D1.7 - Quality Assurance, Risk Assessment and Contingency Plans

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PROJECT CONTRACTUAL DETAILS

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0.3	28/09/2021	ENG; REP	Revised by the project reviewers
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Executive Summary

This deliverable D1.7 – Quality Assurance, Risk Assessment and Contingency Plans, second version – presents quality assurance and risk management procedures adopted in the project IANOS. It outlines a framework for assessing the quality structure as well as the deliverables produced by all the project partners. The present deliverable is an updated version of Deliverable *D1.6* with the same title.

The detailed Risk Management plan defines clear guidelines on how to identify and classify the risks in terms of type, impact, likelihood and imminence. With all these defined, it determines the Risk Zone into one of four colours depending on the severity of the risk. This helps to easily identify the risks that can impact the project the most. From the identification provided by the partners, all the risks with more impact to the project already have implemented or ongoing mitigation measures drafted by the responsible parties.

The risk register is a living document for all the partners to update as frequently as needed to ensure that risks are managed on time and proper mitigation measures can be applied to minimize the impact in the project.

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1 Introduction

1.1 Purpose and scope of the deliverable

In large scale research project with several partners coming from all over Europe, it is important to guarantee that the outcomes of the research meet the quality standards and the impacts defined in the Grant Agreement.

In this deliverable D1.7 – Quality Assurance, Risk Assessment and Contingency Plans, second version – presents IANOS' plans and structure to ensure the quality of the work developed by the consortium. The risk methodology is detailed to guarantee the harmonisation of the risk identification and classification throughout the project. It aims to define clear guidelines in risk classification and ensure the alignment of the Project Coordinator, Project Steering Committee and WP and Task leaders.

1.2 Structure of the deliverable

The first chapter of this deliverable introduces the main objectives of the document as well as its relationship with other tasks. The second chapter defines the quality assurance plan of the project. The risk management process is explained and detailed in the third chapter while the definition of the mitigation and contingency plans are defined the fourth chapter. Finally, the fifth chapter details all the identified risks and mitigation actions of the project, and the conclusions are presented on the sixth chapter. In the Annex, one can find the risk matrix template used by all partners to keep track of identified risks.

1.3 Relation to other deliverables

This deliverable needed some inputs from the Project Management Handbook from Task 1.1 where the project management structure is defined as well the quality assurance procedures.

Moreover, Task 1.3 and its deliverables are linked to Tasks 5.2 and 6.2 since they are related with Ameland and Terceira Deployment Plan and Risk Management.

2 Quality Assurance Plan

IANOS Quality Assurance Plan aims to ensure the consortium is regularly meeting all the project's objectives and expected impacts described in the Grant Agreement. Moreover, the Quality Assurance Plan focuses on guaranteeing that IANOS' outputs are aligned with agreed protocols and standards as well as ensuring that internal and external communications are aligned with IANOS' vision.

The Project Management Structure presented in D1.1 – Project Management Plan – and shown in Figure 1, describes all the consortium bodies that form the Project Steering Committee. The Regulation & Standards Manager (RSM) plays a crucial role in the Quality Assurance Plan since it is responsible for quality and timely delivery of required reports, along with identification of main areas of possible risks and promotion of appropriate contingency activities. Additionally, the RSM is also responsible for assuring that all the reports conform to a common format and identity. Work Package (WP) Leaders are also essential to ensure project's quality as they are responsible to manage the progress of their WP deliverables.

Along with the RSM, WP Leaders assure that deliverables and other reports are submitted on the expected delivery due dates and are subject to the quality review procedure involving two reviewers per deliverable with a goal of having a first reviewer involved in the task and with right expertise to provide content-wise evaluation, and a second reviewer, a partner not involved in the task capable of providing a more high-level revision. The reviewers' list per deliverable is published on the project's Sharepoint.

To facilitate the reviewing process and ensure the delivery on time, the consortium will proceed with the following timeline, considering MX as deliverable deadline:

• 12 weeks to MX: main author concludes Table of Contents;

• 10 weeks to MX: main author identifies partners' needed contributions and facilitate this process by creating a shared online document;

• 8 weeks to MX: main author provides the deliverable to the WP leader, outlining its status in terms of major missing contributions;

• 6 weeks to MX: all missing contributions solved together by WP leader and author. Content is ready to be polished-up and integrated in its final version;

• 4 weeks to MX: main author concludes deliverable and sends it back to first reviewer;

• 2 weeks to MX: main author integrates first reviewer inputs and sends it back to second reviewer;

• 1 week to MX: main author integrates second reviewer inputs and shares final version with the Project and Technical Coordinators;

• MX: Project Coordinator submits the final deliverable in the H2020 portal.

Moreover, WP Leaders also communicate any identified risk to the Project Coordinator (PC) as well as notify in any situation where a partner is not fully complying with its agreed duties. In case there is some deviation of what is in the Grant Agreement, WP leaders should inform the PC, who should discuss possible changes in the Grant Agreement with IANOS' Project Officer (PO).
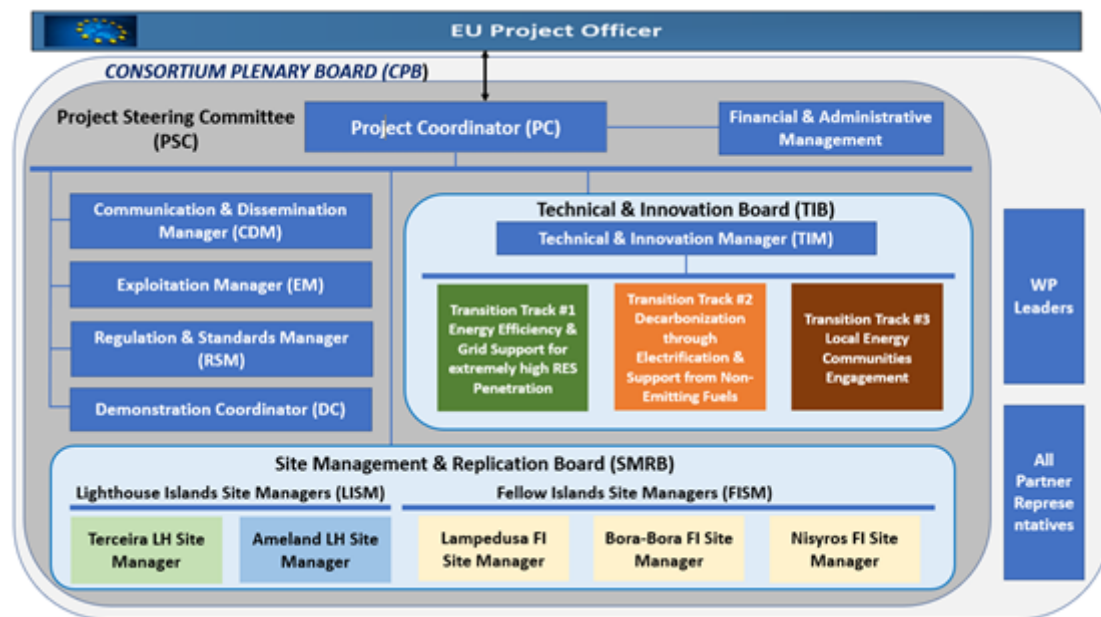
Figure 1 - IANOS Management structure

The work plan per WP displayed in D1.1 are planned to be updated every three months by the WP leaders and sent to the PC who will accept or not the proposed changes. In case the updates are accepted, the most updated version should be presented at the Project Steering Committee meetings.

Both Project and Technical Coordinators are responsible for following, regularly, WPs' progress. Furthermore, to guarantee the success and quality of work of demonstration activities in Ameland and Terceira, a particular attention should be given for WP5 and WP6, respectively.

3 Risk Management Plan

Risk Management undertakes a crucial role in the project management structure since it supports the path towards a successful completion of project goals. Risk Management should be led by each WP leader together with the Regulation & Standards Manager, the Project Coordinator, and the Project Steering Committee. Every risk has a Risk Owner, who is the responsible for managing the risk and will be the focal point for the respective risk. Normally, the Risk Owner might be the Task Leader, the WP Leader or other project members.

3.1 Risk Management process

All Risk Management activities are listed in a Risk Register (Annex 1), stored in the project's Sharepoint which is a tool for reporting risks and its respective mitigation measures, amongst other factors. The Risk Register is a crucial tool for Risk Management since it gives a clear and detailed overview of all the risks that might impact the success of the project.

The Regulation & Standards Manager and the Project Coordinator are responsible for reviewing and updating the Risk Register every 6 months, while Risk Owners need to continuously update the information regarding the respective risk. In order to facilitate this process, Risk Workshops are organized, which consist of physical meetings or videoconferences to discuss and revise the status of the risks previously identified in the Risk Register and to update with the new risks and new mitigation measures. All Risk Owners and WP Leaders should be present in the Risk Workshop, as well as the partners involved in the risks.

The Risk Management Process applied in IANOS project is aligned with ISO 31000 standard [1] and accordingly consists of 4 main parts as it displayed in Figure 2. The Risk Register is compliant with the Risk Management Process and it is essentially a way of registering all the activities of the Risk Management Process in a unique document.

Risk Management Process
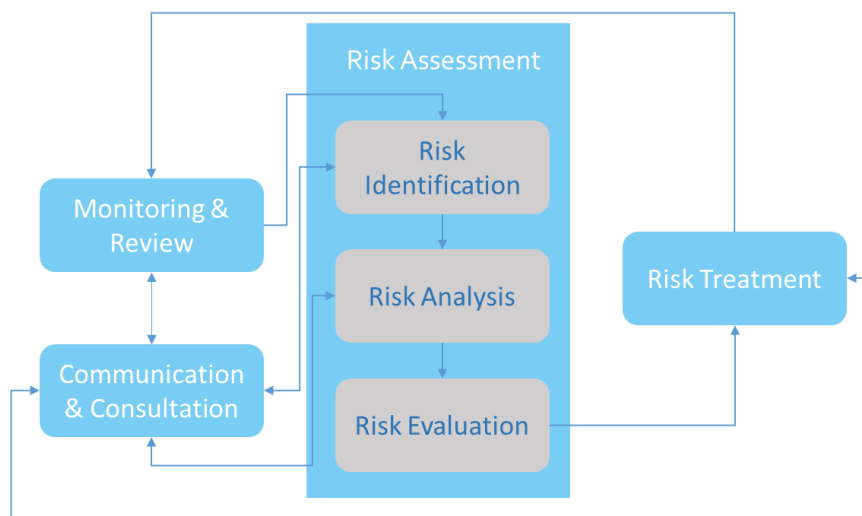
Figure 2 - IANOS Risk Management Process

3.1.1 Risk Assessment

This step provides inputs to decisions by understanding risks, their causes, consequences and their probabilities. The Risk Assessment applied in IANOS project is in line with ISO 31000 standard and accordingly divides itself into three stages: Risk Identification, Risk Analysis and Risk Evaluation.

3.1.1.1 Risk Identification

Risk Identification is the process of finding, recognizing, and recording risks with the goal of identifying what might compromise the achievement of the objectives of the project.
Although there are specific partners dedicated to risk management, risks could be identified by any project member at any given time. However, they should go through the Task Leaders as risk owners and then to the WP leaders as part of overall WP responsibility in the respective boards with the Project Coordinator. The risks identified should be reported in the Risk Register.

3.1.1.2 Risk Analysis

Risk Analysis requires understanding the risks and determining the impact and the likelihood of the identified risk events.
The information gathered in the Risk Identification process will support risk owners, site managers and the PC in performing the Risk Analysis. Since all the risks are analysed with the same methodology, risk analysis allows to facilitate the process of prioritizing actions and thus start addressing the highest-level risks.

In the Risk Analysis, a qualitative analysis is performed according to risk's impact in the project and the likelihood of the risk event to occur.

Concerning risk's impacts, Table 1 ([2] and [3]) proposes a classification for different impact types such as Cost increase, Time increase, Scope change, Quality reduction and Operation Failures.

Impact Name	Cost	Time	Scope	Quality	Operation
Very High	>40% increase	>20% increase	Project end item is useless	Project end item is useless	Major operational accident
High	20-40% increase	10-20% increase	Change not acceptable to the sponsor	Unacceptable quality reduction	Significant operational accident
Medium	10-20% increase	5-10% increase	Major scope change, requires PO's approval	Quality reduction requires sponsor approval	Irreversible operational failure
Low	< 10% increase	< 5% increase	Minor scope change	Minor quality reduction	Operational failure
Very Low	Insignificant change in cost	Insignificant delay in schedule	Scope decrease barely noticeable	Quality degradation barely noticeable	Minor operational impact

Table 1 - Classification of the impacts

Regarding risk's probability, it is proposed the following classification:

Name	Description
Very High	Event highly likely to occur
High	Event likely to occur
Medium	Event possible to occur
Low	Event unlikely to occur
Very Low	Event highly unlikely to occur

Table 2 - Risk probability classification

After assessing the impact and likelihood of the risk, the risk level should be determined according to the risk matrix shown in Figure 3. There are 4 risk zones:

- **Green:** low risk level
- **Yellow:** medium risk level
- **Orange:** high risk level (critical zone)
- **Red:** very high risk level (critical zone)

Probability	Impact				
	Very Low	**Low**	**Medium**	**High**	**Very High**
Very High	11	16	20	23	25
High	7	12	17	21	24
Medium	4	8	13	18	22
Low	2	5	9	14	19
Very Low	1	3	6	10	15

Figure 3 - Risk classification matrix

Moreover, the risk analysis should also specify the imminence of the risk. As it shown in Table 3, this category shows if the risk is already present or if it will be soon.

Imminence	Description
Present	Risk is already present and is likely to continue until mitigated
Imminent	Risk will likely occur within the next 3-6 months
Close	Risk will likely occur within the next 12 months
Remote	Risk will likely occur within the lifetime of the project

Table 3 - Risk imminence description

3.1.1.3 Risk Evaluation

Risk evaluation uses the results from the risk analysis to make decisions about future actions. In Risk evaluation, appropriate strategies to address the risk are proposed as well as possible mitigation plans.

Every risk whose risk level is in the orange or red zone of the risk matrix (Figure 3) is considered a critical risk and should be communicated to the Regulation & Standards Manager (RSM), the Project Coordinator and the Project Steering Committee to assure a rigorous and continuous monitoring. Critical risks will be closely followed by the RSM, the Project Coordinator and the WP Leader. Moreover, the WP Leader is responsible for communicating with the risk owner of the critical risks to be continuously updated regarding their status and be able to present those updates in Project Steering Committee meetings. Regarding risks which are not located in the orange and red area, the WP leader should also follow them closely to assess if they change the risk level and if they require a different treatment. All the risks should have a mitigation plan, however critical risks require a more extensive description.

Concerning risk's imminence, every risk that moves from being imminent to present needs to be raised immediately to the WP Leader and the Project Coordinator. Additionally, informing the WP Leader earlier is recommended.

3.1.2 Risk Treatment

This step consists of selecting and applying the most appropriate strategy from the ones defined in Risk Assessment to mitigate the risk and reduce as much as possible the negative impact on the project. This selection will be performed by the Project Coordinator together with the Risk Owner as well as with other relevant partners if required. Mitigation actions need to be initiated and followed up by the respective Risk Owner, who coordinates with the responsible partners and the WP Leader, who subsequently coordinates with the PC.

3.1.3 Communication and Consultation

Successful risk assessment is dependent on effective communication and consultation with stakeholders and project members. This step ensures that the interests of stakeholders are understood and that all project members are aware of the risks of the project. Accordingly, project risks, mainly critical risks, are presented in Project Steering Committee meetings to keep all the consortium partners informed.

3.1.4 Monitoring and Review

Risk Management is a continuous and iterative process, therefore risks need to be monitored and reviewed on a regular basis to assure all the assumptions, mitigation actions and results from risk

analysis still remain valid. Accordingly, Monitoring and Review consists of verifying the compliance with the mitigation plan defined, assuring the implementation of risk response measures, determining the effectiveness of these measures as well as identifying any changes that could impact and change the risk level. Monitoring and Review is performed by the respective Risk Owner who is responsible to assure that the deadlines for the mitigation measures are respected and to perform a periodic revaluation of the risk. The Risk Register should be updated every 6 months, however this time can be adjusted for some risks if required.

All consortium partners, WP Leaders and the Project Coordinator are responsible for the risk management procedure to guarantee that all kind of risks are identified and well managed.

An initial risk assessment was already performed during the proposal stage, identifying project and WP's risks and proposing mitigation plans. Nevertheless, the risk assessment is an ongoing process and therefore it needs to be continuously updated. Accordingly, during IANOS' Kick-Off meeting the two LHI ecosystems together with the horizontal partners, performed two separated workshops to complement the initial risk assessment of the proposal and further develop the mitigation plans as of the start of the project. This focused mainly on the deployment plans of all the technologies that are going to be installed and its monitoring process.

3.2 Responsibilities

According to what was described in previous sections, the responsibilities for the different stages of the Risk Management Process are represented in Figure 4. Once the risk is identified, the Risk Owner communicates to the WP Leader who informs the Project Coordinator and the LH Manager in case the risk is related with demonstration activities. Subsequently, the Risk Owner along with the Project Coordinator and the LH Manager, if applicable, perform the analysis of the risk by assessing risk's imminence and its impact and likelihood. Afterwards, the Risk Owner, together with the Project Coordinator, the WP Leader and the LH Manager, if applicable, propose possible mitigation plans and strategies to manage the risk. Critical risks and respective mitigation actions are presented in PSC meetings and to the RSM. Once mitigation plans are decided by the Risk Owner, the PC and the LH Manager, if applicable, the Risk Owner follows closely the implementation of the mitigation action and informs the WP Leader of all the updated. Finally, the Risk Owner is responsible to monitor and revise the status of the risk as well as to communicate with the relevant partners of the project.
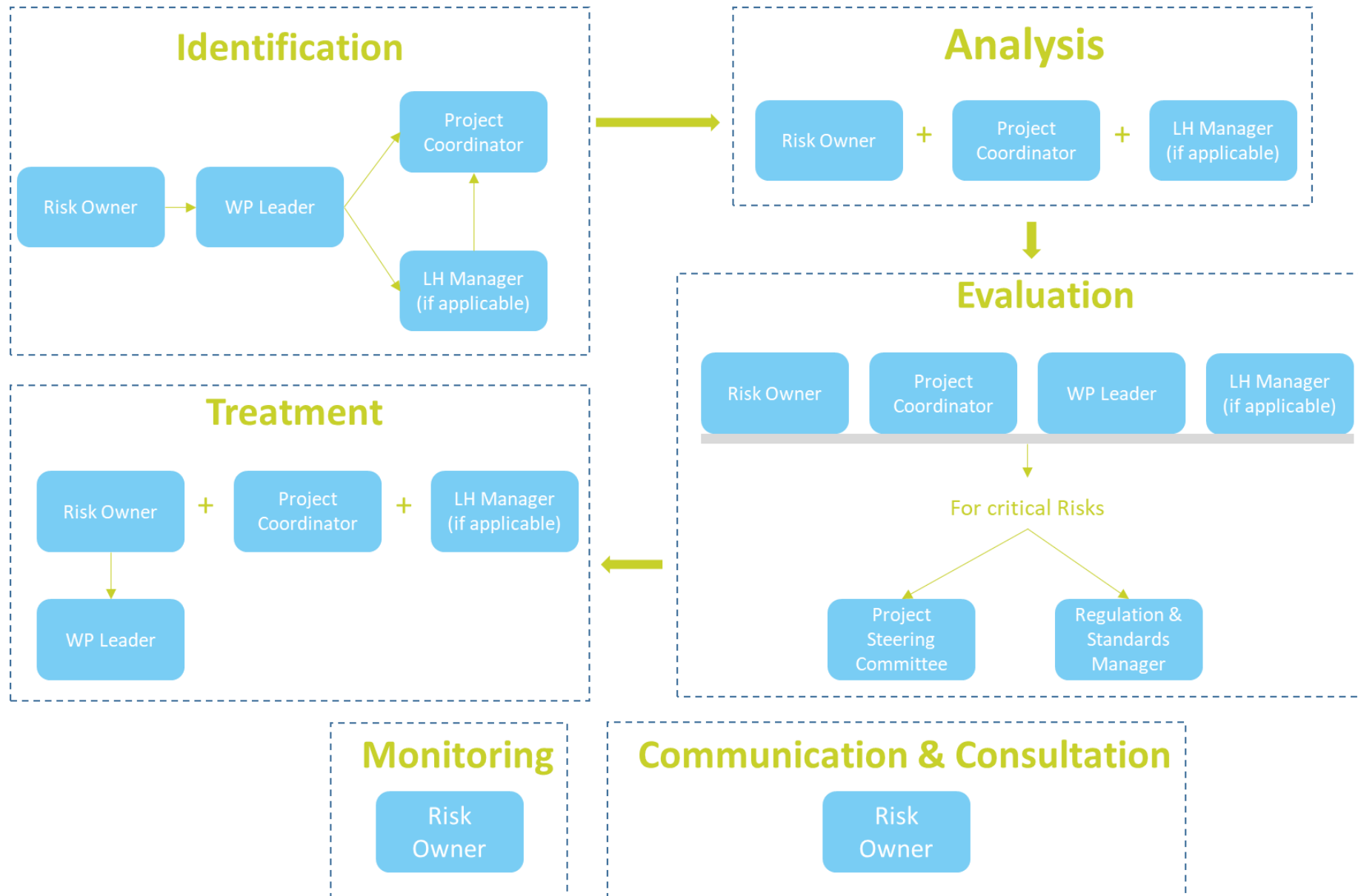
Figure 4 - Risk management methodology

3.3 Types of Risks

There are different types of risks that could arise in a project and therefore they can be divided in different categories according to their nature. The risks considered in IANOS project will be the following:

- **General Risks:**

  This type of risk comprises all management and dissemination risks of the project such as issues with partner's performance, existence of disagreement or lack of cooperation among partners.

- **Technical Risks:**

  These risks represent all the risks coming from project's implementation and test phases as well as risks related to the integration of the technologies demonstrated at pilot sites. Moreover, Technical Risks also include all risks that might compromise the commitment of the requisites of the Use Cases of the project.

- **User-Related Risks:**

  These risks involve all the risks that come from the user such as lack of community engagement or data privacy protection issues.

- **Business Risks**

  This type of risk covers all the risks related to the success of business models, the replicability activities as well as project's and partner's reputation.

4 Mitigation and Contingency Plans

The definition and implementation of mitigation measures and contingency plans are a key steps towards a successful risk management process since they are crucial to reduce the impact that risks might have on the schedule, cost, quality, and operation of the project.

There are different approaches to address risks which consequently influence the type of mitigation actions applied:

- **Eliminate:** Implement a measure in order to eliminate the risk;
- **Accept:** Assume the risk, no major changes are performed to manage the risk;
- **Avoid:** Instead of eliminating the risk, eliminates the cause of the risk by adjusting project requirements (funding, schedule, or technical requirements).
- **Control:** Implement measures to minimize the impact and the likelihood of the risk in the project;
- **Transfer:** Reassign or share risk's responsibility to another stakeholder;

The procedure for implementing mitigation actions should go through the following stages:

- **Definition of Mitigation Measures:**

  In Risk Evaluation, mitigation measures should be defined by the Risk Owner and other relevant partners to minimize the impact of the risk in the project. In case the measures imply any change in the scope, budget, schedule or quality of the project, they should be discussed and approved in the next Risk Workshop and PSC meeting.

- **Implementation of Mitigation Measures:**

  Each mitigation action should have responsible partners. The Risk owner should assure the action is performed as expected and inform the RSM and the PC of any unexpected occurrence.

- **Risk Review and Monitoring:**

  Linked to the Monitoring and Review Stage, after the implementation of the mitigation measures there should be a continuous monitoring to guarantee that the approach chosen to manage the risk was met and that the risk is managed.

5 IANOS' Risk Management Timeline

In the following pages, a table is presented with the different risks identified by the partners and ordered by each WP

Risk ID	Task	Date of risk's identification	Registration/Update Date	Risk Description	Risk Owner	Risk Type	Impact	Likelihood	RiskZone	Imminence	Mitigation Measures	Responsible for mitigation measures	Mitigation Measures deadline	Status of the mitigation Measure
WP1_1	WP1	Oct-20	Oct-21	Underperforming partners; low quality of work/deliverables, delays, etc	EDP	General	Very High	Low	Orange	Imminent	Such issues will be clarified on the Quality Plan and CA. Proper Internal peer review procedures will be in place to ensure the quality of the deliverables and their preparation in a timely manner. Regular WP & technical meetings will be held to ensure that activities are streamlined and lessons learnt are shared	EDP	End of the project	Started
WP1_2	WP1	Oct-20	Oct-21	Technical and administrative disagreements, cooperation problems among partners, lack of staff competences at the island level	EDP	General	High	Low	Yellow	Imminent	Continuous communication between all the partners. The PC, STM and QAM will work on problem solving during the project. If necessary, the Plenary Board will decide the right solution according to the CA. The PC is responsible of solving communication problems, establishing communication flows and methos and calling to bilateral meetings if necessary, also with USM and FISMs.	EDP	End of the project	Started
WP1_3	WP1	Oct-20	Sep-22	Partner leaves consortium. There is now a possibility of the partner Bareau leaving the Consortium due to technical difficulties	EDP	General	High	High	Red	Imminent	Consortium of sufficient strenght and diversity so that partners can be replaced if required. The PC and respective WP leaders will ensure appropriate control of the work in progress, until a new partner is found (in case necessary). Regarding Bareau, the partners involved in WP5 are discussing solutions	EDP	End of the project and end of 2022 for the risk associated with Bareau	Started
WP2_1	T2.1	Apr-20	Sep-22	Information regarding specifications of technologies thal will be demonstrated not provided by technology providers or not available by the LH Manager	EDP	Technical	High	Very High	Red	Present	Ask for the specifications from the begining of the project; Ask to LH Managers to help to contact the technology providers	EDP	End of task	In progress
WP2_2	T2.1	Jun-21	Sep-22	Changes in other tasks might compromise the definition of the Use Cases, specifically regarding Ameland	EDP	Technical	Medium	Medium	Yellow	Present	Close monitoring to other tasks to assure Use Cases definition are respected. Contact Ameland partners to get information	EDP	End of task	In progress
WP2_3	T2.3	May-21	Jun-21	Potential risk of some important KPIs to not be able to be measured	CERTH	Technical	High	Medium	Orange	Close	•Abundance of KPIs have been defined that cover similar aspects of the project ,therefore if one cannot be measured it will be covered by a different one •Constant communication with the various partners of each LH ecosystem •KPI owners have been defined for most of the KPIs and those that haven't will be defined in the near future in communication with the technology providers and the IVPP module developers/inetgrators; • Use the several versions of the deliverable to maintain it up to date to relevant changes	CERTH	End of measuring process in tasks T5.4 and T6.4 (M36)	In progress
WP2_4	T2.4	Jun-21	Jun-21	Island's information to charaterize the island not available	EDA	General	Low	High	Yellow	Imminent	Try to reach to the other partners of the project who have relation with Bora-Bora (Akuo Energy)	CERTH	End of task	In progress
WP2_5	T2.2	14/12/2021	Dec-21	Lack of response to the questionnaires, providing the necessary stakeholder input	NEC	General	Very Low	Very Low	Green	Remote	Collecting final input in less rounds (1 instead of 2) for partners that have not provided input before the first deadline. For non-responsive partners, the project coordinator is contacted to establish communication and facilitate a solution to receive input.	NEC	Deliverable submission	Risk has been solved
WP2_6	T2.4	31-05-2022	May-22	The information that will be provided in T9.1/9.2 may not be ready to be included in the final version of the deliverable	EDA	General	Low	Medium	Yellow	Close	Closely and frequently communicate with the partners responsible for these tasks and accompany the work in order to include it in the deliverable D2.12	CERTH	M32	In progress
WP2_7	T2.4	31-09-2022	Sep-22	Changed goals and policies may not ensure that planned assets are realized.	AME	General	Medium	High	Yellow	Imminent	Find alternatives with the same results. This means a energy storage like a battery could be replaced by an hydrogen storage.	AME	M48	In progress
WP2_8	T2.5	Sep-22	Sep-22	Changes in Use Cases definitions might affect the dynamic views described in Task 2.5	CERTH	Technical	Medium	Low	Yellow	Imminent	Communicate in advance with partners to be able to identify possible changes in Use Case definitions and/or equipment deployment in pilot sites.	CERTH	M26	In progress

ID	Task	Identified	Last Update	Risk Description	Owner	Type	Impact	Probability	Level	Proximity	Mitigation	Owner	Deadline	Status
WP2_9	T2.2	Dec-22	May-22	Political administrativr change in Lampedusa Municipality can negative affect the partecipation of stakeholders	CNR	General	High	Medium	Orange	Present	Establish again a partnership with the new Political Administration in particulat by identify a key person (PM) who will be responsable for the IANOS activities and link with the stakeholders	CNR	M20	In progress
WP3_1	WP3	Sep-21	Sep-21	Issues that may arise due to conflicts amongst the partners	UBE	General	High	Very Low	Yellow	Remote	WP leader will try to solve them through bilateral conversesions and meetings on a WP level	UBE	1-month after risk materialization	Not started
WP3_2	T3.1	Sep-21	Sep-21	Lack of adequate actual datafinformation from pilots and technology providers to conduct LCA and LCC analysis. For the LCA and LCC analysis it is necessary to insert real values from assets in the pilot sites	CERTH	Technical	High	High	Orange	Present	Information from other sources such as academic research papers for similar (not necessarily identical) and manuals from 3rd commercial technology providers can be considered. In some cases customized CERTH/CPERI database will be used as a repository.	CERTH	1-month after risk materialization	Started
WP3_3	T3.2	Sep-21	Sep-21	Lack of engagement of actors in the crowd-equity platform. The participation of stakeholders in the crowdfounding platform is of critical importance	CERTH	User-related	Medium	Medium	Yellow	Remote	Stakeholder engagement methods could be utilized	CERTH	1-month after risk materialization	Not started
WP3_4	T3.3	Sep-21	Sep-21	Integration and interoperability problems of the different components to create the energy planning & transition Decision Support Toolset. Problems arising during the components integrations process	UBE	Technical	Very High	Medium	Yellow	Close	Close collaboration amongst the partners for the solution of this issue	UBE	1-month after risk materialization	Not started
WP3_5	WP3	Grant Agreement	Grant Agreement	Security and data privacy protection issues that could be in conflict with EU regulations. Problems may arise regarding security and data privacy during the data collection process	All	User-related	High	Medium	Orange	Remote	IANOS will work closely with the DPOs to ensure that data and personal information will be kept secure, processed fairly and lawfully and will not be at risk of misuse.	All	1-month after risk materialization	Not started
WP3_6	WP3	Grant Agreement	Grant Agreement	Underestimation of IANOS resources to realize the proposed solutions in the context of WP3. In case that the proposed in the context of WP3 solutions, need more resources than those identified in the prosal phase	All	Technical	Very High	Low	Orange	Close	Iterative design and development methodology with prioritized functionalities.	All	1-month after risk materialization	Not started
WP3_7	WP3	Sep-21	Sep-21	Lack of adequate level of input from external to WP3 tasks. Interdependencies from other tasks exist in tasks across the WP3. Insufficiencient input from those tasks, endangers the level of quality of the deliverables of WP3	UBE, CERTH	Technical	Very High	Low	Orange	Remote	Contact the corresponding partners to request explanations about the proposed input	UBE, CERTH	1-month after risk materialization	Not started
WP4_1	T4.1	Sep-21	Sep-21	Difficulty for the ESB to support all communications and data brokerage functions with iVPP components	ETRA	Technical	High	Low	Yellow	Imminent	Involvement of all relevant technical partners to provide a modular integration of components through data adaptors and APIs to support an Agile software development process.	ETRA	1-month after risk materialization	Not started
WP4_2	T4.2	Sep-21	Sep-21	Poor performance of the demand and generation forecasting algorithms	CERTH	Technical	High	Low	Yellow	Imminent	Ongoing benchmarking and verification of performance metrics with real telemetry data for early detection of underperformance.	CERTH	1-month after risk materialization	Not started
WP4_3	T4.3	Sep-21	Sep-21	Poor performance of the energy segmentation algorithms due to accuracy of input data	CERTH	Technical	Medium	Medium	Yellow	Imminent	Ongoing benchmarking and verification of performance metrics with real telemetry data for early detection of underperformance.	CERTH	1-month after risk materialization	Not started
WP4_4	T4.4	Sep-21	Sep-21	Centralized Dispatcher does not perform as anticipated	ENG	Technical	Medium	Medium	Yellow	Imminent	Use of scientific methods to evaluate schedules and dispatch deviations from the optimum. Continuously adaptation and fine tuning of the respective algorithms.	TNO	1-month after risk materialization	Not started
WP4_5	WP4	Sep-21	Sep-21	Oganizational issues and conflicts amongst the partners in the context of WP4	CERTH	General	High	Very Low	Yellow	Remote	WP leader will try to solve them through bilateral conversesions and meetings on a WP level	CERTH	1-month after risk materialization	Not started
WP4_6	WP4	Sep-21	Sep-21	Interoperability issues between ICT components that have been built on heterogeneous frameworks	All	Technical	Very High	Low	Orange	Imminent	Partners will use best practices to prevent interoperability thrust while assessing the design specifications for each component. Interfaces, exchange formats etc. will be defined and tracked in cooperation with all relevant technical partners.	All	1-month after risk materialization	Not started

ID	Task			Description	Partner	Category	Probability	Impact	Risk	Status	Mitigation actions	Responsible	Deadline	Status
WP4_7	WP4	Sep-21	Sep-21	Delay in data gathering for the support of software development activities	All	User-Related	Medium	High	Orange	Imminent	Use of scientific methods to identify inaccurate or missing data. Use of synthetic data, estimations and assumptions to not stall the software development process.	All	1-month after risk materialization	Not started
WP4_8	WP4	Aug-22	Sep-22	Delay in the development of the iVPP crucial components for the integration of all technologies and consequent testing and deployment	ETRA	Technical	Very High	Very High	Red	Present	Project coordinator directly contact with technology providers to understand what are the needs for the testing phase and deployment, and directly contact with the team developing the iVPP to ensure all components needed are being prepared	EDP	Dec-22	Started
WP5_1	T5.1	Jul-21	Sep-21	TidalKite grid connection is now being realized despite the previous obstacles.	SQH	Technical	Very High	Low	Orange	Present	The grid connection is being realised. Close contact with the grid operator (Liander) is kept. A subcontractor is used that is prequalified to work with and on Liander assets. Timely installation of the hardware and commissioning of the connection is implemented to leave ample time to cater for delays.	SQH	End of the task	Started
WP5_2	T5.3	Jul-21	Sep-22	AHPD project is stopped at the moment and may compromise the realization of the Use Cases within IANOS.	Bareau	Technical	Very High	Very High	Red	Present	A meeting is planned to discuss the financing and planning of the project. The planning presented at that meeting will make clear whether there's a possibility to have a digester realized in time to still be able to fulfill the promises in the Grant Agreement.	Bareau	End of the task	Started
WP5_3	T5.3	Jul-21	Sept/21	Reflex development is now on track without delays.	TNO	Technical	Medium	Low	Yellow	Present	The development team has been expanded to ensure the continuity of the team. The mean viable product has been almost completely implemented. Clear interfaces have been defined with other partners (Repowered and Neroa) which have been tested as part of D5.3.	TNO	End of the task	Started
WP6_1	T6.1	Sep-21	set/22	Delays in carrying out tests involving the equipment to be installed on Terceira island	EDP	Technical	Low	High	Yellow	Present	Ensure with the partners suppliers of various equipment to be installed on the island of Terceira the availability to schedule in cooperation with LABELEC the testing and verification of conformity of manufacture	EDP and other partners responsible for supplying the equipment to be installed for the various use cases	by the end of 2021	Risk occured. Impact was mitigated and not significant.
WP6_2	T6.5	Sep-21	Sep-21	Difficulties derived from a low/late adhesion process of the residential segment customers to ensure the integration, installation and monitoring of the equipment in a timely manner	UNINOVA	User-Related	High	Very Low	Green	Remote	Several reunions were made with testers with a succes rate over 95%. All needed testers were gathered.	EDP, EDA, RGA and UNINOVA	by the end of 2021	Started
WP6_3	T6.4	Sep-21	Sep-21	Lack of support and monitoring of the operation and individual performance of each final customer adhering to the project	EDA	User-Related	High	Low	Yellow	Remote	To ensure the involvement of the different EDA local structures in the support and follow-up of the operation, cooperating with the customers in the search for the best performances	EDA	by the end of 2021	Started
WP6_4	T6.5	Sep-21	Sep-21	Insufficient feedback collected from end-users during demonstration phase to be used for the evaluation process.	UNINOVA	User-Related	High	Medium	Orange	Remote	Organize several meetings with end-users, prepare feedback forms in close co-operation with end-users, repeat end-user feedback collection procedure if needed.	UNINOVA, EDP, EDA, RGA	by the end of 2022	Not started
WP6_5	T6.2	Sep-21	set/22	Insufficient space of the houses inchoosen to deploy	EDP	User-Related	Medium	Very Low	Green	Remote	Houses have been visited and every house had sufficient space	EDP, EDA, RGA	By the end of 1st quarter 2022	Started
WP6_6	T6.2	Sep-21	set/22	Insufficient thermal storage for the household needs	SUNAMP	User-Related	Medium	Very Low	Green	Remote	Most households allready have an intelligent Hot Water Heating equipment that will serve as a backup for the thermal storage. This technology will only be deployed in places like this	EDP, EDA, RGA, SUNAMP	By the end of 1st quarter 2022	Started
WP6_7	T6.4	Sep-21	set/22	Solutions may not be suitable for the island's harsh climate	EDA	Technical	High	Medium	Orange	Remote	Improve the index protection of the solutions. Technology providers were informed. Still no equipment was installed,	EDP and other partners responsible for supplying the equipment to be installed for the various use cases	By the end of February 2023	Started
WP6_8	T6.3	Sep-21	set/22	Local service providers may not have the knowledge to install the diferent project solutions	Cleanwatts	Technical	High	Low	Yellow	Remote	Technical support from solutions providers and auditing the work developed. All local service providers will be closely informed of all the knowledge needed.	EDP and other partners responsible for supplying the equipment to be installed for the various use cases	By the end of 1st quarter 2022	Started
WP6_9	T6.3	Sep-21	set/22	Complications/delays with transport the solutions to the island.	Cleanwatts	General	High	Medium	Yellow	Remote	Anticipated planning. A transport and deployment plan was executed. Still there are some dates that have been overpassed.	Cleanwatts	By the end of 1st quarter 2022	Started

ID	Task	Date1	Date2	Risk Description	Partner	Type	Probability	Impact	Level	Timing	Mitigation	Responsible	Deadline	Status
WP6_10	T6.4	Sep-21	Sep-21	Misuse of the solutions from the end users	EDA	User-Related	Very High	Medium	Orange	Remote	Raising awareness of the end-users. Most equipments will be installed in facilities owned by the Azores Government. They will be responsible for the correct use of the equipments	EDA, RGA and EDP	By the end of 1st quarter 2022	Started
WP6_11	WP6	Sep-21	Sep-21	Poor communication / engagement plan	EDP	User-Related	High	Low	Yellow	Remote	Engagement with the living forces of the local community. Several meetings were performed with local testers.	EDA, RGA and EDP	By the end of 2021	Started
WP6_12	T6.1	Oct-21	Feb-22	Delays due to raw material/ components shortage for Hybrid Transformer manufacturing.	EFACEC	Technical	Very High	High	Red	Present	Acquire material as early as possible. Resorting to alternative/new suppliers.	EFACEC	31/01/2023	In progress
WP6_13	T6.1	Apr-21	Apr-22	Lab testing failure	EFACEC	Technical	Very High	Low	Orange	Imminent	Intermediate tests in different manufacturing phases to ensure the correct operation before the final test.	EFACEC	End of 2022	In progress
WP6_14	T6.1	Oct-21	Feb-22	Delays due to difficulties in hiring human resources specialized in power electronics may impact the foreseen deadlines and/or make it hard to cope with some of the requirements considered	EFACEC	Technical	High	High	Orange	Present	Contact universities for recruitment. Prioritize the hiring of this type of resource.	EFACEC	01/01/2023	In progress
WP6_15	T6.1	Oct-21	Apr-22	Failure to comply with EDA specific requirements	EFACEC	Technical	Very High	Low	Orange	Present	Find a solution to test according to compromise with EDA.	EFACEC/EDA	30/10/2022	In progress
WP6_16	T6.3	Dec-21	Apr-22	Extra space for transformer, bypass cabinet and regulator cabinet needed (1500mm 1700mmx900mm + 650mmx1900mmx350mm + 1000mmx1930mmx560mm)	EFACEC	Technical	Very High	Very Low	Yellow	Imminent	Obtain the characteristics of the site prior to the installation and review the design of the equipment if needed.	EFACEC	30/10/2022	In progress
WP6_17	T6.3	Oct-21	Feb-22	Industrial low voltage supply may not be available	EFACEC	Technical	High	High	Orange	Imminent	Detailed study on necessary changes and equipment at the site	EFACEC/EDA	01/03/2023	Not Started
WP6_18	T6.4	Oct-21	Feb-22	Improper operation or maintenance of the hybrid transformer voltage regulator	EFACEC	Technical	Medium	Low	Yellow	Imminent	Inclusion of the ByPass cabinet.	EFACEC/EDA	31/03/2023	In progress
WP6_19	T6.4	Oct-21	Feb-22	Poor quality cellular signal	EFACEC	Technical	High	Low	Yellow	Imminent	Use signal amplification equipment.	EFACEC/EDA	31/03/2023	Not Started
WP6_21	T6.4	Oct-21	Feb-22	Operation may fail due to complexity of the system	EFACEC	Technical	Very High	High	Red	Imminent	Surveillance of the operation through EFACEC platform to anticipate possible faults	EFACEC	End of project	Not Started
WP6_22	T6.4	Apr-21	Apr-22	Operation start will be delayed due to development difficulties	EFACEC	Technical	High	Very High	Red	Imminent	Estimate the delays in advance to prevent major impact on the project	EFACEC/EDA	01/02/2023	In progress
WP7_1	T7.4	Sep-21	Sep-21	Insufficient maturity or market penetration of selected models	ETRA	Business	Medium	Medium	Yellow	Remote	A thorough analysis of existing models, the selection of the most appropriate use and evaluation will be conducted.	Partners that have developed business models	1 month after risk materialization	Not started
WP7_2	T7.1; T7.2	Sep-21	Sep-21	Insufficient or corrupter raw measurement data collected from demonstrations to be used for the evaluation process	CERTH	Technical	High	Medium	Yellow	Remote	Use several sources of raw measurement data to minimize the error possibility. Conduct a pre-evaluation procedure of the measured data to identify possible corruption or insufficiency and repeat part of the measurements if required.	Pilot responsibles, data collection partners	1 month after risk materialization	Not started
WP7_3	T7.1	Sep-21	Sep-21	Insufficient feedback collected from end-users during demonstration phase to be used for the evaluation process.	CERTH	Technical	High	Medium	Yellow	Remote	Organize several meetings with endusers, prepare feedback forms in close co-operation with endusers, repeat end-user feedback collection procedure if needed	Pilot responsibles, data collection partners	1 month after risk materialization	Not started
WP7_4	T7.3; T7.4	Sep-21	Sep-22	Missing skills in the consortium when facing innovation and business challenges	ETRA Technical and Business developing partners	Business	Very Low	Very Low	Green	Close	Experienced partners with complementary competences and access to a wide pool of knowledge and resources.	WP7 Participants	1 month after risk materialization	Not started
WP7_5	T7.3; T7.4	Sep-21	Sep-21	The risk that technology investments will become obsolete.		Business	High	Very Low	Yellow	Remote	Specific plans for effectively mitigating obsolescence risk will be done for each product produced during the project	Technical and Business developing partners	1 month after risk materialization	Not started
WP7_6	T7.1; T7.2	Sep-21	Sep-21	Insufficient details in the specification of the demonstrators' requirements that lead to incomplete information models or poor interoperability among systems	Pilot Partners	User-related	High	Medium	Orange	Remote	All relevant partners will participate in the iterative process of the definition of information models and interoperability specification in line with overall project rationale	ETRA	1 month after risk materialization	Not started
WP7_7	T7.1; T7.2; T7.3; T7.4	Jun-22	Sep-22	External consequences may affect the feasibility of certain Use Cases development.	ETRA, CERTH	Technical	High	High	Orange	Close	It is important to develop a flexible attitude towards the adaptation of the business models to the changing externalities that affect the business models.	UC responsible partners	before the elaboration of task	In progress
WP8_1	T8.1	Jul-21	Sep-21	Limited participation of LH and FI stakeholders in the engagement actions and co-creation initiatives as researchers and citizens should avoid the personal contact that enables the COVID19-virus transmission. This risk is now lower due to the end of the COVID restrictions and high vaccination rates.	Hanze	User-Related	High	Low	Yellow	Close	1-on-1 remote consultations with the stakeholders on the islands, whereby agreements are made about the form of cooperation, the way in which information is provided and within what period.	Hanze	3/31/2021	Implemented

WP	Task	Start	End	Risk description	Partner	Type	Prob.	Impact	Level	Timing	Mitigation action	Responsible	Deadline	Status
WP8_2	T8.2	Jul-21	Sep-21	Limited participation of LH and FI stakeholders in the engagement actions and co-creation initiatives as researchers and citizens should avoid the personal contact that enables the COVID19-virus transmission. This risk is now lower due to the end of the COVID resctrictions and high vaccination rates.	EREF	User-Related	High	Medium	Orange	Close	1-on-1 remote consultations with the stakeholders on the islands, whereby agreements are made about the form of cooperation, the way in which information is provided and within what period.	EREF	3/31/2021	Implemented
WP8_3	T8.2	Jul-21	Sep-21	Difference in the degree of experience and knowledge regarding Stakeholder and Citizen Engagement on the islands, which means that the usefulness of the Toolbox can be (more) limited, especially on islands with less familiarity and experience.	EREF	User-Related	Medium	Medium	Yellow	Close	Keeping close contact with the island representatives in WP8 and transferring and sharing as much existing knowledge and experience (best practices) as possible. In this context, presentations were given during the WP8 consultations in year 1 on the barriers and needs as well as the best practices regarding stakeholder engagement at the LHIs and the FIs.	EREF	3/31/2021	Implemented
WP8_4	T8.3	Jul-21	Sep-21	Limited possibilities to organize physical workshops on the participating islands due to COVID-19 measures. This is not only limited to the workshops themselves, but also affects the preparation of the workshops.	NEC	User-Related	High	Medium	Orange	Imminent	Prepare as much as possible for the development and delivery of the remote workshops. This means that obtaining the necessary information on a local scale to shape the content of the workshops must be organized by the islands themselves. Guidance in the development and delivery of the workshops will also take place remotely in close coordination between the Taskleader and the islands.	NEC	3/31/2022	In progress
WP8_5	T8.4	Jul-21	Sep-21	As an extension of risk WP8_3 the extent to which crowdfunding for RE investments can be applied as a concept (partly) depends on the extent to which stakeholders on the islands are (want to) be involved in RE investments. A low level of stakeholder involvement in RE investments is associated with a low level of	NEC	User-Related	High	Medium	Orange	Imminent	Maintain close contact with the island representatives in WP8 and transfer and share as much existing knowledge and experience (best practices) as possible. In this regard, presentations were made during the year 1 WP8 consultations on the barriers and needs, as well as best practices regarding stakeholder engagement with the LHIs and the FIs. With regard to crowdfunding specifically, the emphasis will have to be placed on the benefits (tangible and	NEC	8/31/2022	In progress
WP8_6	WP8	Jul-21	Sep-22	Underperforming partners - Low quality of work, low level of commitment	All task leaders	User-Related	High	Low	Yellow	Remote	Before initiating activities partners will be involved and contacted to contribute to WP8 and the respective tasks. Furthermore regular (every 8 weeks) WP meetings are organized in which an update of the progress per Task is being discussed. The expectations with regard to the contribution of partners are also discussed. Separately the WP leader together with the Task leaders have regular meetings (every 6 weeks) to discuss the progress per Task incl barriers, needs and actions to be taken Next to that, also 1-on-1	NEC	continuous	Implemented
WP9_1	T9.1, T9.2, T9.3, T9.4	Oct-20	Sep-22	Underperforming partners; Low quality of work/ deliverables, delays, etc.	CERTH. ENG	General	Medium	Low	Yellow	Remote	Proper internal peer review procedures are in place, to ensure quality of the deliverables and their preparation in a timely manner. Regular WP & technical meetings are held to ensure that activities are reamlined, and lessons learnt are shared.	ENG	By the end of the project	Started
WP9_2	T9.1, T9.2, T9.3, T9.4	Oct-20	Oct-20	Technical/ administrative disagreement, cooperation problems among partners, lack of staff competences at the island level	ENG	Technical	Medium	Very Low	Yellow	Remote	Continuous communication between all the partners. The PC, STM and QAM will work on problem solving during the project. If necessary, the Plenary Board will decide the right solution according to the CA. The PC is responsible of solving communication problems, establishing communication flows and methods and calling to bilateral meetings if necessary, also in	EDP	By the end of 1st quarter 2022	Started
WP9_3	T9.1, T9.2, T9.3, T9.4	Oct-20	Oct-20	Underestimation of required resources for realising IANOS	CERTH, ENG	General	Medium	Very Low	Yellow	Remote	Iterative design and development methodology with prioritized functionalities	CERTH, ENG	CERTH, ENG	Started
WP9_4	T9.1, T9.2, T9.3	Oct-20	Oct-20	Poor knowledge transfer from LHs to FIs hinders replication planning	ENG	General	High	Very Low	Yellow	Remote	Active participation and mentoring of stakeholders, sufficient resources, staff exchange and practicing sessions	CERTH, ENG	By the end of 1st quarter 2022	Started
WP9_5	T9.1, T9.2, T9.3, T9.4	Oct-20	Oct-20	Security and data privacy protection issues that could be in conflict with EU regulations	Project Partners	User-Related	Medium	Very High	Yellow	Remote	IANOS will work closely with the DPOs to ensure that data and personal information will be kept secure, processed fairly and	EDA, RGA and EDP	By the end of 2021	Started
									Orange		communication with external initiatives responsibles.			
WP10_1	T10.1, T10.2, T10.3	Sep-21	Sep-21	Low rate of partners' availability and engagement in c&d acitivities; low participation to dissemination events	RINA + NEC + EREF	General	Medium	Low	Yellow	Present	Task leader action to promote initiatives dedicated to underperforming partners	Task leaders	End of the project	Started
WP10_2	T10.1, T10.2, T10.3	Sep-21	Sep-21	Missing or insufficient data protection control from the consortium in managing C&D activities such as publishing sensitive data and images without collecting official consent through IANOS communication channels	RINA	User-related	Medium	Low	Yellow	Close	RINA to organise a session giving guidelines on GDPR issues for D&C, including to do/to avoid	RINA + all	End of the project	Ongoing

WP10_3	T10.1, T10.2, T10.3	Sep-21	Aug-22	Impossibility to organise events, workshops and meetings guaranteeing the physical presence of the consortium members, to promote the dissemination activities, due to the pandemic	RINA	General	Low	Low	Green	Present	Task leader action to promote and organise initiatives through streaming channels and remote-based platforms to allow engagement of consortium members and stakeholders in the field.	Task Leaders	Until restrictions last and project duration to increase reach	Ongoing
WP10_4	T10.4	21/set	Sep-21	Too many results identified and consequent difficulty in developing a coherent strategy for explotation	RINA	Business	Medium	Medium	Yellow	Close	Clusterisation of results in main categories to be developed in deep according to main characteristics	RINA + KER owners	End of the project	Watch
WP10_5	T10.5	21/set	Sep-21	Enabling technologies too far from the market to promote/comply with standards on the market	RINA	Business	High	Very Low	Yellow	Remote	Monitor closely technical development and follow existing normative and standards in early phases	Technology developers	End of the project	Not started
WP10_6	T10.3	21/set	Sep-21	Difficulty to engage policy makers in IANOS project, reduced opportunities also due to covid restrictions	EREF	General	Medium	Medium	Yellow	Remote	Policy makers at local lever will be engaged more via formal/informal meetings to scale up the reach	all	End of the project	Not started

Table 4 Risk Register for all work packages of IANOS including impact assessment on the project, likelihood of each risk, Risk Zone identification, mitigation measures and deadlines for mitigation

6 Conclusion and Future Work

This deliverable compiled the risk assessment methodology and risks identified in IANOS project on the first two years of the project. Due to the dynamic nature of the risks, and the importance of identifying them as soon as possible, efforts are made to maintain the risk register as a living document and to update it as necessary by all responsible partners. To comply with these constant updates, this Deliverable - Quality Assurance, Risk Assessment and Contingency Plans - is updated and submitted every year and intends to be a formal way of following IANOS risk register.

The project has already in place a quality assurance procedure to ensure it meets the high-quality standards and impacts defined in the Grant Agreement. Until this point, this quality assurance procedure was applied to the different deliverables produced and in supporting the final phases of development of the different technologies. At this stage it will have a key role in the deployment and implementation on the demonstration sites.

Going through the identified risks, seven of them are in the Red Risk Zone. In fact, most of these risks are related to the deployment phase that the project is now entering, which is a crucial and very impactful phase. Due to the beginning of the commissioning and installation of technologies, as well as the need to start the deployment to meet the project's goals, the number of risks foreseen by the partners, as well as their likelihood and impact to the project are much bigger.

Risk WP1_3 relates to the possibility of a partner leaving the consortium. At this moment there is a non-negligible risk of the partner Bareau leaving the Consortium due to technical difficulties in realizing one of the technologies to be deployed in Ameland for WP5, the High-Pressure Digester. The partners involved in this WP, as well as the project coordinator, have been in conversations in order to come up with a technological solution and a final decision on this issue. The mitigation measures to this risk should be concluded until the next risk assessment and a conclusion should be provided. This risk is also related to risk WP2_1, since the unpredictability of the technologies to be deployed in Terceira mean there will need to be future changes to the technologies' descriptions taken into account for the Use Case definitions promoted in WP2. Also risk WP5_2, directly related to the partner Bareau and the realization of the AHPD, is affected. There are now discussions being held in order to figure out what are the solutions to realize the High-Pressure Digester in Ameland and ensure the commissioning of all technologies predicted in WP5.

In the Terceira demonstrator, there are also technology-associated risks in the Red RiskZone. The first one, Risk WP6_7 is related to the harsh island climate and the need for the technologies to withstand it, and it is already being solved with the improvement of the IP protection indexes of the solutions, although there is still no equipment installed in the deployment sites. Risk WP6_12 relates

to the current raw material and component crisis which is putting at risk the commissioning of the Hybrid Transformer. The partners in this work package are already aware of this risk and have acquired the material as early as possible. Still, delays in the deployment may be a possibility. Risk WP6_21 and WP6_22 relate to the complexity of the system of the hybrid transformer, which may be the cause of possible delays in development and future operation fails. These risks are being mitigated by the use of a surveillance platform, and also estimating the predicted delay in order to adapt project deployment to reduce impacts.

Some delays have also been identified in WP4, specifically related to the iVPP, which explain the Red Zone for risk WP4_8. This risk was originated in a delay in the development of iVPP-related components such as the data model to be used by technologies, and the Enterprise Service Bus itself. This, however, is a risk which is already being solved by applying the mitigation measures presented. Nonetheless, most of the identified risks are either in the Orange or Yellow Risk Zones. This is due to the successful mitigation measures that have been identified and put in place. In fact, some of the risks were updated to the Green Zone since they have either already been passed and solved or their mitigation measures are now being applied lowering the impact and likelihood of these risks.

All partners have identified not only the risks associated with their activities but also the mitigation procedures to overcome them. They will now follow closely on the developments of these risks alongside the Regulation & Standards Manager, the Project Coordinator, and the Project Steering Committee.

The COVID-19 pandemics as well as the current war situation in Europe have affected some of the supply chains which delivered materials and components to the technologies being deployed in IANOS's pilot sites. This may cause delays to the installation and commissioning of some of the project's technologies but should not put at risks the operation of the use cases and testing of innovative technologies and methodologies in Terceira and Ameland, as expected.

7 References

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8 Annex
8.1 Risk Register Template

The Risk Register applied in IANOS is composed of the following columns:

- **Risk ID:** Identifies the risk number. All risks that were already treated must keep the same ID member to avoid having different risks with the same ID number.

- **Task:** Task to which risk is associated

- **Date of risk's identification:** The date when the risk was identified

- **Registration Date:** The date of the most updated record of the respective risk

- **Risk Description:** Brief description of the risk, it should be concise describing all the relevant matters related to its actual cause

- **Risk Type:** Characterizes the risk according to its nature (General, Technical, User-Related or Business)

- **Impact, Likelihood, Risk Zone:** The level of impact and likelihood determined in the risk analysis (from Very Low to Very High) as well as the resulting colour from the risk matrix (green, yellow, orange or red)

- **Imminence:** The type of risk (Present, Imminent, Close, Remote) according to the expected time to occur and impact project results.

- **Mitigation Measures, responsible, deadline, status:** Measures to mitigate the risk, the responsible for those measures and the deadline for its implementation. The status of the mitigation measure should also be described (in progress, finished, cancelled, not started, etc)

Risk ID	Task	Date o risk's identification	Registration Date	Risk Description	Risk Owner	Risk Type	Impact	Likelihood	RiskZone	Imminence	Mitigation Measures	Responsible for mitigation measures	Mitigation Measures deadline	Status of the mitigation Measure