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## SHIFT to Direct Current

Deliverable D7.2

Project Management Plan Updated

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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

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Deliverable D7.2 – *Updated Project Management Plan (PMP)* builds upon the initial version (D7.1), offering an up-to-date view of the Shift2DC project's operational framework. It reflects the project's evolution and incorporates procedural and strategic adjustments based on lessons learned. Key updates and improvements include:

- New partners integrated: SEF and SEL has joined the consortium, requiring onboarding adaptations.
- Revised internal procedures for communication, publication workflows, and role definitions based on early coordination experience.
- Appointment of an Innovation Manager (IM) to assure innovation tracking and support.
- Constitution of the Scientific Committee (SC) and External Expert Advisory Board (EEAB), enhancing quality assurance and expert input.
- Improved internal reporting mechanisms: updated formats for bi-monthly reports and Internal Management Reports (IMRs).
- Activation and refinement of GitHub repositories, improving data and software management practices.
- Enhanced data dissemination planning, including Zenodo publication templates and DOI consideration for project deliverables.
- Deployment of full communication framework, including Communication Plan, Brand Guidelines, and structured demo coordination meetings.
- Early assessment of AI tools for documentation led to a decision to keep manual processes, prioritizing clarity and traceability

These changes were driven by the need to improve coordination, transparency, and engagement across the project. The PMP remains a living document, aligned with the Grant Agreement (GA) and Consortium Agreement (CA), supporting timely, high-quality project execution.

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## Keywords, Acronym

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CA	Consortium Agreement
CC	Carbon Copy
CINEA	European Climate, Infrastructure and Environment Executive Agency
CO	Communication Officer
D	Deliverable
DC	Direct Current
DDC	Data Definition Catalogue
DMP	Data Management Plan
DOI	Digital Object Identifier
EC	European Commission
EEAB	External Expert Advisory Board
EMS	Energy Management System
FAIR	Findable, Accessible, Interoperable, Reusable
GA	Grant Agreement / General Assembly
HIL	Hardware-in-the-Loop
IM	Innovation Manager
IMR	Internal Management Reports
IPR	Intellectual Property Rights
KPI	Key Performance Indicator
KSO	Key Specific Objectives
LVDC	Low Voltage Direct Current
M	Project month
MoMs	Minutes of Meetings
MS	Milestone
MVDC	Medium Voltage Direct Current
NLP	Natural Language Processing
OTHER	Other deliverable type
P1 / P2	Reporting Periods
PC	Project Coordinator
PMC	Project Management Committee
PMP	Project Management Plan
PO	Project Officer
PU	Public (dissemination level)
R	Report (deliverable type)
SC	Scientific Committee
SCADA	Supervisory Control and Data Acquisition
SEN	Sensitive (dissemination level)
T	Task
UC	Use Cases
WP	Work Package

## 1 Introduction

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### 1.1 Scope and Objectives

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This updated PMP serves as an evolution of the initial version[1], integrating refinements based on the practical experience and lessons learned during the first three semesters of the Shift2DC project. The objective is not to redefine the project structure, but to enhance and adapt management procedures to better align with real-world implementation needs and the project's dynamic context.

Building upon the foundational elements of the original PMP, this document incorporates operational insights gathered through ongoing collaboration, coordination challenges, and milestones (MS) reached so far. As such, it introduces practical updates to strengthen governance, coordination, quality assurance, and communication among an expanded consortium. This document is intended to support all project actors, particularly the Project Management Committee (PMC), SC, Work Package (WP) leaders, and task leaders, in ensuring continuity, responsiveness, and alignment with the project's goals and commitments.

### 1.2 Structure

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This document is structured into 9 sections, in which 7 of them are targeted to provide a full vision of the Shift2DC project's management approach:

- **Section 1 – Introduction:** outlines the purpose, objectives, and structure of the document.
- **Section 2 – Shift2DC Structure:** presents the Shift2DC project's WPs, the overall timeline, milestones and deliverables.
- **Section 3 – Project Governance and Management:** describes the management roles and responsibilities, internal communication channels, the project repository, and the procedures for organizing meetings.
- **Section 4 – Project Operational Procedures:** details the processes for preparing and submitting deliverables, internal and periodic reports, and managing project risks.
- **Section 5 – Communication, Dissemination and Visibility Management** - provides guidelines for event participation, preparation of scientific outputs, and public communication activities.
- **Section 6 – Data Management:** defines the approach to data handling and the development of the project's Data Management Plan (DMP)[2].
- **Section 7 – Quality Management and Reporting:** describes the methods used to support consistency and quality in project outcomes.
- **Section 8 – Risk Management:** details the Risk Management structure, describes the processes for risk registering, monitoring, and reporting
- **Section 9 – Use of Artificial Intelligence and Ethical Considerations:** an Ethical evaluation of AI use within project activities and internal processes is made.
- **Section 10 – Conclusions:** offers a summary and closing remarks.

This structure is intended to assist all members of the Shift2DC Consortium in understanding and applying the project's management framework.

### 1.3 Relationship with other deliverables

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Deliverable D7.2, as a management plan, plays a role in connecting key aspects of the project. It ensures that execution remains coordinated across different work areas by acting as a backbone for:

- **Management:** D7.2 is focused on Continuous Improvement and is part of an iterative process that began with the initial PMP at M2 and will conclude with the final PMP at M36 (D7.1 [1] and D7.3, respectively). Each version reflects lessons learned, updates in procedures, and evolving project needs, supporting continuous improvement in project coordination.
- **Communication & Dissemination:** It reinforces and supports the objectives set out in the D6.1 - Communication Plan[3] and D6.2 - Communication Plan Updated as it provides the internal structure and coordination that supports the implementation of the Project communication plans.
- **Data Management:** The PMP defines workflows, responsibilities, and quality processes that help ensure the effective implementation of the DMP. It actively supports the goals of D7.4 - Data Management Plan[4] and D7.5 - Data Management Plan - Updated, by embedding Findable, Accessible, Interoperable, Reusable (FAIR) principles and EC guidelines into the project's daily operations.

The PMP not only ensures effective project management and alignment across communication, dissemination, and data management, but also provides a clear structure for coordination and progress tracking, as it supports other WP activities.

## 2 Shift2DC Structure

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This section presents the overall structure of the project, including its objectives, WPs, MS, and key deliverables.

### 2.1 Project Overview

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The Project is built around the development of scalable, interoperable Direct Current (DC) solutions and a regulatory framework for their integration into DC grids. A top-down, application-agnostic approach guides the design, testing, and validation of Medium-Voltage Direct-Current (MVDC) and Low-Voltage Direct-Current (LVDC) technologies. The Consortium will use its expertise to develop, test, and demonstrate the technical feasibility, cost-effectiveness, life cycle assessment, and environmental impact of these DC solutions in data centres, buildings, industrial sites, and ports across Europe (Germany, France, and Portugal) [5].

### 2.2 Project Objectives

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Shift2DC Key Specific Objectives (KSO) are:

- Perform feasibility studies of DC solutions (KSO1)
- Develop design tools for DC solutions (KSO2)
- Develop realtime simulation tools for DC solutions (KSO3)
- Develop Energy Management System (EMS) for DC grids (KSO4)
- Propose new control devices for loads, power sources and energy storage systems (KSO5)
- Propose new infrastructure solutions for DC grids and meshed architecture for DC distribution (KSO6)
- Develop new protection architectures and solutions (KSO7)
- Understand the perspective of consumers concerning DC solutions (KSO8)
- Provide guidelines for the development and exploitation of DC (KSO9)
- Propose and evaluate different business models enabled by DC solutions (KSO10)
- Identify regulatory and standardization barriers and provide recommendations (KSO11)

### 2.3 Shift2DC Consortium

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The Shift2DC consortium comprises 35 partners: from which 21 beneficiaries, 7 affiliated entities, and 7 associated partners from ten European countries, each bringing unique expertise and capabilities to the project, as identified in Table 1[6].

Following an internal reorganization within Schneider Electric Industries SAS (SCHN), which led to a centralization of DC expertise (both personnel and projects) into Schneider Electric France SAS (SEF) and Schneider Electric Limited (SEL), SCHN requested the inclusion of both SEF and SEL as new

members in the consortium. As a result, SEF and SEL have been integrated further strengthening its expertise and resources.

Considering recent developments related to the Building Demonstrator, and following the cancellation of the initially planned site, a new demonstrator location is being defined.

Table 1 - SHIFT2DC participants. Color code: Blue – Beneficiaries, Green – Affiliated Entities, Beige – Associated Partners.

ID	Entity	Description	Expertise	Role in Shift2DC
#1	INESC ID	RTO	DC design, simulation tools, WP leadership	- PC - WP Leader, - Task Leader, - SC Member, - Contributor
#2	EDF	Utility	System operator, aggregator, producer	- WP Leader, - Demo Leader, - Task Leader, - SC Member, - Contributor
#3	EDP NEW	Utility + RTO	Energy systems, smart grids	- IM, - SC Member, - Task Leader, - Contributor
#4	TECNALIA	RTO	Living lab, simulation, testing	- Living-Lab host, - Task Leader, - SC Member, - Contributor
#5	RWTH	HEI	Research, test infrastructure, Living lab,	- WP Leader, - Living-lab host - Task Leader, - SC Member, - Contributor
#6	Fraunhofer	RTO	R&D, DC technologies	- WP Leader, - Demo Leader, - Task Leader, - SC Member, - Contributor
#7	Schneider Electric	Large enterprise	DC components and protection systems	- Task Leader - Contributor
#7.1	DC-Systems	<i>Schneider affiliate</i>	DC systems integration	- Contributor
#7.2	SE France	<i>Schneider affiliate</i>	DC expertise	- Contributor
#7.3	SEL (UK)	<i>Schneider affiliate</i>	DC expertise	- Contributor
#8	NEXANS FR	Large enterprise	Cables and network infrastructure	- Task Leader - Contributor
#8.1	Nexans Sweden	Affiliated	Cable systems, design	- Contributor
#9	CIRCE	RTO	Energy transition, power electronics	- Task Leader - Contributor
#10	WATT & WELL	Large enterprise	DC DER solution provider	- Task Leader - Contributor
#11	TALTECH	HEI	Research, energy systems	- WP Leader, - Demo Leader, - Task Leader, - SC Member,

				- Contributor
#12	Bachmann	SME	Data centre management	- Task Leader - Contributor
#13	HIRO MICRODA	SME	DC solutions for data centres	- Task Leader - Contributor
#14	EATON	Large enterprise	DC components and systems, EMS	- Task Leader - Contributor
#14.1	EATON CZ	<i>Eaton affiliate</i>	Support Expertise	- Contributor
#14.2	Eaton AT	<i>Eaton affiliate</i>	Support Expertise	- Contributor
#15	Hitachi Energy	Large enterprise	Protection, components, DC equipment	- Contributor
#16	PHNIX	<i>PHNKG affiliate</i>	Electric devices, HVAC, connectors	- Demo Leader, - Task Leader, - Contributor
#16.1	PHNPS	<i>PHNKG affiliate</i>	Expertise support	- Contributor
#16.2	PHNKG	Large enterprise	Expertise support	- Contributor
#17	APRAM	Public authority	Port management	- Contributor
#18	IST ID	HEI	Academic research, simulation, User engagement	- Contributor
#19	PCB Design	SME	Data centre DC hardware	- Contributor
#20	EHPA	Industry association	Heat pump industry	- Contributor
#21	FINCANTIERI SI	Large enterprise	Shipbuilding	- Contributor
#22	JJ Cooling	SME	Cooling systems	- Contributor
#23	Current/OS	Non-profit	DC promotion and advocacy	- Contributor
#24	ODCA	Non-profit	DC promotion and advocacy	- Contributor
#25	EEM	Utility	System operation	- Contributor
#26	LNE	Certification	Certification	- Contributor
#27	Setec Bâtiment	Consultancy	Engineering services	- Contributor

## 2.4 Work Structure

The project is organized into seven WPs, shown in *Table 2 - Definition of the project WPs and their respective leaders*. and in Figure 1.

*Table 2 - Definition of the project WPs and their respective leaders.*

WP	Name	Description	Leader
1	<b>DC Solutions: Use Cases, Policies, Barriers, Opportunities and Social Adoption</b>	Focus to understanding the DC solutions context, including use cases (UC), policy analysis, standardization gaps, market barriers, opportunities for advancement, and factors influencing social adoption.	<b>Fraunhofer</b>
2	<b>DC Solutions Integrations: Tools, methods and applications</b>	This WP tackles the integration of DC solutions, focusing on the development and application of tools and methodologies that will facilitate this integration.	<b>INESC ID</b>
3	<b>DC Solutions: Assets, Devices and appliances</b>	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.	<b>RWTH</b>
4	<b>DC Solutions: Demonstration and field-tests</b>	WP4 involves the hands-on demonstration and field-testing of DC solutions to validate their effectiveness and identify areas for improvement.	<b>TALTECH</b>
5	<b>Innovation, Exploitation and Harmonization</b>	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.	<b>EDF</b>
6	<b>Knowledge transfer and Dissemination</b>	This WP is dedicated to sharing the knowledge and outcomes of the project with a broader audience, disseminating results to promote wider understanding and uptake.	<b>INESC ID</b>
7	<b>Dissemination and Exploitation of Results</b>	This 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.	<b>INESC ID</b>

Each WP is led by distinct partners within the consortium, collaboratively covering a broad spectrum of activities, as depicted in Figure 1 , illustrating the interdependencies among these WPs.

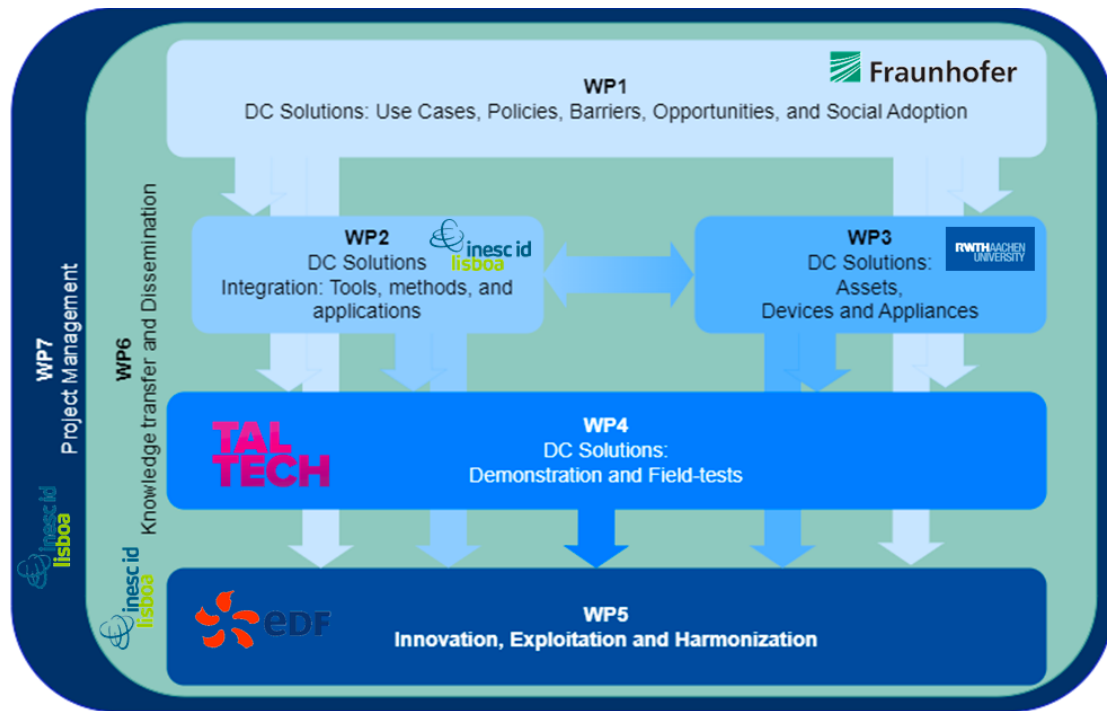


Figure 1 - Interdependencies among WPs.

The project begins with a comprehensive assessment of the current state of DC grids, as show in Figure 2 in DC Grids Overview. This initial phase identifies key barriers, opportunities, regulatory frameworks, existing standards, and potential business models. It sets a strategic foundation for all subsequent activities.

Following this, the work is structured around three core development domains:

- A. DC Grids Design – This phase defines the architecture of DC systems, including protection strategies and ICT integration, to ensure safe, reliable, and intelligent grid operations.
- B. DC Devices, Prototypes, and Concepts – This involves the development and prototyping of critical components such as protection equipment, power electronics, converters, control systems, and energy management tools necessary for DC grid operation.
- C. DC Grid Simulation – Advanced simulation tools are created and used to model grid behavior, test performance, and validate the robustness of proposed solutions under various operating conditions.

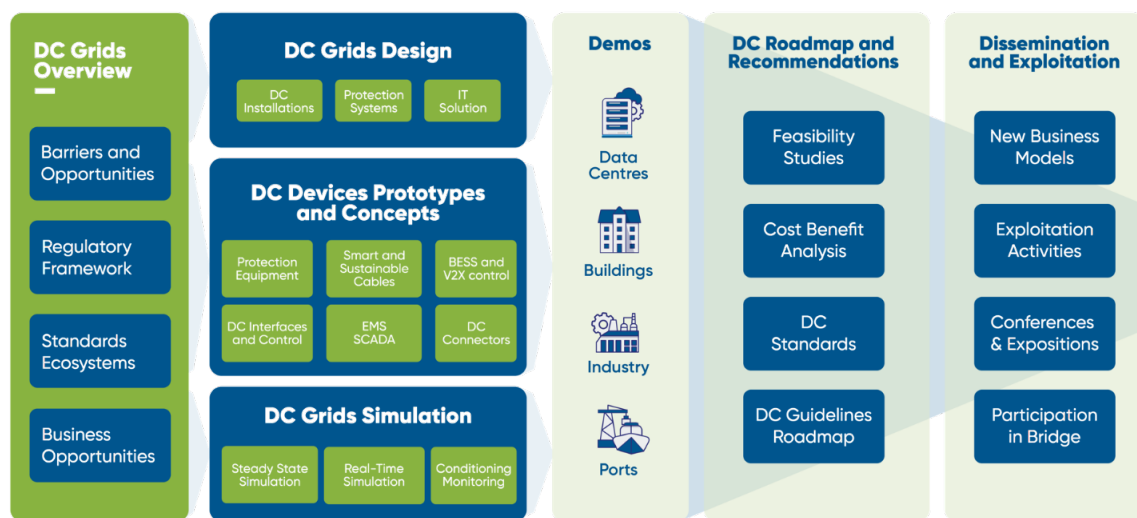


Figure 2 – Shift2DC Project Overview.

The solutions developed through these activities are then tested in four real-world demonstrators: *data centres*, *buildings*, *industrial facilities*, and *ports*. These pilots are essential to assess the practical applicability, efficiency, and scalability of the developed technologies across diverse sectors.

In the final stages, the project focuses on consolidating outcomes and preparing for broader impact. A DC Roadmap and Recommendations is developed, including feasibility studies, cost-benefit analyses, proposed standards, and implementation guidelines. This is complemented by a dedicated Dissemination and Exploitation phase, which promotes the uptake of results through new business models, stakeholder engagement, public communication, and alignment with wider industry and policy initiatives.

These range from initial assessments and integration efforts to demonstrations and field-tests, fostering innovation, and disseminating knowledge, all supported by robust project management. This structured approach ensures that the project not only advances technological innovation but also provides a clear path toward real-world deployment and long-term impact.

## 2.5 Timeline, Milestones and Deliverables

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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 3. In this chart, the colour coding is as follows: 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 (EC) and CINEA. The yellow markers represent the biannual Consortium Meetings.

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 3 for reference.

The Shift2DC project has three planned Periodic Reviews, specified in light blue in Figure 3. The first review is scheduled for month 18, the second for month 36, and the third for month 42. These reviews serve as critical junctures at which the EC/CINEA 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.

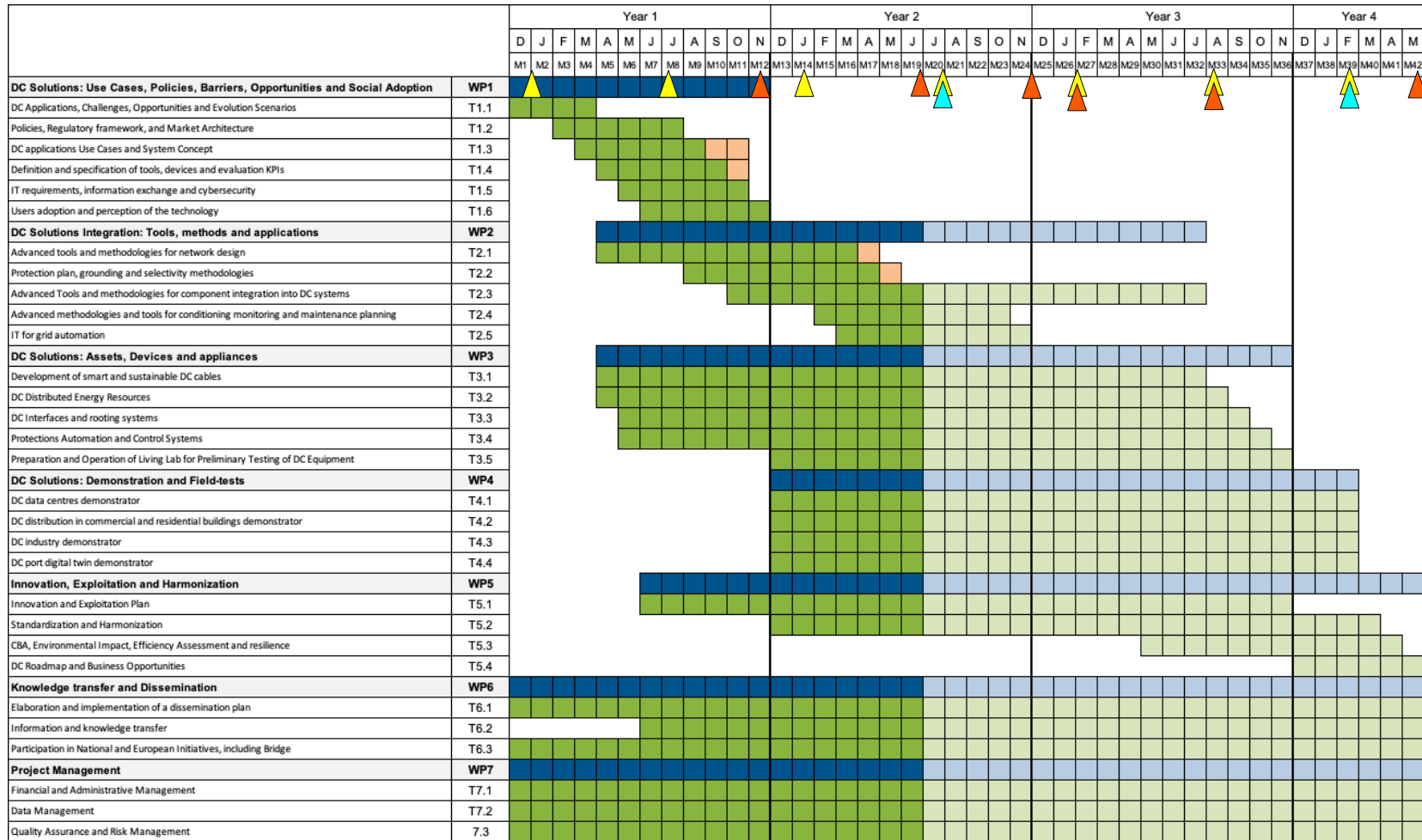


Figure 3 - SHIFT2DC's Gantt Chart.

Table 3 - Shift2DC list of milestones

Milestone No	Milestone Name	WP No	Means of Verification	Due Date
MS1	Detailed definition of business models and UCs to be considered in the development of DC solutions and demonstrators	WP1	<b>Achieved.</b> Delivery of the definition of the use cases and specification of the tools and DC solutions (D1.3 and D1.4).	M10
MS2	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
MS3	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
MS4	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
MS5	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
MS6	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

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 EC.

Milestone MS1 was successfully achieved with the submission of deliverable D1.4 – *Specification of DC solutions, tools and devices*, and with the submission of D1.3 – *Use Case Repository* (both submitted on 31 October 2024). Milestone MS2 was scheduled to be achieved at April M17 with joint submission of D2.2 – DC protection systems design tool. And of D2.1 – *DC solutions design tool* was submitted in March 2025. In the case of D2.2, due to the extensive work carried out, the deliverable was split into four separate reports (D2.2a to D2.2d). As a result, the deadline for this task was extended to Month 19 (M19), and MS2 is expected to be fully achieved upon submission of all parts in the coming period.

Table 4 provides an overview of all Shift2DC deliverables and the current status. The deliverables marked in **bold** are considered as confidential.

Table 4

Table 4 - Shift2DC list of deliverables

Deliv. No	Deliverable Name	W P	Lead	Type	Dissemin. level	Due Date
D1.1	DC Applications, Challenges, Opportunities and Evolution Scenarios - <b>Submitted</b>	1	EDP CNET	R	PU	4
D1.2	Policies, Regulatory framework, and Market Architecture for DC solutions - <b>Submitted</b>	1	FRAUN	R	PU	8
D1.3	Use Case Repository - <b>Submitted</b>	1	TALTECH	OTHER	PU	9
D1.4	Specification of DC solutions, tools and devices - <b>Submitted</b>	1	EDF	R	PU	10
D1.5	IT requirements for DC solutions (Demonstrators) - <b>Submitted</b>	1	CIRCE	R	PU	11
D1.6	User adoption of DC solutions - <b>Submitted</b>	1	IST-ID	R	PU	12
D2.1	DC solutions design tool - <b>Submitted</b>	2	EDF	R	PU	16
D2.2	DC protection systems design tool - <b>Submitted</b>	2	SCHN	OTHER	PU	17
D2.3	DC solutions simulation tool	2	EDF	OTHER	PU	22
D2.4	MVDC grid stability & protection assessment tool	2	RWTH AACHEN	OTHER	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	OTHER	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	<b>WP3 Activities intermediate report</b>	<b>3</b>	<b>RWTH AACHEN</b>	<b>R</b>	<b>SEN</b>	<b>21</b>
D3.2	D3.2 LVDC smart and sustainable system cable	3	NEXANS FR	OTHER	PU	32
D3.3	Distributed Energy Resources – Solutions Report	3	TECNALIA	R	PU	33
D3.4	DC Interfaces and routing 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	RWTH AACHEN	R	PU	36
D4.1	Detailed specification of the demonstrators - <b>Submitted</b>	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 - <b>Submitted</b>	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 - <b>Submitted</b>	6	INESC ID	R	PU	6
D6.2	Dissemination and Communication Plan - Updated	6	INESC ID	R	PU	24
D7.1	Project Management Plan- <b>Submitted</b>	7	INESC ID	R	PU	2
D7.2	Project Management Plan - Updated - <b>Submitted</b>	7	INESC ID	R	PU	18
D7.3	Project Management Plan - Final	7	INESC ID	R	PU	36
D7.4	Data Management Plan - <b>Submitted</b>	7	INESC ID	R	PU	6
D7.5	Data Management Plan- Updated	7	INESC ID	R	PU	36

### 3 Project Governance and Management

The Shift2DC project employs an adaptable organization structure to coordinate the engagement of its members and stakeholders[6]. This setup, presented in Figure 4, is supported by flexible decision-making processes to guide the project's strategy, ensuring effective communication with the EC, and fostering synergies across the project's various elements.

#### 3.1 Management Structure

Management is conducted across three principal levels:

1. the General Assembly (GA) which oversees strategic direction and vision,
2. the PMC which handles administrative and financial tasks,
3. the SC which provides scientific leadership,



Figure 4 - Shift2DC Management Structure[5].

##### 3.1.1 General Assembly

The GA is the main decision-making body of the consortium and is responsible for handling key strategic decisions that impact the implementation and success of the project. The GA is chaired by Project Coordination committee and is composed of one beneficiary representative. Each beneficiary is allowed to have one vote.

The General Assemblies, take place every six months, play a key role in providing comprehensive strategic and technical guidance, involving all the partners in the consortium. Table 5 identifies the

designated members for the GA, one per beneficiary, although the members may change during the project.

Table 5 - Shift2DC General Assembly representatives

Partner	Representant
INESC ID	Hugo Morais (chairperson)
EDF	Amel Addala
EDP NEW	Carlos Cardoso
TECNALIA	Salvador Ceballos
RWTH	Katharina Hetzenecker
Fraunhofer	Kilian Drexler
Schneider Electric	Ahmad Makkieh
DC-Systems	Avinash Papisetti
NEXANS FR	Nicolas Rousselet
CIRCE	Jonatan Peris Rivas
WATT & WELL	Samy Elkamch
TALTECH	Andrii Chub
Bachmann	Jeannette Wild
HIRO MICRODA	Rahul Sharma
EATON	Benedict Mortimer
Hitachi Energy	Javier Iglesias
PHNIX	Holger Krings
APRAM	Carlos Cardoso
IST ID	Lucas Pereira
PCB Design	Blanka Petrik
EHPA	Benat Uribealgo
FINCANTIERI SI	Andrea Colavitto
JJ Cooling	Enzo Minazzo

The beneficiary representative can appoint a substitute or a proxy in case of unavailability, and can also invite other beneficiary members, without voting rights. Every member of the GA has the authority to discuss, negotiate, and make decisions on all matters specified in the Consortium Agreement.

The GA procedures and attributions are defined in the Shift2DC Consortium Agreement[5] and can be resumed in:

- Each member of the GA 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.

### 3.1.2 Project Coordinator

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The Project Coordinator (PC)'s role is to ensure compliance with the Consortium[5] and Grant[4] Agreements, facilitate communication, administer the project's finances, and coordinate with the GA for any necessary amendments. The PC acts as the link between the Parties and the Granting Authority.

Main responsibilities include:

- Carrying out the tasks set out in both the GA and the Consortium Agreement.
- Monitoring that all Parties meet their obligations under the GA and Consortium Agreement
- Keeping an updated list of contact persons and addresses
- Collecting, reviewing, and submitting reports, deliverables, financial statements, and other required documents to the Granting Authority
- Sharing relevant project documents and information with all Parties
- Managing the financial contribution from the Granting Authority and performing related financial tasks as outlined in the Consortium Agreement
- Providing official copies of documents when needed, particularly for audits or claims
- Handling requests for amendments to the GA, subject to approval by the GA
- Organizing GA meetings, including preparing agendas, proposing decisions, chairing meetings, drafting MoMs, and monitoring the implementation of decisions

### 3.1.3 Project Management Committee

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The PMC will assist the GA and especially the PC with organization, administration, and legal matters. The PCM is, therefore, responsible for overseeing all the management tasks and roles of Shift2DC. This Committee has specific responsibilities including but not limited to:

- Monitoring compliance with the consortium and GA.
- 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 GA meetings.

This PMC is chaired by the PC and can be specified as follows:

1. **Project Coordinator**
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** – 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 Key Performance Indicators (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. Table 6 Presents the PMC elements

*Table 6 - Project Management Committee constitution*

Role	Institution	Name	Contact	Function
<b>Project Coordinator</b>	INESC ID	Hugo Morais	hugo.morais@inesc-id.pt	The Shift2DC PC is the main point of contact and serves as the key interface with the EC.
<b>Project Manager</b>	INESC ID	Ana Rita Nunes (Main) João Marques (Support)	aritanunes@inesc-id.pt joao.marques@inesc-id.pt	Oversees the project's administrative and financial management, supports the PC in ensuring high-quality and timely outputs, and communicates with the EC, consortium, advisory boards, and stakeholders.
<b>Communication Officer</b>	INESC ID	Mariana Carmo	mariana.carmos@inesc-id.pt	Leads dissemination and communication efforts, manages project branding, and fosters engagement with the target audience.
<b>Innovation Manager</b>	EDP NEW	Carlos Cardoso	carlos.cardoso@edp.com	Drives the innovation and exploitation strategy, aligning research goals with results and user validation. Defines innovation KPIs and integrates partners' exploitation plans.

### 3.1.4 Scientific Committee

Comprises the Scientific Coordinator, WP Leaders, and the PC, focusing on the technical aspects and strategic implementation of the project. The Shift2DC SC is led by the PC and the Project Manager. It meets once a month to review the project's technical progress and support its strategic implementation[4].

Main tasks include:

- Carrying out decisions made by the GA
- Monitoring project progress and compliance with the GA; proposing changes to the agreement when necessary
- Ensuring the quality of technical and scientific work
- Identifying and reducing project risks
- Supporting communication within and between WPs
- Tracking milestones and deliverables
- Assisting the Coordinator in preparing for and attending meetings with the EC, such as project review

Table 7 presents the Shift2DC SC members.

*Table 7 - Shift2DC Scientific Committee members*

Role	Partner	Representant
Project Coordinator	INESC ID	Hugo Morais (chairperson)
Project Manager	INESC ID	Ana Rita Nunes / João Marques
Innovation Manager	EDP NEW	Carlos Cardoso
WP 1 Leader	Fraunhofer	Kilian Drexler
WP 2 Leader	INESC ID	Pedro Costa
WP 3 Leader	RWTH	Katharina Hetzenecker
WP 4 Leader	TALTECH	Andrii Chub
WP 5 Leader	EDF	Amel Addala
WP 6 Leader	INESC ID	Mariana Carmo
WP 7 Leader	INESC ID	Ana Rita Nunes / João Marques

### 3.1.5 Work package and Task Leaders

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WP Leaders are designated from each Party, responsible for coordinating their respective WPs and reporting any deviations or risks. These are responsible for overseeing the activities within their WP to ensure execution, progress, and coordination. Key responsibilities include:

- Coordinating tasks and activities within the WP to ensure goals are met
- Ensuring smooth communication between tasks within the WP and with other WPs
- Monitoring task progress and checking the quality of results
- Reporting progress to the SC and flagging any delays, issues, or risks
- Providing input for reports to the EC
- Organizing regular WP meetings with task leaders and participants, including scheduling, leading the meeting, and sharing MoMs and relevant materials
- Keeping the WP mailing list and communication platforms (e.g. Discord) active and updated
- Participating in periodic review meetings with the Coordination Team and the Project Officer (PO)

Task Leaders are responsible for managing their assigned tasks to ensure timely delivery and alignment with project goals. Their main responsibilities include:

- Attending WP meetings and reporting task progress to the WP Leader
- Identifying risks or delays and informing the WP Leader and Coordination Team
- Managing, executing, and completing task activities according to plan
- Planning and drafting deliverables in coordination with other task participants, and updating the WP Leader on their status
- Submitting deliverables for internal review on time and following the guidelines in Section 5.2 of this deliverable

### 3.1.6 External Expert Advisory Board

In addition to its internal procedures and partner expertise, the Shift2DC Consortium is supported by an EEAB, formally appointed and composed of experienced European and international experts. The current members of the EEAB are presented in Table 8.

Table 8 - Shift2DC External Expert Advisory Board representatives

Representant	Affiliation	Scope of work
Marco Stieneker	Maschinenfabrik Reinhausen	Industry: Application of DC solutions in industrial settings Technology: Advanced DC tools and implementation strategies
Harry Stokman	DC Expert BV	Datacenters - Insight into DC integration and optimization Advanced DC tools and implementation strategies
Holger Borcharding	TH OWL UAS	Buildings: Integration of DC in building infrastructures Efficiency: Strategies for energy efficiency
Lev Slutskiy	VICOR	Power conversion Sustainability: Eco-friendly energy systems
Piotr Dworakowski	SuperGrid Institute / Gdańsk University of Technology	Power electronics: HVDC and MVDC converter technologies Protection systems: DC grid protection and fault management

## 3.2 Governance Guidelines

Shift2DC governance model, was established to ensure planning, supervision, and coordination of the project's activities and tasks, coupled with reporting and accountability mechanisms, as outlined in Figure 4.

### 3.2.1 Operational Procedures for the General Assembly

The following procedures apply to the preparation and organization of GA meetings:

- **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 Decision-Making

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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 GA decisions yet retain veto rights and the ability to resolve disputes as outlined in the CA, as detailed in Section 11.8.

### 3.2.3 Voting Rules and Quorum

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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 PC 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.

### 3.2.4 Minutes of Meetings

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The meeting organizer is responsible for drafting and circulating the Minutes of Meetings (MoMs), which serve as official records upon acceptance by the Parties.

- Draft MoMs shall be distributed within 10 days after the meeting.
- MoMs are considered approved if no objections are raised within 15 days of distribution.

The use of Natural Language Processing (NLP) tools for meeting support, such as automated transcription and summarization services, was explored during the project. Some tools were tested to evaluate their potential usefulness in preparing MoMs. Based on feedback from project partners and following discussions during the General Assembly held in Tallinn, **the consortium decided not to adopt such tools for project meetings or official documentation.** Manual preparation of MoMs was considered more appropriate to ensure clarity and control over official records. This decision will apply throughout the project duration.

## 4 Project Operational Procedures

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To ensure 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.

This segment also 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 Liaison with the European Commission

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

### 4.2 Collaboration in Shift2DC

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Most project communication is handled through email exchanges and video calls. Additional details on these communication methods are provided in the following sections. For urgent matters, telephone calls may be used, with key outcomes shared by email. Printed letters are reserved for official documents requiring physical signatures and are sent by registered mail.

Following discussions within the consortium, it was agreed by all partners that AI tools such as automated transcription or summarisation would not be used for documenting meetings. Minutes of Meetings are drafted and reviewed manually to maintain clarity, consistency, and control over official records.

#### 4.2.1 Email Correspondence

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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.

#### 4.2.1.1 Email Distribution Lists

The Shift2DC organizers have created multiple email distribution lists and establish distinct channels for various conversation types and among partners. Each list has 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 9, along with their intended functions.

Table 9 - Scope of Shift2DC Email Distribution Lists

Mailing List	Email Address	Subscribers	Scope
Dissemination	shift2dc.dissemination@inesc-id.pt	Coordination and CO	To promote and disseminate project-related information both internally and externally.
Coordination	shift2dc.coordination@inesc-id.pt	PC and manager	For operational discussions and project management among team members.
External Expert Advisory Board	shift2dc.advisory.board@inesc-id.pt	EEAB 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 SC	For discussions and exchanges focused on technical and research-oriented guidance.
WP1	Shift2dc.wp1@inesc-id.pt	WP1 leader and task participants	For internal communication and coordination of the WP1 activities.
WP2	Shift2dc.wp2@inesc-id.pt	WP2 leader and task participants	For internal communication and coordination of the WP2 activities.
WP3	Shift2dc.wp3@inesc-id.pt	WP3 leader and task participants	For internal communication and coordination of the WP3 activities.
WP4	Shift2dc.wp4@inesc-id.pt	WP4 leader and task participants	For internal communication and coordination of the WP4 activities.
WP5	Shift2dc.wp5@inesc-id.pt	WP5 leader and task participants	For internal communication and coordination of the WP5 activities.

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.

#### 4.2.1.2 Centralized Coordination Communication Protocol

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For all matters related to project coordination, partners must direct their messages to the distribution list **shift2dc.coordination@inesc-id.pt**. Messages should not be sent to individual members of the coordination team to avoid fragmented communication. It is also important to keep discussions within the same email thread to maintain context and avoid loss of information. Every special request should be submitted by email and include the best possible level of detail to support timely and effective action, including when intervention at the European Commission level is required.

#### 4.2.1.3 Conduct for Email Communication

---

All partners should adopt to the following guidelines when sending emails related to the Shift2DC project:

- Always include the project identifier in the email subject line, formatted as "[Shift2DC] - Subject".
- If an email requires immediate attention from the recipients, "[ACTION REQUIRED]" should be added before the project identifier in the subject line.
- Selection of the appropriate mailing lists for an email should be based on the details provided in Table 9.
- For any direct email exchange between select partner groups, the coordination mailing list must be included in the Carbon Copy (CC) field.
- The Shift2DC Coordination should be CC'd on all emails that involve technical discussions.

#### 4.2.2 Video-Conferencing Calls

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Ongoing communication is essential for collaboration and achieving project goals. The Shift2DC project holds regular video calls, including full team meetings and one-on-one check-ins, to track progress, align work, and manage tasks.

These meetings are often conducted using Microsoft Teams and are a key part of daily communication. While Teams is the primary platform, other tools may be used to accommodate partners with different software policies. Shift2DC also organizes video-conference workshops, both internal and with external participants, to support broader collaboration.

MoMs serve as the official record of discussions, decisions, and action points. For all video-conferencing calls, the preparation and circulation of MoMs is mandatory, as described in 3.2.4. In accordance with the project's agreed policy, the use of automated transcription or summarization services with Artificial Intelligence for drafting MoMs or other official documentation is not permitted throughout the project duration.

#### 4.2.2.1 Routine Virtual Meetings

To ensure communication and decision-making, the Consortium holds regular virtual meetings. Some of these may be held in person when aligned with key project events or milestones. Table 10 provides an overview of the meeting schedule and frequency.

*Table 10 - Schedule of Regular Shift2DC Virtual Meetings*

Type of Meeting	Periodicity
General Assembly	Held once every six months (one per semester). GA meetings are hybrid, but for very special occasions, they can be substituted for virtual meetings.
Scientific Committee	Held remotely in a monthly basis, preferably during the first week of each month.
WP-specific Meetings	Typically held monthly, though frequency may vary based on the WP and project phase.
Task-specific Meetings	Task-specific Meetings: Can be weekly, bi-weekly, or monthly depending on task complexity, partner involvement, and timeline.
Coordination Demo Meetings	Held once per month between the PMC and each Demo Leader to review demo progress, assess risks, monitor potential delays, and discuss any issues related to implementation.

INESC ID typically hosts its meeting on Microsoft Teams. Participants can access these meetings via the desktop app or web browser, depending on their preference and setup.

#### 4.2.2.2 Guidelines for Project Conference Calls

Conference preparation, execution, and follow-up should follow clear practices to ensure productive outcomes. Table 11 details the procedures the Shift2DC partners are encouraged to follow before, during and after the meeting.

*Table 11 – Recommendations for Scheduling, Conducting and Following up Shift2DC meetings*

Type of Meeting	Activity	Details
Before the meeting	Schedule the meeting	GA: 30 days (15 for extraordinary); SC: 14 days (7 for extraordinary); Other meetings: ideally 7 days, or as early as possible for urgent matters
	Use scheduling tool	May be used to confirm availability (ex: doodle <sup>1</sup> )
	Send invitation	Include all relevant call details
	Share agenda	GA: at least 14 days (7 for extraordinary); SC: at least 7 days; Other meetings: with invitation or as early as possible
	Partner availability	Each partner ensures participation or delegation

<sup>1</sup> [www.doodle.com](http://www.doodle.com)

During the meeting	Record attendance	Host records attendance
	Follow meeting etiquette	Mute when not speaking; use chat for side comments; wait for host to give the floor
	Resolve technical issues	Participants are encouraged to log in early
After the Meeting	Prepare and distribute MoMs	GA and SC: within 10 days; Other meetings: within reasonable timeframe
	Review MoMs and provide feedback	Partners review and provide feedback within defined period; after that, MoMs are considered approved
	Upload documents	MoMs and related documents must be uploaded to project repository
	Schedule follow-up meetings (if needed)	Must remain open to consortium and be communicated to coordination team

### 4.2.3 Procedures for Physical Meetings

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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.

#### 4.2.3.1 Scheduling a Physical Meeting

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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 favourable.

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.

#### 4.2.3.2 Preparing for a Meeting

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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.

#### 4.2.3.3 Meeting Rooms:

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- 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.

#### 4.2.3.4 Follow-Up Procedures

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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.

### 4.3 Project Repository

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The Shift2DC project repository, hosted on Microsoft Teams, serves as the central platform for document sharing and storage. All project-related documents are uploaded and made accessible to partners through this repository. Access instructions are provided below.

#### 4.3.1 Access to the Project Repository

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The Shift2DC Microsoft Teams repository is accessible via a web browser. Access is exclusively granted to beneficiary members of the Consortium. The steps to access the repository are as follows:

- Partners should request access by contacting the PMC through the designated mailing list.
- Upon granting access, the partner 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.

### 4.3.2 Utilizing the Repository

The main folder is organized into key sections, potentially with subfolders, as detailed in Table 12- overview of the different sections within the Teams repository.

Table 12 - Overview of the different sections within Teams repository

Section	Managed By	Description
Datasets	INESC ID	Contains various datasets used/generated by the project, including raw data, processed data, and metadata.
WP1 - DC Solutions_Use Cases	FRAUN	Focuses on UCs 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.

### 4.3.3 Uploading Files

Files can be uploaded by selecting the target folder and using the “Upload file” option, or by dragging and dropping files directly into the folder. Figure 5 illustrates both methods.

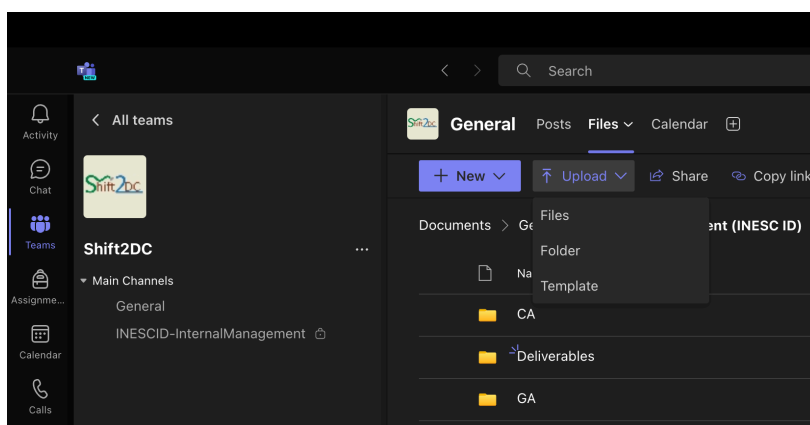


Figure 5 - Uploading files to the repository

#### 4.3.4 Downloading Files

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To download files or folders, select the item, click on “More options” (three dots), and choose “Download.” The file will be saved to the user’s device. This process is illustrated in Figure 6.

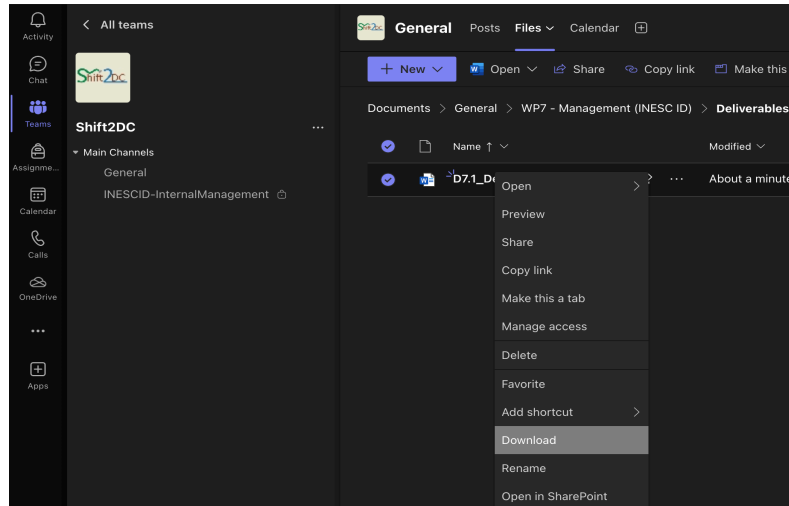


Figure 6 - Downloading files from the repository.

Microsoft Teams enables real-time collaborative editing, allowing multiple partners to work on the same document simultaneously. Changes are saved automatically and visible to all users.

#### 4.3.5 Editing Files for Version Control

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This system ensures that all partners work with the latest version while maintaining a complete history of changes:

- Internal drafts should follow a decimal versioning system, starting with version 0.1, 0.2, etc., reflecting ongoing internal development and reviews.
- Version 1.0 indicates the first official version approved for submission to the EU Portal and for publication on the project website.
- Any subsequent official updates or resubmissions will be labeled incrementally as version 2.0, 3.0, and so on.
- Previous versions remain accessible via the file’s version history, where past versions can be viewed or restored if needed.
- When manually uploading a revised file, partners should rename the file according to its version number and, if relevant, include their entity acronym (e.g., “[Original file name]\_v0.3” or “[Original file name]\_INESC-ID\_v0.3”) before placing it in the correct folder.

### 4.4 Guidelines for Creating, Reviewing, and Submitting Project Deliverables

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The Shift2DC project is set to produce 36 distinct deliverables. A comprehensive list of these deliverables is available in Table 4. Beyond the items listed 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.

#### 4.4.1 Procedures for Deliverable Creation

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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.

##### 4.4.1.1 Deliverable Naming Standards

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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 GA. Working versions of a deliverable should use the same format, adding a version indicator *Vx.y* after the deliverable name.

##### 4.4.1.2 Deliverable Format Requirements

---

Deliverables must be prepared using the official project templates available in the repository under *General / WP6 – Knowledge transfer (INESC ID) / SHIFT2DC\_Templates*. These templates have been updated during project implementation to support both the internal submission process and open dissemination objectives.

- Working versions should be prepared in MS Word format (.docx) to facilitate collaborative drafting and internal reviews.
- Final versions must be converted into PDF format (.pdf) for official submission.

In addition to the standard deliverable templates, an optional short version template has been introduced end the end of the Deliverable template for use in open repositories such as Zenodo. These short versions are designed to:

- Provide a concise, accessible version of the deliverable content;
- Follow a simplified structure defined in the template;
- Include relevant figures and a summarized, more digestible presentation of results;
- Support broader dissemination of project results by assigning a Digital Object Identifier (DOI) and increasing visibility;
- Be published under open access conditions.

The preparation of these short versions is **optional**, and no partner is obligated to produce them. However, partners are strongly encouraged to adopt this format when appropriate, in coordination with the WP6 Knowledge Transfer and Dissemination team.

#### 4.4.1.3 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:**

5. The deliverable leader should draft an initial structure and present a draft Table of Contents (ToC) at least 3 months before the submission deadline.
6. The leader then collaborates with partners to refine the structure and distribute tasks.
7. Regular conference calls among task partners are essential for monitoring progress, discussing content, and reallocating tasks.
8. Partners should submit their contributions via email and upload them to the project repository.
9. The deliverable leader must coordinate with the WP leader and inform them and the coordination team of any delays or issues promptly.
10. An internal review-ready final draft should be completed at least 1 month before the deadline, ensuring all sections and partner contributions are included.
11. 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:**

12. Store working versions in the deliverable-specific repository folder (WPX/Deliverables/DX.Y\_Deliverable Name.SHIFT2DC.(dd-mm-yyyy).(vx.y)).
13. Create a new folder within this for partner contributions.
14. Store reference documents in a separate folder within the deliverable folder.

#### 4.4.1.4 Classification and Distribution Levels of Project Deliverables

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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 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 WPs (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.

#### 4.4.2 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 WP 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 EC 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).

#### 4.4.3 Procedures for Updating, Approving, and Submitting Deliverables

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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 Communication, Dissemination and Visibility Management

Effective communication and dissemination are essential to ensure that Shift2DC reaches its intended audiences and maximizes its impact. A set of internal procedures and best practices support the release of communication materials and scientific outputs. These activities include, but are not limited to, press releases, website updates, social media campaigns, participation in conferences and industry events, publications in scientific journals, technical presentations, online webinars, and stakeholder engagement initiatives.

The Shift2DC Dissemination and Communication Plan (Deliverable D6.1)[3] defines the project's strategy to maximize visibility, ensure effective dissemination of results, and engage with the identified target audiences throughout the project. The plan was submitted at M6 and will be updated at M24.

All Partners are encouraged to consult this document when preparing social media content to ensure alignment with the Communication Plan objectives and to contribute effectively to project dissemination.

### 5.1 Shift2DC Website

The Shift2DC website<sup>2</sup> serves as the primary public communication platform of the project. It provides information on the project's objectives, structure, and expected outcomes. As shown in Figure 7, the website features dedicated sections including Home, About, Research and Innovation, Media and Events, and Contacts.



Figure 7 - Shift2DC website homepage.

<sup>2</sup> <https://shift2dc.eu/>

It explores the project scope, introduces the consortium, and presents the research activities carried out. The Research and Innovation section includes information on the four demonstrators, explaining how the solutions developed within the project will be integrated and validated. Public deliverables, publications, news, and events are also published on the website to keep external stakeholders informed.

## 5.2 Procedures for representing the Consortium in dissemination events

Shift2DC partners participating in events must follow internal procedures to ensure consistent representation of the project. The main steps are summarized in the table below.

*Table 13 - Procedure for SHIFT2DC Partner Participation in Events*

Step	Action	Details
1	Inform the PMC	Send event details by email and coordinate the presentation content.
2	Use official presentation template	Available in the repository: General/WP6 - Knowledge transfer (INESC ID)/SHIFT2DC_Templates.
3	Adapt and approve presentation	Adapt for audience; submit to Coordination for approval. The presentation must: <ol style="list-style-type: none"> <li>1. Include project overview (consortium, objectives, solutions, impacts)</li> <li>2. Avoid sensitive information</li> <li>3. Include EU emblem and required Horizon Europe disclaimer.</li> </ol>
4	Upload dissemination materials	Upload all materials and photos used at the event to the repository as proof of participation.
5	Coordinate social media coverage	Work with the CO before, during, and after the event for social media posts.

## 5.3 Procedures for Publishing Scientific Papers

Scientific publications resulting from Shift2DC activities must follow internal procedures to protect confidential information, respect intellectual property rights (IPR), and ensure coordination among partners. These procedures are fully aligned with *Section 8.4.2 of the Consortium Agreement* and the obligations of the GA.

### 5.3.1 Submission and Internal Review Process

Partners planning to submit a scientific publication related to Shift2DC must inform the Coordination Team by email<sup>3</sup>, providing the publication title and abstract. The Coordination will then circulate this information to the full Consortium mailing list<sup>4</sup>.

Depending on the authorship composition, two internal review periods apply:

- Papers involving company authors: Notification must be submitted at least 45 calendar days before the planned submission date (see Figure 8).
- Papers without company authors: Notification must be submitted at least 30 calendar days prior to submission (see Figure 9).

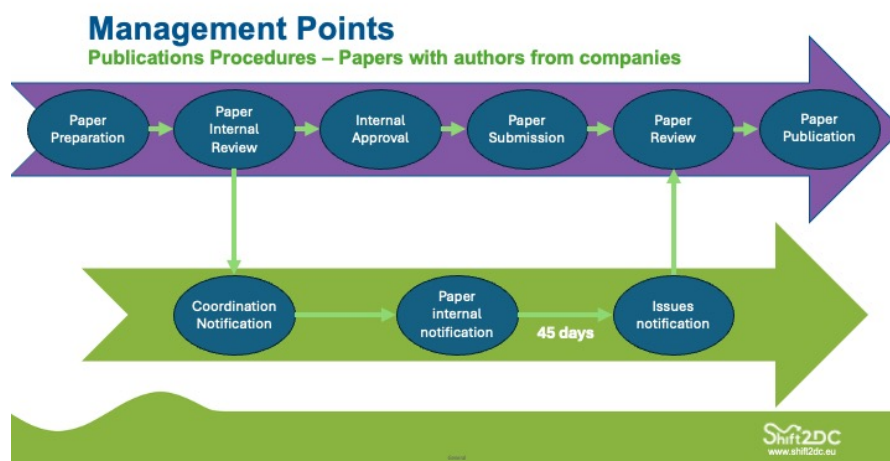


Figure 8 - Internal approval process for scientific publications involving company authors (45-day notification period).

During the notification period, any partner may request access to the full draft and raise concerns or objections, which must be communicated in writing to both the PC and the proposing authors. If no objections are raised within the respective period, submission may proceed automatically.

<sup>3</sup> [shift2dc.coordination@inesc-id.pt](mailto:shift2dc.coordination@inesc-id.pt)

<sup>4</sup> [shift2dc.consortium@inesc-id.pt](mailto:shift2dc.consortium@inesc-id.pt)

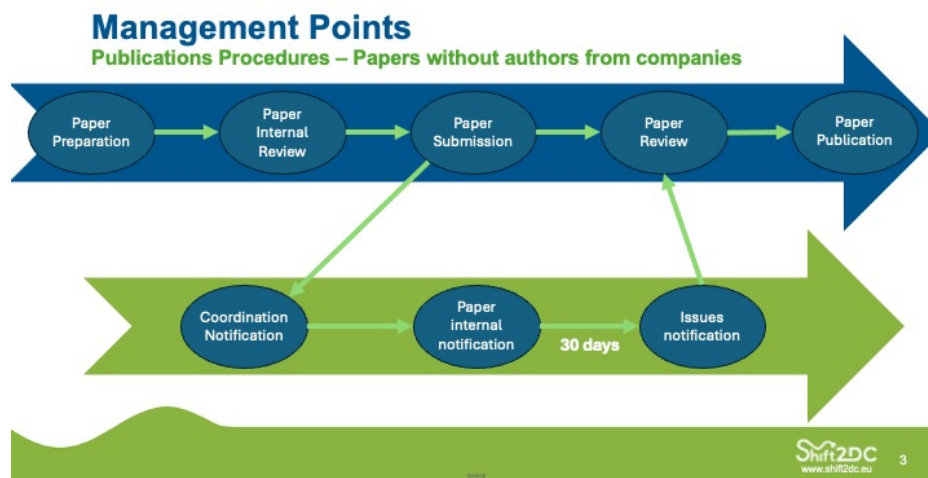


Figure 9 - Internal approval process for scientific publications without company authors (30-day notification period).

In case of objections, affected partners will engage in discussions to resolve the concerns. Objecting partners must justify their objections and may request reasonable modifications. If necessary, the publication may be delayed by up to 90 calendar days to address unresolved issues. After this period, dissemination may proceed according to the Consortium Agreement.

### 5.3.2 Security and Ethics Review

The EEAB may review publications for security-sensitive or ethical content and may recommend adjustments where necessary to ensure compliance with ethical standards.

### 5.3.3 Acknowledgment of EU Funding

All scientific publications, theses, and dissertations must include the following acknowledgment statement:

*This work has been developed under the activities of Shift2DC project, funded by the European Union's Horizon Europe research and innovation programme under grant agreement no. 101136131. Views and opinions expressed in this document are 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.*

### 5.3.4 Post-Publication Actions

After acceptance, the following actions apply:

- The final accepted version must be submitted to the Coordination Team.
- The Coordination will upload the publication and metadata to the Shift2DC project repository.
- Publications will be reported in the periodic project reports and included in open access monitoring where applicable.

## 6 Data Management

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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.

The Shift2DC DMP, formally delivered as project deliverable D7.4 – Data Management Plan (v1.0)[2], provides the full framework for data handling throughout the project. The DMP was prepared under the leadership of INESC ID (Task 7.2) and has been approved and submitted to the EC.

### **The following points are updates from the previous deliverable and will be included in D7.X**

The DMP also defines operational platforms now fully functional for the project:

- **Zenodo – Shift2DC community: for sharing open datasets and publications.**
- **GitHub – Shift2DC organization: for version-controlled software and code sharing.**

The DMP includes a Data Definition Catalogue (DDC), hosted in the project repository, which is continuously updated by the PM with input from WP and Task leaders. This catalogue systematically tracks all data elements generated or used across the project.

Future updates to the DMP are scheduled for M36 or as necessary to reflect project developments (Deliverable D7.5 – Data Management Plan - Updated). For complete procedures and requirements related to data management, partners are advised to consult directly the full DMP document (Deliverable D7.4), available in the internal project repository.

### 6.1.1 Open Repository Platforms

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Shift2DC has established open repository platforms to support the responsible management, publication, and preservation of project data and software in compliance with FAIR principles and Open Science obligations:

- **Zenodo:** The Shift2DC public community is hosted on Zenodo<sup>5</sup>. This repository is used to publish datasets, deliverables, scientific publications, and dissemination materials with proper metadata and open licenses where applicable.

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<sup>5</sup> <https://zenodo.org/communities/shift2dc/>

- **GitHub:** The Shift2DC collaborative software repository is maintained on GitHub<sup>6</sup>. This environment is used for software development, source code versioning, collaborative tool development, and open access to software components produced in the project.

Both repositories ensure long-term preservation, traceability, and accessibility of project outputs, while respecting confidentiality, intellectual property, and licensing rules defined in the DMP and Consortium Agreement.

### 6.1.2 Quality Control and Risk Management

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Quality control in data management is integrated into the project's overall governance and risk monitoring framework. Key measures include:

- Internal reviews of data quality during task, WP, and milestone reviews.
- Cross-validation of datasets and software components by relevant technical partners.
- Continuous update and supervision of the DDC maintained by the Project Management Team.
- Oversight by INESC ID as Task 7.2 leader, in coordination with WP and Task leaders.
- Integration with the overall project risk management process described in Section 5.3, ensuring early detection and resolution of potential data-related issues.

## 6.2 Handling Security and Ethics-Related Incidents in Shift2DC

---

In the Shift2DC project, the management of security and ethics-related incidents is streamlined under the PMC'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.

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<sup>6</sup> <https://github.com/SHIFT2DC/>

## 7 Quality Management and Reporting

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In the Shift2DC, quality management is critical to meet goals and maintain the integrity of 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 SC and WP 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 PO.
  - PMC and SC 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 Shift2DC project's duration, ensuring successful outcomes and adherence to project objectives.

### 7.1 Reporting

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This section outlines the internal reporting mechanisms established to support the quality management of Shift2DC by providing regular tracking progress and identifying potential issues early. Throughout the project, three types of reports are expected: IMRs (Section 7.1.2), Periodic reports to the EC (Section 7.1.1), and bi-monthly reports to the PO (Section 7.1.3).

#### 7.1.1 European Commission Periodic Reports

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The EC periodic reports are mandatory progress and financial reports required under the GA. They provide a structured overview of the work carried out, resources used, and results achieved during

defined reporting periods. The Shift2DC Periodic Reports are prepared at the end of three reporting periods: Period 1 (P1): M1 to M18, Period 2 (P2): M19 to M30, Final Period: M31 to M42.

The periodic reports must be submitted via the Sygma portal within 60 days after the end of each reporting period. The report includes:

1. **Web-based questionnaire** (Sygma portal): The coordination updates deliverables, milestones, risks, publications, dissemination activities, standards, IPR, impacts, datasets, and research team information.
2. **Technical report** (EC template): Prepared by the coordination with partner input, using a shared Word document. It includes:
  - Summary of work performed, progress per WP, deliverables, milestones, risks, impacts, and exploitation/dissemination activities.
  - Follow-up on previous EC recommendations.
  - Open Science practices followed.
  - Deviations from Annex 1 and Annex 2, including deviations per WP and use of resources. Deviations above +/-25% in personnel and direct costs require justification.
3. **Financial report:** Each beneficiary prepares its financial statement directly in Sygma, including effort per WP and use of resources. Items under “other direct costs” exceeding 15% of personnel costs must be listed and justified. After partner submission, the coordination reviews and finalizes the financial report for submission. Financial reports must be signed electronically by each beneficiary’s Project Signatory Person.

Once submitted, the EC reviews the report, may request clarifications, and upon acceptance, processes payment within 90 days. The coordination may submit observations within 30 days after receiving the payment confirmation.

### 7.1.2 Internal Management Reports

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IMRs are reports submitted by each partner every six months, providing updates on activities, resource use, risks, and deviations at the internal coordination level. The PMC reviews these reports to monitor progress, verify alignment with the Consortium Plan, and propose any necessary adjustments. Each partner submits seven IMRs over the project duration.

These reports follow the structure of the Periodic Reports (P1 and P2) required by the EC and serve to collect the necessary data from all partners in a timely manner for the preparation of these reports. They consist of a technical report (Microsoft Word, jointly prepared and reviewed by all partners) and a financial report shared individually (Microsoft Excel), as described in the following sections.

#### 7.1.2.1 Technical Report

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It includes specific guidance for completion and requires a comprehensive review of activities, results, and issues within the reporting period. The report must cover:

- A detailed description of completed tasks, key outcomes, and their contribution to project objectives;
- An explanation of deviations from the planned work or resource use, including possible impacts on other project areas;
- An updated risk register with the status of existing risks and identification of new risks.

#### 7.1.2.2 Financial Report:

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The financial report monitors each partner's financial performance against the budget defined in the GA, supporting early identification of discrepancies before the preparation of Periodic Reports. The Excel file includes:

- An estimate of person-months used per task during the reporting period;
- A preliminary summary of all the costs incurred by each partner.

#### 7.1.3 Bi-monthly Reports

---

The Coordination Team provides the PO with bimonthly reports to ensure regular monitoring of the project's execution. These reports are submitted every two months, during the first week of the following month.

Each report consists of two sections:

1. **Logbook of project events:** A record of all relevant meetings held during the reporting period, including SC meetings, WP meetings, Task meetings, and other relevant project events such as Dissemination Activities.
2. **Task progress updates:** A summary of the work carried out in each active task during the two-month period.

Accurate documentation of meetings through the preparation of MoMs is essential for the proper preparation of these reports. The bimonthly reports serve as an internal tool to keep the PO continuously informed about the project's progress and activities.

## 7.2 External Expert Advisory Board Contributions

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The EEAB monitors the project's progress and provides feedback, with a focus on the alignment of results with sector-specific requirements. The EEAB contributes by:

- Providing input on the quality and applicability of technical outcomes.
- Assessing operational, societal, and economic impacts of project solutions.

According to the GA, the interactions with the EEAB are planned at regular intervals, primarily through remote video-conference meetings, as well as through review of key deliverables and dedicated consultation sessions. This approach allows for optimizing the planning, monitoring, and coordination of project activities and task performance, in line with the overall governance structure. In addition,

participation of the EEAB in the General Assemblies planned for Month 24 (M24) and Month 36 (M36) is being considered, to enable direct engagement with the consortium and strategic input at key milestones.

The EEAB's recommendations are considered by the management bodies to ensure continuous improvement and quality assurance throughout the project.

## 8 Risk Management

The objective of Shift2DC’s risk management process is to minimize deviations from planned activities and deliverables, protect scientific and technical quality, and ensure the successful achievement of the project’s goals despite potential uncertainties.

A structured process has been established to identify, assess, and mitigate risks throughout the project lifecycle. This allows detection of issues and enables corrective measures to safeguard project implementation.

### 8.1 Risk Register

All identified risks are documented in the project’s risk register, which includes their description, affected WPs, and corresponding mitigation measures. The risk register is a living document, continuously updated as new risks emerge or existing risks evolve during project implementation.

As part of the continuous monitoring of project risks, two new items have been added to the risk register in this update of the PMP. Both relate to the DC Building Demonstrator: Risk 13 addresses the potential unavailability of DC Heat Pump equipment (Task 4.2).

The full list of risks, including these recent additions and their proposed mitigation measures, is presented in Table 14. The risk register remains a living document, regularly updated throughout project implementation.

*Table 14 - Overview of critical risks and mitigation in the Shift2DC project.*

Risk No	Description and Work Package	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 SC 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.
13	Installation of DC Heat Pump (T4.2)	If a DC heat pump is not available on the market, an AC unit will be modified by the partners and tested in EDF Lab Saclay.

The risk register and all related documents are stored in the project repository under *General Information and Templates / Risk Register*. Partners are responsible for updating the register whenever new risks are identified or existing risks change

## 8.2 Risk Management Structure

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The risk management structure ensures shared responsibility across the consortium:

- The PMC leads overall risk management activities and provides input for data-related risks.
- WP Leaders monitor risks within their respective WPs.
- All project partners contribute by identifying and reporting risks at both task and WP levels.

Identified risks are first reported to WP Leaders, who escalate them to the SC for assessment and mitigation.

## 8.3 Risk Assessment Process

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Risk assessment follows a structured process:

- Risks are identified through technical meetings, internal reviews, and partner reporting.
- Each risk is described, analyzed, and documented in the risk register.
- Likelihood of occurrence and potential project impact are assessed.
- Risks are classified into acceptable and non-acceptable categories to guide mitigation actions.

Severity is assessed on a scale from low (minor impact) to high (major disruption of project activities or goals).

## 8.4 Monitoring and Reporting

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The risk register is regularly reviewed and updated through:

- Governance meetings (General Assembly, SC Meetings, Coordination Demo Meetings);
- internal progress reviews;
- Inclusion of updated risk information in periodic reports submitted to the EC.

## 8.5 Mitigation and Response Strategies

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Risk management in Shift2DC applies both preventive and responsive strategies:

- Preventive measures reduce the likelihood or impact of risks, such as:
  - Early technical requirement reviews;
  - Supplier engagement to secure critical components;
  - Harmonization of simulation platforms;
  - Frequent coordination meetings for progress tracking.
- Responsive measures are applied when risks materialize, including:
  - Reallocation of resources;
  - Schedule adjustments;
  - Technical modifications to limit negative impacts.

## 9 Use of Artificial Intelligence and Ethical Considerations

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All content in this section is based on the Shift2DC project proposal and the INESC-ID Code of Conduct. This section reflects consortium-level commitments, with specific oversight led by the coordinator.

### 9.1 AI Objectives and Scope

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According to the project proposal, AI algorithms are used in Shift2DC for technical purposes only. They support the development of real-time simulation tools (digital twin demonstrators) to test and validate DC solutions. These tools enable the assessment of system performance before deployment and allow simulations of additional use cases that cannot be tested in real environments due to operational constraints, such as peer-to-peer services between buildings.

AI is also used in the development of condition-monitoring tools to identify and evaluate causes of alarms and faults in DC infrastructure and devices (Task 2.4). There is no use of AI for processing personal data or supporting decision-making related to individuals. AI applications in Shift2DC are confined to technical system-level functionalities.

### 9.2 AI Tools and Communication Protocol

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During project implementation, the consortium evaluated the use of AI-based tools for administrative support, specifically Natural Language Processing (NLP) for the automated transcription and summarisation of meetings. These tools were tested in the early stages.

Following feedback from project partners and discussions during the General Assembly held in Tallinn, it was agreed not to adopt AI-based solutions for formal documentation. Minutes of Meetings will continue to be manually prepared and validated to ensure clarity, traceability, and accountability throughout the project.

### 9.3 Ethical Principles and Project Commitment

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As project coordinator, INESC-ID applies its institutional Code of Conduct and relies on its Ethics Commission to oversee all activities with ethical implications. The ethical framework guiding AI use in Shift2DC is grounded in the following principles:

- The well-being of individuals takes precedence over scientific or technical interests. Research must avoid disproportionate risks or burdens and minimise discomfort, with mitigation strategies clearly documented.
- The project integrates trustworthy AI practices into its culture and design process. This includes transparency, non-discrimination, respect for privacy and autonomy, and robust data management. Ethical risks are monitored across the AI lifecycle through defined procedures and stakeholder engagement.

- Informed, documented consent is required for any human-subject research, with the right to withdraw guaranteed. Personal data must remain confidential and, where possible, be anonymised or coded.
- Special attention is given to vulnerable groups and power-imbalanced contexts. Teams share responsibility for ethical compliance and apply both technical and non-technical safeguards.
- AI systems should be traceable and auditable. System explainability and clear communication of capabilities and limitations are expected from the outset. Team diversity is encouraged to reduce bias and strengthen ethical compliance.

The consortium remains committed to the responsible use of AI in alignment with EU standards. Ethical oversight and good practices will continue to guide AI-related activities, especially where outputs may impact infrastructure, operational decisions, or stakeholder trust. Any future expansion of AI use will remain subject to ethical review and consortium agreement.

## 10 Conclusions

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### 10.1 Summary

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This updated PMP reflects the consolidation of Shift2DC's management processes. It integrates all operational updates implemented during the project, covering governance, reporting, communication, dissemination, data management, and quality control, ensuring an effective coordination framework for project execution.

### 10.2 Progress

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This updated PMP reflects the adjustments made as the Shift2DC project has progressed. The integration of new partners required adaptations in coordination practices, while initial challenges around communication and publication procedures led to clearer internal workflows.

The appointment of an Innovation Manager and the establishment of advisory bodies have strengthened both oversight and strategic alignment. Improvements in data management, reporting, and collaborative tools have enhanced day-to-day operations. Overall, the PMP continues to serve as a practical, evolving reference to guide project execution, ensuring consistency with the CA and GA, and supporting the delivery of high-quality outcomes.

Since the initial plan, several key elements have been introduced or updated, including:

- Procedures for publications, AI-assisted MoMs, and updated IMR and bi-monthly reporting;
- New optional short deliverable templates for Zenodo publication with DOI assignment;
- The possibility of including Shift2DC deliverables in the IST Library<sup>7</sup> is under consideration, aiming at DOI assignment and ensuring long-term preservation of project outputs.
- Full deployment of the Communication Plan, Brand Guidelines, and Communication Guidelines;
- Implementation of Demo Coordination Meetings between Coordination and Demo Leaders;
- Activation of Shift2DC's Zenodo and GitHub repositories for data and software;
- Updated project mailing lists and reviewer assignments;
- Establishment of the EEAB, enabling Project quality Control.
- Ethical evaluation of AI use within project activities and internal processes

These updates have strengthened project coordination, dissemination, and stakeholder engagement.

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<sup>7</sup> <https://bist.tecnico.ulisboa.pt/pesquisa/biblioteca-digital/>

## 11 References

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- [1] Shift2DC Consortium, "Deliverable D7.1 - Project Management Plan," Jan. 2024.
- [2] Shift2DC Consortium, "Deliverable D7.4 - Data Management Plan," May 2024.
- [3] Shift2DC Consortium, "Deliverable D6.1 Dissemination and Communication Plan," Project Deliverable, May 2024.
- [4] European Commission, "Shift2DC Grant Agreement - GAP -101136131." Oct. 26, 2023.
- [5] Shift2DC Consortium, "Consortium Agreement – Shift2DC Project." Oct. 25, 2023.