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SHIFT to Direct Current

Deliverable D 7.1 Project Management Plan

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Prepared by	João Marques, Hugo Morais
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Disclaimer

This document has been produced in the context of the SHIFT2DC project. Views and opinions expressed in this document are however those of the authors only and do not necessarily reflect those of the European Union or the European Climate, Infrastructure and Environment Executive Agency (CINEA). Neither the European Union nor the granting authority can be held responsible for them.

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Executive Summary

This report serves as the Project Management Plan (Deliverable D7.1 - Project Management Plan) (PMP) for the SHIFT2DC project, aimed at providing essential information on project execution, structure, timelines, milestones, and deliverables. It details the project organization, including the roles of Consortium partners and management, along with the functions of management roles and governing bodies, such as the External Expert Advisory Board (EEAB).

Furthermore, D7.1 provides instructions for the project's collaborative tools, communication procedures with partners and the European Commission, and the use of the project repository and external communication tools.

The report also outlines the processes for organizing meetings, document preparation and submission, communication, and dissemination activities. Lastly, it describes quality assurance practices like Biannual Management Reports, Scientific Committee Meetings, EEAB feedback, and risk management strategies.

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Keywords, Acronym

CC	Carbon Copy
CINEA	European Climate, Infrastructure and Environment Executive Agency
CO	Communication Officer
DC	Direct Current
EDF	Électricité de France
EEAB	External Expert Advisory Board
FAIR	Findable, Accessible, Interoperable, Reusable
GA	General Assembly
IM	Innovation Manager
IMR	Internal Management Report
LV	Low Voltage
LVDC	Low Voltage Direct Current
MoMs	Minutes of Meetings
MV	Medium Voltage
MVDC	Medium Voltage Direct Current
PC	Project Coordinator
PMC	Project Management Committee
PM	Project Manager
PU	Public
BMRs	Biannual Management Reports
SC	Scientific Committee
SEN	Sensitive
TLs	Task Leaders
ToC	Table of Contents
WP	Work Package
WPLs	Work Package Leaders

1 Introduction

1.1 Scope and Objectives

This Project Management Plan offers an extensive and thorough guide on key project details, including organizational aspects, tools, and processes established in SHIFT2DC to guarantee the project success. It encompasses essential management information, like project timelines, anticipated results, the structure of SHIFT2DC's management, and strategies for online collaboration to facilitate effective cooperation.

Additionally, it covers the development and assessment of project deliverables and outlines the strategies for efficient project execution. The Project Management Plan also details the quality assurance procedures used in SHIFT2DC. Primarily, it serves as a reference for the SHIFT2DC Consortium, especially for the Project Management Committee (PMC), the Scientific Committee (SC), and the leaders of Work Packages and Tasks, aiding them in their daily responsibilities.

1.2 Structure

This document is organized as:

1. **Introduction** – Outlines the document's purpose, aims, and its structural composition (The current section).
2. **Work Structure, Project Planning, Milestones, and Deliverables** – Offers a synopsis of the project's 7 Work Packages, illustrates the project's timeline via a Gantt chart, and catalogues the expected milestones and deliverables.
3. **Organization, Management Structure, and Governance** – Introduces the SHIFT2DC Collaborators and Roles, summarizing their functions within the project, and provides a comprehensive depiction of the governance framework, and delineation of roles and duties.
4. **Collaboration Tools** – Explains the set of tools used in SHIFT2DC for communication between partners, sharing documents, and sharing information with others outside of the project and the public.
5. **Project Procedures** – Describes the steps for organizing meetings, creating, reviewing, and handing in project results, and methods for distributing information and engaging with the community, including detailed directions for these processes. It also covers a preliminary plan for handling data as specified in the project outline.
6. **Quality Management in SHIFT2DC** – Details the strategies and measures put in place to ensure the quality of all project deliverables and activities, emphasizing the importance of coordinated efforts, key objectives for quality maintenance, and additional quality assurance measures.
7. **Conclusions** – Summarizes the document's key points, reflecting on the project's progress, the challenges encountered, and outlines the upcoming deliverables. This section is instrumental in highlighting the achievements and planning for future steps within the SHIFT2DC project.

1.3 Relationship with other deliverables

The relationship between the Project Management Plan and other deliverables within Work Package 7 (WP7) of the SHIFT2DC project is crucial for the efficient execution of the project.

The PMP guides the project's procedural and quality frameworks and interlinks with specific tasks to ensure overall success:

1. **Data Management (T7.2):** The PMP underpins this task by emphasizing the importance of managing data according to the FAIR principles and EC policies. It is linked through:
 - The development and implementation of the Data Management Plan (DMP).
 - Ensuring data compliance with Findable, Accessible, Interoperable, Reusable principles and EC Open Science policies.
 - Management of open repository platforms for data and software.
2. **Quality Assurance and Risk Management (T7.3):** The PMP reinforces this task by setting quality assurance standards and risk management procedures. It contributes to:
 - Regular assessment of work progress and quality control.
 - The internal peer-review process for deliverables.
 - Periodic assessment of risks and technical deviations and coordination of monthly meetings with the Scientific Committee for work progress review and risk identification.

Through collaboration, communication, and adherence to established guidelines, this document and related deliverables aim to facilitate the successful implementation and management of SHIFT2DC.

2 Work Structure, Project Planning, Milestones, and Deliverables

This section provides a concise roadmap for the SHIFT2DC initiative. It details the collaboration of thirty-two partners across Europe, and outline the project's key phases, milestones, and deliverables, emphasizing the development of scalable, interoperable DC solutions and a regulatory framework for their integration into a hybrid AC/DC grid.

2.1 Work Structure

The SHIFT2DC project is organized into seven Work Packages (WPs), as depicted in *Figure 1*, illustrating the interdependencies among these WPs. Each WP is led by distinct partners within the consortium, collaboratively covering a broad spectrum of activities. These range from initial assessments and integration efforts to demonstrations and field-tests, fostering innovation, and disseminating knowledge, all supported by robust project management.

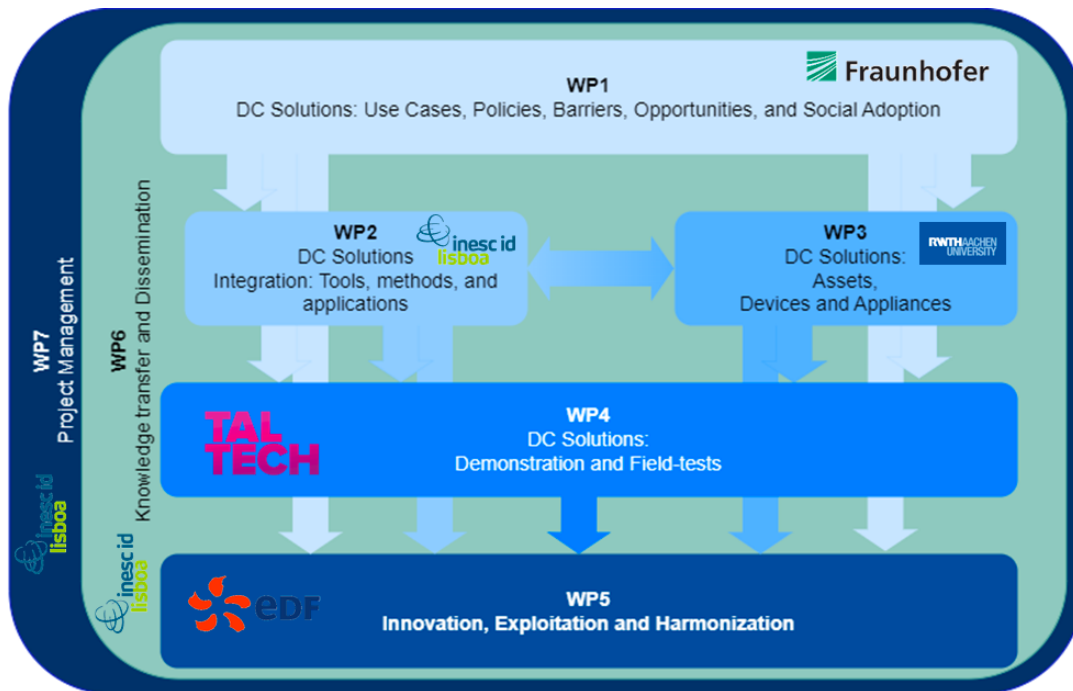


Figure 1 - Interdependencies among WPs.

Here is an outline of the project WPs and their respective leaders:

- **WP1 - DC Solutions: Use Cases, Policies, Barriers, Opportunities and Social Adoption** (WP Leader: **Fraunhofer**) – This WP is devoted to understanding the direct current (DC) solutions context, including use cases, policy analysis, standardization gaps, market barriers, opportunities for advancement, and factors influencing social adoption.
- **WP2 - DC Solutions Integrations: Tools, methods and applications** (WP Leader: **INESC ID**) – WP2 tackles the integration of DC solutions, focusing on the development and application of tools and methodologies that will facilitate this integration.
- **WP3 - DC Solutions: Assets, Devices and appliances** (WP Leader: **RWTH AACHEN**) – This WP is concerned with the tangible components of DC solutions, such as assets, devices, and

appliances, ensuring their interoperability by being effectively incorporated into the broader system.

- **WP4 - DC Solutions: Demonstration and Field-tests** (WP Leader: **TALTECH**) – WP4 involves the hands-on demonstration and field-testing of DC solutions to validate their effectiveness and identify areas for improvement.
- **WP5 - Innovation, Exploitation and Harmonization** (WP Leader: **EDF**) – This WP focuses on the innovative aspects of the project, looking at how to exploit the results for commercial and societal benefits, and ensuring harmonization with existing systems and standards.
- **WP6 - Knowledge transfer and Dissemination** (WP Leader: **INESC ID**) – WP6 is dedicated to sharing the knowledge and outcomes of the project with a broader audience, disseminating results to promote wider understanding and uptake.
- **WP7 - Project Management** (WP Leader: **INESC ID**) – The final WP oversees the overall coordination and management of the project, ensuring that each aspect progresses smoothly and in line with the project's objectives and governance standards.

2.2 Timeline, Milestones and Deliverables

SHIFT2DC has a total duration of 42 months, having started on the 1st of December 2024, and being scheduled to end on the 31st of May 2027.

The Gantt chart for the project is shown in *Figure 2*. In this chart, the color coding is significant: the orange markers indicate the six major progress points or milestones set for the SHIFT2DC project, the light-blue markers denote the two scheduled evaluations or Periodic Reviews that the project undergoes with the European Commission/European Climate, Infrastructure and Environment Executive Agency (EC/CINEA). The yellow markers represent the biannual Consortium Meetings.

- **WP3 - DC Solutions: Assets, Devices and appliances** (WP Leader: **RWTH AACHEN**) – This WP is concerned with the tangible components of DC solutions, such as assets, devices, and appliances, ensuring their interoperability by being effectively incorporated into the broader system.
- **WP4 - DC Solutions: Demonstration and Field-tests** (WP Leader: **TALTECH**) – WP4 involves the hands-on demonstration and field-testing of DC solutions to validate their effectiveness and identify areas for improvement.
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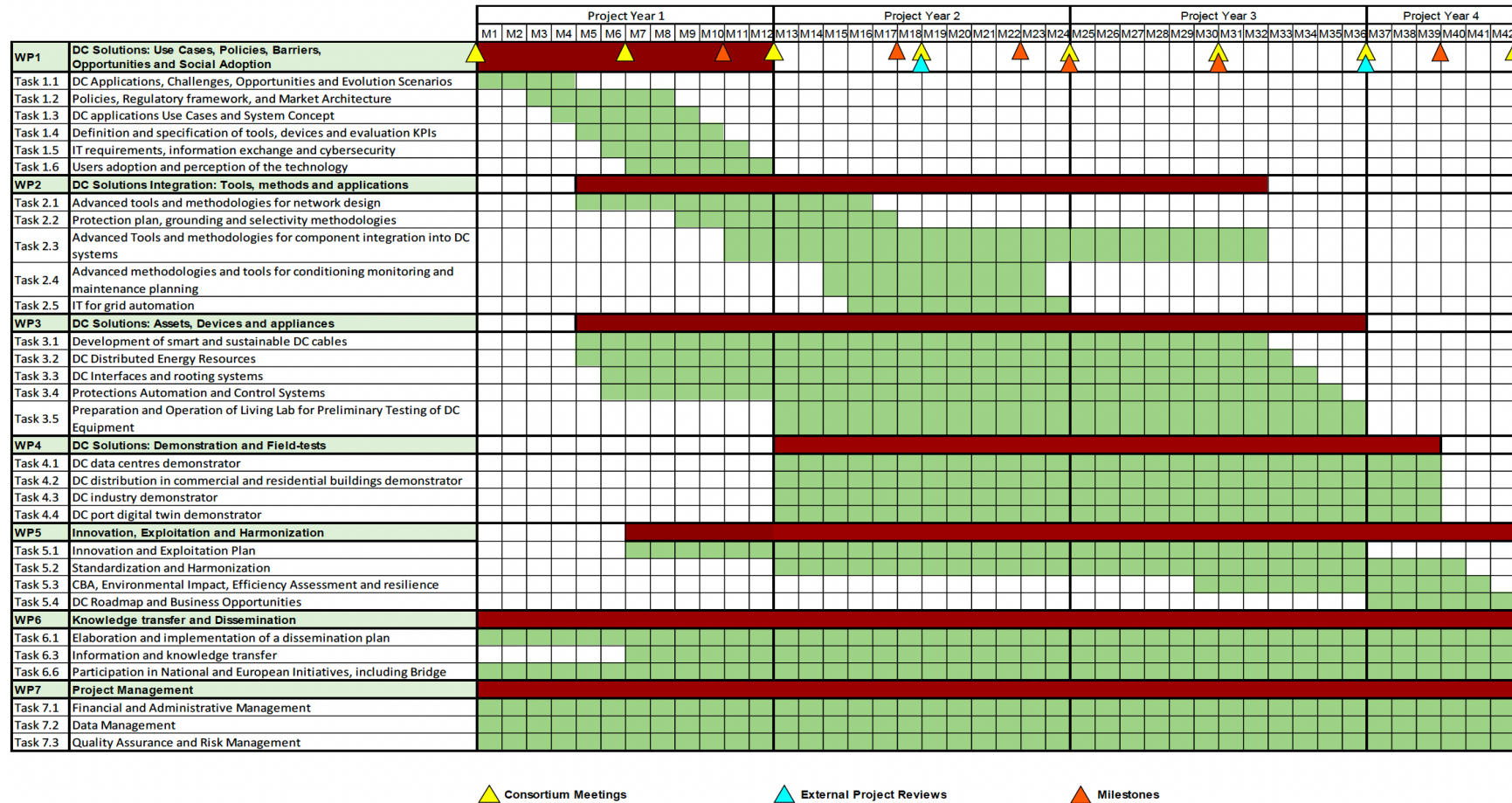


Figure 2 - SHIFT2DC's Gantt Chart

The milestones, as specified in orange, are essential checkpoints within the project timeline. At each milestone, the project is expected to have reached a significant achievement or a critical decision point. These are laid out in *Table 1* for reference.

Table 1 - 1 SHIFT2DC list of milestones

Milestone No	Milestone Name	WP No	Means of Verification	Due Date
1	Detailed definition of business models and UCs to be considered in the development of DC solutions and demonstrators	WP1	Delivery of the definition of the use cases and specification of the tools and DC solutions (D1.3 and D1.4).	M10
2	DC solutions design tools allowing the execution of feasibility and CBA analysis	WP2	Delivery of tools allowing the design of DC networks (D2.1) and protection system (D2.2)	M17
3	DC solutions simulation tool allowing the test of algorithms and control strategies	WP2	Delivery of simulation tools (steady state and hardware in the loop) and EMS/SCADA system (Deliverables D2.3, D2.4 and D2.5).	M22
4	Prototypes of DC solutions to be tested in the demonstrators	WP3	Several control solutions and prototypes will be proposed in WP3 including new cables, V2X stations, control solutions, etc.	M24
5	Commissioning of the DC solutions in the demonstrators and creation of digital twins	WP4	Specification of the demonstrator's implementation, simulations and digital twins will be described in deliverables D4.1, D4.2 and D4.3	M30
6	Conclusion of the validation phase of the demonstrators allowing the definition of a roadmap and guidelines for DC solutions	WP4	Validation of UCs and KPIs tested in the demonstrators (D4.4).	M39

Table 2 provides a schedule for the three Periodic Reviews planned for the SHIFT2DC project. These reviews serve as critical junctures at which the European Commission/European Climate, Infrastructure and Environment Executive Agency and independent experts assess the progress made up to that point. During these reviews, the evaluators examine the work completed, and offer guidance and recommendations to ensure the project's objectives are successfully met and going forward.

Table 2 - Tentative schedule of SHIFT2DC project reviews

No.	RV 1	RV 2	RV 3
Timing (month)	M18	M36	M42

The SHIFT2DC project is set to create 36 different deliverables that will encompass the entirety of the project's work. In keeping with SHIFT2DC's commitment to open science, most of these deliverables

will be accessible to the public. Nevertheless, there will be certain deliverables that include important, security-related, or business-sensitive (SEN) information that must remain private. These deliverables are classified as sensitive and will only be available to the members of the SHIFT2DC Consortium and the European Commission.

In *Table 3*, which outlines all the deliverables, that containing sensitive information is marked in **bold** to indicate its confidential status.

Table 3 - SHIFT2DC list of deliverables

Deliverable No	Deliverable Name	WP	Lead	Type	Dissemination level	Due Date
D1.1	DC Applications, Challenges, Opportunities and Evolution Scenarios	1	EDP CNET	R	PU	4
D1.2	Policies, Regulatory framework, and Market Architecture for DC solutions	1	FRAUN	R	PU	8
D1.3	Use Case Repository	1	TALTECH	OTHE R	PU	9
D1.4	Specification of DC solutions, tools and devices	1	EDF	R	PU	10
D1.5	IT requirements for DC solutions (Demonstrators)	1	CIRCE	R	PU	11
D1.6	User adoption of DC solutions	1	IST-ID	R	PU	12
D2.1	DC solutions design tool	2	EDF	R	PU	16
D2.2	DC protection systems design tool	2	SCHN	OTHE R	PU	17
D2.3	DC solutions simulation tool	2	EDF	OTHE R	PU	22
D2.4	MVDC grid stability & protection assessment tool	2	RWTH AACHEN	OTHE R	PU	22
D2.5	DC control and protection integration strategies	2	RWTH AACHEN	R	PU	32
D2.6	EMS for Hybrid AC/DC systems	2	EDF	OTHE R	PU	23
D2.7	Conditioning monitoring tools for DC systems and devices	2	INESC ID	R	PU	24
D2.8	IT monitoring platform	2	CIRCE	R	PU	24
D3.1	WP3 Activities intermediate report	3	RWTH AACHEN	R	SEN	21

D3.2	D3.2 LVDC smart and sustainable system cable	3	NEXANS FR	OTHE R	PU	32
D3.3	Distributed Energy Resources – Solutions Report	3	TECNALIA	R	PU	33
D3.4	DC Interfaces and rooting systems – Solutions Report	3	SCHN	R	PU	34
D3.5	DC Protection and fault handling strategies for MVDC-LVDC converter	3	RWTH AACHEN	R	PU	35
D3.6	Testing in DC Living Lab	3	RWTCH AACHEN	R	PU	36
D4.1	Detailed specification of the demonstrators	4	TALLTECH	R	PU	16
D4.2	Demonstrators’ simulation results	4	FRAUN	R	PU	24
D4.3	Digital twin testing environment	4	EDP CNET	R	PU	36
D4.4	Lessons learned in Demonstrators	4	TALLTECH	R	PU	39
D5.1	Innovation and Exploitation Plan	5	EDP CNET	R	PU	12
D5.2	D5.2 Innovation and Exploitation Plan- Updated	5	EDP CNET	R	PU	36
D5.3	Standardization and Harmonization activities	5	EDF	R	PU	40
D5.4	Cost Benefits Analysis of DC solutions	5	EDF	R	PU	41
D5.5	DC Roadmap and Business models	5	EDP CNET	R	PU	42
D6.1	Dissemination and Communication Plan	6	INESC ID	R	PU	6
D6.2	Dissemination and Communication Plan - Updated	6	INESC ID	R	PU	24
D7.1	Project Management Plan	7	INESC ID	R	PU	2
D7.2	Project Management Plan - Updated	7	INESC ID	R	PU	18
D7.3	Project Management Plan - Final	7	INESC ID	R	PU	36
D7.4	Data Management Plan	7	INESC ID	R	PU	6
D7.5	Data Management Plan- Updated	7	INESC ID	R	PU	36

The SHIFT2DC internal procedures for the preparation, review and submission of deliverables are outlined in Guidelines for Creating, Reviewing, and Submitting Project Deliverables.

3 Organization, Management Structure, and Governance

The SHIFT2DC initiative brings together thirty-three partners from twelve different European countries, pooling a diverse array of expertise to advance the adoption and application of medium (MV) and low voltage (LV) direct current technologies. Focused on sectors like data centers, buildings, industry and ports in Germany, France, and Portugal, the project aims to improve the technical, economic, sustainable, and environmental aspects of DC solutions.

This involves field tests, development of new tools, and refining business models for DC systems, considering consumer perspectives. The outcomes will be broadly applicable, with special attention to creating specific simulations for varied environments. SHIFT2DC prioritizes interoperability, scalability, security, replicability and privacy in DC solutions, contributing to standardizing practices and proposing a regulatory framework for integrating MVDC and LVDC within a hybrid AC/DC grid, ensuring secure and efficient power management.

3.1 Partners and Roles

The SHIFT2DC Consortium comprises 32 diverse members, each bringing unique expertise and capabilities to the project, as detailed in Table 4 – categorization of SHIFT2DC’s entities: type, quantity, and contributions. This consortium includes a mix of research institutions, industry leaders, and specialized entities from across Europe, providing a comprehensive overview of the varied participation and the specific contributions of each entity.

This organization offers management a clear overview, facilitated by *Table 4*, which aids in the easy identification and understanding of each stakeholder’s involvement and expertise within the project.

Table 4 - categorization of SHIFT2DC’s entities: type, quantity, and contributions.

Type of Participant	Number	Names	Contribution/Role in SHIFT2DC Project
Research & Technology Orgs (RTOs)	4	INESC, Tecnalia, Fraunhofer, CIRCE	Leading in R&D, national and European projects, developing new concepts and solutions related to DC and energy transition. Participating in WP1, WP2, WP3, WP4.
Higher-Education Institutions	3	RWTH, Taltech, IST ID	Engaged in research activities, development of DC design and simulation tools, control strategies, testing protection systems, setting up living labs.
Small and Medium Enterprises (SMEs)	5	Hiro, PCB Design, Bachmann, W&W, JJ Cooling	Specific contributions in areas like data-centre solutions, DC DER solutions, heating and cooling systems. Active in demonstrator areas.
Large Enterprises	8	EDF, EDP NEW, Fincantieri, Eaton, Hitachi, Phoenix, Schneider, Nexans	Utilities, technology, and cable manufacturers. Contributing to the development of DC solutions, expertise in electric components, devices, and ship modelling.

Governmental Institution	1	APRAM	Expertise in port management.
Sector Representative	1	EHPA	Providing industry insights, specifically from the heat pump sector.
Associated Partners	5	LNE, EEM, SETEC, CurrentOS, ODCA	Certification, system operation, engineering, DC promotion. Strategic roles in promoting project results at European and worldwide levels.

3.2 Management Framework

The SHIFT2DC project employs an adaptable organization structure to coordinate the engagement of consortium members and stakeholders. This setup is supported by flexible decision-making processes to guide the project's strategy, ensuring communication with the European Commission, and fostering synergies across the project's various elements.

Management is conducted across four principal levels:

1. the General Assembly (GA) which oversees strategic direction and vision,
2. the Project Management Committee which handles administrative and financial tasks,
3. the Scientific Committee which provides scientific leadership,
4. the Stakeholders' Board which coordinates stakeholder involvement.

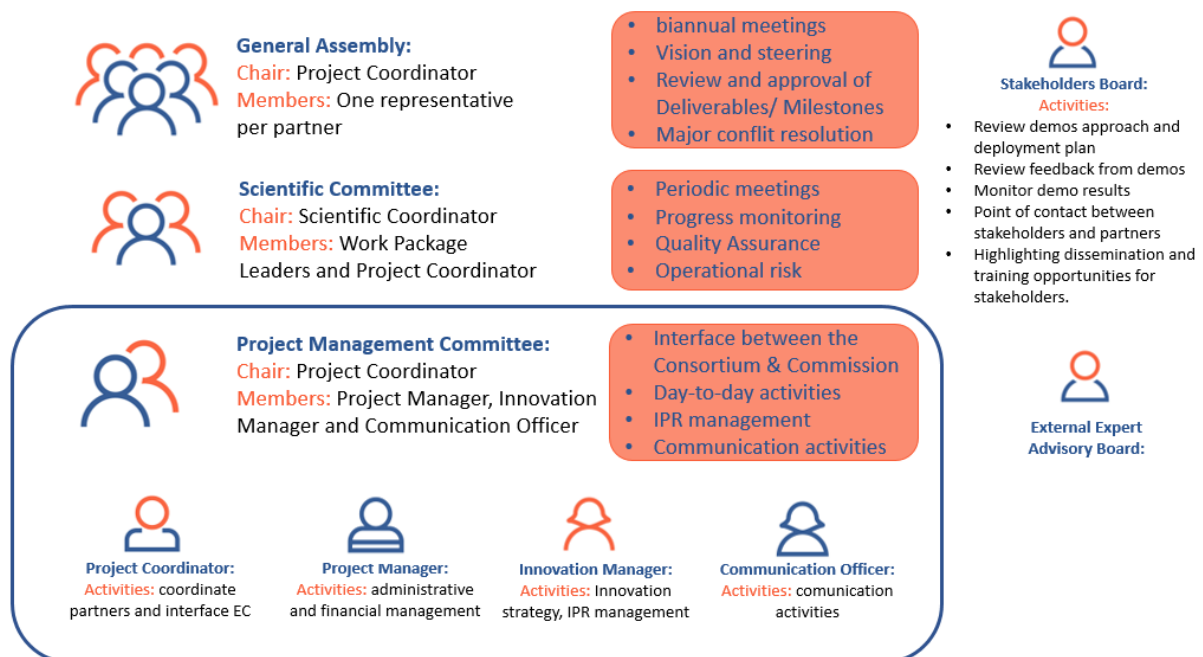


Figure 3 - SHIF2DC Management Structure

This governance model was established to ensure planning, supervision, and coordination of the project's numerous activities and the performance of tasks, coupled with reporting and accountability mechanisms, as outlined in Figure 3.

The SHIFT2DC project's direction is governed by a top-down strategy, whereas solutions to arising issues are addressed through a bottom-up approach. Additionally, it's important to note that the Work Package leaders (WPLs) oversee the progress and potential risks of their activities regularly, in order to present these aspects and their findings to the Scientific Committee at its monthly meetings.

The General Assemblies, which take place every six months, play a key role in providing comprehensive strategic and technical guidance, involving all the partners in the consortium. The project's External Expert Advisory Board convenes at strategic intervals via video conferencing to offer guidance.

3.2.1 Management roles

The management roles within the SHIFT2DC are overseen by the Project Management Committee, and can be specified as follows:

1. **Project Coordinator (PC)** – Acts as the intermediary between the consortium members (the Parties) and the Granting Authority. The Project Coordinator's role is to ensure compliance with the consortium and grant agreements, facilitate communication, administer the project's finances, and coordinate with the General Assembly for any necessary amendments.
2. **Project Manager (PM)** – This role is integral to maintaining the high standards of the project's outputs and ensuring that any potential issues are identified and mitigated in a timely in terms of administrative and financial manners. The project manager oversees the project's overall implementation, governance, administrative and financial management, coordination activities, and communication with the EC and other stakeholders.
3. **Innovation Manager (IM)** – The IM will steer the innovation and exploitation strategy, ensuring alignment between research challenges, exploitation of results, and user validation. The IM will also oversee the definition of Innovation KPIs and the collation of partners' exploitation plans.
4. **Communication Officer (CO)** – The CO oversees planning and implementing dissemination and communication activities, developing the project's branding, and promoting engagement with the target audience.

These roles are crucial for the efficient management and successful delivery of the SHIFT2DC project, ensuring that all tasks are carried out effectively and in alignment with the project's goals and regulations.

3.2.2 Consortium Bodies

3.2.2.1 General Structure

The governance of the SHIFT2DC project consists of the following principal consortium bodies:

1. **General Assembly:** This is the primary decision-making entity within the consortium. It is composed of one representative from each party involved in the project. The GA is responsible for making key strategic decisions and is chaired by the Project Coordinator.

Decisions of the General Assembly

The GA has the authority to act on its own initiative or consider proposals from the Project Coordinator, including but not limited to:

- a. Changes to annexes of the Grant Agreement.
 - b. Modifications to the Consortium Plan.
 - c. Entry or withdrawal of Parties from the Project.
 - d. Appointment of External Expert Advisory Board Members.
2. **Project Management Committee:** Assists the General Assembly with organizational, administrative, and legal support, chaired by the Project Coordinator. Acts as the intermediary between the consortium members (the Parties) and the Granting Authority. The PCM has specific responsibilities including but not limited to:
 - Monitoring compliance with the consortium and grant agreements.
 - Keeping contact lists updated.
 - Collecting and submitting deliverables and financial reports to the Granting Authority.
 - Administering the financial contribution from the Granting Authority.
 - Proposing decisions and preparing for General Assembly meetings.
 3. **Scientific Committee:** Comprises the Scientific Coordinator, Work Package Leaders, and the Project Coordinator, focusing on the technical aspects and strategic implementation of the project.
 4. **Work Package Leaders:** Designated from each Party, responsible for coordinating their respective Work Packages and reporting any deviations or risks.
 5. **Task Leaders (TLs):** Manage their respective tasks within the Work Packages and ensure adherence to deadlines.

3.2.2.2 Members of the General Assembly

- Each member of the General Assembly has the authority to deliberate, negotiate, and make decisions on all matters as outlined in the Consortium Agreement.
- Members are expected to be present or represented at all meetings and can delegate authority to a substitute or proxy if needed.
- All decisions made by the GA must be respected by the Parties, although they retain the right to exercise veto powers under certain conditions or submit disputes for resolution as per the Consortium Agreement.

3.2.2.3 Operational Procedures for the General Assembly:

- **Convening Meetings:** The Chairperson of the GA is responsible for organizing both ordinary and extraordinary meetings.
- **Notice of a Meeting:** Members will be notified in writing of meetings within a specified timeframe before the meeting date.
- **Sending the Agenda:** The Chairperson prepares and sends out a written agenda to each Member within the stipulated timeframe.
- **Adding Agenda Items:** Members can propose additional items for the agenda within a set period before the meeting.

3.2.2.4 Decision-Making

Decisions are made either in meetings or by email with a majority of 51%, and a veto option exists for issues significantly affecting any party.

- Decisions can be made during meetings or without meetings via email, with the latter requiring a majority agreement from the Parties.
- Decisions are deemed binding after acceptance of the relevant MoMs or after a vote has been concluded and all parties have been notified of the outcome.
- Parties are obligated to adhere to General Assembly decisions yet retain veto rights and the ability to resolve disputes as outlined in the Consortium Agreement (as detailed in Section 11.8).

3.2.2.5 Voting Rules and Quorum

Each party contributes one representative to the membership, with the authority to discuss, negotiate, and make decisions on specified matters, under the chairmanship of the Project Coordinator unless otherwise agreed. For effective decision-making, at least two-thirds of members must be present or represented, with a preference for consensus but allowing decisions through a two-thirds majority vote when necessary.

- A two-thirds majority of Members present or represented is required for the GA to deliberate and decide validly.
- Each Member has one vote, and decisions are typically reached by consensus, or a two-thirds majority of votes cast.
- Parties can exercise veto rights under certain conditions, especially if a decision severely affects their work or interests.

3.2.2.6 Minutes of Meetings (MoMs)

The Project Management Committee is responsible for drafting and circulating MoMs of each meeting, which become official records upon acceptance by the Parties.

- Draft meeting MoMs are distributed within 10 days and are considered approved if no objections are raised within 15 days.

3.2.2.7 Continuous and Periodic Reporting

The Project Coordinator oversees the progress of the project and compiles an Internal Management Report (IMR) every six months, assessing the project's alignment with the Consortium Plan and proposing necessary modifications.

4 Collaboration Tools

This segment details the tools utilized for management and coordination within the SHIFT2DC project to ensure smooth communication and foster collaborative interactions among the entities involved. It presents the primary channels of communication, document handling procedures, and key avenues for disseminating project information.

4.1 Communication within the Project

4.1.1 Email Correspondence

Regular email correspondence is the basic method for daily interactions among partners. This approach is crucial for distributing information in detailed discussions and circulating documents within the partnership network.

4.1.1.1 Email Distribution Lists

The SHIFT2DC organizers have created multiple email distribution lists to streamline group discussions and establish distinct channels for various conversation types and among partners. Each list is curated with a specific purpose and includes only the pertinent individuals from their respective organizations. The designations and objectives of the SHIFT2DC email distribution lists are detailed in *Table 5*, along with their intended functions.

Table 5 - Scope of SHIFT2DC Email Distribution Lists

Mailing List	Email Address	Subscribers	Scope
Dissemination	shift2dc.dissemination@inesc-id.pt	Coordination and Communication Officer	To promote and disseminate project-related information both internally and externally.
Coordination	shift2dc.coordination@inesc-id.pt	Project coordinator and manager	For operational discussions and project management among team members.
External Expert Advisory Board	shift2dc.advisory.board@inesc-id.pt	External Expert Advisory board members	To provide strategic advice and insights from the project's guiding experts.
Consortium	Shift2dc.consortium@inesc-id.pt	All contacts involved in the project	To ensure comprehensive communication

			across the entire team.
Scientific Committee	Shift2dc@scientific.committee@inesc-id.pt	Scientific experts selected for the Scientific Committee	For discussions and exchanges focused on technical and research-oriented guidance.

Access to the specific email addresses for the SHIFT2DC mailing lists, along with a list of all the participants for each list, is provided in an Excel spreadsheet. This document encompasses all contact details for the Consortium and is accessible in the WP7-Management (INESC-ID) folder within the SHIFT2DC repository. Partners wishing to update their team's details or modify the composition of the mailing lists can initiate the process by contacting the SHIFT2DC coordination via the dedicated mailing list with their request for alterations.

4.1.1.2 Conduct for Email Communication

All partners should adopt to the following guidelines when sending emails related to the SHIFT2DC project:

1. Always include the project identifier in the email subject line, formatted as "[SHIFT2DC] - Subject" where the bracketed section should be replaced with the specific topic of correspondence.
2. If an email requires immediate attention from the recipients, "[ACTION REQUIRED]" should be added before the project identifier in the subject line.
3. Selection of the appropriate mailing lists for an email should be based on the details provided in Table 5.
4. For any direct email exchange between select partner groups, the coordination mailing list must be included in the Carbon Copy (CC) field.
5. The SHIFT2DC Coordination should be CC'd on all emails that involve technical discussions.

4.1.2 Video-Conferencing Calls

Ongoing dialogue among project partners is critical for cooperation and reaching project goals. Beyond email communications, the SHIFT2DC project facilitates regular video-conferencing calls to oversee progress, align activities, deliberate on technical matters, and support overall project management. These virtual gatherings, ranging from full team meetings to one-on-one dialogues, are a preferred method of daily communication. Additionally, video-conference workshops are organized within SHIFT2DC, which may be internal or include external participants. Furthermore, Microsoft Teams serves as the platform for hosting video-conference workshops within SHIFT2DC, catering to both internal stakeholders and inviting participation from external parties.

While Microsoft Teams is the chosen platform for these video-conference workshops within SHIFT2DC, accommodating both internal participants and external collaborators, it is important to note that other

software can also be used in order not to exclude partners whose policy does not allow the use of MS Teams.

4.1.2.1 Routine Virtual Meetings

To maintain consistent communication, assess activity status, engage in technical and managerial discussions, and make decisions on crucial issues, the SHIFT2DC Consortium schedules periodic virtual meetings, the details of which are provided in *Table 6*.

Some sessions may transition to in-person meetings, aligning with other significant project events or milestones necessitating physical attendance. For precise scheduling and frequency of these meetings, refer to Table 6, which offers a comprehensive overview of the planned interactions within the consortium.

Table 6 - Schedule of Regular SHIFT2DC Virtual Meetings

Type of Meeting	Periodicity
General Assembly	GA meetings are hybrid, but for very special occasions, they can be substituted for virtual meetings.
Scientific Committee	Meetings occur monthly, preferably in the first week of each month.
WP-specific Meetings	Periodic meetings for each WP. These occur either bi-weekly or weekly, depending on the WP and the project phase.
Task-specific Meetings	Regular specific meetings for certain tasks, based on complexity, partner involvement, and timeline. These meetings occur on a weekly basis.

Virtual meetings are conducted using online collaboration tools. Although there is no exclusive tool required for SHIFT2DC meetings, when organized by the project coordinator, INESC ID, Microsoft Teams is the platform of choice. Partners can join Microsoft Teams meetings via a downloadable desktop application or directly through a browser. When accessing through the browser, it may be necessary for participants to permit the browser to use their camera and microphone to enable full participation.

4.1.2.2 Guidelines for Project Conference Calls

Conference calls are a vital tool for monitoring project advancement. The preparation, conduct, and follow-up of these calls should adhere to a set of best practices aimed at enhancing productivity and the value of the meetings. Here are some key practices to implement.

Prior to a Meeting:

SHIFT2DC partners should observe the following steps:

- The partner responsible for the call should email the necessary partners (utilizing mailing lists when suitable) to schedule the meeting, providing as much notice as possible:
 - GA calls require 30 days' notice, or 15 for extraordinary meetings.

- SC calls require 14 days' notice, or 7 for extraordinary meetings.
- Other project calls should ideally provide at least 7 days' notice, or as soon as possible for urgent matters.
- When possible, hosting partners should use a scheduling tool to determine participant availability and confirm the meeting date well in advance.
- Official meeting invitations, including call details (platform, access credentials, etc.), should be issued once the date is finalized.
- The meeting agenda should be sent early on, allowing participants to prepare. If not with the initial notice, then:
 - For GA calls, at least 14 days ahead, or 7 for extraordinary meetings.
 - For SC calls, at least 7 days in advance, in both ordinary and extraordinary meetings
 - For other meetings, alongside the invitation or as early as possible.
- Partners must ensure they, or a suitable delegate, are available for the meeting based on its significance.

During a Meeting:

The following should be observed during the call:

- The host should record attendance for reference.
- Using headsets is advised for clearer communication.
- Participants should mute their microphones when not speaking to minimize background noise.
- Use the chat function for unrelated topics and await the host's recognition before speaking.
- Participants should log in early to troubleshoot any technical issues.

Following a Meeting:

To ensure meetings are effective in addressing issues and leading to clear outcomes, after a call:

- The host should promptly prepare and distribute MoMs using the SHIFT2DC template:
 - For GA, PB, and TB calls, within 10 days.
 - For other meetings, within a reasonable period to maintain relevance.
- Partners should review the MoMs, note any actions required of them, and communicate any feedback within a set timeframe, after which the MoMs are deemed approved.
- The host must upload the MoMs and relevant documents to the project. Even with delays, MoMs should still be compiled and uploaded for record-keeping.
- If a follow-up meeting is necessary, it should be scheduled promptly using these guidelines.

- Additionally, all meetings must be open to all consortium members and communicated to the coordination team to ensure inclusivity and transparency.

4.1.3 Supplementary Communication Methods

While emails and web-calls are preferred, other methods may be used when appropriate:

- Telephone calls for urgent, direct communication. Important call outcomes should be emailed to involved and relevant parties.
- Printed letters for official documents requiring a physical signature, sent via registered mail for security and confirmation.

4.1.4 Liaison with EC/CINEA

All communications with the EC/CINEA are channeled through the project coordinator (INESC-ID), predominantly via email. Telephone or printed letters may be used under specific conditions as described above.

4.2 Project Repository

For efficient document sharing and secure storage among all partners, the SHIFT2DC coordination has established a project repository on Microsoft Teams. This platform serves as the unified internal location for uploading and accessing all project-related documents as they are generated. Hosted on Microsoft Teams, the repository is straightforward and user-friendly, enabling seamless and protected collaboration with minimal administrative burden. Instructions for accessing and using the Microsoft Teams repository are provided below.

4.2.1 Access to the Project Repository

The SHIFT2DC Microsoft Teams repository is accessible via a web browser, without the need for installing any special software. Access is exclusively granted to members of the Consortium. The steps to access the repository are as follows:

- Partners should request access by contacting SHIFT2DC coordination through the designated mailing list.
- Upon granting access, INESC-ID will share the repository with the partner, who will then receive:
 - An email notification with a secure link to access the repository through their web browser.

- A prompt to create or use their existing Microsoft credentials, which will act as their login to the repository.
- The link to the repository and Microsoft credentials will be used to access the repository for the duration of the project. Partners should keep these details readily available.
- If partners lose their login details or can't access the repository, they should contact SHIFT2DC coordination for help. They will be given new access information if needed.

4.2.2 Utilizing the Repository

The Teams repository is designed to be intuitive. The main folder is organized into key sections, potentially with subfolders, as detailed in *Table 7*- overview of the different sections within the Teams repository.

Table 7 - Overview of the different sections within Teams repository

Section	Managed By	Description
Datasets	-	Contains various datasets used/generated by the project, including raw data, processed data, and metadata.
WP1 - DC Solutions_Use Cases	FRAUN	Focuses on use cases for DC solutions. Contains relevant documents, plans, and progress reports.
WP2 - DC Solutions Integration	INESC ID	Dedicated to integration aspects of DC solutions. Includes strategies, reports, and technical documents.
WP3 - DC Solutions Assets	RWTH	Deals with assets related to DC solutions. Houses pertinent research, asset management strategies, and related findings.
WP4 - DC Solutions_DEMOS	TALT	Focusing on demonstrations and practical applications of DC solutions. Includes prototype designs, test results, and feedback.
WP5 - Innovation, Exploit	EDF	Devoted to innovative approaches and exploitation strategies. Features logs, plans, and market analysis.
WP6 - Knowledge Transfer	INESC ID	Dedicated to dissemination and transfer of knowledge. Includes educational materials, training modules, and outreach activities.
WP7 - Management	INESC ID	Administrative and managerial hub. Contains project management documents, schedules, and compliance materials.

4.2.2.1 Additional guidelines for repository

Uploading Files

To upload files, navigate to the desired folder and click “Upload file”. This option is available in any folder within the repository, as illustrated in *Figure 4*.

Alternatively, files can also be uploaded simply by holding and dragging the respective file into the appropriate folder, a process that is visually depicted in Figure 4. This figure provides a step-by-step visual guide on how to upload files, ensuring a user-friendly experience for all members of the SHIFT2DC Consortium."

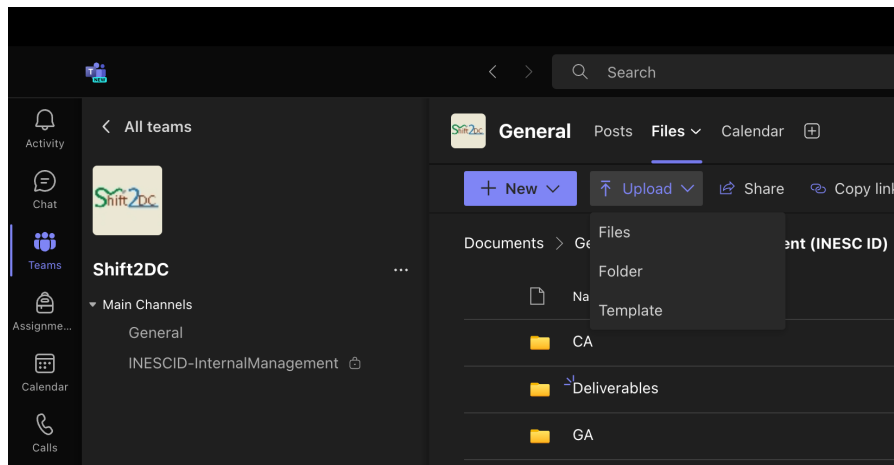


Figure 4 - Uploading files to the repository

Downloading Files from the Repository:

To download files or a folder from the Microsoft Teams repository, users should hover over the item they wish to download and select the "More options" (three dots) icon. From the dropdown menu, choose "Download," which will initiate the process of saving the file or folder to the user's device, as depicted in Figure 5.

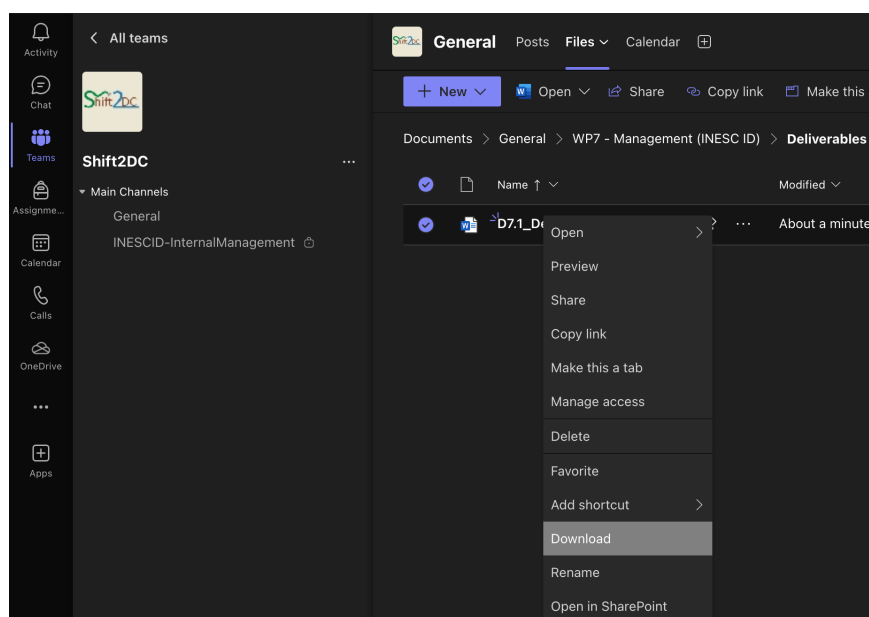


Figure 5 - Downloading files from the repository.

This menu also offers additional functionalities, such as adding the item to favorites for easy access, viewing details and activity, commenting, accessing previous versions, moving, or copying to another

location within the repository, or deleting the item if necessary. Each of these options is further illustrated and clarified in *Figure 5*, ensuring users can navigate and utilize the Teams repository effectively.

Editing Files and Version Control:

Unlike the previous system, Microsoft Teams allows for collaborative online editing, which means multiple partners can work on the same document in real-time. To edit a file:

1. Open the file directly from the Teams repository.
2. Make the necessary edits in review mode. These changes will automatically be saved in the cloud and visible to all with access to the file.
3. For version control, Teams keeps a history of changes made to the document. You can view and restore previous versions if needed.

If a partner needs to upload a revised document, they should:

- Rename the file with a new version number or with their entity's acronym following the original file name, like “[Original file name]_v2” or “[Original file name]_INESC-ID”.
- Upload the new version to the appropriate folder in the repository.

For version history and to restore previous versions:

- Open the file details and navigate to the version history.
- Previous versions can be viewed and restored by selecting the appropriate version.

Teams' collaborative environment enhances version control by tracking each user's contributions and automatically updating the document. This ensures all partners have access to the most current version while maintaining a record of the document's evolution.

4.3 SHIFT2DC Website and Social Media

The SHIFT2DC project uses its website and social media to share information and connect with the public and those interested in the project. The communication strategy will be defined in month 6 with Deliverable 6.1 (D6.1).

5 Project Procedures

To ensure smooth collaboration, high-quality outputs, and the overall success of SHIFT2DC, the Consortium has established a range of procedures for all partners to follow according to their roles and responsibilities. This section outlines the key internal procedures for organizing meetings, producing, and reviewing deliverables, and managing communication, data, and responses to security or ethical issues.

5.1 Procedures for Physical Meetings

In-person meetings are crucial for effective project management, allowing partners to engage directly, fostering more in-depth discussions, and committed involvement from all parties.

5.1.1 Scheduling a Physical Meeting

In-person meetings can be organized for the entire project, between different project segments, or within specific project teams, and these could encompass:

- **Periodic Review meetings** – These are held at the end of each reporting period to assess project progress and review achievements. These meetings are planned to be in-person, with a preparation meeting amongst the SHIFT2DC Consortium scheduled for the preceding day.
- **Project demonstrations, table-top exercises, and integration meetings** – These sessions are crucial for integrating, testing, and validating technical solutions, and are expected to take place physically at a partner's premises.
- **General Assemblies** – biannual full-partner meetings aligned with significant project milestones.
- **Other meetings** – Additional in-person meetings may be organized as needed for specific discussions, technical solution testing, or detailed work planning. These are considered less frequently due to the ease of addressing such issues virtually.

It is recommended that GA meetings be coordinated with these physical meetings to optimize resources and timing. SHIFT2DC partners are also expected to participate in physical events like workshops and conferences, which may be hosted by SHIFT2DC if conditions are favorable.

To organize a physical meeting within SHIFT2DC, the following steps should be taken:

- A partner recognizing the need for a meeting should discuss this with SHIFT2DC coordination via email well in advance.
- The initiating partner and the coordination team will decide on the location, ideally at the premises of the partner who suggested the meeting, to minimize costs.
- It is important to rotate the meeting locations to distribute the logistical burden fairly among partners.
- The host will then send an invitation to the relevant partners, providing details such as the city, country, meeting duration, objectives. A polling system will be used to finalize the date.

- The host is responsible for preparing a detailed agenda, including session times, coffee and lunch breaks, leaders for each session, and other pertinent information, to be shared at least 15 days before the meeting begins. This communication should also specify any preparations required from participants.

Each partner must manage its own travel and associated costs effectively, ensuring consistent representation at various relevant meetings throughout the project.

5.1.2 Preparing for a Meeting

The partner responsible for organizing an in-person meeting should handle all arrangements ensuring a smooth and successful event without last-minute complications for attendees. For SHIFT2DC meetings, the host covers the costs of the meeting space and any associated fees, along with provisions like refreshments and meals. If hosting at their own premises isn't an option, they should secure an alternative venue such as a hotel conference room, with cost-sharing discussed before finalizing plans. The following is a guide for hosts to ensure well-prepared SHIFT2DC meetings:

- Compile an attendance list in advance, with all expected attendees and their affiliations for signature at the meeting's start or end.
- Prepare a logistics guide, including a city map, transport options to the venue, hotel suggestions, contact information for assistance, and options for extended stay activities. Distribute this guide to attendees along with the agenda.
- Organize catering for coffee breaks and meals.
- Inform participants in advance if special permissions are needed to enter the meeting site and collect necessary information to facilitate access.

5.1.2.1 Meeting Room(s):

- Ensure the meeting room can comfortably accommodate all participants, with an estimated capacity for SHIFT2DC meetings, according to the number of attendees.
- If concurrent breakout sessions are planned, provide additional rooms as needed.
- Offer clear indications within the facility to guide attendees to the meeting area.

Infrastructure and Equipment:

- Provide free internet access.
- Equip rooms with projectors, screens, and sufficient power outlets.
- Supply tables or alternate writing surfaces for notetaking.
- Microphones should be available in larger rooms if needed. Participants must confirm their attendance or delegate a suitable representative based on the meeting's importance.

5.1.3 Follow-Up Procedures

Following a meeting, the organizer must:

- Compile and distribute MoMs of Meeting to all relevant partners promptly.
- Circulate the signed attendance list for verification.
- Collect and share any materials presented or referenced during the meeting.
- Upload the finalized MoMs, presentations, and other documents to the project repository, creating a specific folder for them.

For significant meetings, whether plenary or specialized, the host should collaborate with the *T6.1 – Elaboration and implementation of a dissemination plan* lead by INESC-ID and SHIFT2DC coordination to prepare social media updates. These should summarize the meeting and its key points and be published while the information is still current. Press releases may also be drafted as needed.

5.2 Guidelines for Creating, Reviewing, and Submitting Project Deliverables

The SHIFT2DC project is set to produce 36 distinct deliverables. A comprehensive list of these deliverables is available in Table 3. Beyond the items listed in this *Table 3*, identified as OTHER, each prototype must be supplemented with a corresponding written report, which is also considered a deliverable. To maintain the highest standards for these deliverables, the Consortium has implemented quality control measures covering their creation, evaluation, and submission.

5.2.1 Procedures for Deliverable Creation

The partners assigned to a specific SHIFT2DC task must collaborate on producing the deliverables associated with that task. Detailed instructions and protocols for creating project deliverables are provided in the subsequent sub-sections.

5.2.1.1 Deliverable Naming Standards

All SHIFT2DC deliverables must adhere to a uniform naming format:

- DX.Y_Deliverable Name.SHIFT2DC.(dd-mm-yyyy).(vx.y)

Here, *DX.Y* represents the deliverable number and *Deliverable Name* is its full title as specified in the Grant Agreement (refer to Table 3). Working versions of a deliverable should use the same format, adding a version indicator *Vx.y* after the deliverable name.

5.2.1.2 Deliverable Format Requirements

Deliverables must be prepared using the specified template found in the project repository under "General/WP6 – Knowledge transfer (INESC ID)/SHIFT2DC_Templates".

- Working versions should be in MS Word format (.docx) for ease of editing.
- Final versions must be converted to and submitted as PDF files (.pdf).

5.2.1.3 Deliverable Preparation Process and Recommendations

The creation of deliverables is a critical process, governed by best practices to ensure top-quality submissions to the EC. The following guidelines outline this process in SHIFT2DC:

Roles:

1. The partner leading the task is primarily responsible for the deliverable and should appoint a team member as the deliverable leader.
2. The deliverable leader oversees the preparation process, ensuring progress and quality.
3. Partners contributing to the task must assist in deliverable preparation as directed by the deliverable leader, ensuring high-quality contributions.
4. Partners not directly involved may be requested to contribute, depending on the task's scope.

Preparation Workflow:

1. The deliverable leader should draft an initial structure and present a draft Table of Contents (ToC) at least 3 months before the submission deadline.
2. The leader then collaborates with partners to refine the structure and distribute tasks.
3. Regular conference calls among task partners are essential for monitoring progress, discussing content, and reallocating tasks.
4. Partners should submit their contributions via email and upload them to the project repository.
5. The deliverable leader must coordinate with the WP leader and inform them and the coordination team of any delays or issues promptly.
6. An internal review-ready final draft should be completed at least 1 month before the deadline, ensuring all sections and partner contributions are included.
7. The final draft must be emailed to the review team for internal review, cc'ing the WP leader and coordination team, and uploaded to the repository.

File Storage:

- Store working versions in the deliverable-specific repository folder (WPX/Deliverables/DX.Y_Deliverable Name.SHIFT2DC.(dd-mm-yyyy).(vx.y)).

- Create a new folder within this for partner contributions.
- Store reference documents in a separate folder within the deliverable folder.

5.2.1.4 Classification and Distribution Levels of Project Deliverables

Regarding the deliverables for the SHIFT2DC project, as detailed in the project's specific documentation, the deliverables are classified into various types and dissemination levels. The project encompasses several types of deliverables including reports, tools, strategies, and systems, each assigned to different work packages (WPs) and led by various partners.

Types of Deliverables

- Reports (R): Examples include D1.1 “DC Applications, Challenges, Opportunities and Evolution Scenarios” and D1.4 “Specification of DC solutions, tools and devices”.
- Other Types (OTHER): For instance, D1.3 “Use Case Repository” and D2.2 “DC protection systems design tool”

Dissemination Level Classification

- Public (PU): Most deliverables, spanning all work packages (WP1-WP7), are publicly accessible. This includes deliverables like D1.2 “Policies, Regulatory framework, and Market Architecture for DC solutions”, D2.7 “Conditioning monitoring tools for DC systems and devices”, and D5.5 “DC Roadmap and Business models”.
- Sensitive (SEN): Restricted dissemination level for certain deliverables, such as D3.1 “WP3 Activities intermediate report”, indicating controlled access and distribution.

Key Highlights

- The classification system emphasizes the project's commitment to transparency and selective confidentiality, catering to the varying nature of each deliverable.
- This approach facilitates a structured and clear understanding of the deliverables, aiding in effective project management and dissemination strategy.

5.2.2 Procedures for Reviewing Deliverables

In the SHIFT2DC project, a comprehensive internal review process is in place to ensure the highest quality of deliverables. This framework provides a detailed and structured approach to managing the internal review and approval process for SHIFT2DC deliverables, ensuring quality and consistency throughout the project's lifecycle:

1. Review Team Selection and Responsibilities:

- Deliverables will be internally reviewed by two consortium partners, chosen based on their non-involvement in the deliverable's preparation, workload allocation, expertise, and deliverable deadlines.
- The assignments for reviewers are documented and accessible in the Teams folder under WP/7-Management/Deliverables Quality Check.

2. Review Timeline:

- Reviewers are allocated a period of two weeks (10 working days) for the review process.
- In case a reviewer cannot meet the deadline, they should attempt to find a replacement within their group or inform the PM and Work Package Leader promptly for reassignment.

3. Revision Process:

- Deliverable authors must ensure high-quality content, formatting, grammar, orthography, and style before internal review.
- The WP Leader sends the deliverable to reviewers approximately 4 weeks before the European Commission portal submission deadline.
- Any delays in meeting this timeline should be negotiated with reviewers while adhering to the final submission deadline.

4. Peer-Review Checklist:

Reviewers should utilize the provided Peer-Review Checklist to assess deliverables. This checklist covers various aspects including:

- Length and relevance of content.
- Adherence to the project's template and structural organization.
- Quality and clarity of the executive summary, objectives, and content.
- Relationship with other project deliverables.
- Scientific and technical soundness.
- Adequacy and justification of interpretations and conclusions.
- Quality and relevance of data, figures, and tables.
- Appropriateness and accuracy of language.

5. Feedback Integration and Final Approval:

- Authors must incorporate reviewers' suggestions and corrections into the deliverable.

- Once the deliverable is accepted by reviewers, the WP Leader sends the final version to the SHIFT2DC Coordination Team for a final check and submission to the EC portal.

6. Documentation and Record Keeping:

- All versions of the deliverable should be saved in the designated Teams folder.

7. Final Rating:

- Reviewers will provide a final rating: *Accepted as is*, *Accepted with minor revision*, or *Accepted with major revision* (requiring a new review after revisions).

5.2.3 Procedures for Updating, Approving, and Submitting Deliverables

Following the initial internal review, the deliverable must be revised, approved, and submitted. The process for these stages is as follows:

- The deliverable leader facilitates discussions with other authors and contributors as needed during the revision process.
- Communication is maintained through emails to the internal reviewers, PM, SC, with the WP leader included in all correspondences.
- Both the updated and final versions of the deliverable are consistently uploaded to the project repository for record-keeping and accessibility.
- The repository also serves as the primary storage for all document versions, including the final text file (.docx) and PDF file (.pdf).
- Each phase of the deliverable process has a defined timeframe: one week for updates, four days for initial approval, three days for final review, and three days for submission, ensuring a streamlined and efficient workflow.

5.3 Communication and Dissemination Activities

To communicate SHIFT2DC's message consistently and effectively to different audiences, the best practices should be followed. releasing communication materials and publishing scientific papers for the SHIFT2DC project should consider the follow guidelines:

5.3.1 Procedures for representing the Consortium in dissemination events

If SHIFT2DC partners wants to present the project at an event, they should:

1. Inform the SHIFT2DC Project Management Committee, by email, giving the event details and their planned participation, coordinating with them the content and delivery of the presentation.
2. Use the PowerPoint template of the project, available in the repository under General/WP6 - Knowledge transfer (INESC ID)/SHIFT2DC_Templates

3. The template can be modified for different audiences, but it needs to be approved by the SHIFT2DC coordination. It should always:
 - a) display an overview of the project, including the Consortium, context, objectives, solution, and impacts.
 - b) not contain any sensitive information and should align with the project goals.
 - c) Acknowledge the EC and the HE, by showing the EU emblem and the text “This document has been produced in the context of the SHIFT2DC project. Views and opinions expressed in this document are however those of the authors only and do not necessarily reflect those of the European Union or the European Climate, Infrastructure and Environment Executive Agency. Neither the European Union nor the granting authority can be held responsible for them.
4. Upload for reference to the repository all the dissemination material used at the event, including photos that state their participation as a proof of attendance.
5. Coordinate during the before/during/after the event with the communication officer for the writing of a social media post about the event and SHIFT2DC's participation.

5.3.2 Guidelines for Public Communication Materials Release

To maintain a consistent and professional dissemination of SHIFT2DC information, the following guidelines are established for public communication:

5.3.2.1 Social Media Posts:

- To release a post on SHIFT2DC social media accounts, partners must contact the Communication Officer (CO) via email, with the project coordination CC'd.
- The message and any supporting material should be included in the email.
- The CO will review, adjust, and adapt the content to SHIFT2DC's social media templates for LinkedIn and Twitter.

5.3.2.2 Press Releases and News Articles:

- For releasing to national or international media, partners should email the draft text to both the project coordination and the PO.
- The SHIFT2DC coordination and CO will review the text for sensitive information and coherence with the project's image.
- Some releases might require Consortium review before being issued.
- After review and adjustments, the final text will be sent back to the partner for release.

5.3.2.3 Handling External Inquiries:

- In case of contact by journalists for detailed project information, partners should consult with SHIFT2DC coordination to align on the common message and public information.

5.3.3 Procedures for Publishing Scientific Papers

Notification and Review:

- Partners intending to publish a scientific paper related to SHIFT2DC are required to notify the Consortium by email (via the Consortium mailing list) at least 45 calendar days before the planned submission of the publication. This notification must include the paper's title and short abstract.
- Upon this notification, any partner affected by the content of the paper may request to review the full paper. Such requests for review must be honored in accordance with the SHIFT2DC Consortium Agreement (Section 8.4.2 of the CA).
- Partners have the right to express objections to the planned publication. Any objections must be communicated in writing to the Project Coordinator and the Party or Parties proposing the dissemination within 30 calendar days after receipt of the notification.
- If no objections are made within the 30-day period, the publication is deemed approved by the Consortium.
- In case of an objection, the objecting and disseminating parties will engage in a discussion to resolve the issues. The objecting party must state the grounds for objection and, if possible, propose necessary modifications to the publication.
- The objecting party has the option to request a delay in publication for up to 45 calendar days from the time the objection is raised to address the concerns. The dissemination may proceed after 45 calendar days, provided that the objections have been appropriately addressed by the disseminating party.

The absence of any communication or unresolved objections after the stipulated periods allows the dissemination to proceed, in accordance with the terms agreed upon in the Consortium Agreement and the Grant Agreement.

Security and Ethics Review:

- The AB may need to review papers for security-sensitive content, and for ethical considerations.
- The AB and EM can suggest modifications to address potential issues.

Acknowledgment and Documentation:

- Papers must include an acknowledgment of EC funding: "Funded by the European Union under grant agreement no. 101136131. Views and opinions expressed are however those of the authors only and

do not necessarily reflect those of the European Union or CINEA. Neither the European Union nor the granting authority can be held responsible for them.”.

- The partner responsible for the publication must email the paper details to the CO.
- After acceptance and publication, a post-print should be provided to both SHIFT2DC coordination and INESC-ID.
- The CO will upload the paper and related details to the project repository in an appropriate folder.

5.4 Data Management

In the SHIFT2DC project, effective management of data is a key priority. Our approach involves a data management strategy that ensures that the project handles data responsibly and efficiently, in line with the commitment to open science and data protection standards.

5.4.1 Developing a Data Management Plan (DMP)

The SHIFT2DC project emphasizes effective data management to ensure the integrity, accessibility, and security of the data generated. In accordance with Task 7.2, led by INESC ID and involving participants such as EDF, NEW, RWTH, and SCHND, the project will establish a comprehensive Data Management Plan (DMP). This plan will align with the Findability, Accessibility, Interoperability, and Reusability principles, ensuring that data is findable, accessible, interoperable, and reusable, and will comply with the European Commission's Open Science guidelines, as well as scientific information protection, commercialization, and IPR policies.

Details:

- Covers data types, formats, size, and sources.
- Ensures data storage and preservation align with FAIR principles.
- Addresses data security, ethics, and management guidelines.

5.4.1.1 Open Repository Platforms:

- Management of platforms like ZENODO and GitHub for data and software.
- Ensures open access to data and software where applicable.

5.4.1.2 Quality Control and Risk Management:

- Led by INESC ID, involving the same partners.
- Includes regular assessments, internal reviews, and risk evaluations.

5.5 Handling Security and Ethics-Related Incidents in SHIFT2DC

In the SHIFT2DC project, the management of security and ethics-related incidents is streamlined under the Project Management Committee's jurisdiction to ensure swift, effective resolution in line with the project's established guidelines and standards.

The PMC consolidates responsibilities into a single, functional body. Here are the unified procedures:

1. Upon encountering security queries or identifying potential security incidents, partners must promptly report to the PMC. The Committee, through its integrated structure, is then tasked with orchestrating the response to address and remediate the situation.
2. Similarly, ethical inquiries or issues should be directed immediately to the PMC. The Committee, is charged with guiding the resolution process, ensuring all actions are compliant with the pertinent legislative and ethical frameworks.

This collective approach under the PMC's umbrella allows for a more cohesive and centralized handling of incidents, reinforcing the project's integrity and adherence to high standards of security and ethics.

6 Quality Management in SHIFT2DC

In the SHIFT2DC project, robust quality management is critical to meet project goals and maintain the integrity of both interim and final outputs. This includes ensuring the excellence of all project deliverables and activities.

Quality management in SHIFT2DC involves:

Coordinated Efforts:

- The Project Manager, in collaboration with the Scientific Committee Manager and Work Package leaders, will oversee quality assurance.
- However, maintaining high quality is a collective responsibility of all SHIFT2DC Consortium partners, requiring diligent attention at every project stage.

Key Objectives:

- Developing and enforcing effective documentation, reporting, and communication protocols.
- Ensuring the timely delivery of high-quality deliverables.
- Early identification of technical and management risks or deviations.
- Prompt implementation of necessary mitigation strategies.

Additional Quality Assurance Measures:

- Beyond the tools and procedures outlined in previous sections, SHIFT2DC will adopt additional quality controls:
 - Internal Bimonthly Reports for updates on ongoing work and execution status to the EC PO.
 - Project Management Committee and Scientific Committee meetings to review progress and address issues.
 - Risk management protocols to proactively identify and mitigate risks to project success.

These measures, detailed in subsequent sections, are designed to uphold the highest standards of quality throughout the SHIFT project's duration, ensuring successful outcomes and adherence to project objectives.

6.1 Biannual Management Reports (BMRs)

BMRs are essential internal documents within the SHIFT2DC project, serving as a critical instrument for overseeing work progress and mitigating project risks. It is obligatory for each partner to complete these reports every six months. They are to provide detailed accounts of the work performed during the specified reporting period, resource utilization, and any identified risks or deviations. Such

comprehensive documentation aids in the proactive detection of potential issues and facilitates timely interventions to ensure the project's smooth advancement and maintenance of work quality.

Each partner is responsible for compiling a BMR and submitting it via email to the SHIFT2DC coordinator biannually, which corresponds to every six months, thereby encompassing the activities and developments of the preceding six months. Throughout the SHIFT2DC project lifespan, partners are required to submit a total of 7 BMRs.

The BMRs for SHIFT2DC are categorized into two segments: (i) a management and technical report (submitted as a Microsoft Word document), and (ii) a financial report (submitted as a Microsoft Excel spreadsheet).

The management and technical report include directives for accurately filling out the BMRs and requests a comprehensive review of the work executed, accomplishments, and any challenges encountered within the reporting period. It specifically requires:

- A detailed account of the tasks completed, key outcomes, and their contributions toward the project's goals;
- A clear statement and analysis of any departures from the planned work or resource allocation, along with potential repercussions on other project areas;
- Current updates to the risk register, detailing the status of known risks and the identification of any new ones.

Conversely, the financial report serves to track the financial performance of partners against the agreed budget, helping to foresee and prevent any disapproval of financial reports during the compilation of Periodic Reports. The Excel document captures the following data:

- An accurate estimate of the efforts expended per task throughout the reporting period;
- An initial summary of other expenses incurred during that time.

The BMRs are a cornerstone of the SHIFT2DC project's quality control and risk mitigation strategy, ensuring that all partners are consistently aligned with the project's financial and operational objectives.

6.2 External Expert Advisory Board Contributions

In addition to its internal procedures and the expertise of its partners, the SHIFT2DC Consortium will be supported by an EEAB for quality assurance of project outcomes. As outlined in Management Framework, the EEAB, comprising esteemed European and international experts, will monitor the progress of SHIFT2DC and offer feedback, particularly focusing on the project's alignment with the requirements of the relevant sectors.

The EEAB's role includes:

- Offering insights on the quality and practicality of SHIFT2DC's technical outcomes.
- Assessing the operational and societal impacts of these outcomes in the target sectors.

- Evaluating the economic viability of the solutions proposed by SHIFT2DC.

Through their guidance, the EEAB will play a crucial role in directing the project towards achieving impactful and high-quality results, ensuring that SHIFT2DC’s developments are both innovative and grounded in real-world applicability.

6.3 Risk Management

The SHIFT2DC project underscores the role of forward-thinking risk management in safeguarding the project's success and the caliber of its results. This preemptive approach to risk management is detailed in *Table 8*, which provides an overview of critical risks and their mitigation strategies. The framework is comprehensive, extending through every phase of the project, orchestrated by designated project leaders, and woven into the fabric of routine operations.

Table 8 - Overview of critical risks and mitigation in the SHIFT2DC project.

Risk Number	Description and Work Package (WP)	Proposed Mitigation Measures
1	Team Member Departure (WP1, WP2, WP3, WP4, WP5, WP6, WP7)	Versatile teams ready for role reassignment and a highly qualified workforce for efficient replacement.
2	Challenges with Free Solvers in Optimization (WP2)	Utilization of commercial solvers for complex problems to ensure accuracy.
3	Integration of Control Algorithms with Devices (WP3)	Leverage expertise of INESC, EDF, RWTH, TECN; standardize inputs/outputs for tool integration.
4	Time Management in Partner Coordination (WP1, WP2, WP3, WP4)	INESC leads coordination; regular weekly meetings with partners; monthly scientific committee meetings.
5	DC Regulation Impact (WP2, WP3, WP4)	Regular regulation analysis; engagement with associations and standardization bodies; alignment with European and national entities.
6	Tool, Model, Method Inconsistency (WP2, WP3)	Harmonization of simulation platforms; close collaboration from project start.
7	Underestimation of Technical Complexity (WP2, WP3)	Close monitoring of progress; additional resource allocation as needed.
8	Limited Availability of Equipment/Consumables (WP3, WP4)	Early analysis of technical requirements; securing critical stock early; continuous monitoring of supplier stocks.
9	DC Solutions Interoperability Issues (WP4)	Development of agnostic solutions adaptable to various ecosystems.
10	Technical Errors in Demo Site Assembly (WP4)	Extended task duration for contingencies; development and cross-checking of detailed installation diagrams.
11	Stability Issues with Power-Converters (WP4)	Controller design using passivity criteria; stability analysis and thorough testing before deployment.

12	Building Construction Delays (WP4)	Testing SHIFT2DC solutions in restricted areas of the building to mitigate risks in demonstrator development.
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6.3.1 Risk Management Structure:

Leadership and Collaboration: The Project Manager Committee (PM) and Data Protection Officer collaboratively lead the risk management efforts. Work Package Leaders and other consortium partners provide additional support.

Partner Involvement: All partners are responsible for detecting and reporting risks at both task and work package levels. Identified risks are first reported to the respective WP leader, who then escalates them to the Technical Board (TB).

6.3.1.1 Risk Assessment and Mitigation:

Identification and Characterization: All identified risks are characterized, introduced into the risk register, and discussed to propose mitigation solutions.

Monitoring: Risks are monitored regularly, with an updated risk register maintained throughout the project's duration. This register is a key component of periodic reports.

Impact Analysis: Each risk is analyzed and graded based on its likelihood and potential impact, using a scale that ranges from high severity (significant project disruption) to low severity (minimal impact on project timeline).

Criticality Assessment: Risks are categorized into domains of acceptability and non-acceptability, guiding the decision-making process for mitigation actions.

6.3.1.2 Risk Management Tools and Procedures:

Project Repository: The project risk register and all related documents are stored in the project repository under '3. General Information and Templates'.

Governance Meetings: Regular meetings, including the General Assembly and the Scientific Committee, serve as platforms for risk identification and discussion.

Biannual Reviews: Regular assessments of work progress, including internal peer reviews and technical deviation checks, are integral to early risk detection.

6.3.1.3 Mitigation Strategies:

Preventive Actions: Measures to avoid or reduce the occurrence or impact of identified risks are discussed and proposed based on their criticality.

Responsive Actions: In case of risk materialization, the project employs responsive strategies to minimize impacts, including reallocating resources and adjusting timelines.

6.3.1.4 Goal of Risk Management:

The primary goal is to minimize deviations from expected project results and schedules, thereby safeguarding the project's objectives and deliverables against unforeseen challenges.

Risk management in SHIFT2DC is an integral part of the project, ensuring that risks are identified, assessed, and managed efficiently. This approach enables the project to adapt to challenges and changes, maintaining its path toward achieving its set goals and deliverables.

7 Conclusions

7.1 Summary

The Project Management Plan outlined a comprehensive approach to the management processes of SHIFT2DC, emphasizing collaboration tools, project procedures, and quality management. It is instrumental for establishing a foundation for project activities and outcomes.

7.2 Progress

Significant progress has been made towards achieving the project's goals, with collaboration among partners, a major effort to achieve the adherence to timelines, and the completion of milestones and deliverables. As the first deliverable of the project, this document set the stone for a structured management framework, which is essential for contributing to the SHIFT2DC main goal, the development and integration of medium and low voltage DC solutions.

7.3 Main Challenges

The SHIFT2DC project faced major challenges, especially in meeting deadlines and waiting for design materials such as templates and graphic kits. Despite these difficulties, the project's management plan has contributed to managing SHIFT2DC's goals and outcomes effectively. The task leader adapted the necessary strategies and communicated effectively to overcome the delays, ensuring that this document and the project continued to move forward towards its objectives.

7.4 Next deliverables

- D1.1 DC Applications, Challenges, Opportunities and Evolution Scenarios
- D6.1 Dissemination and Communication Plan
- D7.4 Data Management Plan