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D5.1 – User cases guidelines and demonstration plans, v1

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M12/AUG 2023

|  |  |
| --- | --- |
| Acronym | SoilWise |
| Project Full Title | **An open access knowledge and data repository to safeguard soils** |
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| Keywords | **SoilWise Repository, User Cases, Demonstration Plans,** |
| Abstract | **This deliverable, D5.1, outlines the 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

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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 LEDEVELOPPEMENT |
| 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 |

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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).

This deliverable, D5.1, marks the first version of the User Cases 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 user cases, each targeting a specific stakeholder group.

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. The document also details the collaboration and communication tools essential for harmonizing the efforts of various actors involved in the demonstrations.

Evaluation of the user cases 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.

Risk management is a critical component of the planning process. The document 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.

The deliverable concludes with a vision for D5.2, which will build upon the initial guidelines and plans, incorporating insights from the first round of demonstrations. This iterative approach ensures that the SoilWise project remains aligned with its goals of supporting sustainable soil management practices and thus improving the soil health across Europe.

# Introduction

## 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**.

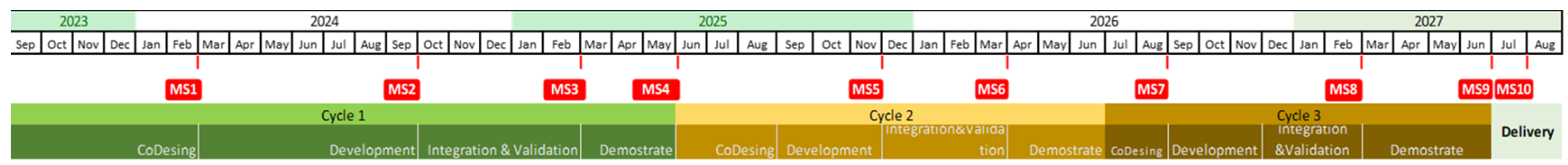
* **SoilWise aims to develop, test, and deliver a prototype for a long-term knowledge and data repository that is expected to become part of EUSO. Fifteen project partners must design, develop, validate, and demonstrate the solution. Five practice-oriented “user cases” will support the demonstration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

A diagram of a cycle

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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.

A screen shot of a computer

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Figure 3 SoilWise actors

## Deliverable scope and structure

Deliverable D5.1, titled "User Cases Guidelines and Demonstration Plans, v1," is a comprehensive document designed to facilitate the planning, deployment, and validation of User Cases 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 D5.1** 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 User Cases by:

* **Providing organisational guidelines for User Cases**: Deliver an organisational structure that allows the User Cases to continue their activities and ensures smooth and uniform implementation across all User Cases. 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 User Cases in both technical (e.g. dataset availability) and organisational (e.g. roles) aspects.

D5.1, the first version of the User Case planning deliverable, considers the early development stages of the repository in WP2, WP3, and WP4. It aligns with the agile approach of the SoilWise project, tracks progress in WP6, and addresses emerging needs from 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 user cases 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.

The first version of D5.1 aims to provide a framework that can support the setup of a standard and flexible organisational structure able to help first the detailed design of the user cases and the development of the demonstration plans, and, especially in cycles 2 and 3, the successful demonstration to the stakeholders that represent the different target groups in which way the SoilWise repository can support their current or future activities and on which way this can cover their needs. Indirectly, this organisational structure supports the needs of other WPs, especially WP1 for ‘co-design’, WP4 for ‘validation’(T4.3) and WP6 for ‘stakeholder engagement’(T6.2).

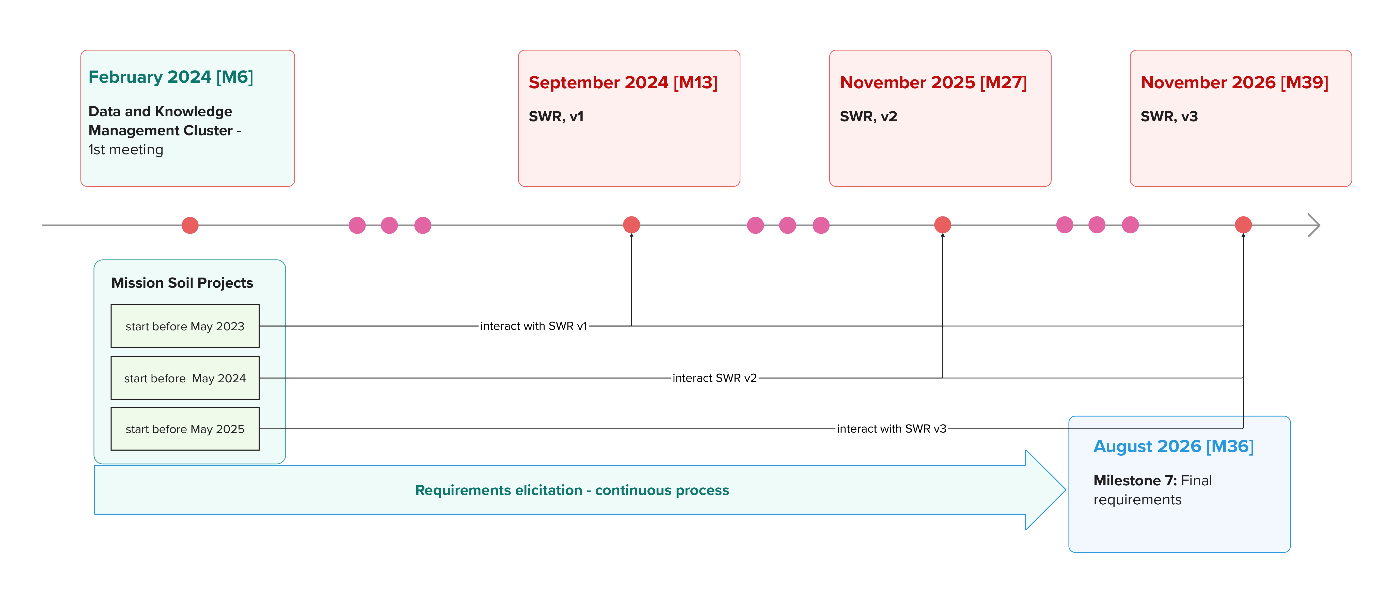


Figure 4 Timeline and milestones of the interaction between the Mission Soil and SoilWise project.

## Relationship to other project deliverables

Deliverable D5.1 is intricately connected to several other deliverables within the SoilWise project, ensuring a cohesive approach to achieving project objectives:

* **D1.1, D1.2** – Usage Scenarios, requirements, v1, v2 (**M5**, M36)
* **D1.3, D1.4** – Repository Architecture, v1, v2 (**M8,** 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)
* **D5.2** - User cases guidelines and demonstration plans, v2 (M24)
* **D5.3, D5.4, D.5.5** – Deployment and Evaluation Report, v1, v2, v3 (M21, M34; M46)
* **D6.2, D6.3, D6.4** – DEC and Capacity Building Plan and Report, v1, v2, v3 (M3, M18, M48)

D5.1 considers D1.1 and D1.3. Until D5.2 is published at M24, other future deliverables will consider the results of D5.1. This ensures a comprehensive, integrated approach to demonstrating and validating the SoilWise developed functionalities across diverse user cases.

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 D5.1, 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**: Demonstration Planning Methodology

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

**Chapter 4:** Evaluation Framework and Methodology

This chapter focuses on the framework and methodology for evaluating the effectiveness and impact of the SoilWise demonstrations. It describes the criteria and metrics that will be used to assess the success of the demonstrations, including Key Performance Indicators (KPIs). The chapter also introduces the approach for the tools and templates that will standardize the evaluation process across different user cases, ensuring consistent and comprehensive assessment.

**Chapter 5:** Monitoring and Communication Means

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 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:** Next Steps and Vision for D5.2

This chapter outlines the future direction of the SoilWise project, focusing on the development of Deliverable D5.2. It describes the next steps in the project, including the continued monitoring of progress, enhancement of stakeholder engagement, and refinement of the SoilWise repository. The chapter also discusses the importance of developing best practices and replication guidelines to ensure the project’s successes can be scaled and applied across different contexts in Europe.

# WP5 - User Cases planning, demonstration and assessment

## WP5 Objectives, Activities & Approach

WP5, led by EV ILVO, aims at the User Cases planning, demonstration & assessment, and supporting of the SoilWise User Cases to show, with demonstrations and evaluation, how they can capitalise on the (re)use of the SWR. Additionally, it will collect and share the resulting knowledge and created guidelines for replicating the results across Europe.

The overall goal of WP5 is to support the SoilWise User Cases in showing, with demonstrations and evaluation, how they can capitalise on the (re)use of the SWR (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 of WP5:

1. **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, User Cases 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. It also includes the planning of the activities related to the collection and preparation for the 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.***

1. **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 the needed preparatory activities, to be ready to demonstrate the results of the use of the SoilWise repository to the relevant targeted stakeholders. 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 demonstrators) 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.***

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

This activity is critical in the context of the topic text of the call. The specific task needs to be provided in a transparent, standardised and simple way on how the different target groups can capitalise on the use of the SoilWise repository, as part of EUSO, using as examples 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.***

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

T5.4 will analyse the User Cases and develop a report containing usage best practices and replication guidelines, relying on the resulting user experience on the SWR.

* ***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***](https://cordis.europa.eu/project/id/101091115)***,*** [***AI4SoilHealth***](https://cordis.europa.eu/project/id/101086179)***,*** [***ECHO***](https://cordis.europa.eu/project/id/101112869)***,*** [***HuMUS***](https://cordis.europa.eu/project/id/101091050) ***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.***

### Interaction and collaboration with other WPs

As presented in Figure 5, WP5 interacts primarily with WP1, WP4 and WP6. More specific:

* The User Cases actors participate in WP1, supporting significantly, especially on the first cycle, the co-design of the repository by providing per User Case their needs in terms of functionality, defining of the user's stories and their acceptance criteria(see D1.1 - Usage Scenarios, Requirements, v1), that act as repository requirements. This supports WP1 and classifies the needs and the resulting requirements per target group, considering the following:
  + UC1: Soil health performance indicators for Land Managers
  + UC2: Leveraging a network of Soil R&I Knowledge and Data to facilitate scientists
  + UC3: Facilitate policymakers in policy-making & Evaluation to safeguard soil
  + UC4: Enhanced capacities of Public Authorities and Living Labs actors
  + UC5: New products, technologies and services for business
* **This mapping is heterogenous as different target groups may have similar needs and want to reach the same or similar target/future stages. However, this approach can support revealing specific needs per target group and prioritising the requirements.**
* All the User Case actors participate in WP4/T4.3 because, before the demonstration, they need to be ready to use and interact with the SoilWise repository, supporting the technical validation in practice by the actual users.
* **WP5/T5.1 needs to support the planning of those activities to ensure that everything will be ready before the beginning of the demonstration. WP4/T4.3 needs to follow the planning and “inform” that for the specific demonstration period, the data sets are available for use within the demonstrators, the existing systems and the relevant solutions**[[1]](#footnote-2) **(or applications) are ready (deployed) and can interact with the SoilWise repository (integration). The user case partners with support from WP6 will assure that the stakeholders are informed and able to participate.**
* WP6 needs to interact, manage and communicate with stakeholders from different target groups (The Stakeholder Network). WP5 User Cases partners need to interact with the Stakeholders.
* **The stakeholders may show interest in advance on a specific User Case, they may have an existing connection or not with the User Case partners (project partners) or may want to follow or participate actively. There are many scenarios for this, which can develop later without limiting the possibilities. However, every decision related to the way of interaction needs to consider the timeframe, the available resources, geographical criteria and the expected potential.**

A diagram of a project management process

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Figure 5 SoilWise project WPs, their task and the interactions between them.

### WP5 Deliverables

Table 1 WP5 Deliverables

|  |  |  |  |
| --- | --- | --- | --- |
| Number | Name | Due date | Description |
| 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**. |
| 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**. |
| 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. |
| 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. |

## 

## Practice-oriented “user cases”

These five user cases 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 following five user cases are described in the project:

**User Case UC01: Soil Health Performance Indicators for Land Managers**

* **User Case Leader:** WR
* **Other Participants:** EV ILVO, ELO
* **Objective:** 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: L**and managers, land owners, 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
* **Objective:** To link existing R&I project networks and data repositories to the SoilWise repository (SWR), ensuring interoperability and minimizing duplication of efforts.
* **Key Actions:**
  + Making repositories interoperable with SWR to facilitate efficient data and knowledge capitalization.
* **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
* **Objective:** 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.
* **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
* **Objective:** To improve the FAIRification of soil data for effective reuse and knowledge generation by addressing challenges in adopting FAIR principles and integrating these principles with SoilWise APIs and UI.
* **Key Actions:**
  + Testing solutions for minimal metadata entry, automated quality indicator calculations, and user feedback mechanisms.
* **Potential Users:** Research networks, farmers’ networks and public authorities (with an initial focus on LTE’s, Living labs and monitoring networks).
* **Expected Outcomes:**
  + Improved data quality.
  + Enhanced user-friendliness of tools.
  + Stronger sense of ownership among data providers and users.

**User Case UC05: Repository for New Products, Technologies, and Services**

* **User Case Leader:** GAIA
* **Other Participants:** WE, ELO, BIOS, NP
* **Objective:** 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's important to note that in D1.1 - Usage Scenarios, Requirements, v1, we have outlined the user stories for each of the User Cases. These stories describe the core functionalities of the repository, providing a foundation to support the User Cases and their subsequent demonstrations. This strategy not only endorses the SWR co-design activities but also initiates the design of the User Cases at an earlier stage, stimulating the User Cases actors to identify their actual needs while considering the needs of the target groups they represent.**

### 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  User cases planning and task 5.2  User Cases implementation and demonstration. ILVO participates in User Cases 1 and 4. |
| 2 | International Soil Reference and Information Center (ISRIC) | ISRIC contributes to User Cases 2 and 3. |
| 3 | Wageningen Research (WR) | WR leads User Case 1. |
| 4 | Biosense Institute (BIOS) | BIOS participates in User Case 5. |
| 5 | Leibniz-Zentrum Fuer Agrarlandschaftsforschung (ZALF) | ZALF participates in User Case 4. |
| 6 | Consiglio per la Ricerca in agricoltura E L’Analisi Dell’Economia Agragria  (CREA) | CREA leads T5.3 User Cases 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 User Case 4 and participates in User Case 3. |
| 8 | Institut National de Recherche pour L’Agriculture, L’Alimentation et L’Environnement (INRAE) | INRAE participates in User Case 2. |
| 9 | Centre de Cooperation International en Recherche Agronomique pour le Development (CIRAD) | CIRAD leads User Case 2. |
| 10 | WeTransform (WE) | WE participate in User Case 5. |
| 11 | GAIA Epicheirein | GAIA is the Task leader of task 5.4,  “Best practices and replication guidelines”.  GAIA leads User Case 5. |
| 12 | Neuropublic Ae Pliroforikis & Epikoinonion (NP) | NP participates in User Case 5. |
| 13 | European Landowner Organization (ELO) | ELO participates in User Cases 1 and 5. |

## 

# Demonstration planning methodology

The demonstration methodology for SoilWise is designed to ensure that the planned activities are executed systematically, with clear objectives, stakeholder involvement, and measurable outcomes. The methodology follows an iterative approach, integrating feedback loops to refine and improve the demonstrations at each stage. This approach 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, partners, and technical teams to create a cohesive plan that aligns with the overall project goals. By leveraging standardized tools or templates, the methodology aims to facilitate consistent documentation and evaluation across all user cases, enabling a comprehensive assessment of the SWR's impact.

## Demo Steps

To ensure efficient planning and monitoring, we have identified the needed performed 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.

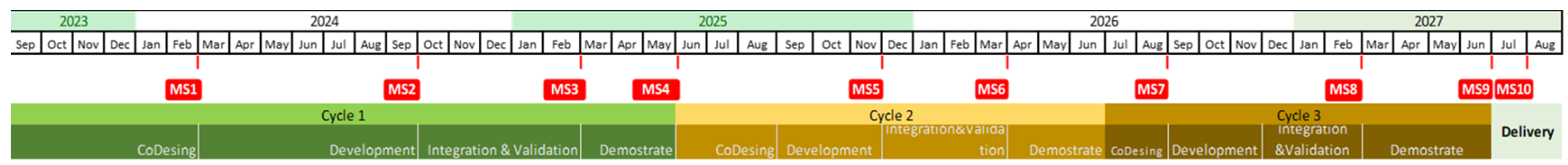


Figure 6 SoilWise project cycles

For each of the steps, we also tried to list the activities and define the primary responsibilities, considering not only who the User Case actors and User Case leaders 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.

### Demo design

Within this step, we need to design the demos, considering the updated and improved User Case description, as those will result until the end of each cycle. User Cases leaders 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. The first iteration focuses on assessing the SWR and delivering more detailed user case descriptions, followed by a flexible, practical, able to be managed and organized easily by the actor's activity planning and scheduling considering the specific needs of each User Case.

### 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 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 User Cases 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.

### 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.

### Evaluation

This step aims to perform the User Cases impact analysis, and it mainly involves the evaluation activities of T5.3 related to the evaluation of the User Cases as those are described, at which we want to know how User Cases 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 User Cases Leaders 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 User Case 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 User Cases, following the planning and closely collaborating with the User Cases leaders and the WP5 leader.

## 

## 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 Leader (**WPL**) 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 (**UCL**) 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 3.

Table 3 Roles and responsibilities per demonstration step

|  |  |
| --- | --- |
| Demo Design | * **WPL**: Monitors and facilitates the execution of activities, ensuring that timelines are set, risks are identified, and there is successful cooperation across user cases and work packages. * **Task 5.1 Leader**: Establishes the planning framework, supervises the creation of timelines, manages risk, and supervises stakeholder involvement to ensure that all preparatory activities are aligned with project goals. * **UCL**: UCLs are responsible for delivering a comprehensive demo plan at each iteration. This plan must detail the preparation, execution, and evaluation activities, ensuring that it is adaptable and easy to manage. UCL leads the setup and integration of user cases, ensuring clear communication with the **WPL** and partners, resolving issues, and identifying potential operational drawbacks. UCL reports on the performance and readiness of the demonstrators. * **User case Partners**: Define and establish the user cases, ensuring that all necessary, resources, and tools are identified for the demonstration. Identify the potential stakeholders that can act as users. * **Tech Providers (WP2, WP3)**: These partners are responsible for ensuring that all necessary technological assets or services are available and ready for the demos. They must provide clear timelines for when these resources will be available and work closely with the **UCLs** to integrate the technology seamlessly into the demonstrations. * **WP4**: WP4 focuses on technology integration, ensuring that all tools and systems are ready for use according to the demo schedule. They also ensure effective communication with demo partners and address any integration issues that arise. * **WP6**: WP6 is responsible for stakeholder engagement. They must receive detailed information on which stakeholder-related activities need to occur, who is involved, and when these activities should take place. **WP6** also ensures that the evaluation components are timed correctly within the demo plan. |
| Demo Preparation | * **WPL**: Oversee demo preparation, ensuring timelines and risk management. They provide strategic guidance, and ensure that the preparation activities across different user cases are coordinated effectively. **WPLs** also facilitate communication between the **UCLs** and other work packages to ensure that all necessary resources and support are available. * **Tasks 5.2 Leader**: Fine-tune KPIs, update stakeholders, and monitor demo preparation. They provide guidance to **UCLs** and partners to ensure that the preparation phase runs smoothly and efficiently. * **UCL**: UCLs are responsible for overseeing the preparation activities for their respective user cases. This includes organizing the collection and preparation of necessary information, coordinating stakeholder engagement with support from WP6 and in the context of the T5.1, preparing informational materials, and ensuring that all logistical arrangements for the demo are in place. * **User case Partners**: The partners work closely with the UCLs to execute the preparation tasks. Their responsibilities include gathering and processing information, engaging with stakeholders, and contributing to the creation of the materials. They also assist in addressing any specific needs or challenges unique to their user case.. * **Tech Providers (WP2, WP3)**: They are responsible for preparing and making available the necessary data, tools, and services required for the demo. Tech Providers work closely with **UCLs** to integrate these technological components seamlessly into the demonstration. They also provide ongoing technical support to address any issues that may arise during the preparation phase. * **WP4**: Oversee integration preparation and technology updates, ensure smooth communication, and resolve any identified issues. * **WP6**: Support demo preparation by creating dissemination materials, promoting the event, and ensuring stakeholder involvement. They 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. |
| Demo Execution | * + **WPL**: WPLs supervise the execution phase, ensuring that timelines are adhered to, risks are managed, and any necessary interventions are made promptly.   + **Tasks 5.2 and 5.3 Leader**: Oversee demo execution, ensure KPIs are met, and coordinate with stakeholders.   + **UCL**: UCLs are responsible for leading the execution of the demonstration activities. They coordinate all aspects of the demo, ensuring that the plans are implemented as designed. UCLs facilitate communication among all participants, manage any arising issues, and monitor the overall progress of the demo. They are also responsible for ensuring that the demo captures all necessary information for subsequent evaluation.   + **User case Partners**: User case Partners play an active role during the demo execution. Their responsibilities include executing their designated roles, such as presenting the demo, collecting the information, and facilitating the involvement of stakeholders. They ensure that the demo activities align with the planned objectives   + **Tech Providers (WP2, WP3)**: Provide ongoing technical support.   + **WP4**: Provide technical support during the demo, resolve integration issues, and monitor progress. They work closely with the Tech Providers and **UCLs** to ensure that the demo runs smoothly and that all systems are fully operational.   + **WP6**: Monitor and resolve issues related to stakeholder engagement. WP6 also manages the promotion and communication aspects of the demo, leveraging media and social platforms to share progress and results with a broader audience. |
| Demo evaluation | * + **WPL**: WPLs oversee the evaluation process, ensuring that it is conducted according to plan and that the results are accurately documented. They work with the Task Leaders and UCLs to ensure that the evaluation activities are aligned with the project’s strategic goals. WPLs also play a key role in ensuring that the feedback from the evaluation is used to inform future project activities and iterations.   + **Task 5.3 Leader:** Coordinates the evaluation process, oversees the information collection and analysis, and compiles actionable feedback for future iterations.   + **UCL**: UCLs play a critical role in the evaluation phase by providing feedback on the performance of the demos. They are responsible for gathering and submitting the evaluation templates provided, ensuring that all relevant information is captured accurately. UCLs also collaborate closely with the T5.3 leader.   + **User case Partners**: User case Partners are involved in the evaluation process by participating in the collection of data and feedback during the demo. They help in filling out the evaluation templates, contributing insights and observations that are essential for assessing the impact of the SWR.   + **Tech Providers (WP2, WP3)**: Tech Providers contribute to the evaluation by providing technical feedback on the performance of the SWR during the demos. They help identify any technical issues that arose during the demonstration and suggest improvements. Their technical expertise is crucial in assessing how well the SWR met its intended objectives and in recommending enhancements for future iterations.   + **WP4**: Resolve any lingering integration issues and provide feedback to **WPL** and **UCL**.   + **WP6**: Communicate and disseminate the results of the demonstration and evaluation reports looking towards the next iteration |

## 

## Timeline and planning

The successful execution of the SoilWise User Cases (UCs) hinges on meticulous planning, preparation, execution, and evaluation. This section outlines the methodology for developing and implementing the demonstration plans, including a structured timeline visualized through a Gantt chart (Figure 9).

The User Cases Demonstration Plans are structured to ensure that all necessary steps are taken to prepare for, execute, and evaluate the demonstrations. The process is divided into four key stages: Demo Design, Demo Preparation, Demo Execution, and Evaluation. While each stage is mapped out in the timeline to guide the project's flow and ensure critical milestones are met, the approach remains flexible and agile. This allows for adjustments and iterative improvements as needed, ensuring that the project adapts to new insights and evolving requirements.

### Demonstration planning

This section provides a high-level overview of the demonstration activities and aims to offer the UCLs a guide of demo activities preparation. The planning of the timeline goes a step further from the previously described four steps and maps the activities necessary for the demonstration activities on a chart, allowing to monitor progress and mitigate risks. It includes the following elements:

* **Objectives:** Clear goals that the demonstration seeks to achieve.
* **Key Stakeholders:** Identification of the primary participants, including UCLs, User case Partners, and technical providers.
* **Expected Outcomes:** Anticipated results and how they will be measured.

Figure 8 Demonstration planning approach

Figure 8 outlines the sequential steps involved in planning the demonstration activities for the SoilWise User Cases (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.

**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.

**Collaboration with UC Actors**. Once the first draft is complete, the next step involves collaboration with the UC actors (e.g., User case Leaders, User case 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

**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.

**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.

### 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.



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.
* **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.

# Evaluation Framework and Methodology

As we have described in section 1.2, 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”.

To achieve this, we will use the User Cases 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 User Case target groups. By doing so, we also support the co-design process, providing feedback for Continuous Improvement and relying on practical-oriented User Cases.

## 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.

**3.2.1. 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.

## 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 user case 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 user cases, synthesizing the findings from the entire project and offering recommendations for future work.

These reports will not only document the outcomes of the user cases 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.

# Monitoring and communication means

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

To ensure consistent and transparent monitoring of User cases (UCs), clear documentation procedures are required. Each UC must report progress to the Work Package Leader (WPL) according to their Demonstration Plan, with the User case Leader (UCL) responsible for timely submission of these reports. These reports are critical for WP5 deliverables and help identify necessary improvements.

Reporting formats are flexible to accommodate the diverse needs of each UC. The UCL can choose the most appropriate platform for providing input into WP5 deliverables. The T5.3 lead will provide templates to ensure consistency and completeness of the reports. The following formats may be used:

* UC progress report document
* UC demonstration outcome PPT
* Demonstration forms or checklists
* Github repositories and documentation

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

* **WP Leader (WPL):** The WPL oversees the entire reporting process and ensures that all User case Leaders (UCLs) adhere to the reporting guidelines. The WPL is responsible for providing standardized templates for the progress report documents, demonstration outcome presentations (PPTs), and any required checklists or forms. Additionally, the WPL 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.
* **User case Leader (UCL)**: The UCL plays a critical role in managing the flexible reporting process for their respective UC. They decide on the most appropriate reporting format for their team, whether it be a detailed document, a presentation, or a combination of formats. 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 WPL. They also coordinate the use of collaborative platforms like GitHub for technical documentation and ensure that all contributions are properly documented.
* **User case 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 the 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.

Effective meeting management is vital for monitoring progress and ensuring collaboration. WP5 has established two primary levels of meetings:

* **WP Level Meetings**: Focus on strengthening collaboration between WP and UC actors, providing status updates, and resolving issues through a bottom-up approach.
* **UC Level Meetings**: Aim to coordinate UC activities, ensure timely follow-ups, resolve issues, and maintain ongoing evaluation.

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.

# Risks and mitigation strategy

The demonstration planning and execution for the SoilWise project involve several potential risks that could impact the project's cost, schedule, and technical outcomes.

During the **Demo Design** phase, a significant risk is the possibility of insufficient initial user case 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 User Case leads (**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 user case 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 4 Risks and mitigation matrix

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 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) |
| Demo Design | | | | | | |
| Insufficient initial user case 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 |
| 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 | | | | | | |
| 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 |
| Inadequate stakeholder engagement | High (schedule, technical) | Medium | High | Develop a detailed stakeholder engagement plan based on the one developed in T6.2 | Implement targeted communication strategies and additional engagement activities | Medium |
| Communication issues between user case 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 | | | | | | |
| 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 |
| 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 |
| 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 | | | | | | |
| 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 |
| Delayed reporting from UCLs | Medium (schedule) | Medium | Medium | Set clear deadlines and provide templates to simplify reporting | Provide reminders and assistance to UCLs; reallocate resources to expedite reporting process | Low |
| 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 |
| 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 |

# Next steps, D5.2 vision

As we are just completing the first year of the SoilWise project, the completion of D5.1 marks a significant landmark in the planning and initial demonstration phases of the UCs which will conclude the final phase of the first iteration cycle in the project. The next critical deliverable, D5.2, due in Month 24, will build upon the foundations laid by D5.1, focusing on refining and expanding the demonstration activities and incorporating the insights gained from the initial stages of implementation.

## Progress Monitoring and Iterative Improvement

One of the primary goals for the next phase leading to D5.2 is to monitor the progress of the UCs closely. This involves regularly assessing the effectiveness of the demonstration activities initiated under D5.1 and making iterative improvements based on stakeholder feedback and performance data. The use of KPIs established in Task 5.1 will be crucial in this process, and will be further refined during the demonstration activities of the first iteration and presented in the deliverable D5.2.

As part of the iterative process, the methodologies, tools, and templates used in the demonstration activities will be revisited and refined. This will ensure that they remain aligned with the evolving needs of the project and its stakeholders, particularly as more detailed data and feedback become available from the ongoing demonstrations.

## Enhanced Stakeholder Engagement

For D5.2, a key focus will be on deepening stakeholder engagement with the support of the T6.2. The initial stakeholder interactions facilitated during the first phase will provide valuable insights into their expectations and needs. Moving forward, the aim is to enhance this engagement by developing more targeted communication strategies, organizing additional workshops, and ensuring that stakeholders are actively involved in the evaluation and feedback processes. These are activities specific to T6.2, but are crucial for the outcomes in the D5.2.

This enhanced engagement will not only contribute to more effective demonstration activities but also help in fine-tuning the SoilWise Repository to better serve the diverse needs of its users. By involving stakeholders more deeply in the co-design and evaluation processes, the project will be able to gather richer insights that will inform the development of best practices and guidelines.

## Comprehensive Evaluation and Feedback Integration

The next steps will also include a comprehensive evaluation of the demonstration activities completed by Month 24. This evaluation will build on the initial assessments conducted for D5.3 (Month 21), incorporating more extensive data from the ongoing demonstrations. The focus will be on understanding the impact of the SWR on the various target groups and how effectively these groups can capitalize on the repository.

The feedback gathered during this phase will be systematically integrated into the project’s iterative development cycles, particularly influencing the co-design activities in WP1 and the technical refinements in WP4. This continuous feedback loop will ensure that the SWR evolves in a way that is responsive to the needs of its users and aligned with the project’s long-term goals.

## Development of Best Practices and Replication Guidelines

Looking ahead to D5.2, another important objective will be the development of preliminary best practices and replication guidelines based on the insights gained from the first round of demonstrations. These guidelines will be crucial for ensuring that the successes of the SoilWise project can be replicated across different contexts and geographies, thereby maximizing the impact of the project beyond its immediate scope.

The best practices and guidelines developed in this phase will serve as a foundation for the more comprehensive documentation planned for D5.6 (M47), which will detail the methodologies for replicating the project’s successes across Europe.

## Conclusion and Vision for D5.2

The path to D5.2 represents a critical phase in the SoilWise project, where the initial groundwork laid in D5.1 will be expanded and refined. 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.

As we move forward, the vision for D5.2 is to produce a deliverable that not only captures the outcomes of the first two years of the project but also sets the stage for its successful continuation and eventual conclusion. The insights and refinements that emerge during this period will be instrumental in ensuring that SoilWise meets its objectives and delivers a repository that is both useful and sustainable for its diverse user base.

# 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](https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/eu-missions-horizon-europe/soil-deal-europe_en).
4. European Commission [Mission Soil Platform](https://mission-soil-platform.ec.europa.eu/index.php/project-hub/funded-projects-under-mission-soil) (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](https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/horizon-miss-2022-soil-01-01).
7. FAIR Principles. (2016). Findable, Accessible, Interoperable, and Reusable (FAIR) Guiding Principles for scientific data management and stewardship. *Scientific Data, 3*, 160018.

1. As described in the topic text and in the SoilWise GA, SoilWise, through the User Cases, will trigger the development of “*Solutions to improve the status of soils.*” [↑](#footnote-ref-2)