

PROJECT MANAGEMENT HANDBOOK

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Executive Summary

This document provides the definition of the processes and mechanisms to be utilised and followed during the lifecycle of the AERO project towards successfully executing its tasks and achieving its objectives. Its purpose is to identify the processes, the metrics and the supportive documentation that is required and needs to be defined and deployed so as to ensure the high-quality of the AERO deliverables and project management activities. All partners are expected to make use of this document for carrying out various activities in the project. The document also contains information that will assist new researchers or employees that join organisations that are involved within AERO.

In AERO, complying with the project management procedures falls under the responsibility of the Project Coordinator and the Technical Manager, as well as the Work Packages and Tasks leaders. Roles and responsibilities have been defined and should be updated as the project progresses. Effective channels of internal communication have been established since M1 in order to exchange all the necessary information for the project implementation among the participants. The means for remotely conveying information for the AERO purposes range from e-mail communication through dedicated mailing lists and teleconferencing facilities to an internal collaboration space for document management and task management activities.

The implementation aspects regarding co-creation and consultation mechanisms, official and internal reporting procedures, decision-making and conflict resolution processes to be applied during the AERO implementation have been defined in detail. Emphasis is laid on quality assurance of results, which is achieved with the help of audit control mechanisms internal to the consortium for the deliverables and appropriate corrective actions to be taken. A specific quality procedure shall be followed at preparation time for all deliverables.

In order to facilitate the internal review process, reviewers have been already assigned for each deliverable for early planning of the necessary effort. Finally, this deliverable provides the definition of a risk management plan by defining a continuous risk assessment and mitigation approach that will be followed during the project execution.

In general, this document attempts to comply with all the provisions as set out in the Grant Agreement and the Consortium Agreement (CA); however, where there is doubt, the Grant Agreement and CA should be referred to and this document updated to remove any ambiguity and/or errors.



List of Abbreviations & Acronyms

Abbreviation/Acronym	Meaning
CA	Consortium Agreement
DCM	Dissemination & Communication Manager
DM	Data Manager
DoA	Description of Action
EC	European Commission
GA	General Assembly
IPR	Intellectual Property Rights
KPI	Key Performance Indicator
PC	Project Coordinator
PCT	Project Coordination Team
QM	Quality Manager
TM	Technical Manager
WP	Work Package
WPL	Work Package Leader



1 Introduction

This deliverable, entitled "Project Management Handbook", provides a quick overview of the project management structure and defines the rules and responsibilities of the AERO consortium in order to ensure the proper progress of the work during the project lifetime and the production of high-quality deliverables and other project outcomes.

In this context, the present deliverable aims to fulfil the following main objectives:

- ➤ Establish a quality management system in accordance with the ISO 9001 (Quality Management Systems Requirements) standard.
- > Assure the quality of the project deliverables and project management activities.
- ➤ Identify the quality responsibilities of all partners within the consortium.
- ➤ Ensure proper co-ordination and communication channels among partners during the project lifetime.
- Identify the potential risks of the project and evaluate their impact and exposure, while proactively designing risk elimination methods in order to guarantee the seamless and proper execution of the project's tasks.

This document prescribes a number of processes for ensuring the high-quality output of the AERO project. It is the role of the QM to ensure that the guidance in the document is followed but ultimately it will be the PC who ensures that the quality of the outputs is sufficient for the project.



2 Consortium Composition & Management Structure

2.1 Consortium & Participant Contacts

Official contact information of each of the project participants is included in the AERO Grant Agreement. The full list of project participants, along with subscription information to mailing lists, is maintained as a living document in the AERO Project Repository as a document restricted to the consortium. Partners are responsible to inform about any modification of their representatives the PC, PCT and appropriate WP leaders, who will be responsible for informing the rest of the consortium if necessary.

2.2 Management Structure

The project structure is designed to handle the most important aspects of management, namely decision making, IPR policy, technical and administrative management, advisory functions and assessment. Its primary aim is to be capable of responding to the needs of such an ambitious project like AERO, without though being intrusive or costly. Thus, the building-in of flexibility has been an essential aspect during the creation of this structure.

The AERO management structure is shown in detail in Figure 1 while its main entities are presented in the following subsections along with their role and responsibilities.

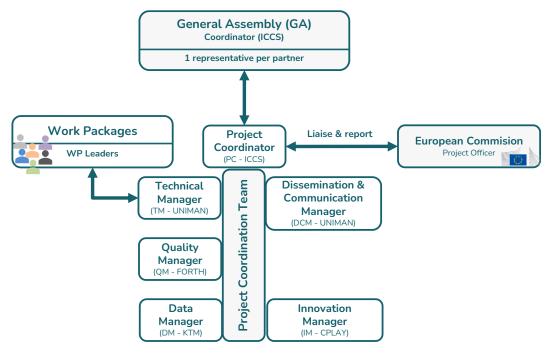


Figure 1. AERO management structure

2.2.1 Project Coordination Team (PCT)

PCT handles all management tasks and responsibilities. In detail, PCT is responsible for deciding the strategic direction of AERO and overlooking the overall project plan and work progress. PCT will organize all project reports and metrics, ensure the smooth operation and timely financial transactions, monitor the use of resources and budget, while also produce and maintain the overall



risk management and contingency plan. PCT decisions are binding and can only be overturned by the General Assembly (GA).

PCT comprises the following entities:

- ▶ Project Coordinator (PC): PC chairs the PCT and is the intermediary between the European Commission and the AERO consortium. PC is responsible for the general and administrative management of the entire project and is in charge of monitoring the progress of the project activities and the issue of the project deliverables with respect to the objectives and the planned schedule. If necessary, PC will initiate corrective actions to mitigate the impact of any deviations. AERO will be coordinated by ICCS and the role of PC is assigned to Prof. Dionisios Pnevmatikatos.
- ➤ Technical Manager (TM): TM is responsible for the overall technical management and coordination within and between work packages. TM is the direct contact point to the Work Package Leaders (WPLs). The WPLs send all technical progress reports to TM, who then reports to the PCT. TM will be responsible to resolve any issue arising from the details of the project work plan and to ensure that effective solutions to any implementation problems or technical limitations are devised. The role of AERO's TM is assigned to Dr. Christos Kotselidis (UNIMAN).
- Innovation Manager (IM): IM is responsible for the coordination of all the business-related efforts and oversees the process of innovation-centric developments within the required IPR, standardisation and market context. IM's activities include: (i) the presentation of technical results and technological artefacts in such a way that they can be understood by an audience that may not be aware of the state-of-the-art; (ii) identifying exploitation potential of project results, following up on exploitation tracks, and introducing and promoting contact with potential end users; (iii) providing regular feedback on the adequacy of research efforts towards the exploitation of intended results (in collaboration with end users); (iv) coordinating the exploitation activities and related IPR issues. IM is in particular responsible for the implementation of a confidentiality review process in order to check the material to be communicated against the project's IP assets in order to avoid any confidentiality breach. The role of IM in AERO is assigned to Mr. Rod Burns (CPLAY).
- ➤ Data Manager (DM): DM is responsible for defining the data management policy of AERO and monitoring the data management processes (data collection, access, sharing, processing, storage, etc.) during the project's lifetime. The role of DM is assigned to Mr. Michael Wurzer (KTM).
- ➤ Quality Manager (QM): QM is responsible for the implementation of quality procedures and quality assurance of all deliverables, reports and software modules of the project. The role of QM in AERO is assigned to *Dr. Polyvios Pratikakis* (FORTH).
- ➤ Dissemination & Communication Manager (DCM): DCM is responsible for coordinating and harmonizing the dissemination and communication activities throughout the consortium members in order to maximize the impact of these activities. The role of AERO's DCM is assigned to Dr. Athanasios Stratikopoulos (UNIMAN).

2.2.2 General Assembly (GA)

GA is the highest body of the project. All partners of the Consortium are represented by one representative in GA. Upon recommendations from the PCT, GA takes final decisions on the overall-policy of the Consortium, modifications and extensions of the Consortium Agreement and the



objectives of the project. Progress and achievements will be reported to the General Assembly by PCT.

2.2.3 Work Package Leaders (WPLs)

WPs are led by selected experts from the respective leading participant organisation, on the basis of their experience, technical and management skills. WPLs are responsible for the technical coordination, planning, monitoring and reporting of the WP and for the inter-WP communication. WPLs will organize the necessary technical coordination meetings, possibly with other WPLs, to guarantee a consistent progress with respect to the overall project objectives. WPLs represent the TM at WP level and are clearly committed to a) coordination and continuous monitoring of all the WP tasks and progress, b) reporting to the TM and to the partners on a regular basis by contributing to newsletter and project activity report and c) ensuring that the WP milestones and deliverables are achieved in time and that they comply with the required quality standards set in the project by supporting the QM.

The role of WPL for each WP has been assigned to the following people:

- > WP1: Prof. Dionisios Pnevmatikatos (ICCS)
- WP2: Krzysztof Nienartowicz (SED)
- ➤ WP3: Michele Paolino (VOS)
- WP4: Dr. Juan Fumero (UNIMAN)
- WP5: Konstantinos Theodosiou (UBI)
- WP6: Rod Burns (CPLAY)



3 Implementation Aspects

3.1 Decision Making

Decisions regarding the project implementation will be normally taken by the team members upon reaching consensus with the WP leaders. Typically, agreement will be reached first by informal contact, followed by official confirmation via electronic mail, letter or agreed written minutes. In case of a dispute between two or more team members, a conflict resolution procedure must be followed, as presented in the specific document.

For important issues, the agreement may take the form of a short report that needs to be signed by PCT. Non-technical factors, such as resource allocation and contractual terms, will also need to be agreed and documented in writing.

The key driver on the decision-making procedures is the description of work to be performed as stated in the Grant Agreement, the CA, the DoA, and as regularly communicated within the consortium. Transparency of the implementation decisions and actions will be achieved by adequate communication of the emerging issues on project meetings and e-mail communications.

3.2 Conflict Resolution

Technical issues or conflicts within the contractual commitments that do not involve any contract, budget, resource allocation or overall project focus changes, will be discussed at WP level first. If a decision is not reached or it is reached but is deemed unacceptable by other partners, then the conflict will be resolved according to a conflict resolution procedure which can be summarised in the next steps:

- 1. The team members involved in the implementation of the WP will inform the respective WPL for the emerging conflict.
- 2. WPL will decide whether the issue needs to be discussed in a teleconference or a dedicated WP meeting and will inform TM and PC for the planned actions.
- 3. The result of the teleconference or the meeting will be communicated to both TM and PC.
- 4. If no consensus has been reached up to this point, TM will contact the responsible persons and will try to resolve the conflict.
- 5. If the disagreement remains, the issue will be escalated by TM to the PCT. A decision will be taken at this level and will be considered as the final resolution of the issue.



4 Project Monitoring & Reporting

Project reporting is the procedure employed by EC to assess the project. Hence, it is of utmost importance to be performed at the highest quality level and it is a responsibility of the whole consortium, as every partner has to be actively involved. PC is responsible for periodically gathering the appropriate information and reports from all partners and consolidating it before sending it to EC.

AERO will use two types of reporting documents that will contain technical and financial information: (i) the Project Periodic Report, and (ii) the Internal Project Report. The former refers to the official report that must be submitted to EC according the EC guidelines and regulations; the latter refers to internal documents that will be used as control measures to effectively monitor the technical and financial progress of AERO.

4.1 Project Periodic Reports

As set out in the Grant Agreement, there will be three project reviews:

- > RV1: Technical review for the period M1-M9
- RV2: Review of period RP1, from M1 to M18 (Jan 2023 to Jun 2024)
- RV3: Review of period RP2, from M19 to M36 (July 2024 to Dec 2025)

PC is responsible for submitting to EC a periodic report, no more than 60 days after the end of each reporting period. This report must consist of:

- 1. A periodic technical report containing among others:
 - a. An explanation of the work carried out by the partners.
 - b. An overview of the progress towards the objectives of the action, including milestones and deliverables. The report must note any deviations of work, milestones and deliverables. Additionally, exploitation and dissemination plans for the project results must be properly updated.
 - c. A publishable summary of the project progress and the achieved results.
- 2. A periodic financial report with the following:
 - a. An individual financial statement from each partner for the reporting period concerned. This statement will detail all eligible costs, including costs that go over the initially allocated budget of the partner. A financial statement must be submitted by at least the end of the project detailing all receipts of the action.
 - b. An explanation of the use of resources and information on any subcontracting and in-kind contributions provided by third parties from each partner for the reporting period concerned.
 - c. A periodic summary financial statement, created automatically by the EC participant portal (ECAS).

In addition to the last periodic period, a final report must also be submitted by PC to EC. This final report will cover the balance of any outstanding payments and must consist of the following:

- 1. The final technical report with a publishable summary comprising:
 - a. An overview of the results and their exploitation and dissemination.



- b. The conclusions of the action.
- c. The socio-economic impact of the action.
- 2. The final financial report containing:
 - a. A final summary financial statement created automatically by the EC participant portal (ECAS).
 - b. A certificate on the financial statements for each partner that requests a total contribution of more than EUR 430 000.

4.2 Internal Project Reports

AERO Internal Project Reports have to be prepared by all partners and provided to PC twice per year, i.e., every 6 months. Each Internal Project Report will contain:

- a. Technical information regarding each WP progress provided by the respective WPLs.
- b. Information on incurred costs and allocated effort breakdown per WP along with justifications for any significant deviations compared to the planned effort.

4.3 WP Internal Progress Monitoring

It is the responsibility of TM to ensure that the WPLs provide content of sufficient quality and that the results meet the objectives of the project. To assess this, PC and TM should maintain a list of the key objectives and KPIs as set out in the contracted work. It is then the duty of PC and TM to challenge the WPLs to ensure that they have met the objectives. Specifically:

➤ Technical KPIs:

- Due dates of deliverables.
- Achievement of milestones.
- Interaction between the different WPs.
- Task timing, i.e., ensuring tasks start and end on time.
- Identification of risks.

Economic KPIs:

- Ensure that partners reported efforts match the outputs.
- Budgeting and forecasting of changes to the budget are performed adequately.

Organisational KPIs:

- Number and types of meetings held in the period related to WP and Tasks.
- Participants and absentees of the meetings.
- Availability of minutes.
- Tracking of scientific outputs/journals/publications.
- Timely delivery of requested outputs to EC.

If there are significant deviations detected through the monitoring plan above, then mitigation actions will be required. In the first instance, if the deviation can be remedied with a change in the technical solution that is close to the initial, planned effort, then the Task Leader can proceed whilst reporting the change.

If the changes have an impact on other areas of the project, then the Task Leader should notify the respective WPL of the deviation. WPL will work with the Task leaders involved to see if an alternative



path can be achieved. Any alternatives will be presented at the next Technical Meeting with the challenges highlighted and the solutions suggested.

For a deviation that cannot be resolved through just the WPL and Task Leaders, the PCT will have to make a decision, possibly following the conflict resolution procedure below if an agreement cannot be made.

If a change causes a significant deviation from the original planned work, this should be formulated as an amendment that will be submitted to EC to determine whether it is an acceptable change. Given the nature of research work, it may be necessary to change the planned work, but the spirit and ethos of the project should be maintained. Effort should be spent in trying to make the task not deviate too much from the original suggested line of work. If this is not possible, then effort should be spent on the basis of making related tasks still pragmatic. If an alternative cannot be reached or the alternative is not accepted by EC, then provisions should be made to return part of the funding related to the activities that cannot be performed; this plan should be communicated by PC and TM to EC in an expedient manner.



5 Deliverables

Compliance with the technical objectives of the project is manifested by the prompt time delivery of the corresponding deliverables. A total of 20 deliverables will be produced across the 3 years of the AERO project duration. Guidelines for their preparation and submission in order to ensure high standards and timely delivery are included below.

Each deliverable has been assigned to a Lead Beneficiary who is responsible for its creation and submission by its due date. Every Lead Beneficiary is responsible for the deliverable's quality and must maintain adequate control of the partners' contributions.

All deliverables must be submitted to EC in English by electronic means in pdf format unless another format is requested by EC. All deliverables must be finalized and submitted within the respective deadlines defined in Annex I of the Grant Agreement.

The suggested process to be followed for every deliverable preparation and submission is described in Table 1. It is up to the respective WPL and Task Leaders to decide how they want to manage their deliverables and contributions and propose to TM an alternative plan. If no alternative plan is put in place at least 6 weeks before the due date of the deliverable, then the timings of Table 1 must be respected.

Table 1. AERO deliverables' submission timings

Timing	Action		
>6 weeks before	WPL & Task leaders may propose an alternative time plan		
due date			
Due date – 6 weeks	Lead Beneficiary makes available in the project repository a draft with the		
Due date – 6 weeks	ToC with responsible partners for each section identified and highlighted		
Due date – 3 weeks	Contributions for all sections must be sent by responsible partners to Lead		
Due date – 5 weeks	Beneficiary		
Due date – 2 weeks	Due date – 2 weeks Completed deliverable draft sent for internal review		
Due date – 1 week	Reviews must be sent to Lead Beneficiary		
Due date – 4 days	Final version of the deliverable is created by Lead Beneficiary and sent to		
Due date 4 days	WPL		
Due date – 2 days	Approval by WPL and, if necessary, the internal reviewers and submission		
Due date 2 days	to TM		
Due date – 1 day	Approval by TM and submission to PC		
Due date for	Final check and submission to EC		
submission			

The AERO consortium has agreed on assigning 2 internal reviewers for each deliverable. An initial assignment based on partners' expertise has been made for each deliverable and is presented in Table 2. In case of an unexpected unavailability of a reviewer, the respective WPL is responsible for selecting an appropriate replacement.



Table 2. Assignment of internal reviewers per deliverable

Del.		Lead	Due	Reviewer	Reviewer
No.	Title	Benefic.	Date	1	2
D1.1	Project Management Handbook	ICCS	M3	KTM	VOSYS
D1.2	Risk Management v1.0	UNIMAN	M12	ICCS	UNIGE
D1.3	Risk Management v2.0	UNIMAN	M24	ICCS	RHAT
D2.1	Pilot Requirements and Definitions	SED	M6	SIPEARL	RHAT
D2.2	Intermediate Report on Pilot Migration and Optimization	KTM	M18	UNIGE	UNIPI
D2.3	Pilot Migration and Optimization Report	SED	M32	SIPEARL	RHAT
D3.1	Research and Development (Upbring) of the AERO System-level Software Stack on the EU Processor	FORTH	M18	VOSYS	UNIPI
D3.2	Research and Development (Optimization) of the AERO System-level Software Stack on the EU Processor	FORTH	M30	VOSYS	UNIPI
D4.1	Research and Development (Upbring) of Programming Languages, Runtimes and Libraries on the EU Processor	UNIMAN	M18	RHAT	CPLAY
D4.2	Research and Development (Optimization) of Programming Languages, Runtimes and Libraries on the EU Processor	UNIMAN	M30	RHAT	CPLAY
D5.1	Research and Development (Upbring) of AERO Cloud Services on the EU Processor	UBI	M18	ICCS	FORTH
D5.2	Research and Development (Optimization) of AERO Cloud Services on the EU Processor	UBI	M30	ICCS	FORTH
D6.1	Compatibility report, Software Specifications and Platform Architecture	UNIMAN	М6	ICCS	SIPEARL
D6.2	AERO Integration, Evaluation and Demonstration v1.0	UBI	M18	ICCS	SIPEARL
D6.3	AERO Integration, Evaluation and Demonstration v2.0	UBI	M36	UNIMAN	SIPEARL
D7.1	Data Management Plan	KTM	M6	UNIGE	UBI
D7.2	Dissemination, Communication and Stakeholders Engagement Report v1.0	ICCS	M18	UNIGE	FORTH
D7.3	Dissemination, Communication and Stakeholders Engagement Report v2.0	ICCS	M36	CPLAY	UNIPI
D7.4	Impact Enhancement, Commercial Roadmap, Exploitation and Standardization Report v1.0	CPLAY	M18	SED	KTM
D7.5	Impact Enhancement, Commercial Roadmap, Exploitation and Standardization Report v1.0	CPLAY	M36	SED	VOSYS



6 Communication among AERO Partners

Efficient communication and collaboration structures are essential for the success of the project. Since all project partners are distributed across European member states, it is of utmost importance to offer to each partner secure, independent access to important documents, code, meetings' agendas and minutes, dissemination and communication materials, and other miscellaneous project information.

6.1 Project Repositories

All documents produced and used within the context of AERO are shared via an access restricted Google Drive (<u>link</u>). Only specific workers affiliated with a partner of the AERO consortium are granted access to this folder.

The code developed in the context of the project will be shared in Github (link).

6.2 Communication Channels

Appropriate channels of internal communication have been established since M1 to facilitate the exchange of all the necessary information for the project implementation. In particular, the following set of mailing lists has been created:

- ➤ <u>aero-all@googlegroups.com</u>: For broadcasting general announcements, plenary meetings, etc. to all AERO members.
- <u>aero-tech@googlegroups.com</u>: To facilitate technical discussions among collaborators of all technical WPs (WP2-WP6)
- ➤ <u>aero-impact@googlegroups.com</u>: For all communications related to dissemination, exploitation, standardisation and all other WP7 activities.
- ➤ <u>aero-admin@googlegroups.com</u>: To facilitate communication regarding administrative, legal, financial, etc. issues between all partners' PIs and other administrative contacts collaborating in the context of WP1.

Subscription of each project member to a specific mailing list is managed and maintained by PC. The updated subscription list is available in the project's document repository. Each partner is responsible for informing PC whether any modification of their representatives is needed. PC is responsible for keeping the subscription lists updated and informing the consortium regarding any changes.

Besides carrying out day to day communications by email, AERO partners have agreed on using also alternative forms of communication. Specifically, AERO members have been subscribed to access-restricted Slack channel. However, any important notes or results based on discussions in this channel, should be recorded as an email to the relevant mailing list.

6.3 Meetings and Relevant Procedures

All meeting procedures are governed by the rules in Section 6 of the CA. Each meeting is required to have an agenda and provide minutes containing clear action points.



Regular and ad-hoc meetings will be held during the project lifecycle, including:

- Project Plenary Meetings: The meetings will be held at least once per year, either virtually or physically at a location selected amongst the partners' sites, and they will typically last two days. PC is responsible for the meeting formation (creation of the agenda) and the communication of the meeting details (time and place) at least 2 weeks before the date of the meeting to allow enough time to participants for scheduling their travel and preparing any necessary information and material for the meeting.
- ➤ **Technical Partners Meetings**: These meetings will be held if required and will be organised by TM.
- ➤ Technical Review Meetings: There will be at least three Technical Review Meetings that will take place under the convocation of EC. In these meetings, EC, with the help of external evaluators, will assess the progress of the project during the reporting period of reference. PC, TM and WPLs are expected to participate in these minutes. Additionally, other partners could be requested to participate as well at the discretion of PC or under specific request of EC. PCT is responsible for helping PC and TM in managing these meetings and preparing all the appropriate materials.
- ➤ Regular Conference Calls: Plenary calls will be held on a bi-weekly basis. Conference calls related to specific WPs are encouraged and should be organised by the respective WP or Task leader, with the schedule being announced in a timely manner.



7 Risk Management

To achieve the challenging AERO objectives on time and within the allocated budget, it is essential to timely identify and control risks, foresee their consequences and effectively mitigate their impact via appropriate proactive actions. Hence, risk identification, management and mitigation constitute an integral part of AERO's overall project management approach.

Specifically, AERO's risk management incorporates the following activities:

- > Assessing continuously what could go wrong (risks).
- > Determining which risks are important to deal with.
- Implementing strategies to deal with those risks.

7.1 Continuous Risk Management Approach

AERO's risk management plan has been produced based on the Continuous Risk Management (CRM) paradigm developed by the Software Engineering Institute (ESI) as indicated in Figure 2.



Figure 2. Continuous Risk Management paradigm

This iterative roadmap for risk management comprises the following actions:

- > Identify: Make all known project risks explicit before they become problems.
- > Analyze: Transform risk data into decision-making formation.
- > Plan: Translate risk information into decisions and mitigation actions and implement those actions.
- > Track: Monitor risk indicators and mitigation actions.
- **Control**: Correct deviations from the risk mitigation plans.
- Communicate: Enable the sharing of all information throughout the project.

7.2 Risk Exposure

Risk exposure is a composite metric created by combining the impact with the probability of the risk. These terms are defined in a way compliant to those of SEI (four levels of impact and three levels of probability, translating to different levels of risk exposure):



- ➤ Impact: The impact of a particular risk on the project, which is determined on the basis of the risk's effects on the project (e.g., performance, cost, progress of time plan, etc.). The levels of impact from the most severe to the lesser ones, are <u>Uncontrollable</u>, <u>Critical</u>, <u>Marginal</u>, and <u>Negligible</u>.
- ➤ **Probability**: The chance that a particular risk will occur. The levels of probability are <u>High</u>, <u>Medium</u>, and Low.

Based on these definitions, Table 3 presents the risk exposure. For any risks with high exposure, specific mitigation actions will be put in place and acted upon.

Table 3. Risk exposure

Probability Impact	High	Medium	Low
Uncontrollable	High	High	Medium
Critical	High	Medium	Medium
Marginal	Medium	Medium	Low
Negligible	Medium	Low	Low

7.3 Risk Monitoring

AERO will continuously monitor and assess identified risks, focusing especially on risks that have been identified as having high or medium exposure. The results of this assessment will be included in the respective deliverables of WP1.