is to:

- Track progress and address implementation concerns.
- Address UC-specific challenges and explore synergies across UCs.
- Share experiences, challenges, solutions, and lessons learned.
- Foster collaboration among UCs and across actors.
- Support the update of methodologies and development of replication guidelines.
- Monitor progress and evaluate KPIs.

Meetings Between UC Leaders and Their Partners are held monthly according to UC-specific needs once in a month and managed by UCLs. These meetings are used to:

- Coordinate partner efforts within each UC.
- Report on status, planning, challenges, and risks.
- Maintain alignment and foster collaboration.
- Ensure continuous monitoring of KPIs.

4.2.2 Ad-hoc Complementary Meetings

In addition to WP5 regular meetings, the following targeted UC level sessions are organized when needed:

UC-Specific Collaborative Meetings are held monthly (or bi-monthly, as needed), these meetings gather UC leaders, their partners, and representatives from WP1, WP4, WP5, and WP6. Coordinated by the Task 5.2 and WP5 leaders, they aim to:

- Strengthen collaboration between UCs and WPs.
- Address UC-specific challenges
- Deliver tailored technical and organizational support for each UC.

UC–Developer Meetings (Speed Dating Format) support technical development and validation, particularly for the SoilWise Repository (SWR). They serve to:

- Address technical issues.
- Support ongoing development and validation efforts.
- Strengthen collaboration with technical partners.

Meetings with External Stakeholders are organized by UCLs and partners and with support from WP6 where possible, these meetings engage stakeholders to validate the SWR and co-develop demonstration scenarios. They are designed to:

- Explore potential value of the SWR.
- Involve external input in the validation and scenario development process.
- Collect actionable feedback.

WP5 actors also participate in regular **Executive Board (ExBo) meetings**. Through this involvement, they maintain strong communication between UCs, WP leaders, and the project coordinator, ensuring alignment across all project components.

4.2.3 Meeting Documents

For meetings between the Task 5.2 Leader and the UC partners, a draft agenda is prepared by the Task Leader and shared with participants at least seven calendar days before the meeting. The agenda is provided as a dynamic online document, allowing for real-time updates and collaborative input to ensure it reflects the shared priorities and concerns of all participants.

Following each meeting, meeting notes and action points are compiled and distributed by the Task 5.2 Leader. All related documentation, including agendas, minutes, action points, and presentations, is stored in the project's WP5 SharePoint Teams folder under the /meetings directory.

4.3 User Cases Progress Report

Each UC must report progress to the WP5 Leader according to their Demonstration Plan, with the UCL responsible for timely submission of these reports. These reports are critical for WP5 deliverables and help identify necessary improvements.

The UC Progress Report templates were co-developed in close collaboration with the UC partners to ensure relevance and usability. These templates are designed to provide uniformity, consistency and to capture the status of activities outlined in each UC Demonstration Plan, while also documenting any risks and corresponding mitigation measures across the various demonstration steps and activities. Each UC Leader is responsible for completing these standardized, pre-filled templates using information gathered through meetings, questionnaires, and email exchanges. The reports provide a structured way to monitor progress, assess challenges, and share updates across the consortium.

The reporting is done by the WP5 and UC partners following these responsibilities:

- **WP5 Leader:** The WP5 Leader oversees the entire reporting process and ensures that all UCLs adhere to the reporting guidelines. The WP5 Leader is responsible for providing standardized templates for the progress report documents, demonstration outcome presentations (PPTs), and any required checklists or forms. Additionally, the WP5 Leader reviews all submitted reports, ensuring they meet the required standards, and compiles the information for integration into WP5 deliverables.
- **Task Leader:** The Task Leader coordinates with the UCLs to ensure that reporting is done accurately and timely. They provide guidance on the use of different reporting formats (e.g., documents, PPTs, GitHub repositories) and ensure that the content aligns with the specific objectives of each task. The Task Leader may also assist in refining the reporting templates to better suit the needs of each UC.
- **UCL:** The UCL plays a critical role in managing the reporting process for their respective UC. The UCL ensures that all partners within their UC contribute to the reporting process, gather the necessary information, and submit the completed reports to the WP5 Leader. They also coordinate the use of collaborative platforms like GitHub for technical documentation and ensure that all contributions are properly documented.

- **UC Partners:** These partners support the UCL by providing the necessary information, resources, and updates for the progress reports. Depending on their role within the UC, they may be responsible for filling out specific sections of the progress report document, contributing to demonstration outcome presentations, or maintaining GitHub repositories. Their contributions are crucial for providing a comprehensive view of UC's progress.
- **WP2, 3, 4**:Will support reporting on the technical side of it, while WP6 is responsible for capturing and reporting on stakeholder interactions and feedback.

The completed reports, along with the outcomes of the related evaluations, will feed into a series of formal deliverables (D5.3, D5.4, and D5.5), submitted at key project milestones. These deliverables will not only summarize the progress and results of each UC but will also provide actionable insights to improve the SoilWise Repository (SWR).

4.4 Monitoring Demonstrated SWR Components and Features

To support effective monitoring and coordination across UCs, a tracking matrix (see Table 6) was developed as a tool to follow the demonstration of SoilWise Repository (SWR) components and functionalities. This matrix enables us to clearly see which functionalities are being demonstrated, identify any missing elements, and determine which UC is showcasing which features. It also highlights common or overlapping components and target groups, using color codes to make these overlaps easily identifiable. These overlaps are reflected in a summary table for both target groups and functionalities (see Table 7 and Table 8), simplifying monitoring and facilitating potential collaborations, such as co-organizing demonstration events. By providing this clear overview, the matrix ensures that all planned functionalities are addressed, all relevant target groups are engaged, and no demonstrations are missed. To maintain its usefulness, UCLs are regularly asked to update the table, indicating the components they intend to showcase and the audiences they aim to engage. This tool also helps the Work Package Lead monitor implementation, alignment, and cooperation across the project.

Table 6 User cases component selection

Technical Components	Functionality	User Cases (UC)/Demonstration Scenerio (DS)									
		UC1		UC2		UC3		UC4		UC5	
		DS1 (Farm	DS2 (Land	(Rese	(Rese	(Govern	(Goverr	blic	(Public	(Farme	(Farmer
Harvest data and knowledge	Metadata harvester				x	x		X			X
	Knowledge harvester				x						X
	Metadata harmonization				x	x		X			X
	Duplication identification				x						X
	Metadata RDF Turtle serialization				x	x					X
	RDT to Triple store				x	x					X
Harmonize and transform data and knowledge	Manual metadata upload				X	x					X
	Metadata transformation				X	x					X
	CRS transformation				X	x					
	Data restructuring				X	x					X
	Format transformation				X						
	Codelist mapping				X	x					
	Units of measurements conversion				X	x					X
	Download interoperable metadata				X	x					X
Catalogue	Query Catalogue	X	X	X				X		X	X
	CSW API			X						X	X
	OGC API Catalogue			X						X	X
	Data download (AS IS)	X	X	X				X		X	X
	Display metadata augmentation results			X				X		X	X
	Display metadata validation results			X						X	X
	Display link to knowledge	X	X	X				X		X	X
	Map preview	X	X	X				X		X	X
	User Engagement			X				X		X	X
Metadata validation	Metadata profile validation										
	Link liveliness assessment	X	X								X
Metadata Augmentation	Automatic metadata generation					x					
	Translation module					x					X
	Keywords matcher					x					X
	Spatial Locator										
	Metadata cleaning										
	Spatial scope analyser										
	EUSO-high-value dataset tagging					x					
	Similarity finder										
	Automatic metadata interlinking										
Knowledge Graph	Knowledge Graph enrichment and linking					x					
	Knowledge Graph querying (SPARQL endpoint)					x					
System Usage & Monitoring	Usage statistics										
	System Health & Status Monitoring										
Repository Storage	Storage of user-enhanced content - GIT										X
	Storage of raw harvested metadata - PostgreSQL					x					X
	Storage of augmented metadata - PostgreSQL										X
	Storage of augmented, linked metadata, knowledge graph - Triple Store										X
	Storage of vector embeddings										X
Authorisation	User and Organisational Management					x					
	Identity Provider					x					
	DAPS (Participant and Component identification)										
	CA (Authentication base infrastructure)										
	IDS compliant Connectors										
Metadata authoring	Creating metadata records directly within SoilWise Catalogue					x					
Natural Language Querying	AI / LLM based KG generation from unstructured content	X									
	Chatbot - Natural Language Interface	X				x					
	LLM operationalisation	X									
Map Server						x					

Note: Indicators (X) are illustrative only and intended to showcase the tool's functionality.

Table 7 User cases matrix components

Technical Components	UC1		UC2		UC3		UC4		UC5	
	DS1 (Farm	DS2 (Lai	DS1 (Res	DS2 (Rese	DS1 (Govern	DS2 (Gove	DS1 (Living	DS2 (Living	DS1 (Farm	DS2 (Farme
Harvest data and knowledge				x	x		x			x
Harmonize and transform data and knowledge				x	x					x
Catalogue	x	x	x				x		x	x
Metadata validation	x	x								x
Metadata Augmentation	x	x			x					x
Knowledge Graph					x					
System Usage & Monitoring										
Repository Storage					x					x
Authorisation					x					
Metadata authoring					x					
Natural Language Querying	x	x			x					
Map Server					x					

Note: Indicators (X) are illustrative only and intended to showcase the tool's functionality.

Table 8 User cases matrix stakeholder groups

Target Groups	UC1		UC2		UC3		UC4		UC5	
	DS1 (Farmers, Lan	DS2 (Land Mana	DS1 (Resea rche	DS2 (Researc hers)	DS1 (Governmenta	DS2 (Gover nme	DS1 (Living Labs,	DS2 (Living Labs,	DS1 (Farmers, Land	DS2 (Farmers, Lanc
Farmers	x								x	x
Land Managers	x	x								
Land Owners	x	x							x	x
Researchers			x	x						
Governmental bodies					x	x				
Public Authorities										
Technology and Services Providers		x							x	x
Living Labs							x	x		
Lighthouses										
Policy Makers										
Business Actors	X	X							x	x

Note: Indicators (X) are illustrative only and intended to showcase the tool's functionality.

4.5 KPI Monitoring for User Case Performance and Progress Tracking

To assess the performance of each UC, selected Key Performance Indicators (KPIs) will be monitored in Section 7 of the progress report template (see Annex in Section 8.1). UC Leaders are expected to take the lead in regularly updating the KPI table by reporting current values for each selected indicator. This will enable the calculation of achievement percentages, offering a clear view of progress against set targets.

The analysis of these updates, together with the broader progress reports, will allow for ongoing UC performance monitoring and evaluation of UCs. This process not only supports the project's impact assessment but also helps identify delays, challenges, or risks throughout the implementation and demonstration phases. More information on the evaluation framework and methodology can be found in Section 5.

4.6 Structure of the UCs Progress Report Template

The UC progress report template is designed to collect detailed information on the implementation and demonstration of UCs. It provides a structured and user-friendly format that can be applied across all UCs. The

template captures key elements such as data and knowledge resources for the population of the repository, existing solutions will be used, needs for improvement to allow the integration with the SWR (T4.3), suggested potential actors and their role, start and end of the demonstration.

The content of the progress report template is organized into seven chapters, each focusing on a specific aspect of the demonstration and monitoring process.

User Case (UC) Overview

This section provides a general introduction to the UC. It includes key information such as the UC number and title, the leading organization and contact person, and the list of partners involved. It also identifies the main target groups who will benefit from the demonstration. Finally, it outlines the specific challenge or problem that the UC aims to address, setting the context for the demonstration activities.

1 User Case (UC) Overview

User Case No & Name:
(Provide the UC number and name)

User Case Leader & Contact Information:
(Include the name and contact details of the user case leader)

UC Partners:
(List the other partners involved in the user case)

Target Groups:
(Specify the intended audience or beneficiaries of the user case)

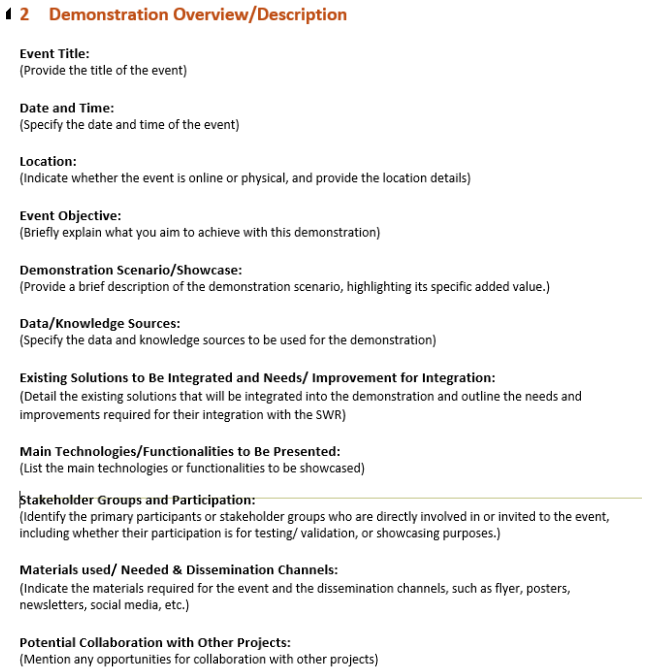
Challenge (Need/Problem):
(Describe the specific challenge, need, or problem the user case addresses)

sin

Figure 10 UC Overview template

Demonstration Overview/Description

This section, the details of the planned demonstration are described. It covers the event's title, date, time, and location (online or physical). The objective of the event is defined, explaining what is expected to be achieved. This section also outlines the demonstration scenario, relevant data sources, technologies used, and the stakeholder groups involved. Additional details such as materials needed, dissemination channels, and potential synergies with other projects are also captured.



2 Demonstration Overview/Description

Event Title:
(Provide the title of the event)

Date and Time:
(Specify the date and time of the event)

Location:
(Indicate whether the event is online or physical, and provide the location details)

Event Objective:
(Briefly explain what you aim to achieve with this demonstration)

Demonstration Scenario/Showcase:
(Provide a brief description of the demonstration scenario, highlighting its specific added value.)

Data/Knowledge Sources:
(Specify the data and knowledge sources to be used for the demonstration)

Existing Solutions to Be Integrated and Needs/ Improvement for Integration:
(Detail the existing solutions that will be integrated into the demonstration and outline the needs and improvements required for their integration with the SWR)

Main Technologies/Functionalities to Be Presented:
(List the main technologies or functionalities to be showcased)

Stakeholder Groups and Participation:
(Identify the primary participants or stakeholder groups who are directly involved in or invited to the event, including whether their participation is for testing/ validation, or showcasing purposes.)

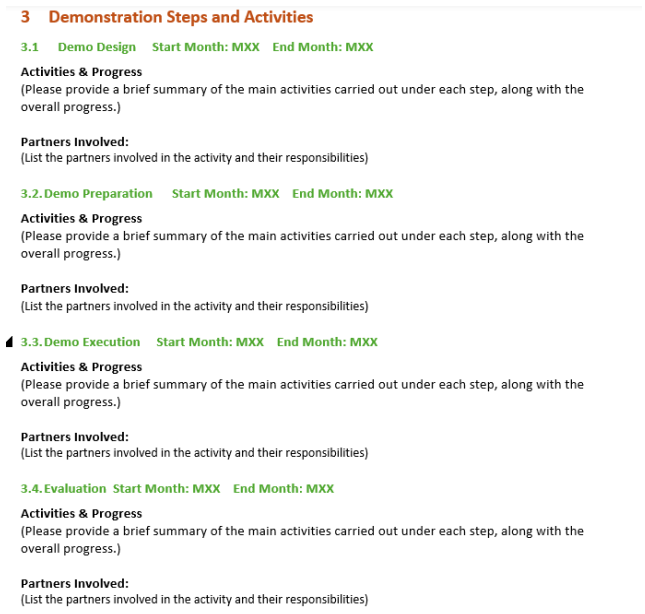
Materials used/ Needed & Dissemination Channels:
(Indicate the materials required for the event and the dissemination channels, such as flyer, posters, newsletters, social media, etc.)

Potential Collaboration with Other Projects:
(Mention any opportunities for collaboration with other projects)

Figure 11 Demonstration Overview template

Demonstration Steps and Activities

This section breaks down the demonstration process into four main phases: Design, Preparation, Execution, and Evaluation. For each phase, the start and end months are recorded. A short summary of key activities and overall progress is provided along with the partners involved and their responsibilities. This structured timeline ensures that each step is clearly documented and traceable.



3 Demonstration Steps and Activities

3.1 Demo Design Start Month: MXX End Month: MXX

Activities & Progress
(Please provide a brief summary of the main activities carried out under each step, along with the overall progress.)

Partners Involved:
(List the partners involved in the activity and their responsibilities)

3.2. Demo Preparation Start Month: MXX End Month: MXX

Activities & Progress
(Please provide a brief summary of the main activities carried out under each step, along with the overall progress.)

Partners Involved:
(List the partners involved in the activity and their responsibilities)

3.3. Demo Execution Start Month: MXX End Month: MXX

Activities & Progress
(Please provide a brief summary of the main activities carried out under each step, along with the overall progress.)

Partners Involved:
(List the partners involved in the activity and their responsibilities)

3.4. Evaluation Start Month: MXX End Month: MXX

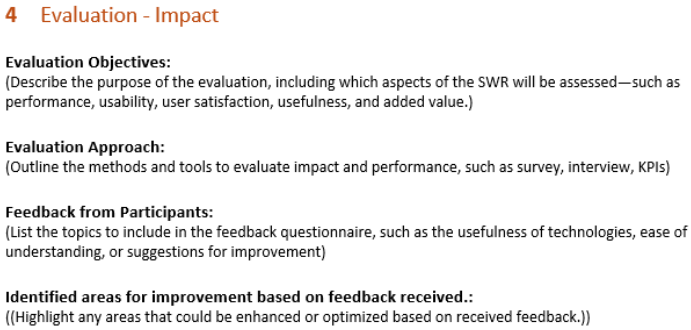
Activities & Progress
(Please provide a brief summary of the main activities carried out under each step, along with the overall progress.)

Partners Involved:
(List the partners involved in the activity and their responsibilities)

Figure 12 Demonstration steps and activities template

Evaluation – Impact

The focus here is on assessing the value and outcomes of the demonstration. It defines the evaluation objectives, including aspects like usability, performance, and user satisfaction. It also describes the evaluation methods (e.g., surveys, interviews, KPIs), key topics to gather feedback on, and the improvements identified based on participant input. This helps guide future improvements and assess the SoilWise Repository's impact.



4 Evaluation - Impact

Evaluation Objectives:
(Describe the purpose of the evaluation, including which aspects of the SWR will be assessed—such as performance, usability, user satisfaction, usefulness, and added value.)

Evaluation Approach:
(Outline the methods and tools to evaluate impact and performance, such as survey, interview, KPIs)

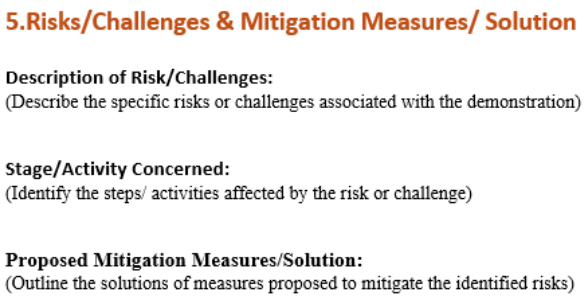
Feedback from Participants:
(List the topics to include in the feedback questionnaire, such as the usefulness of technologies, ease of understanding, or suggestions for improvement)

Identified areas for improvement based on feedback received.:
((Highlight any areas that could be enhanced or optimized based on received feedback.))

Figure 13 Evaluation impact template

Risks/Challenges & Mitigation Measures

This part identifies any risks or challenges that may affect the demonstration, specifying which activities are at risk. It also proposes mitigation strategies or solutions to address them. Documenting risks in this way helps anticipate problems and plan practical responses to ensure smoother execution.



5.Risks/Challenges & Mitigation Measures/ Solution

Description of Risk/Challenges:
(Describe the specific risks or challenges associated with the demonstration)

Stage/Activity Concerned:
(Identify the steps/ activities affected by the risk or challenge)

Proposed Mitigation Measures/Solution:
(Outline the solutions of measures proposed to mitigate the identified risks)

Figure 14 Risks and mitigation template

Key Performance Indicators (KPIs)

This section lists measurable indicators used to track the success and impact of the UC demonstration. Each KPI includes a number, description, current value, target value, and a comment section. It covers aspects such as the number of events, stakeholder participation, user engagement, and system improvements. KPIs help quantify progress and support transparent reporting.

Table 9 KPIs template

6.Key Performance Indicators (KPIs):
(Please indicate the KPIs relevant to your user case for evaluation)

Key Performance Indicators				
KPI No	**KPI description**	**Current value**	**Target value**	**Comments**
1	Number of demonstration events organised			
2	Number of stakeholders invited to each event, and total number for the whole events.			

Gantt Chart & Milestones

The final section outlines the timeline of the activities and key milestones across different demonstration iterations.

Gantt Chart was created (Figure 9) as a way to display activities against time. Each activity is represented by a bar; the position and length of the bar shows the start date, duration and end date of the activities. This allows you to see at a glance:

- What are the different activity groups and activities.
- When each activity starts and ends.
- How long each activity is scheduled to last.
- What are the dependencies and milestones.
- The start and end date of the UC Implementation phase.

We indicated the UC milestones apart from project milestones for the purpose of motivation and to ensure that we were on the right track. Milestones are the specific points within a UC implementation and will be used to measure the UC implementation progress. In UC Gantt chart they represent critical events such as:

- Key deliverables (MS1, MS5, MS10, MS15)
- Delivery of prototype (MS1, MS6, MS11)
- Completion of critical activities (MS2, MS3, MS8, MS13)
- Meetings, or events (MS4, MS9, MS14)

Table 10 Milestones template

	Milestone	MS Name	Mean of verifications	Achievement (yes/no)	Achievement Date
First Iteration	MS1				
	MS2				
	MS3				
	MS4				
	MS5				

For the achieved milestones in the examined reporting period (see Table 10), UCL should provide a mean of verification, a clear statement of achievement (yes/no) and an achievement date. Complete version of the template can be found in ANNEX 1

5 Evaluation Framework and Methodology

5.1 User Case Performance Analysis

Performance assessment of the UCs is an ongoing process that supports the project's co-design and development cycles. It relies on continuous monitoring through regular meetings, UC progress reports, questionnaires, and project communications. The collected information feeds into the evaluation of each UC's progress and overall impact. The evaluation outcomes will be documented in core deliverables (D5.3, D5.4, D5.5), submitted at strategic stages of the project. These reports will not only capture the outcomes but also offer concrete recommendations to improve the SoilWise Repository (SWR) and guide its future development. This continuous feedback loop is essential for ensuring the SWR remains relevant, effective, and aligned with project goals.

5.2 Impact & Added Value Evaluation Framework and Methodology

As we have described in section 1.2, WP5 tackles the topic text scope: "Provide examples for practice-oriented "UCs" to show how potential users (e.g. researchers, land managers, businesses or public authorities, decision-makers) can capitalise on and re-use existing information and data from the knowledge repository".

To achieve this, we will use the UCs to evaluate the SWR's impact on the different target groups, which is the primary objective of the T5.3. More specifically, we will assess how the SWR has facilitated the achievement of user-specific needs as those have been identified within WP1, using defined KPIs (T5.1) that understandably reflect the potential impacts the SoilWise repository can have on UC target groups. By doing so, we also support the co-design process, providing feedback for Continuous Improvement and relying on practical-oriented UCs.

5.3 Evaluation Methodology

The evaluation methodology is designed to be systematic, transparent, and collaborative, considering the different target groups and ensuring that the outcomes of the UCs are thoroughly assessed and that the findings are integrated back into the project for continuous improvement.

5.3.1 KPI Framework

The foundation of the evaluation process is the KPI framework established in Task 5.1. These KPIs are developed in collaboration with project stakeholders to ensure they accurately reflect the goals and expectations of the target groups. The KPI will further be refined for the second iteration of this document, as they will be formed during the demonstration activities. The preliminary KPIs are structured around key areas of impact, including:

- **Data Accessibility:** Assess how the SWR has improved access to soil data for various stakeholders.
- **Interoperability:** SWR's ability to integrate with existing systems and repositories, minimizing duplication of efforts and enhancing data usability.
- **User Engagement:** Engagement from stakeholders, including the adoption rate of the SWR and the extent to which it supports decision-making processes.

- **Sustainability:** Indicators that assess the long-term viability of the SWR, including its ability to support ongoing data collection, management, and sharing.

KPIs will be developed by each User Cases leading organization based on the Expected Outcomes foreseen for the specific User Case. They will be measurable results of the impact gained by the User Cases activities.

An example of possible KPIs is given for UC3, for which the Expected Outcomes are: Improved data discoverability; More efficient reporting processes; Enhanced quality of reporting results. Those expected outcomes could be measured by the following KPIs: Number of governmental bodies and authoritative institutions in MS effectively using the tools developed under SoilWise project; Number of dataset owned by governmental bodies and authoritative institutions in MS shared in the SWR, in the form of metadata or data; Number of national soil portal interlinked and interoperable with the SoilWise SWR.

5.4 Reporting and Feedback Loops

The evaluation process is not a one-time activity but an ongoing effort that feeds back into the project's development cycles. The results of the evaluations will be compiled into comprehensive reports that will be shared with the project team. One of the key outcomes of the evaluation process is the feedback loop into WP1, which is responsible for the co-design phase of the project. The insights and data gathered from the evaluations will be used to refine the SWR, ensuring that it continues to meet the evolving needs of its users.

The results of the evaluations will be documented in a series of reports (D5.3, D5.4, D5.5) that will be delivered at key milestones throughout the project:

- **D5.3 (M21):** The first evaluation report will cover the initial UC demonstrations and provide an early assessment of the SWR's impact.
- **D5.4 (M34):** The second report will build on the findings of D5.3, incorporating additional data and insights from subsequent demonstrations.
- **D5.5 (M46):** The final evaluation report will provide a comprehensive assessment of all UCs, synthesizing the findings from the entire project and offering recommendations for future work.

These reports will not only document the outcomes of the UCs but also provide actionable insights for improving the SWR and guiding its future development. This continuous improvement process is critical for maintaining the relevance and effectiveness of the SWR. By integrating feedback from the evaluations into the co-design process, SoilWise ensures that the repository evolves in a way that is aligned with user needs and expectations, thereby increasing its long-term impact and sustainability.

6 Risks and mitigation strategy

The demonstration planning and execution for the SoilWise project involves several potential risks that could impact the project's cost, schedule, and technical outcomes. Table 11 presents the risks and mitigations measures identified for each demonstration step. Demonstration risks are continuously monitored by the UCLs and WP5 leader. A risk assessment is performed by the UCLs during demo evaluation, where also new risks can be identified and added.

During the **Demo Design** phase, a significant risk is the possibility of insufficient initial UC descriptions, which could delay the overall schedule. To mitigate this, thorough initial assessments with new information developed within the project are essential, with follow-up reviews to refine these descriptions. Another challenge is ensuring that all necessary resources and requirements for the demonstrations are identified. A checklist should be created to aid the **UCLs** in verifying that all resources are accounted for, with flexibility to gather additional resources as needed during the preparation phase.

In the **Demo Preparation** stage, delays in documentation, such as the User Guide and Agenda, pose a medium risk to the project schedule. Setting early deadlines and conducting regular check-ins can mitigate this risk. Stakeholder engagement is critical during this phase; inadequate engagement could severely affect the project's technical and schedule outcomes. Developing a detailed stakeholder engagement plan and implementing targeted communication strategies will be essential. However, the intensity of these activities could lead to stakeholder fatigue, impacting the quality of engagement later in the project. Therefore, balancing the frequency and depth of engagement during this phase is crucial. Regular progress meetings and direct communication channels, such as GitHub and Teams, will help address any communication issues between UC partners and other actors from the WP5.

The **Demo Execution** phase presents risks related to technical failures and participant engagement. Pre-demo testing and validation of all tools and systems are crucial to prevent technical issues during demonstrations. Additionally, ensuring adequate participant turnout requires advanced scheduling, communication, and potentially offering incentives. Challenges in aligning the schedules of all actors involved can be mitigated by preparing the timeline well in advance and allowing UC partners to lead demonstrations if the UC lead is unavailable.

Finally, during the **Demo Evaluation** phase, the risk of incomplete or inaccurate resources collection could significantly impact the technical outcomes. Clear guidelines and training for the evaluation process, along with additional information collection sessions and cross-checks, are necessary precautions. The risk of stakeholder fatigue remains relevant, potentially leading to lower levels of engagement during this critical phase. Continuous but balanced communication strategies will ensure stakeholders remain actively involved without feeling overwhelmed. Delayed reporting from UCLs can be mitigated by setting clear deadlines and providing simplified reporting templates, while continuous stakeholder engagement strategies will ensure adequate involvement in the evaluation process.

Overall, these mitigation strategies aim to ensure the successful planning, execution, and evaluation of the SoilWise demonstrations, minimizing risks and maintaining project momentum.

Table 11 Risks and mitigation matrix

Risk No.	Risk or Challenge *(short description)*	Impact *(cost, technical, schedule; or high-medium-low)*	Likelihood of occurrence (high-medium-low)	Severity of occurrence (high-medium-low)	Precaution measure (short description)	Mitigation plan	Cost of mitigation (high-medium-low)	Risk assessment *(filled in during demo evaluation)*	
								Did the risk materialise?	*Was mitigation applied? If no, please comment*
Demo Design									
R1	**Insufficient initial UC descriptions**	**Medium (schedule)**	**Medium**	**High**	**Ensure thorough initial assessments with new information from the project**	**Conduct follow-up consultations and iterative reviews to refine descriptions**	**Low**		
R2	Not identifying an exhaustive list of resources and requirements for the demonstration	High (technical, schedule, impact)	Medium	Medium	Design a check-list to aid the UC leads and partners to cross check everything needed for a demo	Collect additional resources during the preparation phase and adapt the demo design	Medium		
Demo Preparation									
R3	**Delays in documentation (user guide and agenda)**	**Medium (schedule)**	**Medium**	**Medium**	**Set early deadlines and regular check-ins**	**Accelerate review process and prioritize critical documentation tasks**	**Low**		
R4	Inadequate stakeholder engagement	High (schedule, technical)	Medium	High	Develop a detailed stakeholder engagement plan	Implement targeted communication strategies and	Medium		

					based on the one developed in T6.2	additional engagement activities			
R5	Communication issues between UC partners and /or WP leads and task leads	High (schedule)	Low	Medium	Set up regular progress meetings for the preparation phase	Direct communication channels such as git-hub and teams will allow aligning actors in short time	Medium		
Demo Execution									
R6	**Technical failures during demonstrations**	**High (technical, schedule)**	**Medium**	**High**	**Pre-demo testing and validation of all tools and systems (demo preparation)**	**Deploy technical support teams on standby and prepare backup solutions**	**Medium**		
R7	Low participant turnout or engagement	Medium (schedule, impact)	High	High	Advanced scheduling and extensive communication with participants	Offer incentives for participation and adjust timing or location to maximize attendance	Low		
R8	Difficulty in finding appropriate dates and times to fit all actors involved in the demos	High (schedule)	Medium	High	Prepare the timeline as per the Gannt chart in advance with confirmed dates from all actors	UC partners can lead in the absence of the UC lead for running the demos	Medium		
Demo Evaluation									
R9	**Incomplete or inaccurate information collection**	**High (technical, schedule)**	**Medium**	**High**	**Clear guidelines and training for data collectors**	**Conduct additional data collection sessions and validate data through cross-checks**	**Medium**		
R10	Delayed reporting from UCLs	Medium (schedule)	Medium	Medium	Set clear deadlines and provide	Provide reminders and assistance to UCLs; reallocate	Low		

					templates to simplify reporting	resources to expedite reporting process			
R11	Low stakeholder engagement for evaluation	Medium (impact)	Low	Medium	Easy tools to collect feedback, lowering bureaucratic burden for the stakeholders	Continuous communication and engagement strategies will be employed, ensuring that stakeholders remain informed and involved throughout the project.	Medium		
R12	Stakeholder engagement fatigue	Medium (impact, technical)	Medium	Medium	Limit the number of engagement activities and ensure each has a clear purpose	Consolidate engagement activities where possible, and regularly assess stakeholder sentiment to adjust strategies	Low		
R13	Insufficient stakeholder coverage (geographic, social, representativeness, completeness)	Medium (impact)	Medium	Medium	Define the relevant coverage and ensure related KPIs are followed up.	Include more stakeholders of those in minority to ensure sufficient coverage. Monitor KPIs on a frequent basis.	Low		

7 Conclusion

By focusing on progress monitoring, stakeholder engagement, comprehensive evaluation, and the development of best practices, the project aims to build a robust framework for demonstrating the value of the SWR.

Deliverable 5.2 User Case Guidelines and Demonstration Plan, serves as the reference point for UC partners during the planning, implementation, and evaluation of demonstration activities under WP5. The guideline provides practical information on partner roles and responsibilities, procedures for monitoring and evaluation, communication channels, and coordination mechanisms across Work Packages. It also sets out the methodology for demonstration planning and the evaluation framework for assessing UC progress and impact, ensuring that stakeholder feedback is collected in a structured way and that demonstration activities remain consistent across the different UCs.

The deliverable enhances alignment between demonstration planning and the ongoing developments in WP2, WP3, and WP4, while also contributing to related efforts in WP1 (co-design), WP4 (validation, T4.3), and WP6 (stakeholder engagement, T6.2). Developed collaboratively with partner input, the framework enables timely execution, continuous progress tracking, and early identification of challenges ensuring the demonstrations stay on track and aligned with the project's objectives.

8 Annex

8.1 Annex I: User Cases Progress Report Template:

User Cases Progress Report Template

1.User Case (UC) Overview

User Case No & Name:
(Provide the UC number and name)

User Case Leader & Contact Information:
(Include the name and contact details of the user case leader)

UC Partners:
(List the other partners involved in the user case)

Target Groups:
(Specify the intended audience or beneficiaries of the user case; please also refer to what has been written in the DoA)

Challenge (Need/Problem):
(Describe the specific challenge, need, or problem the user case addresses; please also refer to what has been written in the DoA)

2.Demonstration Overview/Description

Event Title:
(Provide the title of the event)

Date and Time:
(Specify the date and time of the event)

Location:
(Indicate whether the event is online or physical, and provide the location details)

Event Objective:
(Briefly explain what you aim to achieve with this demonstration)

Demonstration Scenario/Showcase:
(Provide a brief description of the demonstration scenario, highlighting its specific added value.)

Data/Knowledge Sources:
(Specify the data and knowledge sources to be used for the demonstration)

Existing Solutions to Be Integrated and Needs/ Improvement for Integration:
(Detail the existing solutions that will be integrated into the demonstration and outline the needs and improvements required for their integration with the SWR)

Main Technologies/Functionalities to Be Presented:
(List the main technologies or functionalities to be showcased)

Stakeholder Groups and Participation:
(Identify the primary participants or stakeholder groups who are directly involved in or invited to the event, including whether their participation is for testing/ validation, or showcasing purposes.)

Materials used/ Needed & Dissemination Channels:
(Indicate the materials required for the event and the dissemination channels, such as flyer, posters, newsletters, social media, etc.)

Potential Collaboration with Other Projects:
(Mention any opportunities for collaboration with other projects)

3.Demonstration Steps and Activities

Demo Design Start Month: MXX End Month: MXX

Activities & Progress
(Please provide a brief summary of the main activities carried out under each step, along with the overall progress.)

Partners Involved:
(List the partners involved in the activity and their responsibilities)

Demo Preparation Start Month: MXX End Month: MXX

Activities & Progress
(Please provide a brief summary of the main activities carried out under each step, along with the overall progress.)

Partners Involved:
(List the partners involved in the activity and their responsibilities)

Demo Execution Start Month: MXX End Month: MXX

Activities & Progress
(Please provide a brief summary of the main activities carried out under each step, along with the overall progress.)

Partners Involved:
(List the partners involved in the activity and their responsibilities)

Evaluation Start Month: MXX End Month: MXX

Activities & Progress
(Please provide a brief summary of the main activities carried out under each step, along with the overall progress.)

Partners Involved:
(List the partners involved in the activity and their responsibilities)

4. Evaluation - Impact

Evaluation Objectives:
(Describe the purpose of the evaluation, including which aspects of the SWR will be assessed—such as performance, usability, user satisfaction, usefulness, and added value; please also refer to what has been written in the DoA)

Evaluation Approach:
(Outline the methods and tools to evaluate impact and performance, such as survey, interview, KPIs; please also refer to what has been written in the DoA)

Feedback from Participants:
(List the topics to include in the feedback questionnaire, such as the usefulness of technologies, ease of understanding, or suggestions for improvement)

Identified areas for improvement based on feedback received.:
((Highlight any areas that could be enhanced or optimized based on received feedback.))

5.Risks/Challenges & Mitigation Measures/ Solution

Important: also refer to the risk & mitigation matrix.

Description of Risk/Challenges:
(Describe the specific risks or challenges associated with the demonstration)

Stage/Activity Concerned:
(Identify the steps/ activities affected by the risk or challenge)

Proposed Mitigation Measures/Solution:
(Outline the solutions of measures proposed to mitigate the identified risks)

6.Key Performance Indicators (KPIs):

(Please indicate the KPIs relevant to your user case for evaluation)

Key Performance Indicators				
KPI No	**KPI description**	**Current value**	**Target value**	**Comments**
1	Number of demonstration events organised			
2	Number of stakeholders invited to each event, and total number for the whole events.			
3	Number of stakeholders registered to each event, and total number for the whole events.			
4	Number of stakeholders effectively participating to each event, and total number for the whole events.			
5	Number of stakeholders effectively engaged in Soilwise activities after participating to the demonstration events.			
6	Number of stakeholders using the SWR after/before participating to the demonstration events.			
7	User stories produced as a result of demonstration events.			
8	SWR functionalities modified/improved following stakeholders' suggestions given during and as a follow-up of demonstration events.			
9	SWR functionalities added following stakeholders' suggestions given during and as a follow-up of demonstration events.			

7. Gantt Chart & MileStones

Activities	Partners involved	2025				2026					
		SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
Demo design		MS6									
A1-Design and Detail the Demonstration Scenarios											
A2-Establish the Demo Plan and Timeline											
A3-Align and Collaborate with Technology Providers											
A4-Identify needed data and components											
A5-Identify Stakeholders											
Demo Preparation				MS7							
A6-Communication and collaboration between the Partners and Tech providers											
A7-Prepare Demo Materials and Resources											
A8-Prepare and Integrate Required Technical Components											
A9-Conduct Internal Testing and Validation											
A10-Engage Stakeholders and Confirm Participation											
A11-Finalize Logistics and Demo Setup											
Demo Execution							MS8		MS9		
A12-Execute the Demonstration as Planned											
A13-Monitor and Troubleshoot During the Demo											
A14-Engage and Interact with Participants											
A15-Capture Data and Feedback for Analysis											
Demo Evaluation										MS10	
A16-Reporting on the progress											
A17-Identify and Define Key Evaluation Aspects											
A18-Select and Prepare Evaluation Tools and Methodology											
A19-Provide Feedback and Baseline information , if needed											
A20-Provide Feedback and Recommendations for Improvement											

	MS No	MS Name	Mean of verifications	Achievement (yes/no)	Achievement Date
First Iteration	MS1	delivery of initial prototype	Submission of D4.1	**yes**	
	MS2	Complete and approve the demo plan, detailing the demo scenarios, activities	This milestone includes completing the detailed demo design, including the demo scenarios, the associated activities, and the comprehensive schedule for each iteration. This should reflect the improvements made to the user case descriptions and provide clarity on the assets and services needed for the demo. The plans must be flexible and easily understandable by all involved stakeholders, ensuring that everyone knows their responsibilities and timelines.	**yes**	
	MS3	Completion of Stakeholder Engagement and Demo Materials	Finalize the preparation for the demo, including confirming stakeholder participation, securing necessary materials (hardware/software). All stakeholders should be engaged and committed, and all resources should be in place to ensure smooth execution. This milestone also includes finalizing any synergies or shared activities with other user cases or work packages (e.g., T4.3).	**yes**	
	MS4	Successful Execution of the Demo and Collection of Data	Complete the first demonstration session with active participation from stakeholders. The SoilWise repository (SWR) should be tested in real-world scenarios, and operational data (including any challenges or issues encountered) should be collected. The focus will be on testing the SWR's functionality and ensuring that the demonstration provides tangible insights into its real-world applicability.		
	MS5	First Deployment and Evaluation Report	Delivery of D5.2 Deployment and Evaluation Report		
S	MS6	Delivery of improve repository	Delivery of tech Deliverables V2		

Third iteration	MS7	Complete and approve the updated demo plan and demo scenarios,	This milestone includes completing the detailed demo design, including the demo scenarios, the associated activities, and the comprehensive schedule for each iteration. This should reflect the improvements made to the user case descriptions and provide clarity on the assets and services needed for the demo. The plans must be flexible and easily understandable by all involved stakeholders, ensuring that everyone knows their responsibilities and timelines.		
	MS8	Completion of Updated Stakeholder Engagement and Demo Materials	Finalize the preparation for the demo, including confirming stakeholder participation, securing necessary materials (hardware/software). All stakeholders should be engaged and committed, and all resources should be in place to ensure smooth execution. This milestone also includes finalizing any synergies or shared activities with other user cases or work packages (e.g., T4.3).		
	MS9	Successful Execution of the Demo and Collection of Data	Complete the second demonstration session with active participation from stakeholders. The SoilWise repository (SWR) should be tested in real-world scenarios, and operational data (including any challenges or issues encountered) should be collected. The focus will be on testing the SWR's functionality and ensuring that the demonstration provides tangible insights into its real-world applicability.		
	MS10	Intermediate Deployment and Evaluation Report	Delivery of D5.4 Deployment and Evaluation Report		
	MS11	Delivery of improve repository	Delivery of tech Deliverables V2		
	MS12	Complete and approve the updated demo plan and demo scenarios,	This milestone includes completing the detailed demo design, including the demo scenarios, the associated activities, and the comprehensive schedule for each iteration. This should reflect the improvements made to the user case descriptions and provide clarity on the assets and services needed for the demo. The plans must be flexible and easily understandable by all involved stakeholders, ensuring that everyone knows their responsibilities and timelines.		
	MS13	Completion of Updated Stakeholder Engagement and Demo Materials	Finalize the preparation for the demo, including confirming stakeholder participation, securing necessary materials (hardware/software). All stakeholders should be engaged and committed, and all resources should be in place to ensure smooth execution. This milestone also includes finalizing any synergies or shared activities with other user cases or work packages (e.g., T4.3).		
	MS14	Successful Execution of the Demo and Collection of Data	Complete the last demonstration session with active participation from stakeholders. The SoilWise repository (SWR) should be tested in real-world scenarios, and operational data (including any challenges or issues encountered) should be collected. The focus will be on		

			testing the SWR's functionality and ensuring that the demonstration provides tangible insights into its real-world applicability.		
	MS15	Last Deployment and Evaluation Report	Delivery of D5.5 Deployment and Evaluation Report		

9 References

1. Bouman, J., & Veerman, C. P. (2022). Developing Management Practices in: "Living Labs" That Result in Healthy Soils for the Future, Contributing to Sustainable Development. *Land, 11*(12), 2178.
2. European Commission. (2023). Proposal for a Soil Monitoring and Resilience Directive.
3. European Commission. (n.d.). EU Mission: 'A Soil Deal for Europe'. Retrieved from European Commission website.
4. European Commission Mission Soil Platform (n.d) Funded projects under Mission Soil
5. SoilWise Project. (2023). *SoilWise Grant Agreement*.
6. Horizon Europe. (n.d.). HORIZON-MISS-2022-SOIL-01-01: Topic Description and Guidelines.
7. FAIR Principles. (2016). Findable, Accessible, Interoperable, and Reusable (FAIR) Guiding Principles for scientific data management and stewardship. *Scientific Data, 3*, 160018.