SENSE

Call for proposals	DIGITAL-2023-CLOUD-AI-04	Type of action	DIGITAL-SIMPLE
Grant Agreement No.	101167948	**Start date**	1 December 2024
Project duration	30 months	**End date**	31 May 2027

Project consortium – Coordinator: LIBELIUM LAB SL - LIBE	
AYUNTAMIENTO DE CARTAGENA	BEN - CART
DELTADAO AG	BEN - DDAO
DREES & SOMMER SE	BEN - D&S
LANDESHAUPTSTADT KIEL	BEN - KIEL
OPEN & AGILE SMART CITIES	BEN - OASC
MOBILITY AS A SERVICE ALLIANCE	BEN - MAAS
UNIVERSITY OF GALWAY	BEN - GALW
KIEL-MARKETING EV	BEN - KIELM
DUNAVNET LIMITED	BEN - DNET
NUROGAMES GMBH	BEN - NUR

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This document translates some of the obligations from the grant agreement and in case of discrepancies, it is the grant agreement which prevails over this deliverable.

D1.1 Project Governance Structure

Document Identification			
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Lead Partner	Libelium Lab	**Lead Author**	Juan Francisco Inglés (Libelium Lab)
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Document History

Version	Date	Change editors	Changes
0.1	03/02/2025	Rodrigo González	Initial version
0.2	11/02/2025	Nuria Archilla	General contributions
0.3	19/02/2025	Juan Francisco Ingles	General contributions
1.0	27/02/2025	Juan Francisco Ingles	Final draft to be submitted

Quality Control

Role	Who (Partner short name)	Approval Date
Deliverable leader	LIBE	27/02/2025
Project Coordinator	LIBE	27/02/2025

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List of Acronyms

Abbreviation / acronym	Description
AB	Advisory Board
AC	Approval Committee
AE	Affiliated entity
AP	Associated Partner
BEN	Beneficiary
CA	Consortium Agreement
CC	European Competence Centre
CFS	Certificate on the Financial Statements
COO	Coordinator
DCM	Dissemination & Communication Manager (DCM)
DMOs	Destination Management Organisation
DoA	Description of Action
DSS	Data Sharing Initiative
Dx.y	Deliverable number y, belonging to WP number x
EC	European Commission
FPR	Financial Project Report
GA	Grant Agreement
IAR	Internal Activity Report
PMB	Project Management Board
KPI	Key Performance Indicator
MICE	Meetings, Incentives, Conferences, and Exhibitions
PC	Project Coordinator
PCT	Project Coordination Team
PM	Person-month
PMB	Project Management Board
QA	Quality Assurance
QM	Quality Manager
RO	Risk Owner
RP	Reporting Period
SMEs	Small and Medium-sized Enterprises
TL	Task Leader

Abbreviation / acronym	Description
TM	Technical Manager
ToC	Table of Contents
WP	Work Package
WPL	Work Package Leader

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Executive Summary

This document is a deliverable submitted as part of the SENSE project, funded by the European Commission (EC) as part of the Digital Simple Grants of the Digital Europe Programme (DIGITAL).

This deliverable describes the project governance structure, including roles, responsibilities, decision-making procedures, and communication protocols. The main target group for this deliverable is the consortium partners.

The document outlines key aspects of the project, such as the project work plan, interdependencies, the roles of different actors in the project and their responsibilities, the project's management bodies, the information exchange procedures, the project milestones and the project timetable regarding deliverables and milestones, along with responsible partners.

This document serves as a guide for the consortium, offering insights into project structures and methods. It fosters collaboration among partners and plays a vital role in achieving the project's ultimate goals.

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1   Introduction

1.1   Purpose of the Document

This document is the SENSE Project Governance Structure and has as primary objective to describe:

- The project management bodies, including consortium governance, project monitoring, and project reporting.

- The roles of different actors in the project and its responsibilities.

- The information exchange procedures among partners and their coordination.

- General guidelines for performing the required day-to-day project management activities.

The project governance structure is in line with the Consortium Agreement (CA) and the Grant Agreement (GA) approved by both the consortium and the European Commission (EC). This ensures consistency and compliance with established guidelines.

1.2   Structure of the Document

This document is divided into four main sections:

- Sections 2 and 3 describe the project, including its work plan and resources planned.
- Section 4 - Project Management:
    - o   It describes the management procedures to be followed in this project to achieve both the technical and administrative objectives.
- Section 5 - Quality Assurance:
    - o   It defines the processes to monitor and control the production of results to meet an adequate level of quality.
- Section 6 - Risk Management:
    - o   It defines the process of identifying, assessing, controlling, and mitigating all risks that could jeopardise the project's expected results.

2   Project Overview

2.1   Project Identification

Project acronym	SENSE
Project title	Strengthening Cities and Enhancing Neighborhoods Sense of Belonging
Call	DIGITAL-2023-CLOUD-AI-04
Topic	DIGITAL-2023-CLOUD-AI-04-DEVELOPCITI
Type of action	DIGITAL-SIMPLE
Grant agreement number	101167948
Project start date	01/12/2024
Project end date	31/05/2027
Project total time	30 months
Granting authority	European Commission
Effort	836.50
Budget	7 720 478.00€
EU funding (maximum amount – award decision)	3 860 239.00€

2.2   Project Summary

Virtual world, real connection – SENSE offers immersive digital metropolises as European CitiVerses to strengthen bonds between citizens, neighbourhoods and cities. Our orchestrator drives groundbreaking Use Cases tackling urban challenges, tailored to each community's context and needs. Showcasing the incredible gains that are met when people shape communal hybrid spaces, SENSE makes the premise real – the sense of belonging drives change.

Our Frontrunner cities (Kiel, DE; Cartagena, ES) will demonstrate how social, cultural, technological, historical, economic and smart applications can improve quality of life. This citizens-first approach sees people internalize behaviours through transparency, agency and micro-participation. Built on interoperable data infrastructure and MIM Plus standards for cross-platform operability, the SENSE CitiVerse is structured to facilitate practical innovation replication across Europe, demonstrated in our Follower Cities (Murcia, ES; Ulm, DE; Arezzo, IT; Valongo, PT) and consolidated in a Roadmap for future expansion.

Keenly focused on policy direction, SENSE is dedicated to advancing recommendations for open, inclusive CitiVerse adoption aligned with European values. By presenting the results of the Use Cases and deployment guidelines at forums like the ITU Metaverse Focus Group, we drive consensus on priorities balancing innovation with engagement. SENSE CitiVerse solution will demonstrate that technology serving society fosters human connections – and this sense of belonging, ultimately, helps to build better cities.

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2.3   Overall Work Plan

2.3.1   Work package list

The project workflow is organised around six Work Packages, as shown below:

Table 1 Work Package Lists

WP Number	WP Name	Lead Beneficiary	Effort	Start Month	End Month
WP 1	Project management and coordination	1 - LIBE	172.50	1	30
WP 2	Co-creating interoperable data foundations	10 - DNET	114.50	1	12
WP 3	CitiVerse Development	3 - DDAO	162.00	4	18
WP 4	Frontrunner cities and scenarios	1 - LIBE	147.50	7	26
WP 5	Follower cities, adoption and exploitation	4 - D&S	118.00	20	30
WP 6	Maximising impact	6 - OASC	122.00	7	30
		Total	**836.50**		

2.3.2   Milestones

The following table summarises the project's milestones and the key control points for the project's implementation:

Table 2 Project Milestones

Milestone Number	Milestone Name	WP	Lead beneficiary	Due Date (in months)	Means of verification
1	Establishing Governance and Communication Procedures	WP1	1 - LIBE	3	Approval of the finalized project governance structure document and successful internal communication channels and document repository usage.
2	Implementation of Risk Management and Responsible Innovation	WP1	1 - LIBE	6	Approval of the updated Risk Analysis and Mitigation Plan, documentation and

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Milestone Number	Milestone Name	WP	Lead beneficiary	Due Date (in months)	Means of verification
					execution of specific mitigation plans.
3	Data source catalogue and requirements established	WP2	10 - DNET	6	A list of required data sources for all use cases documented with integration requirements, meta-data and sharing terms.
4	Data source integrated into data space	WP2	10 - DNET	12	All data sources successfully onboarded on UDX with sharing controls to allow cities to expose data sources into the SENSE data space.
5	Beta version of the portal ready for testing	WP3	3 - DDAO	10	D3.1, D3.2
6	Deployment of the orchestration system	WP3	3 - DDAO	18	D3.3, D3.4
7	Operationalizing 1st SENSE Iteration	WP4	1 - LIBE	16	D4.1, D4.2 Draft Documents (structure, tags, outline)
8	Operationalizing 1nd SENSE Iteration	WP4	1 - LIBE	22	D4.3, D4.4 Documents
9	Detailed analysis of Follower cities on their position on the Path to Digital Transition	WP5	4 - D&S	21	Documentation is sent to stakeholders on M21
10	Definition of content for the CitiVerse Training Academy	WP5	4 - D&S	24	All contents of the CitiVerse Academy and MasterGuide are defined
11	Resources	WP6	5 - KIEL	9	1. Capacity and Quality checks 2. DataSpace deployed and tests 3. API live stream
12	Media	WP6	6 - OASC	18	1. Analytic report 2. Strategy revised
13	Results	WP6	6 - OASC	24	1. List of potential standards 2. Outline of 2 papers 3. Status report

2.3.3 Gantt

ACTIVITY	YEAR 1				YEAR 2				YEAR 3	
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Task 1.1 - Establishing Governance and communication procedures	■	■	■	■	■	■	■	■	■	■
Task 1.2 - Organizing meetings and projects management tools	■	■	■	■	■	■	■	■	■	■
Task 1.3 - Monitoring project progress and quality	■	■	■	■	■	■	■	■	■	■
Task 1.4 - Risk management and responsible innovation	■	■	■	■	■	■	■	■	■	■
Task 1.5 - Secure information handling in project management	■	■	■	■	■	■	■	■	■	■
Task 1.6 - Budget management, reporting and administration	■	■	■	■	■	■	■	■	■	■
Task 2.1 - Understanding EU data standards and develop the CitiVerse Standards and Model Register	■	■	■	■						
Task 2.2 - Establishing interoperable local city data ecosystem	■	■	■	■						
Task 2.3 - Bridging local data ecosystem with EU data spaces	■	■	■	■						
Task 2.4 - Asset management, privacy, cybersecurity & identity management	■	■	■	■						
Task 3.1 - Data and service market place portal		■	■	■	■	■				
Task 3.2 - Design an interoperable architecture and Federated Catalogue ensuring Gaia-X Compliance		■	■	■	■	■				
Task 3.3 - SENSE technology stack integration		■	■	■	■	■				
Task 3.4 - Implement trust mechanisms with SSI, Secure Data Transactions, and Automated Contracting		■	■	■	■	■				
Task 3.5 - Develop and AI Orchestration layer using Compute-to-Data		■	■	■	■	■				
Task 3.6 - Integrating 3D assets and plug-in data streaming		■	■	■	■	■				

Task											
Task 4.1 - CitiVerse front-end deployments in Frontrunner cities			■	■	■	■	■	■	■	■	
Task 4.2 - Scenario definition			■	■	■	■	■	■	■	■	
Task 4.3 - Scenario modelling			■	■	■	■	■	■	■	■	
Task 4.4 - Use case scenario implementation			■	■	■	■	■	■	■	■	
Task 4.5 - Testing			■	■	■	■	■	■	■	■	
Task 4.6 - Re-iteration			■	■	■	■	■	■	■	■	
Task 5.1 - Contextualisation							■	■	■	■	
Task 5.2 - Compliance monitoring							■	■	■	■	
Task 5.3 - Training and coaching							■	■	■	■	
Task 5.4 - Exploitation strategy							■	■	■	■	
Task 5.5 - Replication and readiness							■	■	■	■	
Task 6.1 - Community engagement			■	■	■	■	■	■	■	■	
Task 6.2 - Academy			■	■	■	■	■	■	■	■	
Task 6.3 - Workshops			■	■	■	■	■	■	■	■	
Task 6.4 - Conferences			■	■	■	■	■	■	■	■	
Task 6.5 - Media presence			■	■	■	■	■	■	■	■	
Task 6.6 - Standardisation			■	■	■	■	■	■	■	■	
Task 6.7 - GitHUB			■	■	■	■	■	■	■	■	
Task 6.8 - Collaboration			■	■	■	■	■	■	■	■	
Task 6.9 - Cluster support			■	■	■	■	■	■	■	■	

Figure 1 Project Gantt

2.4 Project Representatives

2.4.1 Consortium representatives

The following table summarizes the partners of the SENSE consortium.

Table 3 Consortium representatives

Number	Role	Short Name	Legal Name	Country	PIC
1	COO	LIBE	LIBELIUM LAB SL	ES	949752221
2	BEN	CART	AYUNTAMIENTO DE CARTAGENA	ES	898446108
3	BEN	DDAO	DELTADAO AG	DE	882383587
4	BEN	D&S	DREES & SOMMER SE	DE	940356995
5	BEN	KIEL	LANDESHAUPTSTADT KIEL	DE	897400351
6	BEN	OASC	OPEN & AGILE SMART CITIES	BE	914842115
7	BEN	MAAS	MOBILITY AS A SERVICE ALLIANCE	BE	880027748
8	BEN	GALW	UNIVERSITY OF GALWAY	IE	999978045
9	BEN	KIELM	KIEL-MARKETING EV	DE	879158143
10	BEN	DNET	DUNAVNET LIMITED	IE	997729585
11	BEN	NUR	NUROGAMES GMBH	DE	969034463

2.4.2 Project Management Board

The PMB is in charge of the project's operational coordination. It consists of the WP leaders and technical people responsible for each party. Chaired by the Project Coordinator (PC), the Board supervises the progress of the WP's work. It aligns the efforts with a common work plan, ensuring a smooth implementation of the project objectives. It meets regularly (remotely or physically) and works proactively between the meetings. A simple majority makes decisions, but any member can raise an issue with the General Assembly.

Table 4 Project Management Board

WP	Organisation	Participant
1 Project Management & coordination	LIBE	Antonio J. Jara Juan Francisco Inglés
2 Co-creating interoperable data foundations	DNET	Alex Gluhak Srdjan Krčo
3 CitiVerse Development	DDAO	Kai Meinke Frederic Schwill

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![SENSE logo]

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4 Frontrunner cities and scenarios	LIBE	Antonio J. Jara Juan Francisco Inglés
5 Follower cities, adoption and exploitation	D&S	Minu Tegethoff Helmut Strobel Christopher Stanfield
6 Maximing impact	OASC	Margarida Campolargo Arnaud Verstraete

3 Project Resources

This section summarises the project personnel resources, measured in person-months. Other sections of the document describe other project resources, such as development tools, code repository, the project communication infrastructure, or any supporting means.

3.1 Effort per WP

This section summarises the project's staff costs in total € and person-months, providing an overview of the entire effort allocation according to the WP breakdown structure of the project established in the GA:

Table 5 Project Effort Distributed per WPs

Staff effort per participant							
Participant	WP1	WP2	WP3	WP4	WP5	WP6	Total PMs
1 - LIBE	80.00	25.00	28.00	30.00	20.00	20.00	203.00
2 - CART	15.00	6.00	14.00	18.00	5.00	7.50	65.50
3 - DDAO	7.50	12.00	28.00	18.00	5.00	7.50	78.00
4 - D&S	7.50	6.00	14.00	12.00	20.00	15.00	74.50
5 - KIEL	7.50	1.00	2.00	2.00	2.00	1.50	16.00
6 - OASC	15.00	6.00	7.00	6.00	14.00	24.00	72.00
7 - MAAS	7.50	3.00	1.00	6.00	5.00	7.50	30.00
8 - GALW	7.50	3.00	7.00	0	5.00	7.50	30.00
9 - KIELM	7.50	2.00	0	4.50	2.00	4.00	20.00
10 - DNET	10.00	30.00	33.00	23.00	20.00	20.00	136.00
11 - NUR	7.50	20.50	28.00	28.00	20.00	7.50	111.50
Total Person-Months	**172.50**	**114.50**	**162.00**	**147.50**	**118.00**	**122.00**	**836.50**

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4 Project Management

4.1 Project Governance

Project governance is the foundational management framework that outlines how project decisions are made. The structure of project governance delineates the key participants in the project, their roles, responsibilities, and how they interact throughout the project's lifecycle. This framework is designed to facilitate effective project evaluation, control, and decision-making, all while fostering active participation, motivation among all partners, and the timely resolution of conflicts. The ultimate goal is to create an environment that ensures the project's success and promotes collaborative and harmonious engagement among all stakeholders.

4.1.1 Management Structure and Procedures

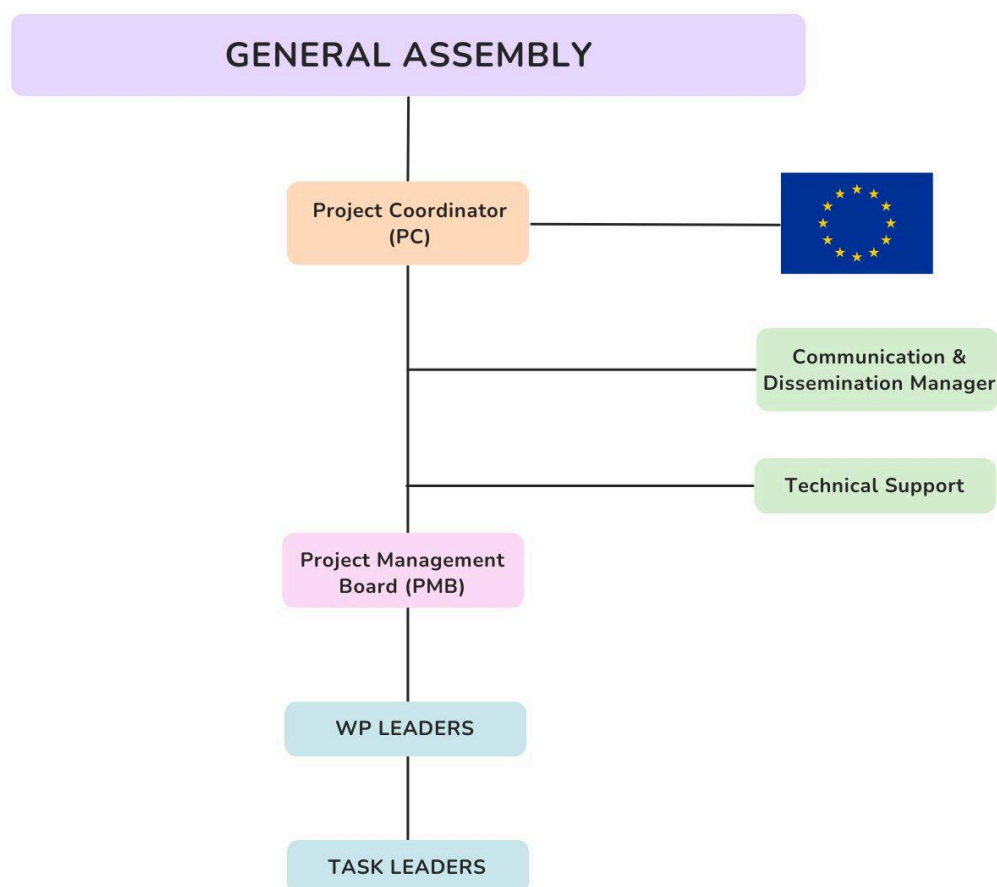The overall management structure is presented in the following figure:

Figure 2 Project Management Structure

The following table presents each role and its members. For a description of each role assigned tasks and responsibilities, please refer to the GA Annex I.

Table 6 Project Governance Roles

Role/Group	Partners
General Assembly	All consortium partners – One representative of each Party
The project coordinator (PC)	LIBE
Technical Support	LIBE, DNET, DDAO, NUR, GALW
The quality manager (QM)	LIBE
The dissemination & communication manager (DCM)	LIBE
Project Management Board (PMB)	ALL WP leads or substitutes, up to two people per partner
Work Package Leaders (WPL)	LIBE, DNET, DDAO, D&S, OASC

4.1.2 Decision-making process

The General Assembly, the decision-making body of the consortium, consisting of one representative of each Party, shall be free to act on its own initiative to formulate proposals and take decisions following the procedures set out herein.

The General Assembly shall take the following decisions:

- Content, finances and intellectual property rights.

    o Proposals for changes to Annexes 1 and 2 of the Grant Agreement to be agreed by the Granting Authority, such as changes resulting from suggested reallocation of tasks and budget by the Work Package Leaders.

    o The percentage of work package completion per work package as well as per Party to be reported to the Granting Authority based on the assessment by the Work Package Leaders Group regarding the individual performance of single Parties in case of non-completion of work packages.

    o Modifications or withdrawal of Background in Attachment 1 (Background Included).

    o Additions to Attachment 3 (List of Third Parties for simplified transfer according to Section 8.3.2)

    o Additions to Attachment 4 (Identified entities under the same control).

- Breach, defaulting party status and litigation.

    o Identification of a breach by a Party of its obligations under this Consortium Agreement or the Grant Agreement.

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- o Declaration of a Party to be a Defaulting Party.

- o Remedies are to be performed by a Defaulting Party.

- o Termination of a Defaulting Party's participation in the consortium and measures relating to it.

- o Steps to be taken for litigation purposes and the coverage of litigation costs in case of joint claims of the Parties of the consortium against a Party (e.g. Section 7.1.4)

The PMB oversees the project's operational coordination. It consists of the WP leaders and technical responsible people from each Party. Chaired by the Project Coordinator (PC), the Board supervises the WP's progress and aligns the efforts with a common work plan, ensuring a smooth implementation of the project objectives. It meets regularly (remotely or physically) and works proactively between meetings. A simple majority makes decisions, but any member can raise an issue with the General Assembly.

4.1.2 Conflict resolution

The consortium prioritises preventing unnecessary conflicts. However, if conflicts do arise, a well-defined conflict resolution and escalation process is in place to address them appropriately. This process emphasises resolving conflicts at the lowest possible level, with each conflict being addressed, mediated, or decided at progressively higher levels of authority.

Conflicts within the consortium will be resolved through dialogue and mutual concession. The process starts at the Task level under the management of the Task Leader (TL), then proceeds to the Work Package (WP) level under the management of the Work Package Leader (WPL) and continues through the management bodies up to the General Assembly. Additional rules regarding conflict resolution are detailed in the Consortium Agreement.

If necessary, the Project management board will convene a conflict resolution meeting within fifteen (15) calendar days upon receiving a written request from any partner or project body. Arbitration attempts will be conducted in increasing order of authority:

- first within the team of each work package under the management of the Work Package Leader and
- then within the Project Coordination Committee.

This structured approach ensures a systematic and fair process for addressing conflicts within the consortium.

4.2   Project Communication

The primary objective of internal communication is to ensure that all members of the consortium and working groups within the project have access to the necessary information to make well-informed decisions and maximise their contributions. Effective internal communication is crucial for achieving the project's expectations and objectives.

The Key objectives of internal communication include:

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1. **Awareness of the project's vision and objectives:**
   - Ensuring that all consortium members are well-informed about the project's vision and objectives.
2. **Effective communication of the project's decisions:**
   - Ensuring that all project decisions are communicated clearly and effectively to consortium members.
3. **Understanding and adherence to policies and procedures:**
   - Ensuring that all consortium members understand and know how to follow the policies and procedures related to their participation in the project.
4. **Knowledge of resources and updates:**
   - Ensuring that all consortium members are familiar with the resources available and updates and developments in programmes beyond their own.
5. **Feedback mechanism:**
   - Providing a mechanism for consortium members to offer feedback to management through formal channels.

Communication is managed by implementing certain rules, concerning in particular:

1. **Organisation of official meetings:**
   - Conducting official meetings such as the General Assembly and project coordination team meetings.
2. **Meeting organisation rules:**
   - Establishing rules for meeting organisations tailored to the project's needs, including creating pre-agendas and meeting minutes for comments and approval.
3. **Information sharing rules:**
   - Providing and maintaining information at all project levels.
4. **Electronic repository:**
   - Information can be shared through an electronic repository accessible to all consortium members.
5. **Project mailing lists:**
   - Utilising project mailing lists for efficient communication.
6. **Use of standard document templates:**
   - Implementing standard document templates to ensure uniformity of information and easy identification of documents.
7. **Type of font.**
   - The official type of font is the Arial family.

By adhering to these communication strategies and rules, the project aims to foster a transparent and efficient flow of information, contributing to the collaboration's overall success.

4.2.1 Contact list

The contact list includes the contact information of every person involved in the project from all consortium partners.

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The project coordinator is responsible for keeping this table up to date throughout the project's duration, and the partners must be informed about the changes in due time. To facilitate this, the contact list will be managed in a separate file within the project repository. This approach ensures a centralised and easily accessible location for maintaining accurate and current contact details for all project participants. The contact list includes members of each work package.

4.2.2 Emails and emailing lists

Mailing lists serve as the primary mode of interpersonal communication within the project. The key objectives of these lists are to offer a convenient and rapid means of communication for project members while maintaining a record of communications and archives of exchanged information. Mailing lists are utilised for various purposes, including scheduling meetings, distributing documents or information, and facilitating general questions and answers. By leveraging mailing lists, the project ensures efficient and organised communication, fostering collaboration among team members.

4.2.2.1 Use of emailing lists

Mailing lists are the main means of internal communication within the project. The objectives of the mailing lists are to provide an easy and fast way to communicate with the other project members. The project has set up different mailing lists for each Work package.

Appropriate uses of mailing lists include scheduling meetings, forwarding documents or other information, and general questions and answers.

Table 7 Project emailing lists

Name	Purpose
sensel	General purposes related to the project
sense.wp1	Administrative, legal, and financial issues
sense.wp2	Issues related to the WP2
sense.wp3	Issues related to the WP3
sense.wp4	Issues related to the WP4
sense.wp5	Issues related to the WP5
sense.wp6	Issues related to the WP6

4.2.2.2 Communication rules

For a suitable use of the mailing lists, the rules below are to be followed by all partners:

- SUBJECT (please include the acronym of the project at the beginning of the subject line and then the relevant subject: *[SENSE] Subject*
- If the subject involves a WP, add the corresponding WP*X*. For example, *[SENSE WPX] Subject*

- Use a clear Subject title. The subject should be a clear indication of the content (for example, "WP1", "Meeting minutes 2024-12-15 "). It is highly recommended to keep a record of the conclusions and decided actions of the e-mail.
- ATTACHMENTS. Avoid attachments as much as possible in your e-mails, using a link to the repository instead.

4.2.3 Project repositories

The project repository is the central hub for storing all project-related documentation. It facilitates the storage, review process, information sharing, and collaborative work among all partners to achieve common project goals. It is a comprehensive resource for information essential for the project's success.

All pertinent information related to the project will be housed in this repository. This includes contractual documents such as the Grant Agreement (GA) and Consortium Agreement (CA) and any amendments. Additionally, documentation related to reviews, reporting, contact details, templates, working documents for deliverables, internal working papers, agendas, meeting minutes, and more are all integral parts of the repository. Importantly, the final versions of all deliverables are to be uploaded to ensure a complete and organised record of the project's outcomes. It also includes all communication and dissemination activities. The repository thus plays a pivotal role in streamlining communication, collaboration, and documentation management throughout the project's lifecycle.

4.2.3.1 Structure

At the moment, the project repository is on MS SharePoint. The repository is organised in folders:

- Grant Agreement
- Consortium Agreement
- One for each Work package
- Deliverables
    o Pending approval
    o Approved deliverables
- Meetings
- Project templates
- Guidelines and important documents to follow
- …

4.2.3.2 Management and Maintenance

While the repository is on MS SharePoint, LIBE is responsible for its overall maintenance, ensuring its functionality and organisation. Work Package leaders are responsible for organising documents related to their respective Work Packages within the repository. This includes coordinating the storage and accessibility of relevant materials tied to their designated areas of the project.

Deliverable editors are crucial in maintaining updated versions of the corresponding deliverables within the repository. Their responsibility involves ensuring that the most current

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and accurate information regarding project deliverables is available in the repository, contributing to the overall completeness and coherence of project documentation.

This distribution of responsibilities among LIBE, Work Package leaders, and Deliverable editors ensures a structured and collaborative approach to managing the project repository, optimising efficiency in document organisation and version control.

4.2.3.3 Technology

We will use MS SharePoint, including the Online MS Tools, such as spreadsheets, documents, and slides, which have been designed for real-time collaboration between team members. This system allows access to personal and shared files or folders wherever the user may be.

4.2.4 Meetings and Procedures

Meetings (online or in person) are used to report and verify the status of the project, its work packages, and deliverables. Talking about specific project issues and for decision-making.

E-mail and teleconferences shall be used as the main options for solving issues on a day-to-day operative basis.

At least one party representative should be present or represented at any meeting where they are required.

The Parties shall participate cooperatively in the meetings.

4.2.4.1 Rules for the organisation of meetings

The rules for conducting meetings must be the following:

- establish the points of the agenda in advance
- involve the necessary partners
- ensure that all partners contribute and can participate
- Concentrate on agenda issues
- generate minutes and upload them to the folder in the repository

4.2.4.2 Convening meetings

The person responsible for the General Assembly shall convene ordinary meetings of the General Assembly at least once a year and shall also convene extraordinary meetings at any time upon written request of any Member of the General Assembly.

The PMB shall convene ordinary meetings at least quarterly and extraordinary meetings at any time upon written request of any Member of the PMB.

4.2.4.3 Notice of a meeting

Anyone responsible for the General Assembly, PMB, WPs, Tasks, etc shall give written notice of a meeting to each Member of the relevant group as soon as possible and no later than the minimum number of days preceding the meeting as indicated below.

	Ordinary meeting	Extraordinary meeting
General Assembly	30 calendar days	15 calendar days
Project Management Board	14 calendar days	7 calendar days

4.2.4.4 Sending the agenda:

The person responsible for the groups being summoned to a meeting shall prepare and send each Member of the group an agenda no later than the minimum number of days preceding the meeting, as indicated below

General Assembly	15 calendar days, 7 calendar days for an extraordinary meeting
Project Management Board	7 calendar days

4.2.4.5 Adding agenda items:

Any agenda item requiring a decision by the Members must be identified as such on the agenda.

Any Member may add an item to the original agenda by written notice to all other Members no later than seven calendar days preceding the meeting and two days preceding an extraordinary meeting.

During a meeting, the Members present or represented can unanimously agree to add a new item to the original agenda.

4.2.4.6 On-line meetings

Meetings may also be held via videoconference or other telecommunication means.

4.2.4.7 Decisions after the meeting

Decisions will only be binding once the relevant part of the minutes has been accepted according to Section 6.2.2.6 of the CA

4.2.4.8 Decisions without a meeting

Any decision may also be taken without a meeting if

- the Coordinator circulates to all Members of the relevant group a suggested decision with a deadline for responses of at least ten calendar days after receipt by a Party and
- the decision is agreed upon by 51 % of all Parties.

Failure to respond by the deadline shall be deemed a non-vote for applying the quorum and majority requirement.

The Coordinator shall inform all the Members of the outcome of the vote.

A veto may be submitted up to fifteen calendar days after receipt of this information.

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The decision will be binding after the Coordinator sends a notification to all Members. The Coordinator will keep records of the votes and make them available to the Parties on request

4.2.5 Minutes of a Meeting

The chairperson shall produce minutes of each meeting, which shall be the formal record of all decisions made. They shall upload the draft minutes to the repository within ten calendar days of the meeting.

The minutes shall be accepted if, within fifteen calendar days of publication in the repository, no Party has sent an objection to the chairperson concerning the accuracy of the draft minutes by written notice.

The accepted minutes shall be stored in the repository.

4.2.6 Meeting roles

The main roles to be mentioned are:

- The **Meeting Chair** is the person/role in charge of steering the meeting.
  - The Project Coordinator is the chair of the General Assembly and the Project Management Board.
  - The WP leader is the chair of meetings at WP level.
  - The Task leader is the chair of the meetings at Task level.

- The **Host** is the organisation in charge of face-to-face meeting preparations and supporting the meeting chair on site. This includes reserving a suitable venue with the necessary facilities for the expected attendees and providing them with logistic and accommodation information. The host role will rotate during the project's lifetime.

- An **attendee** is any stakeholder who participates in the meeting. Attendees will follow the host's instructions concerning the requirements to attend the session (for example, security policies).

4.2.6.1 General Assembly Meetings

The Project Coordinator must chair the General Assembly Meetings and should cover all major issues (technical and non-technical) proposed by consortium members. The project coordinator will summon dedicated General Assembly meetings, when necessary, but there will be at least one per year (these meetings can be in person or online). A consortium partner can send more than one representative to a General Assembly meeting, but there will be one vote per organisation. (Please refer to CA).

4.2.6.2 Project Management Board

The Project Coordinator must chair the Project Management Board meetings, which will usually be online. They are planned for every month and/or upon the request of any of the members.

These meetings will involve day-to-day project management and the implementation of work packages.

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4.2.6.3 Other level meetings (WPs, Tasks, etc)

These meetings are usually technical meetings held with a WP leader, task leaders, deliverable editors, and any other partner who could contribute to the issue of the meeting.

The work package leader decides the frequency of the meetings, but it is advisable to celebrate a meeting at least once monthly, preferably via videoconference.

In a monthly call, the agenda should be sent at least one week in advance, and the meeting minutes should be produced within seven days after the meeting.

WPLs chair WP meetings. TLs or individual partners may set up additional technical meetings after informing the WPL. All meetings will be documented by minutes, including the names of those attending and listing major decisions and actions to be taken. Meeting agendas, individual to-do lists, and other important project information will be accessible via the collaboration platform for remote teamwork.

4.3   Project Monitoring

The main goal of project monitoring is to ensure that the parties comply with their obligations, that the project follows its timeline, and that it is on budget. The Project Coordinator, with the support of the Project Management Board, is responsible for this.

The timeline will follow the project's work plan and budget set out in the DoA.

4.4   Technical Monitoring

The main goal of this process is to ensure that the project's technical goals are achieved. Technical Support oversees this process with the support of the PCs and WPLs.

4.5   Contractual Management

Contractual management ensures the project follows the terms and conditions of the Grant Agreement and implements the activities and tasks set out in the project.

It covers:

- Changes in the consortium configuration, such as including or withdrawing beneficiaries or third parties.
- Changes in the project's technical scope affecting the Description of Action.
- Changes in the Consortium Agreement.
- Contract closing.

The Project Coordinator oversees the processing and coordination of any amendment on behalf of the consortium and is also responsible for transferring any contractual change to the project plan.

4.6 Administrative and Financial Reporting

4.6.1 Reporting to the EC

4.6.1.1 Continuous reporting

The beneficiaries must continuously report on the progress of the action (e.g. **deliverables, milestones**, **outputs/outcomes, critical risks, indicators,** etc., if any) following the timing and conditions set out in the Gran Agreement and its Annex 1 (as agreed with the granting authority).

Standardised deliverables (e.g. progress reports not linked to payments, reports on cumulative expenditure, special reports, etc, if any) must be submitted **using the templates communicated by the granting authority.**

4.6.1.2 Periodic reporting: Technical reports and financial statements

In addition, the beneficiaries must provide reports to request payments following the schedule and modalities set out in the GA's Data Sheet:

- for interim payments (if any) and the final payment: a **periodic report**.

The prefinancing and periodic reports include a technical and financial part.

The technical part includes an overview of the action implementation. It must be prepared using the template **communicated by the granting authority.**

The financial part of the additional prefinancing report includes a statement on using the previous prefinancing payment.

The financial part of the periodic report includes:

- the detailed costs reporting table (Annex 4 of the GA)
- the certificate on the financial statements (CFS) (see Article 24.2 and Data Sheet, point 4.3) – if the requested EU contribution of the beneficiary is ≥ EUR 325000.

All eligible costs and contributions incurred should be declared, even if they exceed the amounts indicated in the estimated budget (see Annex 2 of the GA). The granting authority will only consider amounts declared in the individual financial statements.

By signing the detailed cost reporting tables, the beneficiaries confirm that:

- the information provided is complete, reliable and true
- the costs and contributions declared are eligible (see Article 6 of the GA)
- the costs and contributions can be substantiated by adequate records and supporting documents (see Article 20 of the GA) that will be produced upon request (see Article 19 of the GA) or in the context of checks, reviews, audits and investigations (see Article 25 of the GA)
- for the final periodic report, all the revenues have been declared (if required; see Article 22 of the GA).

Beneficiaries must also submit their affiliated entities' detailed cost reporting tables (if any). In case of recoveries (see Article 22 of the GA), beneficiaries will be held responsible for their affiliated entities' financial statements.

The Funding and Tender Opportunities platform offers an online manual containing all the information relevant to the project implementation at the administrative and financial level, specifically, all the information related to financial issues, personnel cost calculation and cost eligibility. It can be accessed here:

https://webgate.ec.europa.eu/funding-tenders-opportunities/display/OM/Online+Manual

Each partner will need to:

- Complete the individual Financial Statement (including its third parties, if any), including an explanation of the use of resources and information on subcontracting and in-kind contributions provided by third parties from each beneficiary for the reporting period concerned. This includes a PM breakdown per WP.
- Electronically sign and submit their Financial Statements to the Coordinator. The FSIGN must do this through the portal.

For more information on how to provide REPORTING, please refer to Article 21 of the GA.

Table 8 Periodic Reporting Schedule

	PERIOD	REQUEST INPUTS	CONTRIBUTIONS	FINAL VERSION
Periodic reporting 1	M1-M18	M16	M18-M19	M19
Periodic reporting 2	M19-M30	M28	M30-M31	M31

4.6.2 Internal Activity Reports and Financial Project Reports

The partners will send the coordinator internal reports on their costs and activities every six months to ensure the correct development of the project. These reports are intended for internal use and will not be submitted to the EC.

Each report should include:

- Main activities and main achievements in the last six months.
- A summary of the resources (efforts) consumed in each WP during the considered period.

These reports are designed to accumulate information over time, ensuring that data from a specific period is seamlessly integrated into subsequent reports. Their purpose extends beyond standalone documentation, as they serve as vital inputs for the comprehensive periodic reports submitted to the EC.

All the partners will fill in two different templates and compulsorily use them.

- SENSE_IAR_Template: Internal Activity report
- SENSE_FPR_Template: Financial Project Report

To generate the report, the process unfolds as follows:

Timeline: The report creation spans two to three months, initiated with the call for contributions and culminating in the final delivery. Interim reports are generated at the close of each six months, with, for instance, the M1-M6 report slated for completion by the end of M7. This temporal framework persists throughout subsequent periods. The Project Coordinator provides the templates and requests contributions 30 days before the deadline for delivering inputs (e.g., end M5 for the first report).

Template and Contribution Request: The Project Coordinator, using a foresighted approach, distributes templates and solicits contributions a month before the input deadline. This proactive step ensures a smooth and timely workflow. For instance, templates and requests are dispatched for the first report by the end of M5.

WP Leaders' Coordination: Work Package (WP) leaders collaborate with partners to summarise activities and key achievements within their respective WPs.

Input Compilation: Partners furnish their contributions within the designated template. Within this project, the IARs will be produced according to this schedule:

Table 9 Reporting Schedule

	PERIOD	REQUEST INPUTS	CONTRIBUTIONS
IAR and FPR 1	M1-M6	M5	M7
IAR and FPR 2	M7-M12	M11	M13
Periodic reporting 1	M1-M18	M16	M19
IAR and FPR 3	M19-M24	M23	M25
Periodic reporting 2	M25-M30	M29	M31

4.6.3 Budget and payments

To perform the project tasks stated in the Grant Agreement (GA), the Project Coordinator receives the funds for all partners from the EC and is then in charge of transferring the relevant amounts to each partner.

According to GA Point. 3 of the Data Sheet, the European Commission's maximum financial contribution to the project is 7.720.478,00€. At the beginning of the project, the consortium will receive a 70% prefinancing payment, which will be distributed to the partners accordingly.

Table 10 EC Payments

What	Why	When
Interim payment (If any)	Upon EC acceptance of 1st financial statement	Month 24 (once the European Commission has accepted the Periodic reports).
Final payment	Upon EC acceptance of final financial statement	Month 36 (once the project has finished and the European Commission has accepted all statements and reporting)

The project coordinator shall keep project funds in a bank account and will always keep records of the balance of available project funds.

5   Quality Assurance

The following section describes the tools that will be used to ensure the quality level of project outcomes and contractual deliverables.

5.1   Document Management Process

5.1.1   Documents language

English is the official language in these projects. Therefore, all the documents must be written in British English, using the appropriate grammar rules and a formal language. Certain dissemination material (such as press releases, newsletters, flyers, etc.) can be considered an exception to this rule and can be translated into other relevant languages for the project.

5.1.2   Documents storage

The project will share all relevant documents through an electronic project repository accessible to the consortium members. This repository will store and update all the common and shareable project information.

Work package leaders are responsible for organising the documents relevant to their Work Package. Deliverable leaders are responsible for keeping their documents. All partners contributing to a document are responsible for maintaining the document according to the guidelines included in this document and the instructions given by the deliverable leader.

5.1.3   Documents nomenclature

The deliverable leader should name all the deliverables of the project previous to the final version according to the following nomenclature:

Project_Dx.x_vm.n_[suffix]

Where:

- Project: project short name, i.e. SENSE
- Dx.x is the deliverable number as defined in the DoA: number of the work package and the deliverable number within the work package.
- vm.nn:
    - o   m: 0 for the draft versions, 1 for the final version (delivered to the EC).
    - o   n: consecutive number from 0 to 9. It can be extended to several digits if necessary.
- Suffix (optional): can be used to identify intermediate versions or contributions from partners to a draft version (never in a final version) and could include dates, short names of partners, etc.

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5.1.4   Bibliographical references

Example: Author (surname and name). (Year). Title of the article. *Title or publication channel, volume number (Issue number), page range,* https://doi.org/xx.xxx/yyyy

- Always capitalise the first word of the title and subtitle.
- Include accurate publication details.

5.1.5   Documents templates

Project documents should be based on the following templates, available in the project electronic repository:

☐ yyyymmdd_SENSE_agenda_template: meeting minutes template in MS Word.

☐ yyyymmdd_SENSE_minutes_template: meeting minutes template in MS Word.

☐ SENSE_Deliverable_template.docx: deliverable template in MS Word.

☐ yyyymmdd_SENSE_ppt_template.pptx: presentation template in MS Power Point.

Other templates will be produced when necessary.

5.2   Quality Guidelines on the Production of Deliverables

Deliverables shall report the project's results and progress. However, they should be easy for people unfamiliar with the project to read and understand.

In the deliverables:

- The red thread, the concept, and the design shall be clear throughout the deliverable.
- The language shall be easy to understand, and short sentences are preferred.
- Illustrations and figures should guide readers.
- If code samples are used, they should be moved to appendices.

The quality of the deliverables will be assessed against specific quality criteria to ensure uniformity and consistency in the review process of all deliverables and to ensure the reviewers' clear understanding of and compliance with the process. The criteria, along with the aspects to be investigated, are outlined next:

Table 11 Deliverable Review - Quality Criteria

Quality Criteria	Description
Readability	The language of the text is clear (proper sentence structure is used).
	The text is in English (UK).
	The text is unambiguous.
	The terminology, including acronyms, is explained.
	There are no spelling errors.
	Any potentially sensitive information is appropriately worded.

	Abbreviations and acronyms are explained in a separate list. Length checked.
Completeness	All aspects of the deliverable, as described in Annex I (Part A) of the GA, are fully addressed.
	Is it according to the original proposal objectives and meets the success indicator?
	Does it contain all the required chapters?
	Does the executive summary give a short, non-confidential description of the deliverables? Is it self-contained?
Consistency	Are the chapters consistent with each other?
	Is it consistent with other deliverables?
	Is it following the requirements of other WPs?
Accuracy	The respective references support all factual information used in the deliverable.
Added value	The deliverable has scientific and/or policy value, as the project envisages.
	The language of the text is useful to the targeted audience (e.g. scientists, policymakers, etc.).
Relevance	The content is relevant to the scope of the deliverable.
	The deliverable is relevant to the targeted readers/audience.
Compliance	The text is written in line with the deliverable template.

5.3 Deliverables Review

5.3.1 Roles and responsibilities

Deliverable Responsible: They allocate tasks to and coordinate the contributors' work. They are responsible for consolidating all contributors' inputs into the draft deliverable to be submitted for review and publication. They prepare the deliverable's Table of Contents (ToC).

Deliverable contributors: They are responsible for drafting part of the deliverable, as per the allocation of tasks performed and delivering their inputs timely to the Deliverable Leader.

Project Management Board (PMB) and WP Leader: The PMB and the WP Leader will be involved in the review process, meaning they approve the ToC and the final deliverable. The latter is a last quality check before the official submission to the European Commission, assuring that the deliverable complies with the template and that the deliverable is ready to be sent, including that the text is free of spelling/grammar/syntactic/semantic errors, as well as of comments, and highlighted text. Other aspects (page numbering and table of contents, figures, tables, etc.) will also be checked.

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5.3.2 Deliverable review process

All involved roles are responsible for delivering the review schedule on time.

The process starts with the deliverable leader delivering the Table of Contents (ToC) of the deliverable.

The WP leader, TMs, and the PC are responsible for approving the ToC.

- The final ToC must be set **ninety days before the deliverable due date.**

- A first draft of the deliverable must be produced with all contributions from the partners involved **at least sixty days before its due date.**

From here, the WP leader will continue working with the partners to produce the different versions that will take the document to the pre-final version.

- **One month before the due date**, the Deliverable responsible will send the Deliverable to the assigned reviewers, who will have **15 days to review it**. Then, the deliverable will be returned to the Deliverable Leader, who will have **seven days** to amend any comments, etc.

- The Deliverable Leader will send the revised version to the PC for the final check at least **seven days before the due date.**

Delays shall be announced as early as possible. In case of deviations, mitigation measures shall be proposed by the responsible party. The same shall apply in case of quality issues that cause iterations of corrections.

Table 12 Deliverables

Deliverable No	Deliverable Name	WP	Lead Beneficiary	Type	Dissemination Level	Due Date (MX)
D1.1	Project Governance Structure Document	WP1	LIBE	R	PU - Public	3
D1.2	Handbook for Project Management	WP1	LIBE	R	PU - Public	6
D1.3	Progress Report v1	WP1	LIBE	R	SEN - Sensitive	15
D1.4	Progress Report v2	WP1	LIBE	R	SEN - Sensitive	30
D1.5	Risk Management and Compliance Analysis Reports	WP1	LIBE	R	SEN - Sensitive	12
D1.6	Ethics report on Humans, Personal Data and Artificial Intelligence v1	WP1	LIBE	R	SEN - Sensitive	15

D1.7	Ethics report on Humans, Personal Data and Artificial Intelligence v2	WP1	LIBE	R	SEN - Sensitive	30
D2.1	SENSE Standards Register	WP2	LIBE	R	PU - Public	6
D2.2	Privacy, Cybersecurity & Identity Management Recommendations	WP2	D&S	R	SEN - Sensitive	9
D2.3	Data source catalogue and integration requirements	WP2	DNET	R	PU - Public	6
D2.4	Data space integrations	WP2	DNET	DEM	SEN - Sensitive	12
D3.1	Fully functional data and service marketplace portal	WP3	DDAO	DMP	SEN - Sensitive	12
D3.2	Launched Gaia-X compliant architecture and catalogue	WP3	DDAO	DMP	SEN - Sensitive	12
D3.3	Integrated trust framework and automated contracting system	WP3	DDAO	DMP	SEN - Sensitive	15
D3.4	Fully implemented AI orchestration layer in SENSE	WP3	DDAO	DMP	SEN - Sensitive	18
D4.1	SENSE scenarios	WP4	LIBE	R	PU - Public	12
D4.2	Operational SENSE	WP4	LIBE	R	SEN - Sensitive	18
D4.3	Technical guidelines	WP4	LIBE	R	PU - Public	20
D4.4	Recommendations on best practices	WP4	LIBE	R	PU - Public	26
D5.1	Guide towards CitiVerse (for each Follower City)	WP5	D&S	R	SEN - Sensitive	23

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D5.2	Guide towards CitiVerse (Master)	WP5	D&S	R	PU - Public	30
D5.3	SENSE Academy Curriculum	WP5	D&S	R	PU - Public	24
D6.1	Engagement report v1	WP6	KIEL	R	SEN - Sensitive	12
D6.2	Engagement report v2	WP6	KIEL	R	SEN - Sensitive	24
D6.3	City x City Academy v1	WP6	OASC	R	PU - Public	24
D6.4	City x City Academy v2	WP6	OASC	R	PU - Public	30
D6.5	Final report on SENSE Workshop	WP6	D&S	R	SEN - Sensitive	18
D6.6	Final report on SENSE Workshop v2	WP6	D&S	R	SEN - Sensitive	24
D6.7	Final report on SENSE Workshop v3	WP6	D&S	R	SEN - Sensitive	30
D6.8	Final Conference	WP6	OASC	OTHER	PU - Public	28
D6.9	Dissemination, exploitation and communication (DEC) plan	WP6	OASC	R	PU - Public	7
D6.10	Dissemination, exploitation and communication (DEC) plan v2	WP6	OASC	R	PU - Public	15
D6.11	Dissemination, exploitation and communication (DEC) plan v3	WP6	OASC	R	PU - Public	30
D6.12	Standards report	WP6	GALW	R	SEN - Sensitive	30
D6.13	SENSE GitHub	WP6	DDAO	OTHER	PU - Public	12
D6.14	Best practices final report	WP6	OASC	R	PU - Public	30

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6   Risk Management

Risk scenarios are uncertain events or conditions that, if they occur, have a positive or a negative effect on the project outcome. A risk has a cause and, if it happens, a consequence. The risk management process is vital for any project to anticipate situations that can affect the normal progress or even jeopardise the project's continuation. This anticipation will provide the SENSE consortium with enough information to make decisions accordingly and act beforehand to minimise the impact of the risks identified.

This section defines how risks associated with the SENSE project will be identified, analysed, and managed. It outlines how risk management activities will be performed, recorded, and monitored throughout the project's lifecycle and provides templates and practices for recording and prioritising risks.

6.1   Risk Management Process

Risks will be constantly assessed and evaluated throughout the project. The risk management methodology consists of four steps:

    a. Risk identification
    b. Risk quantification
    c. Risk response
    d. Risk control and report

6.1.1   Risk identification

Risk involves discovering risks. All partners must continuously identify risk scenarios using all the project documents, discussions, and technologies, the partner's technical expertise, and the project implementation experience. Risks comprise actions/events that can compromise the project's schedule, costs, and outcomes.

6.1.2   Risk quantification

A qualitative risk quantification will be performed regularly for each risk. The analysis will involve identifying the impacts and likelihood of occurrence, calculating the risk level and prioritising the risk for a response plan if the risk is HIGH.

6.1.3   Risk response

This means implementing the appropriate measures to deal with the risk. For each identified risk, one of the following risk mitigation approaches will be put into place to address it:

- Avoid – Eliminate the threat by eliminating the cause.
- Mitigate – Identify ways to reduce or limit the risk's likelihood or impact.
- Accept – Nothing will be done. This approach is rejected if there are other possibilities.
- Transfer – Make another party responsible for the risk (buy insurance, outsourcing, etc.).

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6.1.4   Risk control and report

Each risk level will be tracked and monitored, ensuring adequate risk management throughout the project lifespan. This will be done during the PMB meetings.

The PMB prepares rolling minutes to analyse all the risks monthly. This document is in the repository.

6.2   Plan Risk Management

Every team member is responsible for managing risks in their activities. However, given SENSE's managing structure, the key persons for timely risk communication are WP Leaders, who are members of the PMB and identified as potential Risk Owners (RO).

Risk identification involves discovering risks. All partners must continuously identify risk scenarios using all the project documents, discussions, and technologies, the partner's technical expertise, and the project execution experience. Whenever a partner identifies a risk, the relevant information must be communicated to the Project Management Board (PMB) and the Project Coordinator (PC). Identified risks shall be communicated to the respective WP Leader, and the PMB and the Project Coordinator must be informed.

Risk Identification is a continuous task. All WP Leaders survey the tasks and sub-tasks leaders of their WP monthly to identify new or foreseen risks that have happened or may happen. In case of a new risk or foreseen risk happening. WP Leaders are responsible for ensuring the identified risk is included in the risk register (see section 6.6, Table 13).

A qualitative Risk Quantification will be performed regularly for each risk with the partner who identified it, the Risk Owner, i.e., the WP Leader, the Project Management Board, and, if required, with the support of other partners and consortium members. A short risk assessment session will be organised within project meetings.

Risk response involves the PMB, the Risk Owner / WP Leader and the partner responsible for implementing resolution actions. The Risk Owner, supported by the PMB and any other Consortium member deemed relevant, sets up a risk mitigation strategy. Furthermore, the RO is responsible for ensuring that the resolution actions are implemented to mitigate the risk and are appointed by the PMB.

The Risk Owner and the partner responsible for the resolution action(s) will control risks. All risks and resolution plans will be documented in the project risk register during the project's lifetime.

All risks can be followed in the rolling minutes of the PMB meetings.

6.3   Risk Identification

During the project preparation phase, possible risks and mitigation measures were identified and set out in the proposal.

The following issues shall be considered as tools and techniques for risk identification:

- Analysis of the deliverable status

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- Analysis of WP schedules and scopes

Regular communications between the WP leaders and the Project Management Board will ensure risks can be anticipated. Each participant is responsible for informing the WP Leader(s) and the Management Board about new potential threats.

6.4 Risk Quantification

All risks identified will be quantified to identify the range of possible project outcomes. The qualification will determine which risks are the top to pursue and respond to and which risks can be ignored. The likelihood and impact of occurrence for each identified risk will be assessed by the project coordinator, with input from the partner who identified the risk and, if required, with support from other partners and consortium members, using the following classification:

Likelihood

- High (values 8-10) – greater than 70% probability of occurring;
- Medium (values 4-7) – between 30% and 70% probability of occurring;
- Low (values 1-3) – less than 30% probability of occurring

Impact

- High (values 8-10) – Risk that has the potential to impact project cost (>30%) greatly, project schedule (>6 months delay) or performance (30%);
- Medium (values 4-7) – Risk that has the potential to impact project cost moderately, project schedule or performance (between low and high);
- Low (values 1-3) – Risk that has relatively little impact on cost (<10%), schedule (<2 months delay) or performance (5%);

6.5 Response Planning Strategy

The risk response planning strategy presents a strategy for tackling the threats resulting from risks. It is a contingency plan that assigns roles and responsibilities and provides a response framework for Risk Owners.

6.6 Control and Reporting

All SENSE partners must communicate to the Project Coordinator and the Management Board the status and effectiveness of risks that may arise and present a mitigation plan to update the risk management register and assess the relevance of the tools. The Risk Owner will confirm the correct implementation of the risk responses and check the response's effectiveness. The risk owner will keep track of the situation and inform the Project Coordinator and the Management Board. The risk exposure will be continuously re-evaluated and modified accordingly. The new risks a partner identifies will be analysed as those on the original risk list and added to the register.

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The Risk Register is the core means of documentation of Risks and the Risk Management Process during the project. This Risk Register will be accessible to all members and include the following sections and items:

- **Risk Identification**
  - ☐ Risk ID: The identification number of the risk
  - ☐ Risk Description: The description of the risk. The standard format is suggested, "an event will occur if something is done/not done and its impact."
  - ☐ WP related: The WP in which the risk has been identified

- **Qualitative Rating**
  - ☐ Likelihood: the probability of occurring (check Table 13 for more information)
  - ☐ Impact: Potential of impacting the project (check Table 13 for more information)

- **Risk Response**
  - ☐ Risk Response: Avoid/Mitigate/Accept/Transfer (explain)
  - ☐ Risk Owner: Leader of the related WP

- **Control**
  - ☐ Overall Status: Open / Closed

The Risk Register is a living document that provides the foundation for regularly reporting risks. A risk report shall be part of the PMB meeting at least every four months and each General Assembly.

Table 13 Example of SENSE Risk Register

Risk number	Risk Description	Work Package No(s)	Proposed Mitigation Measures
1	Ineffective project management and coordination - Risk that inadequate project management and workstream coordination reduces effectiveness and delays timelines. Likelihood: Low Impact: High	WP1	Appoint experienced project management leadership, utilize mature governance frameworks providing clear roles and responsibilities, implement tools to coordinate across partners and workstreams, regularly review milestones and budgets to quickly respond to any delivery gaps. This will drive disciplined execution that delivers solutions on time and on budget.
2	Incompatible technologies, data sources, and the risk of data inconsistencies or errors due to disparate standards or protocols. Resistance or scepticism from stakeholders and slower adoption of technologies and practices, impacting project success. Likelihood: Medium Impact: High	WP3, WP2	The implementation of an inclusive system for data collection (UDX) and the consequent application of the standards that come with the GAIA-X rulebook to ensure interoperability, compatibility and seamless integration across various spaces, technologies and data sources. Provide training sessions to ensure all partners are well-versed in standardized practices and building the capacity of teams to handle the technical challenges effectively.
3	Crafting a virtual representation of a real city can involve some risks, spanning technical accuracy, ethical considerations, and community perceptions. Potential pitfalls include inaccuracies in data, privacy concerns, security vulnerabilities. Likelihood: Medium Impact: Medium	WP4	Applying the GAIA-X standards will help to ensure that ethical and privacy requirements are met, since data sovereignty and control, compliance with GDPR, transparent data processing and ethical data use are engraved in the DNA of the GAIA-X rules.
4	Minor engagement of users - Risk that targeted citizens do not sufficiently	WP4	Implement coordinated awareness programs to promote ongoing citizen participation, including multi-channel campaigns, co-creation

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	adopt/regularly utilize the SENSE solutions. Likelihood: Medium Impact; Low		workshops, and use case demonstrations. This will increase user adoption and drive regular utilization of the SENSE solutions.
5	Introducing VR/AR and metaverse technologies to citizens and stakeholders may encounter resistance or scepticism. Likelihood: Low Impact; Low	WP4, WP5	Open and comprehensive communication, user-friendly interfaces and the embedding of new technologies into well-known all-day situations will help to overcome reluctance and instead inspire people to try out new services.
6	Non-standardized approaches that limit scalability. Challenges in expanding and adapting the project to evolving needs in the context of Task 5.5. Likelihood: Medium Impact; Medium	WP5	The Follower cities deployment aims to establish monitoring mechanisms to track interoperability and compatibility in different contexts. Ensuring a continuous adaptation of standards and practices based on feedback and evolving needs.
7	Policy misalignment - Risk emerging regulations are not proactively accommodated during SENSE solution design. Likelihood: Medium Impact; High	WP6	Establish regulatory monitoring cross-functional team, implement compliance frameworks, and foster partnerships with policymakers. This will allow alignment of solutions with policy shifts and emerging regulations.

7 Ethics

The Project Management Board (PMB) will oversee and manage ethical, gender and cultural issues. It will ensure the effective application of ethical principles and integration of cultural and gender dimensions into the project activities.

The project has foreseen a deliverable dedicated to Ethics (D1.6). The deliverable addresses ethical considerations concerning human involvement, personal data management, and AI technologies in the SENSE project. It will provide guidelines and measures for handling ethical issues, including informed consent, data protection, and ethical AI usage, ensuring compliance with GDPR and other regulations. It also covers a broad spectrum of rights, including dignity, freedoms, equality, solidarity, citizens' rights, and justice. The final aim is to ensure that high ethical standards are applied in all activities of SENSE and that effective risk mitigation will be initiated.

The project will establish, engage, and progressively expand a dynamic community involving the largest number of stakeholders from the entire citiverse ecosystem, ensuring full coverage of supply chain segments, expertise, interests, geographies, and gender equality.

Actions involving activities raising ethics issues must be carried out in compliance with the following:

- Ethical principles
- Applicable EU, international and national laws, including the EU Charter of Fundamental Rights and the European Convention for the Protection of Human Rights and Fundamental Freedoms and its Supplementary Protocols.

The beneficiaries must pay particular attention to the principle of proportionality, the right to privacy, the right to the protection of personal data, the right to the physical and mental integrity of persons, the right to non-discrimination, the need to ensure the protection of the environment and high levels of human health protection.

Before the beginning of an action task raising an ethical issue, the beneficiaries must have obtained all approvals or other mandatory documents needed for implementing the task, notably from any (national or local) ethics committee or other bodies such as data protection authorities.

SENSE does not plan to use personal data for its implementation. Nevertheless, the Data Space will be designed and implemented to handle this type of data during or after the project. Also, the activity of identifying and analysing pre-existing data sets and sources could involve the management of personal data. For that case, the following best practice principles will be followed:

- SENSE will treat and handle personal data (if any) following the EU General Data Protection Regulation (GDPR) concerning the processing of personal data and on the free movement of such data.
- No data will be collected without the explicit informed consent of individuals under observation.

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- Any shadow (ancillary) personal data obtained during the research will be immediately cancelled. Special attention will be paid to complying with the Council of Europe's

- Recommendation R (87)15 on the processing of personal data for police purposes, Art.2

- In the eventual case that personal data is required, SENSE will make sure it is not shared with any non-EU country.

Additionally, SENSE will set the following general best practices:

- No data collected will be sold or used for purposes other than the current project.

- If employees of partner organisations are to be recruited, specific measures will be set to protect them from a breach of privacy/confidentiality and discrimination.

- For the normal implementation of the project coordination, internal communication, and project communication and dissemination, specific consent will be requested in accordance with a privacy policy for the use of personal data, including aspects such as the use of data, access to data, retention date and users' rights regarding their data.

- The project website will provide a privacy policy describing data protection for the services offered to web users (e.g., web account, newsletter subscription).

- For the implementation of technical activities (development and validation…), any shared information made available between consortium partners (and their third parties), like background, results, confidential information, datasets, or any data or information, shall not include personal data.

- Each partner will ensure that personal data is removed, obfuscated, or made inaccessible from the shared information before providing it to any other partner. All the aspects related to this issue will be considered and regulated by SENSE Consortium Agreement. Article 29 Working Group 05/2014 Opinion on Anonymisation Techniques.

- SENSE partners will comply with the ethical principles including the highest standards of research integrity as set out in the European Code of Conduct for Research Integrity.

The SENSE consortium will adhere to relevant national and international laws, guidelines and policies including:

o Declaration of Helsinki (2000)

o Convention of the Council of Europe on Human Rights and Biomedicine (April 4, 1997)

o UNESCO Universal Declaration on the Human Genome and Human Rights (on October 19 2005)

o CIOMS/WHO International Ethical Guidelines for Biomedical Research Involving Human Subjects (1993, reviewed in 2001)

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o The European Union Charter of Fundamental Rights, as signed and proclaimed by the Presidents of the European Parliament, the Council and the Commission at the European Council meeting in Nice on December 7 2000 (2000/C 364/01)

o Council of Europe – ETS n° 164 - Convention for the Protection of Human Rights and Dignity of the Human Being concerning the Application of Biology and Medicine: Convention on Human Rights and Biomedicine, Oviedo, 4.IV.1997

o Regulation No 45/2001 of the European Parliament and of the Council of December 18 2000, on the protection of individuals

o The EU General Data Protection Regulation (GDPR) This will be considered in more detail under the "Personal data" section.

o Article 29 Working Group 05/2014 Opinion on Anonymisation Techniques.

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8 Conclusions

The SENSE Project Structure Governance is a comprehensive guide delineating the fundamental procedures governing the management, structures, and methodologies within the SENSE consortium. Formulated with a primary objective of fortifying the SENSE consortium's operational framework, fostering collaboration among partners, and upholding the delivery of high-quality project outcomes, it also acts as a safeguard to ensure adherence to the stringent requirements set forth by the European Commission (EC).

Within its pages, the document provides an insightful overview of the project. This encompasses a detailed exposition of the project's Work Plan, the intricacies of milestones, a comprehensive depiction of allocated resources, and an elucidation of the key bodies that govern and steer the project's course. A pivotal component of the handbook is the incorporation of robust quality assurance and risk management processes. These mechanisms are strategically embedded to empower the SENSE consortium to validate that the achieved results align seamlessly with the project's ultimate objectives. Moreover, these processes function as gatekeepers, ensuring the project maintains the exacting quality standards mandated by the European Commission.

In essence, the SENSE Project Management Handbook is a foundational document that guides day-to-day operations and fortifies the consortium's commitment to excellence, collaboration, and compliance with regulatory standards set forth by the European Commission.