RESPONDENT

D1.1 Project Management and Risk Management Plan

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PROJECT PARTNERS

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KIEFER TEK ETAIREIA PERIORISMENIS EFTHYNIS	Greece	**KIEFER**
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ELECTROTECNICA DEL URUMEA SL	Spain	**EUSKABEA**

LIST OF ACRONYMS

Acronym	Definition
AI	Artificial Intelligence
CA	Consortium Agreement
DCM	Dissemination & Communication Manager
DER	Distributed Energy Resources
DoA	Description of Action
DSO	Distribution System Operators
EGNSS	European Global Navigation Satellite System
EO	Earth Observation
EUSPA	European Union Agency for the Space Programme
GA	Grant Agreement
IM	Innovation Manager
IoT	Internet of Things
IPR	Intellectual Property Rights
KPI	Key Performance Indicator
ML	Machine Learning
OQTC	On Quality, Time and Cost
PM	Pilot Manager
PMB	Project Management Board
PMP	Project Management Plan
PMU	Phasor Measurement Unit
PO	Project Officer
QAM	Quality Assurance Manager
REA	Research Executive Agency
RES	Renewable Energy Sources
SIB	Scientific and Innovation Board
SME	Small Medium Enterprise
STO	Scientific and Technical Objective
TM	Technical Manager
T&S	Timing and Synchronisation
WP	Work Package

Executive Summary

The RESPONDENT Project Management and Risk Management Plan (PMP) includes all the procedures concerning the management of the project, along with a detailed risk management and mitigation action plan. It has been set up to ensure that:

1. the project achieves its goals as specified in the Description of Action (DoA) of the Grant Agreement (GA) [1], and
2. that the outputs of the project respect and satisfy the criteria On Quality, Time and Costs (OQTC).

The plan allows the coordination team and the partners to manage the project efficiently and to effectively handle and mitigate the possible risks. The PMP does not repeat the procedure defined in the Grant Agreement and Consortium Agreement (CA) [2]. These 2 documents are used as applicative references for the PMP.

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1 Introduction

This document intends to define the project management procedures and activities that will take place and will be used in the framework of the implementation of the RESPONDENT project.

Such procedures and activities will be driven by the following general principles:

- Lean and efficient management that:
  - satisfy EUSPA and REA/EC requirements;
  - satisfy the needs and meets the goals of the project;
  - minimises overhead;
  - maximises effort available for project delivery;
- Technical work will be managed by the WP Leaders and coordinated through the RESPONDENT Project Management Board (PMB) composed of the Coordinator, the Technical Manager, the Innovation Manager, the Dissemination and Communication Manager, the Quality Assurance Manager and the Pilot Manager
- Focus on the project objectives
- Focus on what we need to produce, rather than "what we need to do"

If any partner requires further guidance on any project management matter not covered in this document, a request should be made to the Coordinator in the first instance.

1.1 Intended readership

The document is intended for project consortium members and involved stakeholders, all of whom should follow the Project Management and Risk Management Plan procedures.

2 RESPONDENT Project Description

RESPONDENT is a 30-month project that will develop a set of tools for Renewable Energy Sources (RES) power generation forecasting, demand forecasting and smart grid Timing and Synchronisation (T&S), contributing to the secure and seamless power supply, supply/demand balancing and grid stability. Specifically, it will offer three (3) main tools/services: i) AI/ML-powered RES power generation forecasting based on in-situ and Copernicus EO weather data and power conversion models, ii) AI/ML-powered, agent-based and multiphysics simulations supported power demand forecasting, incorporating Copernicus EO weather data, historical consumption data and socio-economic factors, and iii) Smart grid monitoring, based on commercially available Phasor Measurement Units (PMUs) integrated with Galileo receivers.

The project will address the challenge of integration into the power grid of the weather-dependable and variable output power RES, by providing solutions for reliable RES power generation forecasting, corresponding demand/consumption forecasting, and grid monitoring through a precise and trustworthy T&S scheme. AI/ML processing techniques are used in order to provide accurate and reliable forecasts for the power generation and demand, while the robustness, reliability, availability and anti-spoofing advantages of the Galileo EGNSS signals are exploited by the integration of Galileo-enabled receivers into the widely used and critically important PMUs.

The power generation forecasting will be implemented by deploying IoT-based weather stations at the RES installation site and by connecting RESPONDENT's software modules to the installation infrastructure. The power demand forecasting will be mainly based on multiphysics simulations. Grid T&S will be tested and verified in a laboratory environment micro-grid. Visualization of the three modules operation will be achieved through the dashboard of the complete solution suite.

Relevant end users and stakeholders, such as RES aggregators (Kiefer), DSOs (EPESA), energy services (Greenesco) and electrical solutions providers (Euskabea) will observe, monitor and contribute to the project implementation, and will also adopt the technical solutions developed. The targeted TRL is 6-9, for the various technological innovations of the project.

Finally, it must be noted that the Consortium and the Project Management Board (PMB) include representatives from various domains of the energy sector, such as the industrial and research ones, with extended experience and expertise; ensuring thus the validity of the project results and the functionality and adoptability of the outcomes.

3 RESPONDENT Project Objectives

3.1 Scientific and Technical Objectives

A. Generated/produced power forecasting:

1. Achieve highly accurate, site-specific, short- to mid-term weather forecasting using well-established weather models, Copernicus EO data, in-situ RES site-specific measurements, and historical weather data, by exploiting power generation forecasting AI/ML algorithm processing.
2. Achieve precise, short- to mid-term and error free RES power generation forecasting by exploiting the AI-powered weather forecasting results and power conversion models for RES types (solar, wind and hydro-electric).

B. Power demand forecasting:

1. Provide accurate short- to mid-term power demand forecasting, combining Copernicus EO weather data, historical and simulated data, and relevant socio-economic factors into the demand forecasting AI/ML, agent-based and multiphysics simulations.

C. Smart grid timing and synchronization (T&S):

1. Integration of Galileo receiver chipset into commercially available PMUs utilising the Galileo Timing and Synchronisation service to augment the T&S and monitoring capabilities of the smart grid WAMS.
2. Development of Galileo-enabled PMU signal monitoring module and dashboard, allowing the grid operator to efficiently monitor the grid state and its dynamic behaviour.

D. Secure and seamless power supply and grid stability:

1. Support the supply of secure, stable and seamless power to the grid, by providing forecasting solutions for both power generation and demand and by enabling the integration of Variable RES and DERs through the precise synchronisation and monitoring of the power grid.

The overall objective of the RESPONDENT project is to develop a solution for RES grid integration, and seamless and effective grid stabilisation and synchronisation, through the development of innovative power generation and demand forecasting algorithms, and Galileo-enabled PMUs for monitoring the grid stability. This objective is to be accomplished through the execution of the GA.

3.2 Planning Objectives

The duration of the project will be 30 months, starting date from 1st November 2022 following the schedule as depicted in the Gantt chart:

		Start Date	End Date	Duration	u	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30
						Nov-22	Dec-22	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25	Feb-25	Mar-25	Apr-25	
WP1	Project Mangement & IPR Management	1/11/22	30/4/25	912	#N/A																														
Task 1.1	Project Office	1/11/22	30/4/25	912	#N/A																														
Task 1.2	Quality and Risk Management	1/11/22	30/4/25	912	#N/A																														
Task 1.3	Data & IPR management	1/11/22	30/4/25	912	#N/A																														
Task 1.4	Ethical Management	1/11/22	30/4/25	912	#N/A																														
WP2	Use Cases, Requirements and Integration Plannin	1/11/22	31/10/23	365	#N/A																														
Task 2.1	Requirements Synthesis	1/11/22	30/6/23	242	#N/A																														
MS1	Requirements defined and delivered	30/6/23	30/6/23	#N/A	1																														
Task 2.2	Use Cases and Scenarios Definition	1/11/22	30/4/23	181	#N/A																														
Task 2.3	Interfaces Definition and Plan for Integration	1/5/23	31/10/23	184	#N/A																														
MS2	Requirements defined and delivered	31/10/23	31/10/23	#N/A	1																														
WP3	RES Power Generation Forecasting	1/4/23	31/7/24	488	#N/A																														
Task 3.1	Power Generation Forecasting Specifications and	1/4/23	31/7/23	122	#N/A																														
Task 3.2	Copernicus and WS Data Integration and Correlati	1/5/23	31/10/23	184	#N/A																														
Task 3.3	AI/ML Weather Forecasting Algorithm	1/7/23	31/1/24	215	#N/A																														
Task 3.4	RES Power Conversion Models and AI/ML Forecas	1/8/23	30/4/24	274	#N/A																														
Task 3.5	Power Generation Forecasting Module	1/12/23	31/7/24	244	#N/A																														
MS3	Power generated forecasting algorithm and modu	31/7/24	31/7/24	#N/A	1																														
WP4	Power Demand Forecasting	1/5/23	30/6/24	427	#N/A																														
Task 4.1	Demand Forecasting Specifications and Design	1/5/23	31/8/23	123	#N/A																														
Task 4.2	Power Demand Forecasting Algorithm and Modul	1/9/23	29/2/24	182	#N/A																														
Task 4.3	Power Consumption Demand Simulator	1/1/24	30/6/24	182	#N/A																														
MS4	Power demand forecasting algorithm and module	30/6/24	30/6/24	#N/A	1																														
WP5	Smart-Grid Galileo-based Synchronisation and M	1/4/23	31/10/24	580	#N/A																														
Task 5.1	Smart Grid Architecture and Analysis	1/4/23	31/10/23	214	#N/A																														
Task 5.2	Galileo-enabled PMU Timing and Synchronisation	1/7/23	31/7/24	397	#N/A																														
MS5	Galileo-enabled PMU prototypes ready	31/7/24	31/7/24	#N/A	1																														
Task 5.3	PMU Monitoring Module Specifications, Design a	1/11/23	31/10/24	366	#N/A																														
MS6	Grid T&S and balancing module ready	31/10/24	31/10/24	#N/A	1																														
WP6	RESPONDENT Suite, Demonstration and Validatic	1/12/23	28/2/25	456	#N/A																														
Task 6.1	RESPONDENT Solution Suite Integration	1/4/24	31/12/24	275	#N/A																														
MS7	RESPONDENT integrated solution suite ready	31/12/24	31/12/24	#N/A	1																														
Task 6.2	RESPONDENT Pilot Preparation	1/12/23	31/7/24	244	#N/A																														
MS8	RESPONDENT Pilot 1 and user event realised	31/10/24	31/10/24	#N/A	1																														
Task 6.3	Demonstration and Validation	1/8/24	28/2/25	212	#N/A																														
MS9	RESPONDENT Pilot 2 and user event realised	28/2/25	28/2/25	#N/A	1																														
WP7	Roadmap to Impact	1/11/22	30/4/25	912	#N/A																														
Task 7.1	Communication and Dissemination Activities, incl	1/11/22	30/4/25	912	#N/A																														
Task 7.2	Exploitation Roadmap	1/8/23	31/10/23	92	#N/A																														
Task 7.3	Business Planning, and Market & Commercialisat	1/1/24	30/4/25	486	#N/A																														
MS10	RESPONDENT Business Plan delivered	30/4/25	30/4/25	#N/A	1																														
						M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M13	M14	M15	M16	M17	M18	M19	M20	M21	M22	M23	M24	M25	M26	M27	M28	M29	M30

Figure 1: RESPONDENT Gantt

The project follows a three-pronged approach, dividing the project into logical phases, as depicted in the following figure:

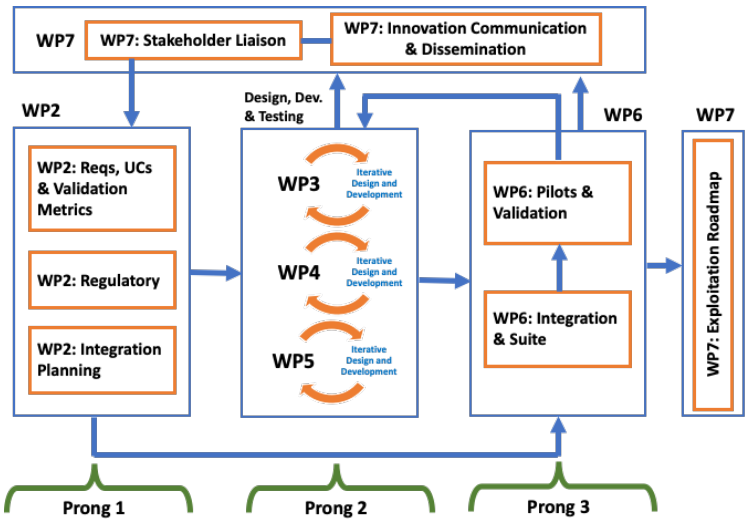

Figure 2: RESPONDENT Methodology

These logical phases are depicted with their corresponding estimated due date as follows:

Phase	Work Package	Est. Due Date
Phase 0: Project Planning and Management	WP1 - Project Management and IPR Management	30 April, 2025
Phase 1: Requirements, Regulations and Integration Planning	WP2 - Use Cases, Requirements and Integration Planning	31 October, 2023

Phase 2 - Design, Development and Testing	WP3 - RES Power Generation Forecasting	31 July, 2024
	WP4 - Power Demand Forecasting	30 June, 2024
	WP5 - Smart Grid Galileo-based Synchronisation and Monitoring	31 October, 2024
Phase 3 - Solution Integration, Demonstration and Validation	WP6 - RESPONDENT Suite, Demonstration and Validation	28 February, 2025
Phase 4 - Dissemination and Communication Activities, Innovation Management and Business Planning	WP7 - Roadmap to Impact	30 April, 2025

Table 1: Project Phases and Estimated Delivery

3.3 Budget Objectives

The following indicates the overall budget for the RESPONDENT project, per partner, as indicated in the Grant Agreement:

Form of funding	Actual costs	Unit costs (usual accounting practices)	Unit costs	Actual costs	Actual costs	Actual costs	Actual costs	Unit costs (usual accounting practices)	Flat-rate costs	Total costs	Funding rate %	Maximum EU contribution	Requested EU contribution	Maximum grant amount
	a1	a2	a3	b	c1	c2	c3	d2	e = 0,25 * (a1 + a2 + a3 + c1 + c2 + c3)	f = a + b + c + d + e	U	g = f * U%	h	m
1 - FINT	376 547.80	0.00	41 452.20	0.00	20 000.00	15 000.00	48 000.00	0.00	125 250.00	626 250.00	70	438 375.00	438 375.00	438 375.00
2 - VICOM	326 120.00	0.00	0.00	0.00	18 000.00	0.00	0.00	0.00	86 030.00	430 150.00	100	430 150.00	430 150.00	430 150.00
3 - CARECOMMS	242 000.00	0.00	0.00	0.00	18 000.00	0.00	0.00	0.00	65 000.00	325 000.00	70	227 500.00	227 500.00	227 500.00
4 - KIEFER	178 500.00	0.00	0.00	0.00	12 000.00	10 000.00	0.00	0.00	50 125.00	250 625.00	70	175 437.50	175 437.50	175 437.50
5 - GREEN	173 600.00	0.00	0.00	0.00	12 000.00	0.00	0.00	0.00	46 400.00	232 000.00	70	162 400.00	162 400.00	162 400.00
6 - EPESA	308 000.00	0.00	0.00	0.00	14 000.00	4 000.00	0.00	0.00	81 500.00	407 500.00	70	285 250.00	285 250.00	285 250.00
7 - IREC-CERCA	231 000.00	0.00	0.00	0.00	18 000.00	8 000.00	0.00	0.00	64 250.00	321 250.00	100	321 250.00	321 250.00	321 250.00
8 - EUSKABEA	108 000.00	0.00	0.00	0.00	12 000.00	2 000.00	0.00	0.00	30 500.00	152 500.00	70	106 750.00	106 750.00	106 750.00
Σ consortium	1 943 767.80	0.00	41 452.20	0.00	124 000.00	39 000.00	48 000.00	0.00	548 055.00	2 745 275.00		2 147 112.50	2 147 112.50	2 147 112.50

Figure 3: RESPONDENT Budget

3.4 Specific Project Objectives

3.4.1 Key Performance Indicators

Pertaining to the aforementioned scientific and technical objectives, the following table provides the Key Performance Indicators (KPIs) of each, including their means of verification, in order to serve as a guide to their successful realisation:

Objective	Key Performance Indicators	Metrics/Means of Verification
A1	1. Accurate weather forecasting 2. AI/ML algorithm training and results optimization using real weather data	1. Forecast estimation <10% absolute deviation compared to real conditions, up to 3 days ahead. Copernicus EO data combined with local Weather Station in-situ data, processed using AI/ML models will decrease probability of deviations in forecasting

		2. Duration of algorithm training and optimization ~6 weeks to achieve targeted forecasting accuracy
A2	1. Precise RES power generation forecasting 2. Power generation forecasting AI/ML algorithm training and results optimization using actual power output data 3. Comparison with existing solutions	1. 5-10% power production prediction absolute deviation compared to actual resulting values, up to 3 days ahead 2. duration of algorithm training and optimisation ~4 months to achieve targeted forecasting accuracy 3. 8-12% better accuracy than solution used by End User partner.
B1	1. Selection of representative consumer profiles (industry, residences, office buildings), with specific description in terms of quantitative socio-economic factors and power demand forecasting 2. Demand forecasting AI/ML algorithm training and results optimisation	1. <15% power demand prediction deviation compared to actual/simulated values 2. Extensive power demand forecasting on a simulated population of around 10,000 persons, locally validated on real-world training/testing datasets acquired during ~10 weeks for a specific consumer population of 100 office and 30 residential users to achieve targeted forecasting accuracy
C1	1. Galileo receivers integrated into 2 PMU and micro-PMU devices 2. Improved timing and synchronization of PMUs leading to more effective monitoring and operation of the smart grid	1. Successful testing of the Galileo-enabled PMUs in a lab environment 2. Sub-microsecond level timing accuracy (compared to GPS and/or Network-based timing techniques)
C2	1. Module operation 2. Module integratable with grid legacy systems	1. Successful demonstration of module and dashboard functionalities in a lab environment 2. Use of standard interfaces and communication protocols (e.g. IEEE C37.118 and ICCP) in the development of the monitoring module, and provision of APIs
D1	1. Power generation and demand balancing 2. Grid frequency stability	1. Achieve optimum power balancing and grid equilibrium based on production and demand forecasting, with a matching of 98% 2. Grid frequency fluctuations <±0.04Hz, tested in a lab environment

Table 2: RESPONDENT Objectives and Key Performance Indicators

3.4.2 Work Package Success

In order for the work packages to be considered successfully executed, all corresponding deliverables must be delivered in a timely manner and according to quality control criteria.

Work Package #	**Del. Rel. #**	**Del. #**	**Deliverable Name**	**Lead Beneficiary**	**Type**	**Dissem. Level**	**Due Date**
WP1	D1.1	D1	Project Management and Risk Management Plan	FINT	R	PU	31 Dec, 2022
	D1.2	D2	Data Management Plan	CARRCOMMS	DMP	PU	31 Jan, 2023
	D1.3	D3	IPR Plan	FINT	R	SEN	31 Aug, 2024
	D1.4	D4	Ethical Considerations	CARRCOMMS	R	PU	28 Feb, 2023
	D1.5	D29	Quarterly Progress Report 1	FINT	R	SEN	31 Jan, 2023
	D1.6	D30	Quarterly Progress Report 2	FINT	R	SEN	30 Apr, 2023
	D1.7	D31	Quarterly Progress Report 3	FINT	R	SEN	31 Jul, 2023
	D1.8	D32	Quarterly Progress Report 4	FINT	R	SEN	31 Oct, 2023
	D1.9	D33	Quarterly Progress Report 5	FINT	R	SEN	31 Jan, 2024
	D1.10	D34	Quarterly Progress Report 6	FINT	R	SEN	30 Apr, 2024
	D1.11	D35	Quarterly Progress Report 7	FINT	R	SEN	31 Jul, 2024
	D1.12	D36	Quarterly Progress Report 8	FINT	R	SEN	31 Oct, 2024
	D1.13	D37	Quarterly Progress Report 9	FINT	R	SEN	31 Jan, 2025
	D1.14	D38	Quarterly Progress Report 10	FINT	R	SEN	30 Apr, 2025
WP2	D2.1	D5	Requirements, Use Cases and Scenarios	EPESA	R	PU	30 Jun, 2023

	D2.2	D6	Integration Plan	VICOM	R	SEN	31 Oct, 2023
WP3	D3.1	D7	RES Power Forecasting Algorithm Specs and Design	FINT	R	SEN	31 Aug, 2023
	D3.2	D8	Weather Data Correlation and Integration	VICOM	R	SEN	31 Oct, 2023
	D3.3	D9	AI/ML Weather Forecasting Algorithm	FINT	R	SEN	31 Oct, 2023
	D3.4	D10	Power Conversion Models and Forecasting Algorithm	FINT	R	SEN	30 Apr, 2024
	D3.5	D11	Power Generation Forecasting Module	FINT	OTHER	SEN	31 Jul, 2024
WP4	D4.1	D12	Power Demand Forecasting Module Specs and Design	VICOM	R	SEN	31 Aug, 2023
	D4.2	D13	Power Demand Forecasting Algorithm	VICOM	R	SEN	29 Feb, 2024
	D4.3	D14	Power Demand Forecasting Module	VICOM	OTHER	SEN	30 Jun, 2024
WP5	D5.1	D15	Smart Grid Monitoring System Architecture	IREC-CERCA	R	SEN	31 Oct, 2023
	D5.2	D16	Galileo-enabled PMUs	IREC-CERCA	DEM	PU	31 Jul, 2024
	D5.3	D17	PMU Monitoring Module	FINT	OTHER	SEN	31 Oct, 2024
WP6	D6.1	D18	RESPONDENT Solution Suite	FINT	OTHER	SEN	31 Dec, 2024
	D6.2	D19	Pilot Plan	KIEFER	R	SEN	31 Jul, 2024
	D6.3	D20	Pilot 1	KIEFER	DEM	PU	31 Oct, 2024
	D6.4	D21	Pilot 2	EPESA	DEM	PU	28 Feb, 2025
WP7	D7.1	D22	RESPONDENT Website	CARRCOMMS	DEC	PU	31 Jan, 2023
	D7.2	D23	Plan for Dissemination and Communication	CARRCOMMS	R	PU	30 Apr, 2023

	D7.3	D24	Dissemination and Communication Report 1	CARRCOMMS	R	PU	31 Jan, 2024
	D7.4	D25	Dissemination and Communication Report 2	CARRCOMMS	R	PU	31 Apr, 2025
	D7.5	D26	Exploitation Roadmap 1	IREC-CERCA	R	SEN	31 Oct, 2023
	D7.6	D27	Exploitation Roadmap 2	IREC-CERCA	R	SEN	28 Feb, 2025
	D7.7	D28	Business Plan	FINT	R	SEN	30 Apr, 2025

Table 3: RESPONDENT Deliverables

3.5 Project Assumptions

The consortium has carefully considered a number of assumptions that need to be taken into account and which potentially impact the effective execution of the project activities. Specifically:

- The weather and power generation and demand forecasting activities are based on the availability of Copernicus satellite data, RES installation data, and socio-economic data for specific populations/communities
- Power demand forecasting will be mainly based on multiphysics simulations
- The grid synchronisation and monitoring will be tested in a lab environment by exploiting a micro-grid and micro-PMU devices
- The complete solution will be validated by a “virtual” integration of the two pilots
- Dedicated orchestration will interconnect multi-stakeholders like RES Aggregators, DSOs, power and electrical utilities companies, in order to provide a set of useful tools and solutions for supporting the supply of clean, secure, affordable and seamless renewable energy

Going into the project, these assumptions are known by the consortium and will be initial conditions upon which the activities will progress and be realised.

3.6 Project Constraints

In addition to the aforementioned assumptions, the consortium has also considered a number of potential constraints which may contribute to impeding certain project activities. Specifically,

- The total cost of the project must stay in the approved budget
- Eligible costs are limited to set out in Annex 2 in Grant Agreement
- 5% of budget retained by the Agency as Guarantee Fund
- Multi-cultural, international environment, various organizational forms of entities: research partners, industrial partners, commercial partners and SMEs
- Facilities/Pilot sites restrictions and dependencies
- Energy market laws and regulations
- Organizational constraint such as the need to share resources with functional managers in consortium partners’ divisions

The actions and corresponding efforts have been carefully considered and we believe that these will not pose any obstacles. Furthermore, the project risk management process will foresee as much as possible any potential issues that may arise, and address it with clear and feasible mitigation measures.

4 Management Procedures

4.1 Project Boards

4.1.1 Project Management Board

The project is contractually managed by the Coordinator supported by the Project Management Board. The Project Management Board consists of:

- The Coordinator (FINT)
- The Technical Manager (TM) (VICOM)
- The Innovation Manager (IM) (IREC-CERCA)
- The Dissemination and Communication Manager (DCM) (CARRCOMMS)
- The Quality Assurance Manager (QAM) (VICOM)
- The Pilot Manager (PM) (EPESA)

The PMB is in charge of all the actions related to the contractual project management. It also supports the Coordinator in preparing meetings, deliverables and any project related data. The Coordinator is the unique point of contact with EUSPA and relays if needed the information and decisions from the PMB to the Project Officer (PO).

4.1.2 Project Office

The Project Office is a project management supporting team from the Coordinator's site, responsible for assisting the PMB and the Coordinator in executing the General Assembly decisions and the day-to-day project activities. It includes Financial Control, Secretariat, and External Relations.

4.1.3 Scientific and Innovation Board

The project consortium includes a Scientific and Innovation Board (SIB), responsible for monitoring the evolution of the project products with respect to the market, diagnosing the changing market needs, updating the project main goals in order to follow the market changes, and composing reports concerning the market and the project's position in it. The board is composed of:

- The Coordinator (FINT)
- The Technical Manager (TM) (VICOM)
- The Innovation Manager (IM) (IREC-CERCA)
- The Dissemination and Communication Manager (DCM) (CARRCOMMS)
- Potential external advisors

4.1.4 Quality Control Board

The Quality Control Board (QCB), consists of:

- The Coordinator (FINT)
- The Technical Manager (TM) (VICOM)
- The Quality Assurance Manager (QAM) (VICOM)
- A User's representative

and is responsible for the coordination and supervision of the implementation of the measures for the quality assurance.

4.1.5 Ethics Board

The Ethics Board (EB) is responsible for monitoring the ethical considerations related to the project activities and developments, such as data privacy and protection, and Artificial Intelligence. It will also ensure that the recommendations of the Ethics Summary Report will be implemented during the project. It consists of:

- The Coordinator (FINT)
- The Technical Manager (TM) (VICOM)
- The Dissemination and Communication Manager (DCM) (CARRCOMMS)

4.2 Technical Management

Most of the work within this project will be focused within the technical WPs managed by the WP Leaders, who may delegate some responsibilities to the Task Leaders.

Each WP Leader is responsible for ensuring that their work package produces the required deliverables, as specified in the DoA, on time, within budget, and with the required quality.

The WP Leader of each open work package shall provide a report every 3 months on the progress of their work package to the Technical Manager using a standard reporting format. If the WP Leader becomes aware of any arising risk that threatens the delivery of the work package or achievement of the project objectives, the WP Leader shall notify the Technical Manager and the Coordinator immediately rather than wait until the next report is due. If there is likely to be a knock-on effect on any other WPs, then the WP Leader shall notify the Leaders of those WPs also.

Further details of the management structures and processes are provided in the DoA and the Consortium Agreement.

If a project participant has any difficulty or requires any help to deliver their obligations, they are expected to ask for help from their Task Leader or WP Leader, or the Technical Manager or the Coordinator as appropriate.

4.3 Collaboration and Communication

The success of a project of this nature will depend on effective collaboration between partners, and efficient and effective communication is vital for such collaboration.

The following means of communication are anticipated:

- **Shared data environment and project management tools**
  - Google Drive has been chosen and agreed upon for document management
  - The Confluence platform will be used for project management of the project, related to tasks, activities, deadlines, calendar of activities, reporting, etc.
- **Email**
  Email is expected to be widely used. Care shall be exercised to avoid information overload, i.e. senders shall ensure emails are sent to the appropriate recipients, rather than sending everything to everyone. In particular, the following rules should be respected: 1.The sender should verify that any name put in the addressee list is here for action and 2. The sender should verify that any name put in the cc list

is really interested in the content of the e-mail. Group mailing lists will be used for specific activities within the project (WP lists).

- **Telephone**
  The telephone is expected to be widely used. Callers shall be considerate and take account of time differences, office hours and known holidays in the different partner countries, especially if calling to a mobile number or if it is believed that the recipient's office phone could be connected through to a mobile number. A contact list was established at the beginning of the project and will be maintained by the Coordinator.
- **Video Conference**
  - Video conference via Internet is a convenient and effective way to communicate if Internet access and a telephone are available. Documents and presentations may be opened and viewed simultaneously by all participants. Some partners may not have the facility to initiate a video call, in which case they may ask another partner to do so if a video call.
  - The video conferencing tool to be used will be Google Meet. Alternatively, the Coordinator (FINT) can easily set up GoToMeeting meetings, or any partner may use the video conferencing tool of their choice.
- **Physical Meetings**
  Physical meetings are the most effective way to progress. Some meetings are required (plenary and coordination meetings, every 6 months), whilst others will be discretionary and specific. If the meeting is discretionary, alternatives shall be considered first.

4.4 Partner Contact Register

The Coordinator shall maintain and distribute a register of contact details and roles for all individuals within the partner organisations who are involved in the project.

If a new person joins the project, or a change or correction to the existing data is required, or a person leaves the project, the affected person or a member of their organisation shall notify the Coordinator. The Coordinator shall collect all such requests, and shall update and re-distribute the register from time to time.

5 Meetings

5.1 Meeting Types

The following types of physical meetings are envisaged:

- Plenary meetings and General Assembly meetings (every 6 months),
- EUSPA Review (at M18 for the first one and at the end (M30) of the meeting),
- RESPONDENT Project Management Board (PMB) (at least quarterly),
- WP Working Meetings (at the discretion of WP Leader),
- Other Meetings (as required/ad hoc).

5.2 Meeting Organisation

As a general principle, dates and locations of meetings should be fixed at least 30 calendar days (preferably longer) in advance of each meeting, in order to take advantage of cheaper travel and to ensure good attendance by the most appropriate people.

A named meeting organiser, who will be the focal point for all organisational and administrative matters, shall be appointed for each meeting. The meeting organiser need not be the same person as the meeting chairperson, and need not be a member of the host organisation. The meeting organiser may delegate certain responsibilities (e.g. chairing, hosting, travelling advice) to other named individuals.

The meeting organiser shall liaise with the meeting host and announce the location of the meeting as soon as possible, as the proximity of the location to attendees' other commitments can influence their available dates.

The meeting organiser may canvass the potential attendees to determine their availability and preferences for meeting dates. A tool such as www.doodle.com may be used for that purpose.

If it is not possible to agree on ideal date(s) when all potential attendees are available, the meeting organiser shall make a compromise decision, taking into account the purpose of the meeting, the known availability and preferences of the potential attendees, and the relative importance of each potential attendee actually attending.

At least 30 calendar days (preferably longer) before the meeting, the meeting organiser shall confirm the date(s), location, and the start and finish times, and shall supply travel and hotel information.

The meeting attendees shall confirm their attendance and provide any necessary security information at least 1 week before the meeting, or by the date specified by the meeting organiser, whichever is earlier. Late requests for attendance may only be granted at the discretion of the meeting organiser and the meeting host.

5.3 Meeting Preparation

At least 21 calendar days before the General Assembly and Plenary meetings, the meeting organiser shall issue a draft agenda, making clear which partners are expected to have specific responsibilities such as chairing a session or delivering a presentation. The agenda may be refined during the weeks leading up to the meeting, and shall be finalised at least 14 calendar days before the start of the meeting. Late changes to the agenda will be permitted only if all affected participants agree.

For the PMB meetings, the agenda should be issued at least 7 calendar days before the actual meeting and any changes should take place no later than 2 calendar days before it.

Presentation slides should be prepared in advance of the meeting, and sent to the meeting organiser by a specified date before the meeting if so requested.

If not sent before the meeting, the slides should be given to the meeting organiser on a memory device during the meeting, or sent as soon as possible after the meeting, so that they can be distributed with the meeting minutes.

5.4 Actual Meetings

A named meeting chairperson, who will be responsible for the overall conduct of the actual meeting, shall be appointed. The chairperson may be, but need not be, the same person as the meeting organiser. The chairperson may delegate specific responsibilities (e.g. timekeeping, minute taking, domestic matters) to other named individuals.

5.5 Minutes of Meeting

The meeting organiser shall be responsible for ensuring that the minutes are issued within 10 calendar days of the actual meeting.

The form of the minutes is at the discretion of the meeting organiser. As a minimum, the minutes should cover the meeting purpose, attendance list, summary of important discussions, record of decisions and actions, and should be issued together with copies of the slides that were presented.

The writing of minutes is often considered a burden, and sometimes takes a long time. An efficient way is to use the slides presented at the meeting as the basis of the minutes. If that option is followed, the slides may be modified during or after the meeting to take account of the discussions, an attendance list, list of decisions and list of actions can be added, and the resulting file can constitute the minutes and can be distributed promptly.

If nobody has objected within 15 calendar days of the minutes being issued, then those minutes shall be deemed to be an accurate record of the meeting.

5.6 Meeting Follow-up

The meeting organiser, with the support from the Coordinator and Technical Manager shall be responsible for ensuring that actions are followed up in a timely manner.

6 Deliverables

6.1 General Requirements

The DoA included in the Grant Agreement (GA) defines a large number of deliverables (28) and their due dates. Every effort shall be made to complete each deliverable by the due date. A deliverable is deemed to be completed when it has been uploaded to the Participant Portal.

Many of the deliverables are vital inputs to subsequent WPs, or to subsequent tasks within the same WP that produced the deliverable. Project success therefore depends on the production of deliverables:

- On time
- Within budget
- With the required quality

On-time delivery is important because the dates of the Pilots' execution will need to be fixed well in advance. Late deliverables can cause knock-on effects and could jeopardise the success of the pilots, and of the project.

Delivery within budget is important because if partners overspend on a deliverable, they will need to find savings elsewhere in the project, or subsidize the project from their own resources.

Delivery with the required quality is the most important of all and is dealt with in the following sub-sections.

6.2 Deliverable Quality Control

Initially, quality is defined as the fitness for purpose of a specific deliverable.

Absolute perfection is not required, and often can only be achieved at great cost and at the expense of reduced scope and depth (documents) or capability (equipment). Nevertheless all deliverables must be fit for their intended purpose.

For a document to be fit for purpose, it must:

- be easy to read (as for many partners English is not their native language, the structure of the sentences should be kept simple and should avoid stylistic effects from other languages that often do not exist in English)
- be clear, consistent and unambiguous
- contain the required information
- not repeat paragraphs of the DoA. The DoA is the major reference document and is always consultable. In particular, the deliverables should not include the description and objectives of the project from the DoA and any other item that is not directly related to the deliverable purpose
- avoid duplication of parts of other deliverables if not necessary for the document self-comprehension
- not contain any unnecessary information (annexes are permissible if you need to provide background or gain recognition for other relevant work done)
- not integrate copied elements from other documents unless they are essential for the document to be understandable on a stand-alone basis
- Finally, concision should be targeted for each deliverable. Given the number of deliverables in the project (28), the time to write them and to review them will take a huge time for the consortium (and

therefore cost a lot), so any economy in this domain will be profitable for the implementation of the project

Poor quality can be less obvious at first, but can cause enormous problems later. Therefore, procedures shall be followed to ensure that all deliverables are fit for their intended purpose.

6.3 Ensuring Documents Quality

Quality control is the responsibility of everybody involved in each project activity.

The quality control task performed by the Coordinator and the Quality Assurance Manager at project level will not substitute for internal quality control used in the various partner organizations for their internal work. All partner organizations should ensure that their existing internal quality control procedures are applied to the RESPONDENT project tasks.

However, as part of their role, the Project Coordinator, the Innovation Manager, the Quality Assurance Manager and an End User's representative will act as the Project Quality Assurance Team.

Objectives of the Project Quality Assurance Team are:

- to ensure appropriate application of the procedures in RESPONDENT
- to control the main outputs (mainly documents) of the Project/Work Packages & organising reviews

With reference to Project Deliverables: each project deliverable is assigned to one leading responsible partner. This partner takes the responsibility that the deliverable is of high quality and timely delivered. The responsible partner assures that the content of a deliverable is consistent with the work set to be performed under the deliverable and that the particular objectives related to the goals of the project are met. Any issues related to deliverables, endangering the success of the work package or of the project, have to be promptly reported by the WP leader to the Project Management Board and discussed within the Coordination team.

6.4 Deliverable Reviews

A Review Process involving each partner and selected reviewers is adopted in the Consortium to ensure the quality of the deliverables and of any other external publication with regard to the technical content, the objectives of the project and to adhere to formal requirements established in the Grant and Consortium Agreements. The Review Process ensures that publications and deliverables comply with the IPR of each partner. For external publications as well as for the project deliverables, the review process will involve all Consortium partners and requires the approval of the Quality Assurance Manager and the Project Quality Assurance Team.

Project documentation will be reviewed against the following criteria regarding form as well as content of the document:

- Format of the document according to the document templates.
- Identification and correction of typing mistakes, etc.
- Check of consistency:
  - with the overall scope of the document (e.g. it contains the right information, avoiding unnecessary information, etc.);
  - with previous relevant documentation (e.g. technical specifications vs requirements definition, no redundancy with other documents, etc.).

- Technical aspects of the documentation will be reviewed also by the Quality Assurance Manager in order to ensure that the document meets the technical goals of the project, and that all technical information is advancing the current state of the art and the recent technological research level.

The procedures and timelines for the review project documentation are described hereafter:

- The partner responsible for preparing the deliverable, drafts a Table of Contents (ToC), assigns tasks to all involved partners and sets the respective deadlines (considering also time needed for quality review).
- Involved partners provide their feedback within the deadlines and the responsible partner prepares the first draft of the document.
- This draft is sent to the entire consortium for comments and improvements/additions. The feedback period for project partners should last at least five working days. Feedback is sent directly to the responsible partner who revises the document and prepares the semi-final version.
- The Quality Control Process begins based on the semi-final version of the deliverable**. This version has to be ready no later than 15 days before the final deadline**.
- The Internal Reviewers send their comments (by one week) to the Quality Assurance Manager who consolidates and checks the reports and sends them to the partner responsible.
- The partner responsible for preparing the deliverable improves the document based on received comments. In case the comments/suggestions cannot be realised, the reasons for this must be documented. If necessary (i.e. if there are too many comments on the first round), another round of comments from the Internal Reviewers takes place.
- The partner responsible addresses them appropriately and prepares the final version of the document, which is sent to the Project Coordinator (at least five days before the final deadline).

The Coordinator then submits the document to EUSPA.

6.5 Ensuring Equipment Deliverables Quality

As with the document deliverables, each further deliverable has a responsible producer, contributors and one or more consumers (who will use the deliverable and will consequently be affected by it).

Equipment deliverables are mostly confined to WP5. They include the prototypes of the Galileo-enabled PMUs that will be used in the Pilot 2.

The producer of the deliverable shall identify the relevant consumers and engage with them early on to understand their requirements and expectations. For equipment deliverables the relevant consumers are, in most cases, other WP partners who are supplying equipment that interacts with the deliverable, the WP integration team, and representatives of the user community.

If the consumers' requirements and expectations are too demanding in time or budget, a ranking and order of importance shall be negotiated and agreed.

The consumers shall review the deliverable, considering its required purpose and its fitness for that purpose, and shall provide a report (e.g. by email) of the results.

In general, reviews shall be conducted at the Beginning, Middle and End of the development process for each equipment deliverable, using the following checklist:

- Is the equipment fit for its intended purpose?

- Does the equipment meet the specifications produced in each technical work package?
- Does the equipment interact correctly with the other RESPONDENT systems, i.e. conforming to the pre-defined interfaces between modules (WP2)?
- Does the equipment perform as required?
- Is the equipment ready for the level of integration that will be undertaken?

However, the review process for each equipment deliverable shall be tailored to the nature of the equipment, its role in the RESPONDENT project, and the consequences if it is sub-optimal in its fitness for purpose. Good judgement shall be used in determining the scope and timing of each review and the specific consumers to be consulted at each stage. The overall aim shall be to ensure that the equipment is fit for its intended purpose, and to detect any problems as early as possible during the development process.

From a contractual point of view, it is not possible to deliver a piece of equipment or prototypes to EUSPA. It is therefore necessary to accompany this deliverable (that will remain internal to the consortium) with a document that describes what has been produced. This document will be considered as the formal deliverable for EUSPA and will give visibility for the reviewers to the real physical deliverable. So, it has to be illustrative (i.e. show the prototype and its main building blocks), explicative (explain the works that have been done to produce the components and to integrate them) and position the equipment in the development plan of the whole system. In addition it has to explain the deviation from the initial specifications if any.

Each item of equipment shall be validated when delivered (by the development WPs). We will perform an acceptance check when received from the development WPs. This acceptance check can be largely based on the results of the validation tests.

If the event is a deliverable by itself, it has to be accompanied by a synthetic document describing the event that will constitute the formal deliverable to EUSPA.

7 Risk Management

The Risk Management Plan describes the risk management process and how risk management activities will be organized and performed during the project.

Risk management activities contain the following elements: communication and consultation; establishing the context; risk assessment (comprising risk identification, risk analysis and risk evaluation); risk treatment; monitoring and review. ([3]).

The Risk Management Plan does not address the responses to individual risks – these are documented in the Risk Register.

The purpose of risk management planning is to minimize the negative risk impacts identified for the project. This will be achieved by identifying all known project risks, performing an assessment of the probability of occurrence and potential impact, and creating action plans to manage the identified risks. Risk management planning defines how to approach and plan the risk management activities for a project. This process ensures that the efforts of risk management activities are appropriate for the importance of the project to all stakeholders.

Risk management is an iterative process, beginning as early as possible in the project initiation and planning phases. The approach to and appropriateness of risk management activities should be reviewed throughout the project.

7.1 Risk Management Process

The purpose of the risk management framework is to identify potential risks which could have adverse effects on the assumed deliverables of the project phases and minimize and mitigate them as early as possible, in order to fulfil all of the project objectives.

This will be achieved by following a structured process utilizing the tools and techniques described in this plan, for ensuring the efforts of risk management activities are sufficient and appropriate for the importance of the project, its beneficiaries and stakeholders.

Risk Management as a valuable extension of project management process shall accomplish the following objectives:

- Identify the potential sources of risk and identify risk drivers
- Analyse each of the identified risks in order to determine likelihood of its occurrence and impact on the project deliverables
- Quantify risks and assess their impacts on cost, schedule and performance
- Determine the sensitivity of these risks to program, product and process assumptions
- Determine and evaluate alternative approaches to mitigate moderate and high risks
- Take actions to avoid, control, assume or transfer each risk
- Ensure that risk is factored into decisions on selection of specification requirements and solution alternatives

RESPONDENT Risk Management process has been prepared based on PRINCE2 Risk Management Methodology, ISO 31000 (2018), and best practices used by Project Consortium in previous projects.

7.2 Risk Management Activities

The Risk Management Plan describes Contractor activities required by the risk management process, and these are reflected in this plan.

The Risk Management activities of the RESPONDENT project will focus on eliminating or minimizing the following:

1. Risks which have the potential for a negative impact on the project scope and scientific & technical objectives (STOs)
   Risks from this category may have negative impact on:
   - quality of the deliverables
   - accordance with the requirements and technical specifications
   - functionalities of the designed solution

   The objective will be measured against the List of Key Performance Indicators of the success.
2. Risks which have the potential for a negative impact to the project schedule objectives.
   The RESPONDENT project will be finished during 30 months with the respect of the Phases, Prongs and WPs included in the current Project and Risk Management Plan.
   The objective will be measured with WP Milestones Deadlines.
   The risks from this category are related to any delay in completion of the project phases according to the schedule, but assuming all of the project objectives and requirements can be met with the acceptable delay.
3. Risks which have the potential for a negative impact to the project cost objective.
   - The total cost of the project shall not exceed 2 745 275 EUR.

   Events, which can increase the total cost of the project, or cause exceeding estimated eligible costs (per budget category) so all of the project objectives and requirements can be met, above the limits acceptable for the Contactor, belong to this category.
   The objective will be measured against the Financial Statement for each Beneficiary for the Quarterly Period.

7.3 Risk Assessment

The purpose of risk assessment is to provide evidence-based information and analysis to make informed decisions on how to treat particular risks and how to select between options, ([3]). The process includes: Risk Identification, Risk Analysis, and Risk Evaluation.

7.3.1 Risk Identification

The process of determining and documenting which risks may affect the project.

The risk identification activity will:

- Take place through scheduled project review sessions
- Identify a comprehensive list of potential risk events that have a negative (threat) impact on the RESPONDENT project objectives
- Continue to be identified throughout the project review sessions, project status reports and periodic team members meetings

Contractor has created a Risk Register, which is located in the shared team environment. Additionally, each project team member can notify about new potential risks by a Risk Appraisal Form submitted via email to the Project Coordinator through WP and Task Leaders.

The following tools and techniques will be used for the risk identification:

- Brainstorming done with the Project Management (Project Coordinator, Technical Manager, WP Leaders, Task Leaders) team and project stakeholders;
- Check lists from previous project experience;
- Interviewing with project participants, stakeholders and experts:;
- Grant Agreement document review.

During risk identification a combination of the above listed techniques will be used. A short description of these methods is presented in the attachment to this plan.
The following sources can be the input for risk identification:

- Analysis of project assumptions and requirements
- Project schedule and critical path
- Scientific & technical objectives (STOs)
- Development, test and evaluation – design risks
- Actual workload and productivity
- Project Budget - financial risks
- Resources
- Reviews
- Expert Knowledge
- Analogy - review risk management efforts from similar projects
- Interview stakeholders – beneficiaries, customers, subcontractors, suppliers, third parties

In case of risk identification, the Project Coordinator is obliged to register the risk in the Risk Register including the following data:

- Risk ID (consecutive number)
- Date Raised (the date of risk identification)
- Raised by (the person who raised the risk)
- Title (Short risk name)
- Description (Risk detailed description). The description should include the cause of the risk, risk characteristic and the effect of the risk. A structure for describing risks using risk statements may be applied, for example: EVENT may occur causing IMPACT, or If CAUSE exists, EVENT may occur leading to EFFECT
- Category (Technical / Organizational / External / Project Management)
  - Technical [T]: Technical risk categories or sources of risk, such as: requirements, technology, complexity and interfaces, quality
  - External [E]: External risk categories or sources of risk, such as: subcontractors and suppliers, regulatory, market, customer, weather
  - Organisational [O]: Organisational risk categories or sources of risk, such as: project dependencies, resources, funding, prioritization
  - Project Management [PM]: Project management risk categories or sources of risk, such as: estimating, planning, controlling, communication

The risk categories support the further allocation of the risk ownership. In case of need of more detailed categorization, it would be developed in the next project stages in the way of a Risk Breakdown Structure:

- Status (“O” – open, “A” - assigned & active, “CM”- closed mitigated, “CI” - closed issue).
  - Open [O]: Risk has been opened but not assigned for mitigation yet

- Assigned [A]: Risk has been analysed and responsible for mitigation assigned
- Closed Mitigated [CM]: Risk is no longer applicable and has been mitigated and closed
- Closed Issue [CI]: Risk is no longer applicable and has been closed because of an issue.

The updated Risk Register is an output of this process.

7.3.2 Risk Analysis

Risk Analysis is primarily concerned with determining which risk events need response, and it is a process to comprehend the nature of risk and to determine the level of risk priority.

The purpose of risk analysis is to develop an understanding of the risks identified during the risk identification process and provide input on how to treat risks, and what measures should be taken to mitigate negative risk effects.

Risk analysis evaluates all identified risks to estimate the likelihood of their occurrence, consequences to the project deliverables in terms of:

- objectives and requirements
- impact on the project schedule
- impact on costs

Risks are analysed by determining both their likelihood and their impacts.
The process covers:

- qualitative analysis, which leads to the determination of the scope of risk
- quantitative analysis, which leads to the determination of the amount of risks

This process leads to:

- Assessing the probability of the risk and its impact on the project objectives using standard probability and impact labels defined in the risk tool (Risk Register)
- Prioritization – to narrow the focus of the risk management effort to gain the greatest positive impact on the project for the applied resource effort

Analysis will be determined considering project scope & technical performances objectives. project schedule objectives, and project cost objective.

Probability and impact estimates will be based on information derived from:

- Estimates
- Expert judgement – Consultants, Stakeholders, Professional associations, Industry groups

The following data constitute the inputs for the risk analysis:

- Risk register
- WP
- Project schedule, critical path
- Project budget, beneficiaries' financial reports
- Scientific & technical objectives
- The probability and impact matrices

The following table presents the rule for probability estimation:

Risk Probability Scale					
Rating	1	2	3	4	5
Interpretation	Low	Medium	Medium-High	High	Fact
Percentage	<10%	10-40%	41-70%	71-90%	>90%

Table 4: Risk Probability Scale

The table below shows the approach to impact assessment in relation to the project objectives.

Impact (Level)	Scope and Technical Performance	Schedule	Cost
Minimal (1)	Minimal or no technical performance impact. No impact on main project objectives	Minor or no impact	Minimal or no impact
Minor (2)	Minor technical performance shortfall, same approach retained. Little or no impact on project objectives	Minor Impact No impact on project phases, deadlines and critical path Schedule slip <= 1 month	Additional cost <=50k EUR
Moderate (3)	Moderate technical performance shortfall, but workarounds available. Limited impact on main project objectives	Minor schedule slip, able to meet deadlines of the project phases. Some milestones within the project phase may be delayed Schedule slip: 1-2 months	50k EUR < Additional cost < =100k EUR
Significant (4)	Significant technical performance degradation. May jeopardise the main project objectives	Cannot meet deadlines of project phases Program critical path affected Schedule slip > 3 months	100k EUR < Additional cost < =200k EUR
Severe (5)	Severe technical performance degradation. Cannot meet the foreseen TRL, will jeopardise the main project objectives	Cannot meet deadlines of the project phases Program critical path affected Schedule slip > 3 months	Additional cost > 200k EUR

Table 5: Risk Impact Assessment

The qualitative and quantitative analysis is conducted for the risks for which priority is higher than marginal. The results of the analysis are presented in the Risk Assessment Report.

7.3.3 Risk Evaluation

Based on the outputs of the Risk Analysis, the Risk Evaluation establishes which risks need treatment and their priority for treatment implementation.

Risk Evaluation involves comparing estimated levels of risk with risk criteria defined in the established context (Impact Level on project Scope, Schedule and Cost) in order to determine the significance of the level and type of risk.

Based on the above parameters from the Risk Analysis, the priority of the risk is calculated by the P&I Matrix (Probability * Impact), shown in the table below.

Probability		**Threats**				
Fact	5	5	10	15	**20**	**25**
High	4	4	8	12	16	**20**
Medium-High	3	3	6	9	12	15
Medium	2	2	4	6	8	10
Low	1	1	2	3	4	5
Impact		1	2	3	4	5

Table 6: Probability*Impact Matrix

By P&I Matrix, comparing the level of risk with the established risk criteria, giving Risk Priority calculation, the need for treatment is considered:

- **Marginal risks**: Risks to be documented and watched during the risk monitoring and review process
- **Low, Medium and High risks**: Risks to be treated/mitigated
- **High risks**: Risks that must have a priority for treatment implementation

As a part of Risk Analysis, the following positions in the Risk Register are filled:

- Probability
- Impact Summary (the highest value of the impact against project objectives)
- Priority (Probability*Impact Summary)

The output of the process is the updated Risk Register with prioritised list of risks and documentation of marginal risks for future monitoring.

Updates of the Risk Register build an expansion of the initially generated and already updated risk register by the following additional information:

- Probability of achieving objectives
- Prioritised list of quantified risks
- Trends in qualitative/quantitative risk analysis results

7.4 Risk Response and Treatment

Risk Response plans will be developed for the risks selected from the prioritisation process, at a minimum, for those risks with an overall risk rating of "**High**". The response strategies will be selected from those listed later in this section. The response plans will be integrated with the suitable project plans and be recorded in the Risk Register, documenting the following:

- The risk owner who is the person responsible for managing the response plan to the risk
- The risk response strategy that will be used
- The description of the mitigation plan
- RESPONDENT project objectives impacted by the risk

The following approach for the risk priorities should be taken:

- High risks have priority for treatment implementation
- Low, Medium and High risks: Risks to be treated/mitigated
- Marginal risks: Risks to simply be documented and watched during the risk monitoring and review process.

Firstly, the Project Coordinator designates the risk owner, considering the required skills and knowledge depending on the risk. Consequently, the status of the risk is changed to "Assigned". The risk owner is responsible for the preparation of the response strategy and plan and the corresponding risk mitigation actions.

The approach to the risks is defined by choosing the listed below Risk Strategy.

For the Marginal risks, the Risk Strategy taken should be set to "Watch", unless otherwise decided.

For risks with Low, Medium and High priority the following strategies can be selected:

- Reduce: Implement actions to minimize the impact or likelihood of the risk
- Avoid: Adjust program objective to eliminate the risk
- Accept: Acknowledge the existence of a risk, and decide to accept it without engaging efforts to control it
- Transfer: Reassign organisational accountability, responsibility, and authority to another stakeholder willing to accept the risk

The mitigation actions consist of the activities that are planned to reduce the probability of the occurrence of the risk and/or to minimize the adverse impact of the occurrence of the specific risk.

As a part of Risk Response planning, the Project Coordinator fills the following fields in the Risk Register:

- Risk Owner
- Reported To
- Status

Subsequently, the risk owner, as part of the risk response planning, fills the following fields in the Risk Register:

- Risk Strategy
- Mitigation Actions
- Mitigation Actions Due Date; (due date for completion of the mitigation action)
- Actual Impact

Impact on the project at the current stage if the planned mitigation actions are not successful or considering the current risk mitigation actions status.

The output of the process includes the updated Risk Register and the summary of the required project plans updates, taking into account the planned mitigation actions.

7.5 Monitoring and Review

Based on the mitigation plans that have been agreed as indicated in the Risk Register – the mitigation actions should be incorporated in the project plans.

- The Project Coordinator is responsible for updating the plans accordingly.
- The risk owner is responsible for the implementation of the mitigation plan.
- The risk owner documents the actions in the Risk Register.
- The risk owner documents the actions undertaken for the mitigation of the risk in the Risk Register. This information is included in the fields: "**Mitigation Status (date and action taken)**."

This process results in the updated plans and updated Risk Register.

Based on the information gathered in the Risk Register, the Coordinator will continually assess and revise risks throughout the execution of the project.

The Project Coordinator is responsible for the risk monitoring and control.

The process will include a risk assessment at the end of each major activity to review the identified risks for the next set of activities. The purpose of this assessment is to review and plan for potential risks identified in the Risk Register, identify new potential risks, and reassess the status and response strategies for previously identified risks.

During the process of internal project management activity, periodically - quarterly, the PMB reviews the Risk Register and the status of mitigation actions.

The Project Coordinator will schedule and conduct internal status meetings with the WP Leaders to review the risk status for those risks with an overall rating of "**Medium**" or "**High**" and to identify the new risks.

In case of the risk occurrence – the risk becomes an issue and should be included in the project plans according to the Risk Management process.

The risks which have occurred and the risks which are no more actual are closed in the Risk Register (Status – "C" – Closed).

7.6 Reporting and Communication

7.6.1 Reporting

The goal of the risk reporting process is to ensure that project management receives all the necessary information to make timely and effective decisions.

The primary reporting tools for risk reporting will be the Risk Register and the Risk Assessment Report. These documents will be stored in the project repository in the Deliverables section.

The Risk Register is run by the Project Coordinator. Individual risks can be reported by all persons participating in the project to the WP Leaders. The WP Leaders report the risk to the Project Coordinator.

The Project Coordinator evidence the risk in the Risk Register which is stored in the project repository.

The risks with High priority are required to be analysed and monitored by the PMB.

Based on the Risk Register, the Risk Assessment Report is created. The Risk Assessment Reports identify contract risks and their potential impact(s) to cost, schedule and performance. These reports shall directly support the Project Risk Reviews. The Risk Assessment Report is reported to the PMB.

7.6.2 Communication

Effective communication and consultation with project stakeholders assure that risks are realistically assessed and nothing significant is overlooked.

The goal of risk communication is for all stakeholders to have a common understanding of the processes and assumptions used in risk assessment

Communication and consultation with internal and external Project Stakeholders will take place during all stages of the project risk management process.

Risk communication and consultation will be carried out on:

- Project Team level
- Internal & External stakeholders level

Risks will be communicated to stakeholders using the following documents and reports:

- Project and Risk Management Plan
- Risk Register
- Risk Assessment Report
- Minutes of Meeting

Risk communication focuses on informing all stakeholders involved in the RESPONDENT project, and its main purpose is to ensure that the project management receives all necessary information to make timely and effective decisions.

According to the plan, several working meetings will be conducted to support cooperation and information interchange between Parties. Each meeting shall be preceded with an Agenda and accompanied with Meeting Minutes.

7.7 Risk Management Organisation

7.7.1 Roles and Responsibilities

The Project Team Members are responsible for:

- Risk identification
- Support risk analysis
- Support risk assessment
- Risk ownership (for assigned risks in accordance to Project Coordinator’s decision) covering elaboration and implementation of the risk mitigation plan

7.7.2 Risk Stakeholders

The main risk stakeholders that are affected by a risk or a risk mitigation strategy in the RESPONDENT are listed in the following table:

European Union Agency for the Space Programme (EUSPA) - Contracting Granting Authority
General Assembly
Project Management Board
Advisory Board
Scientific and Innovation Board
Project Coordinator
Technical Manager
Innovation Manager
Quality Assurance Manager
Dissemination and Communication Manager
Pilot Manager
Work Package and Task Leaders
Future Intelligence Ltd Project Team
Vicomtech Project Team
Carrcomms Project Team
Kiefer Tek Project Team
Greenesco Project Team
Estabanell Project Team
IREC-CERCA Project Team
Euskabea Project Team

Table 7: RESPONDENT Main Risk Stakeholders

7.7.3 Risk Management and Tools Outputs

The following tools will be used to support and document the outcomes from the risk management process on this project:

Risk Management Activity	Risk Management Tools and Outputs
Risk Assessment ● Risk Identification ● Risk Analysis ● Risk Evaluation	● Risk Register ● Risk Assessment Report
Risk Response Planning and Treatment	Risk Register
Risk Monitoring and Control	● Risk Register ● Risk Assessment Report
Risk Communication	● Risk Register ● Risk Assessment Report

Table 8: Risk Management Tools and Outputs

The physical storage location of the risk-related documents will be in the RESPONDENT Project Repository in the Deliverables section, maintained by the Project Coordinator.

8 Conclusions

This document presented in detail the actions to be taken and the processes to be applied for the successful development and completion of the RESPONDENT project. It describes the project management structure and activities with respect to every aspect of the project and its separate phases. Furthermore, an elaborate risk management plan is reported, containing all the actions pertaining to risk monitoring and treatment, in order to ensure the seamless and unobstructed project implementation during its full duration.

References

[1] RESPONDENT Grant Agreement ID: 101082355
[2] RESPONDENT Consortium Agreement
[3] ISO 31000 International Standard (2018). Risk management - Guidelines (2nd ed.). International Organisation for Standardisation.