AI4ED

TOWARDS AN AI DRIVEN EDUCATIONAL PROCESS INTEGRATING MODERN CAREERS IN THE EDUCATIONAL SYSTEM

Deliverable

D1.1 – Project Management Plan

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Glosary

GSC	General Steering Committee
TC	Technical Committee
TM	Technical Manager
OC	Outreach Committee
OM	Outreach Manager
PDF	Portable Document Format
PC	Project Coordinator
PMP	Project Management Plan
QAP	Quality Assessment Procedure
WP	Work Package
WPL	Work Package Leader

EXECUTIVE SUMMARY / ABSTRACT

Abstract	This document is the deliverable "D1.1 – Project Management Plan" of the European project "AI4ED - TOWARDS AN AI DRIVEN EDUCATIONAL PROCESS INTEGRATING MODERN CAREERS IN THE EDUCATIONAL SYSTEM" (hereinafter also referred to as "AI4ED", project reference: 101087543). The AI4ED Project Management Plan (PMP) is the main planning document and describes how major aspects of the project are managed, monitored and controlled. It is intended to provide guidance and direction for specific management, planning, and control activities such as schedule, risk, communication, quality, etc. The focus of this document is to describe the approaches being taken in the project to manage the various work packages, share and store documents, communicate among consortium members, control the quality of project deliverables, identify and mitigate risks associated with the project. The PMP is a living document and should be updated continuously throughout the project. Benefits of creating a Project Management Plan include: • clearly define roles, responsibilities, processes and activities; • increase probability that projects will complete on-time, within budget, and with high degree of quality; • ensuring understanding of what was agreed upon; • helping project teams identify and plan for how project activities will be managed (budget, quality, schedule, etc.). The intended audience of the AI4ED Project Management Plan consists of members of the AI4ED consortium and the Project Officer.
Keywords	Project Management, quality, risk, communication

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1 Introduction

Deliverable 1.1 details the Project Management Plan (PMP) of the AI4ED project. The purpose of this document is to provide a documented plan for the management and control of the organizational, developmental and supporting processes necessary to the successful implementation of the AI4ED project.

It outlines the goals and objectives and organizational structure; defines the responsibilities and roles of project participants; identifies the interactions among project partners; and specifies the general procedures and management tools that are implemented to ensure effective project management and successful project completion.

The development of the PMP is an evolving process: the PMP will be updated and revised as needed. Revisions to the PMP will include periodic updates to the plan, especially related to project risks. The PM will be responsible for the maintenance of and subsequent revisions to the PMP.

The project management process and procedures included in this PMP are based on the Project Management Body of Knowledge the (PMBOK® Guide), 7th Edition[1], published by the Project Management Institute.

The AI4ED project is employing a standard project management approach based on documented timelines, regular communications, active follow up, and formal quality control and risk mitigation processes. To support its project management approach, the AI4ED project uses a odoo platform for communication and document sharing and a set of dedicated conference calls. The combination of these solutions provides the team with facilities for sharing and managing of documents, managing work package tasks, tracking progress against task deliverables, scheduling meetings and discussions, and generally ensuring that the distributed project team can pro-actively collaborate to meet project requirements.

In order to ensure that regular progress reports are produced on time by deliverable leaders IMH created procedures and templates. These procedures have been finalized to assure that actual resource consumption is tracked against plan, that any deviations from the plan are quickly surfaced and appropriate risk mitigation actions taken.

To facilitate on-going reporting activities and project teamwork, email lists have been created and conference calling facilities established. In addition, a project website been developed to provide not only internal communications capabilities for the AI4ED team, but to support the team's dissemination and exploitation activities.

Finally, formal quality control and risk management processes have been established so that project deliverables meet the operational criteria so that any deviations from plan are properly addressed.

[1] A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Seventh Edition, ISBN 9781628256642

2 Overview of AI4ED prroject

AI4ED aims to question current teaching-learning processes and will incorporate and experiment with novel technologies (AI) and pedagogies, to develop tools, methodologies and evaluation systems that respond to the new reality. "An educational system, being redefined from a lifelong learning perspective, that will stimulate economic growth, social cohesion and the improvement of the quality and quantity of employment.

2.1 Project purpouse and objectives

The progressive automation of less qualified jobs, the need for professionals with more complete skills and the desire and expectation of the students to handle themselves with autonomy indicate that the education and training system must prepare people to the future in a very different way than it has in the past.

In this context, when analysing existing and emerging technologies that can allow to incorporate significant improvements to advance towards a future education, artificial intelligence (AI) is proving important in facilitating mentioned training and learning needs. AI is a key technology in the modernisation of education in Europe by providing new opportunities for adapting learning content based on student's needs, new processes for assessment, analysing possible bottlenecks in learners' domain understanding and improvement in guidance for learners.

AI4Ed will focus on the application of AI and collaborative platforms to the teaching-learning process.

The project objectives are:

1- To design the strategy/methodology for an AI based training process, with problem-based and project based learning at its core and which focuses on collaborative learning taking into account the promotion of multilingualism and cultural diversity. In such an innovative system the leading role will be played by the students, who will be accompanied and tutored by both teaching staff and company mentor when required. (WP2).

2- To design and develop 3 AI (transparent and ethical) models integrating the critical KPIs governing the processes for personalised tutoring, active learning and dropout prevention. (WP2).

3- To generate digital content for personalised tutoring, active learning, and dropout prevention under the guidance of an effective Data Management Plan (DMP) for the treatment of all data (WP3).

4- To design a pan-European training framework that will support a “train the trainers” approach for AI4Ed skill development. (WP4)

5- To develop a toolkit to use as guideline on the tested process to ensure mainstream uptake by the community of AI in education, identifying the steps towards developing a full AI approach and ensuring a gradual transformation of the education. (WP5)

6- To develop 4 pilot use cases for the validation of the AI4Ed, one in each of the different member states in the consortium (ES, PT, SI, DE), taking into account the inputs form WP2 and WP3. (WP5).

7- To prepare the partners in the consortium, as well as the other stakeholders outside the consortium for the post-project uptake of the AI4Ed results through a comprehensive series of knowledge transfer and workshops (WP6).

2.2 Project milestones

For a correct tracking of progress, the AI4ED project adopts a work plan with 9 Milestones, see Table 1.

Table 1 - AI4ED Milestones

MS Numbre	MS Name	Related WPs	Est. Date	Means of verification
MS1	KOM and MidTerm Meeting	1	M12	Successful management of the project during the first 12M. Periodic Report
MS2	Final Meeting	1	M24	Effective management of the full project. Final Report
MS3	Successfulappraisal of 3 AImodels for personalised tutoring, active learning and dropout prevention compliant with EUethics and transparency	2	M8	The pedagogical KPIs and the AI ethics and transparency requirements will have been integrated in the AI models. Deliverable 2.1, Deliverable 2.2, Deliverable 2.3
MS4	Basic Data Set complying with the data strategy and the DMP	3	M10	Data set encompassing administrative, subject content (subject being learned), student information and teacher information. Data set compliant with the data management plan will be devised following the DMP template provided by the Horizon Europe programme will be used. Deliverable 3.1, Deliverable 3.2, Deliverable 3.3
MS5	Training programme designed and developed.	4	M12	A comprehensive training programme for education stakeholders including a calendar of implementation for the following 12 months. Deliverable 4.1
MS6	Training Frameworkin line with the European Digital Education Content Framework.	4	M22	Successful appraisal of the training framework validated by the training sessions accomplished over the second half of the project. Deliverable 4.2
MS7	AI4ED Toolkit	5	M24	A toolkit with implementation guidelines. Deliverable 5.1a, Deliverable 5.1b
MS8	AI4Ed will have been successfully tested in 4 use cases.	5	M24	Verified by the implementation of 4 use cases that meet the specifications outlined in WP2 and WP3. Deliverable 5.2 and Deliverable 5.3

MS9	AI4Ed will have been successfully delivered and there commendations for future development work will have been defined	6	M24	The effectiveness of AI4Ed in facilitating teachers and students in achieving their teaching-learning goals will be confirmed. Deliverable 6.1 and Deliverable 6.2

2.3 Project deliverables

Table 2 summarizes the AI4ED deliverables.

Table 2 - AI4ED list of deliverables

ID	Deliverable Name	WP	Short name of lead particip.	Type	Dissem. level	Delivery date
D7.1	AI4Ed Promotional material: Project Website, social media, project leaflet and poster	WP7	IMH	DEC	PU	M1
D1.1	Project management Plan	WP1	IMH	R	SEN	M3
D2.1	KPIs on personalised tutoring, active learning, and dropout prevention	WP2	UNIZAR	R	PU	M6
D2.2	Report on AI ethics and transparency requirements	WP2	UNIZAR	R	PU	M6
D2.3	Report on the 3 AImodels	WP2	ALCHEMY	R	SEN	M8
D3.1	Report on datasemantic and dataformat	WP3	UBREMEN	R	PU	M8
D3.2	Data Management Plan	WP3	UBREMEN	DMP	PU	M8
D3.3	Initial data set tofeed the AI models	WP3	IMH	DATA	CO	M10
D4.1	AI4Ed trainingprogramme	WP4	SCSKZ	R	PU	M12
D5.1	Toolkit on AI4Ed version 1	WP5	UNIZAR	R	PU	M12
D5.2	Detailed Use Cases specification	WP5	IMH	R	SEN	M12
D7.2	EDEHub model Implementation Report version 1	WP7	UNIZAR	R	PU	M12
D7.3	Report on the PUDF including a long-term action plan for the progressive roll-out of project results version 1	WP7	CENFIM	R	PU	M12
D4.2	AI4Ed trainingFramework	WP4	IMH	DEC	PU	M22
D5.3	Report on Use cases implementation of AI4Ed	WP5	IMH	R	SEN	M24
D5.4	Toolkit on AI4Ed Final version	WP5	UNIZAR	R	PU	M24

D6.1	Stakeholders' workshops reports, including the evaluation and conclusions	WP6	IMH	R	PU	M24
D6.2	Report on validation trials and recommendations for future work	WP6	IMH	R	PU	M24
D7.4	EDEHub model Implementation Report Final version	WP7	UNIZAR	R	PU	M24
D7.5	Report on the PUDF including a long-term action plan for the progressive roll-out of project results Final version	WP8	CENFIM	R	PU	M24

3 Project Organisation

The AI4ED Consortium is comprised of six partners and is coordinated by FUNDACION PARA LA FORMACION TECNICA EN MAQUINA-HERRAMIENTA (IMH) in Elgoibar. The partners of the AI4ED consortium hold considerable and long lasting experience with EU research projects. IMH in particular has a strong experience in coordinating European research projects, and expert IMH staff supports all administrative, legal and financial tasks.

In order to fulfil this objective, the AI4ED consortium counts on a highly competent international team consisting of an internationally well recognized VET (IMH, CENFIM, SCSKZ), two prestigious universities (UBREMEN and UNIZAR), and an innovative SME (ALCHEMY), for a total of six organizations from four countries. The consortium composition results in a dynamic, focused and strategically balanced group between academia, VET and industry as Table 3 shows.

Table 3 - AI4ED list of participants

Participant No	Participant organisation name	Participant short name	Country
1	FUNDACION PARA LA FORMACION TECNICA EN MAQUINA-HERRAMIENTA	IMH	ES
2	UNIVERSITAET BREMEN	UBREMEN	DE
3	ALCHEMY MACHINE LEARNING	ALCHEMY	ES
4	CENTRO DE FORMACAO PROFISSIONAL DA INDUSTRIA METALURGICA E METALOMECANICA	CENFIM	PT
5	SOLSKI CENTER SLOVENSKE KONJICE-ZRECE	SCSKZ	SI
6	UNIVERSIDAD DE ZARAGOZA	UNIZAR	ES

3.1 Management structure

The coordination of theAI4ED project requires special attention to the management of multidisciplinary activities in order to define an organization that meets the overall AI4ED objectives, with the right balance between rigor and flexibility and giving room to innovation and creativity.
Special attention must also be paid to the content of each WP in order to ensure the maximum consistency and solidity in the project.

The main objective of the management is to ensure that all project-related tasks are performed successfully and comply with contractual requirements. The key features for successful project management are:

- a management organization that is matched with the project complexity;
- efficient communications within the organization;
- clear definition of contractual requirements and relationships;
- adequate planning and control procedures;
- comprehensive quality and risk management frameworks.

In order to achieve efficient project implementation, the structures of the Work Packages and their related tasks have been defined with the aim of minimizing overlap between different activities.

Figure 1 shows the relation among WPs in the AI4ED work-plan. This allows the definition of clear responsibilities, roles and objectives for all project resources. Within the project each partner has a clear responsibility and lines of reporting: each task activity in a WP is led by a partner, with the task leader reporting to the work package leaders, coordinating the technical work for his/her activity according to the project and WP objectives.

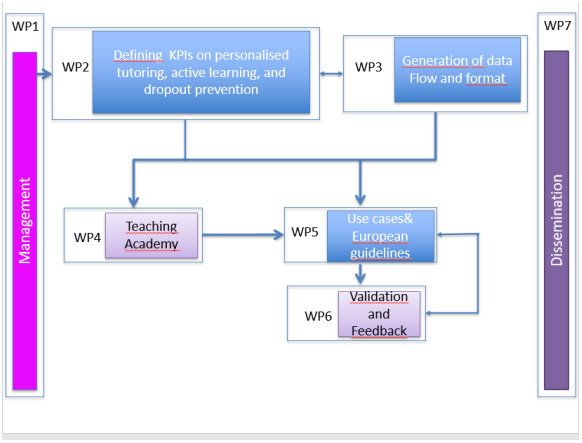

Figure 1 - AI4ED work packages interdependencies

The management structure is based on the extensive experience of the partners in European funded projects and has been adapted in order to meet the requirements of a project that is characterized by an ambitious activity plan and a heterogeneous consortium. The AI4ED project management structure is shown in Figure 2.

The main elements of the project organizations are:

- the Project Coordinator, acting as the general manager and overseeing the technical progress of AI4ED;
- the Technical Manager, entrusted with the identification and management of technical risks of the AI4ED project
- The Outreach Manager, supporting and overseeing the planning for the use and dissemination of the results;
- the Work Package Leaders, responsible for successful execution of the work packages;
- the General Steering Committee chaired by the Project Coordinator and consisting of one representative of each partner of the Consortium, is the decision-making body of the consortium;
- the Technical Committee chaired by the technical manager assists the Project Coordinator in the technical monitoring and early identification and management of technical risks.
- the Outreach Committee chaired by the Outreach Manager manages impact and sharing of results

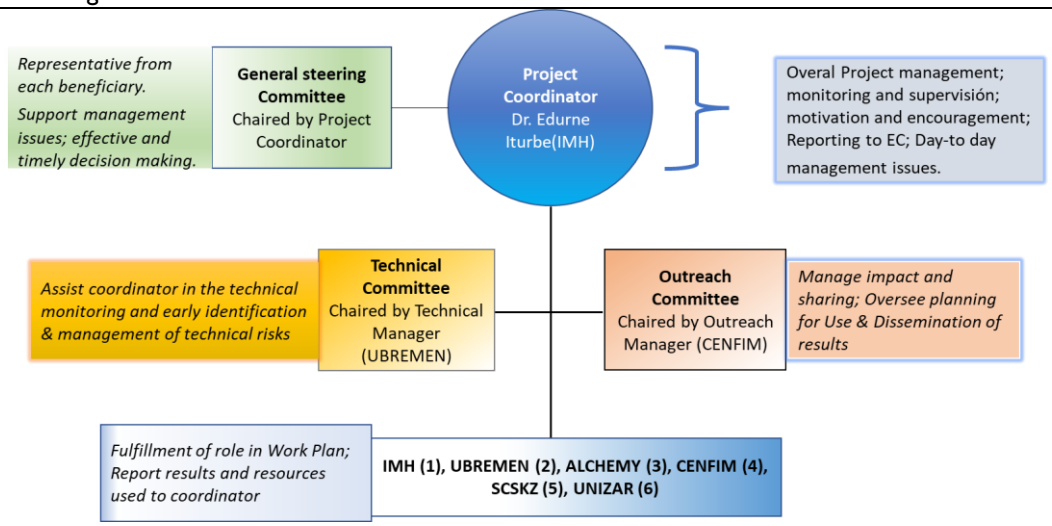

Figure 2 - AI4ED management structure

3.2 Roles and responsibilities

The AI4ED project has been successfully implemented through the concerted efforts of various organizations and responsible parties, who work together as an integrated team providing multiple levels of oversight to ensure a successful outcome for the project. In the following, a description of the responsibilities for the main roles is given, and persons already appointed to the roles are specified.

Role: Project Coordinator (PC)

Appointed Person: Kristian Sanz (IMH)

Main Responsibilities: The PC is the primary responsible for the AI4ED project and acts as the intermediary between the Consortium and the European Commission. He is also responsible for the overall coordination of the project execution, and works on the day-to-day management of the project in collaboration with the Project Manager. The PC also chairs all the meetings of the General steering committee. In particular, the Project Coordinator is responsible for:

- monitoring compliance by the Parties with their obligations
- collecting, reviewing, and submitting information on the progress of the project, reports and other deliverables to the EC
- preparing the meetings, proposing decisions, and preparing the agenda of General Steering Committee meetings, chairing the meetings, and monitoring the implementation of decisions taken at meetings
- transmitting promptly documents and information connected with the Project, providing, upon request, the Parties with official copies or originals of documents which are in the sole possession of the Coordinator when such copies or originals are necessary for the Parties to present claims.

The Project Coordinator is assisted in its role and responsibilities by Naiara Elejalde.

Role: Technical Manager (TM)

Appointed Person: Andreas Saniter (UBREMEN)

Main Responsibilities: The TM is responsible for supporting the PC in ensuring that the technical objectives and activities of the project are met in a timely manner. He oversees the absolute technical matters pertaining to the work plan, increasing the potential for early identification of any technical risks or technical

problems requiring effective and timely management. In terms of decision making on technical issues of strategic importance to the project, the TM will alert the Project Coordinator and an emergency meeting of the GeneralSteering Committee will be called so that a decision can be arrived at.

Role: Outreach Manager (OM)

Appointed Person: Jose Fonseca (CENFIM)

Main Responsibilities: The OM is in charge of promoting the adoption of AI4ED results outside the AI4ED Consortium. He ensures that the results of this project are effectively protected and exploited to the full, and to support the PC in the management of innovation related activities. He works in close touch with the PC and with the PM. He supervises the exploitation activities of the individual partners and coordinates the elaboration of an exploitation plan. In order to fulfil this goal, the OM acts as the WP7 Leader.

Role: Work Package Leader (WPL)

Appointed Persons: Kristian Sanz (IMH), Andreas Saniter (UBREMEN), Borja Fernandez (ALCHEMY), Jose Fonseca (CENFIM), Jasmina Mihelak Zupančič (SCSKZ), Sonia Val (UNIZAR)

Main Responsibilities: Each WPL is responsible for the planning, progress control, quality management and the successful completion of its WP and of the interactions with the other WPs according to the work plan. Their activities include:

- keeping work package on track and report WP status to the PC;
- planning, distributing among WP partners actions transmitted by the PC and monitoring their execution;
- supervising the work of the of the WP team, identify problems and risks and when necessary propose revisions of the WP plan.

Role: General Steering Committee (GSC)

Appointed Person: Kristian Sanz (IMH), Andreas Saniter (UBREMEN), Borja Fernandez (ALCHEMY), Jose Fonseca (CENFIM), Jasmina Mihelak Zupančič (SCSKZ), Sonia Val (UNIZAR)

Main Responsibilities: This committee, chaired by the PC, bears the highest decision-making responsibilities and policy setting powers; it is the collective decision-making body of the Consortium and is in charge of all technical and management decisions. The GSC monitors the performance of the Consortium Agreement in which IPR, confidentiality and exploitation issues, conflict resolution, decision-making procedures, agreements mechanisms, and voting rights, etc. are formally established.

The GSC is also responsible to monitor project progress, approve the project management plan and any amendments, prepare and finally approve amendments to the implementation plan, assess project risks, decide on budget-related matters, review the policy and strategy for dissemination and exploitation, identify, monitor and resolve any IPR issues, resolve inter-partner conflicts during the project (if not successfully mediated by the PC) and discuss and decide to prematurely terminate the project if deemed necessary.

In terms of decision-making mechanisms, when strategic decisions are to be taken, such as how to solve conflicts, how to tackle technical risks and manage changes in the work plan, etc., it will be the responsibility of the PC to seek consensus with the GSC, whereby each participant will be assigned 1 votes each. Should a persisting tie ensue, the Coordinator will take the final decision, always ensuring that no decision adversely affects the objectives of the project.

Meetings: At least every three months or upon request of one of the partners to the PC to convene. Meetings may be via teleconference or face to face. Any member of the GSC:

- should be present or represented at any meeting;
- may appoint a substitute or a proxy to attend and vote at any meeting;
- shall participate in a cooperative manner in the meetings

Role: Technical Committee (TC)

Appointed Person: Kristian Sanz (IMH), Andreas Saniter (UBREMEN), Borja Fernandez (ALCHEMY), Jose Fonseca (CENFIM), Jasmina Mihelak Zupančič (SCSKZ), Sonia Val (UNIZAR)

Main Responsibilities: This committee, chaired by the TM, supports the GSC ensuring the results of this project are effectively protected and exploited to the full.

Role: Outreach Committee (OC)

Appointed Person: Kristian Sanz (IMH), Andreas Saniter (UBREMEN), Borja Fernandez (ALCHEMY), Jose Fonseca (CENFIM), Jasmina Mihelak Zupančič (SCSKZ), Sonia Val (UNIZAR)

Main Responsibilities: This committee, chaired by the OM, supports the GSC ensuring the technical aspects of the project are promptly managed.

An organization based on these roles provides a good balance between striving for a light organizational load and detailing a structure that fits with the complex of a project like AI4ED. The above roles have very clear responsibilities with no overlap, as shown in Table 4.

Table 4 - Management figures and responsibilities

Category	Responsibility	Roles and Bodies
General management	Overall direction and major decisions of the project; communication, control and corrective measures. Supervision of deliverables preparation and submission, organisation of project meetings and reviews.	• Project Coordinator • General Steering Committee
Day to day management	Supervision of deliverables preparation and submission, organisation of project meetings and reviews.	• Work package Leaders • General Steering Committee
Technical management	Coordination of operative efforts on technical, and business related basis, responsible for scientific,technical and business decisions	• Technical Manager • Technical Committee
Exploitation, Dissemination	Monitoring, exploitation and dissemination of the results of the technology driven project in order to provide fundamental impact for the adoption of project results outside the Consortium.	• Outreach Manager • Outreach Committee

3.3 Consortium procedures

Day-to-day scientific and management decision are taken by the PC. Strategic decisions and major technical and operational decisions (like any reschedule of deliverables, milestones, tasks, effort) are taken by the GSC, which has the highest decision-making responsibility and policy setting power.

The GSC shall not deliberate and decide validly unless two-thirds (2/3) of its members are present or represented (quorum). Each member shall have one vote. Defaulting Parties may not vote. In case of conflict resolution voting, a majority of 2/3 is required. The PC mediates and participates in all important decision.

Any decision may also be taken without a meeting if the PC circulates to all members a written document which is then signed by the defined majority of members. Such document shall include the deadline for responses. Decisions will only be binding once the relevant part of the minutes has been accepted.

A member who can show that its own work, time for performance, costs, liabilities, intellectual property rights or other legitimate interests would be severely affected by a decision of the GSC may exercise a veto with respect to the corresponding decision or relevant part of the decision. When the decision is foreseen on the original agenda, a member may veto such a decision during the meeting only. When a decision has been taken on a new item added to the agenda before or during the meeting, a member may veto such decision during the meeting and within 15 days after the draft minutes of the meeting are sent. In case of exercise of veto, the members shall make every effort to resolve the matter which occasioned the veto to the general satisfaction of all members. A Party may not veto decisions relating to its identification as a Defaulting Party. The Defaulting Party may not veto decisions relating to its participation and termination in the consortium or the consequences of them. A Party requesting to leave the consortium may not veto decisions relating thereto.

The PC shall produce written minutes of each meeting which shall be the formal record of all decisions taken. He shall send draft minutes to all members within 10 calendar days of the meeting. The minutes shall be considered as accepted if, within 15 calendar days from sending, no member has sent an objection in writing to the PC with respect to the accuracy of the draft of the minutes. The PC shall send the accepted minutes to all the members of the GSC.

The GSC shall be free to act on its own initiative to formulate proposals and take decisions in accordance with the procedures set out.

3.4 Issue management

Conflict is not expected to be a significant factor since the roles of each partner have been well defined, so as to avoid any misunderstandings that might occur later in the project.

The resolution of problems and conflicts are handled systematically. Establishing a good working relationship among the project team members is a prerequisite for the quick resolution of problems and issues.

Conflicts resolution are based on the principle that any dispute should be resolved by consent and as near the source as possible, thus, conflicts on a local sphere are managed by the people involved (e.g. a dispute between the partners engaged in a WP should be addressed by that WP team).

Conflicts which cannot be solved internally are taken through a “principled negotiation” process that is focused on optimising outcomes and maximising the benefits of all parties involved.

In case of conflicts arising within the consortium regarding the carrying out of the project or other matters related to the project itself, the following steps are taken:

- The parties will try to resolve the conflict issue amicably between them;
- If a conflict cannot be resolved within the local sphere, it is raised to the PC; for conflict resolution in a technical aspect, the PC is in charge of proposing an alternative. If this is agreed, the issue is solved.

- If this attempt fails the question will be brought to the first scheduled meeting of the GSC, or in case of urgency, an ad hoc meeting of the GSC will be called for by the Project Coordinator, upon request of a GSC member;
- The question will be discussed within the GSC, and the Project Coordinator will try to solve it by consensus; the GSC will decide which procedure will be followed, and the corresponding correction measures that should be taken. The participant that provokes the conflict will declare acceptance of the procedure and the corrective measures.
- If the conflict cannot be resolved, the PC declares the participant "not in line" with the project execution and the Consortium will ask for a contract termination for the participant concerned, with the contractually stated consequences. The Project Officer will be immediately notified of the situation and of the measures to be taken in order to solve it. An appropriate review of the work plan will be suggested by the PC, approved by the GSC and sent to the commission for acceptance.
- In case it is decided (by the PC or GSC) that a conflict resolution will involve a voting procedure among partners, a majority of the 2/3 will be required for the decision to go ahead (4 out of 6 partners).

4 Project schedule

4.1 Schedule management

Schedule management is the process of ensuring that the project schedule is base lined, maintained, and managed. It is a dynamic process that occurs throughout the project lifecycle: under the rolling wave approach, as more information becomes available, the schedule can be refined to reflect the updated information. Schedule management is accomplished through a stringent change control process, and a comprehensive monitoring and reporting system. Project status is monitored against the baseline on a monthly basis and the Work-Plan will be updated as needed. The PC has primary responsibility for coordinating the gathering of schedule status information from all partners.

The project overall schedule management is the responsibility of the Project Coordinator; the schedule management within each WP is managed by the leader of that WP; the detailed action plan for each task will be managed by the leader of that task; thus, the different schedule management processes is therefore managed by different people depending on the level.

As the monthly monitoring is performed, the PC may identify schedule slippage on critical paths tasks: the TM and the PC will work together to identify ways to get the project back on schedule.

For variances greater than 1 month the PC may choose to ask guidance of the GSC. Variances greater than 3 months are considered unacceptable. The WPL will immediately inform the PC and PMB if they determine that any milestones are at risk of being missed.

If a change occurs, the PC shall incorporate proposed change(s) into an updated work-plan. This document contains a revision history log where the following information should be recorded:

- the incremented version number;
- the date;
- the name of the person authorizing the change;
- the description of the change;
- the effects of the change on the progress of the work.

Revisions to schedule baselines (only in cases in which a milestone is missed) are managed and controlled by the change management plan.

The approved schedule Plan is stored in the AI4ED odoo repository, maintained by the PC and available to all project team.

4.2 Action item management

Actionable activities are traced by the relevant minutes of meetings and teleconferences. Each action includes the following information:

- action identifier;
- action responsible;
- action deadline.

Actions can have three different states which depend on the current level of accomplishment:

- an action is IN PROGRESS if it is not yet managed;
- an action is DONE if there is evidence that somebody accomplished the action;

- an action is DELAYED if it is postponed with respect to the fixed date.

The PC is in charge of managing the project action items list which is stored in the AI4ED odoo repository. Action item list is checked and discussed during plenary and technical teleconferences.

5 Risk management

According to the 7th Edition of the PMBOK® Guide, a risk is "an uncertain event or condition that, if it occurs, has a positive or negative effect on one or more project objectives such as scope, schedule, cost, or quality." For the purpose of this document, only uncertain events with a potential negative impact are considered. If the foreseen event or condition takes place, it becomes an actual issue to be dealt with by the project's Consortium.

From this perspective, Risk Management is the identification, assessment, and prioritization of risks to minimize, monitor and control the probability and/or impact of unfortunate events also known as threats. Since not all risks can be eliminated, mitigation strategies and contingency plans can be developed to lessen their impact if they occur. Essentially, effective risk management requires an informed understanding of relevant risks, an assessment of their relative priority and a rigorous approach to monitoring and controlling them.

The responsibility of managing project risks relies with the Coordinator: identified risks are tackled and alerts are raised in case any of the identified risks increases its priority. All activities related with the risk management are monitored by the PM with collaboration of each WP leader for specific issues relevant within every specific WP.

5.1 Risk management strategy

The Risk Management activities are applied to the AI4ED project to attempt to decrease the probability and impact of negative events by identifying and planning for risks before significant negative consequences occur. This section describes the process used to identify, classify, document and track risks during the project. The risk management lifecycle is made up of the following steps, as shown in Figure 3:

Figure 3 - Risk management process

These steps are executed in sequence for each project risk introduced in the risk management process.

Each Work Package-Leader develops a specific risk management plan for the WPs they are managing. These WP-specific risk management plans will be rolled-up into a single risk management plan for the whole project.

The most commonly used tool to record information about risks is the Risk Register, which acts as a central repository for all identified potential threats of the project. Prepared by the PC (with inputs from all members), the Risk Register is used to identify, classify, organize, evaluate and track all levels of risks that may affect the project. Mitigation strategies are then identified and tracked for implementation at appropriate times during the timeline of the project.

The Risk Register is maintained by the PC and is constantly updated as the project evolves. The most critical risks in the risk register are reviewed as a standing agenda item of the project's plenary meetings. During these reviews each risk is considered to see how it has changed since the last meeting, to monitor the status of risk mitigation measures, and to determine if any actions need to be taken to further reduce the risk. In practice, the AI4ED Risk Register consists of a spreadsheet that is stored electronically in the project's internal repository.

Finally, new risks will be identified, assessed and strategies for mitigating them will be developed.

5.2 Risk identification

Risk Identification is the proactive process of uncovering risks which might affect the project before they turn into problems. Risk identification is an iterative process. The first phase of risk identification occurred during the proposal phase of the project; the risks identified during the proposal phase have been re-examined and updated based on the current state of the project. This process of ongoing updating will continue throughout the lifecycle of the project.

Participants in risk identification include subject-matter experts, WPLs, PC and team members. Identified risks are documented in the risk register and discussed/reviewed during the project plenary meetings.

Risks may span through various aspects including those that are political, design-related, procurement-related, environmental, technical, organizational, external, and/or economical. For AI4ED two categories have been initially used, i.e. project-level risks and WP-level risks.

Each time a new risk is detected it shall be managed. Nevertheless, the biggest effort has to be put at the beginning in order to anticipate, as far as possible, the monitoring of possible risk and plan, if the case, mitigation actions.

5.3 Risk analysis, qualification, and prioritisation

Risk Analysis is the most detailed phase of the entire risk management process. It involves evaluating and prioritizing the risks. Evaluating a risk involves establishing values for its potential effect on scope, cost and/or schedule of the project. A determination is made as to the:

- probability (likelihood) of the risk occurring;
- ability to mitigate the risk;
- potential effect of the risk.

There are two primary methods for conducting risk analysis:

- qualitative: assessing the probability and impact of risks;
- quantitative: using mathematical methods to objectively assess the probability and impact of risks.

The determination of risk probability (likelihood of occurrence) and impact (degree of its effect) is a subjective process which considers the criticality of internal and external project factors within the specific context of the AI4ED project. The probability and the impact for each identified risk are assessed using the following approach:

Probability

- Very Low – (<10%) chances);
- Low – (10-30%)
- Medium – (30-50%)
- High – (50-70%)
- Very High – (>70%)

Impact

- Very High (Catastrophic) – Risk that has a catastrophic impact project cost, schedule or performance
- High (Major) – Risk that has a major impact project cost, schedule or performance
- Medium (Significant) – Risk that has the potential to significantly impact project cost, schedule or performance
- Low (Minimal) – Risk that has relatively minimal impact on cost, schedule or performance

- Very Low (Trivial) – Risk that has only trivial impact on cost, schedule or performance

The combination of probability and impact is used to evaluate the risk level (Low, Medium or High) and to get a list of the prioritized risks. Table 5 visualizes the Impact and Probability matrix, with risk levels marked in different colours, where:

green shows a low risk level;

yellow shows a medium risk level;

red shows a high risk level, which requires constant monitoring.

Table 5 - Impact and probability matrix

Impact						
	Very High					
	High					
	Medium					
	Low					
	Very low					
		Very low	Low	Medium	High	Very High
		Probability				

Based on the risk analysis, each risk is prioritized and ranked.

Risks that have been prioritized through the qualitative risk analysis process are further analysed to estimate their effect on project activities. Quantitative analysis utilizes techniques such as simulation and decision tree analysis to provide data on:

- the impact on cost or schedule for each risk;
- the probability of meeting project cost and/or scheduled targets;
- realistic project targets on cost, schedule, and/or scope.

Not every risk needs to go through quantitative analysis. The results of the risk analysis step is documented in the Risk Register, adding the following information:

- risk impact;
- risk probability;
- risk level, computed by combining risk impact and probability (See Table 5);
- project impact.

5.4 Risk response planning

Risk response is the process of deciding what should be done with a risk, if anything at all. Risk response answers two key questions: (1) who owns the risk (responsibility) and (2) what can / should be done (scope and actions). Strategies and plans are developed to minimize the effects of a risk to a point where the risk can be controlled and managed. For each major risk (i.e. those falling in the Red & Yellow zones in the Impact-Probability Matrix), a risk response plan is usually developed. The range of response actions for the project is as follows:

- **Transfer:** risk is external to the project. Resources and knowledge outside of the project are better able to manage the risk. Transfer implies the ultimate accountability, responsibility and authority to expend resources, it requires acceptance of the risk by the receiving party.

  Transferring liability for risk is most effective in dealing with financial risk exposure.

- **Accept:** do nothing, but handle the risk as an issue if it occurs. However, no further resources are expended in managing the risk. These are usually risks of lower significance.

- **Avoid:** determine actions that if executed enough in advance will prevent the risk from occurring
- **Mitigate:** eliminate or reduce the risk by reducing the impact, reducing the probability, or shifting the timeframe when action must be taken.
- **Watch:** monitor the risks for early warning of critical changes in impact, probability, timeframe or other aspects.
- **Contingency:** determine actions that are executed once the risk has occurred to address the situation (actions taken especially to minimize adverse consequences).

For all identified risks, the various handling techniques should be evaluated in terms of feasibility, expected effectiveness, cost and schedule implications and the effect on the system's technical quality and performance.

The results of the evaluation and selection will be added and documented in the risk register which includes:

- responsibility is assigned to a consortium member (risk owner) to ensure that the risk will not "fall through the cracks";
- an adequate response strategy is chosen (specific actions to be taken to reduce the probability that a threat will become real);
- a contingency plan, i.e. the actions to be taken to reduce the impact of a threat that becomes an actual issue, is defined;
- the triggers (indicators of risk event occurrence) are described;
- responsibilities for each agreed-upon response is assigned;

The PC, together with the concerned WP and Task Leaders, is responsible for developing and evaluating different risk handling strategies that are best fitted to the project's circumstances. The selected strategies require approval by the AI4ED General Steering Committee before being applied.

The PC is also responsible for monitoring and controlling the performance of risk handling actions.

5.5 Risk monitoring and control

Risk Monitoring is the process of keeping track of the risks and evaluating the effectiveness of the response actions. Monitoring may also provide a basis for developing additional response actions and identifying new risks and is done in a continuous manner.

The level of critical risks on the AI4ED project are tracked, monitored and reported regularly, with specific discussions during the plenary conference calls. As more risks are identified, they are qualified and added to the Risk Register to ensure they are monitored at the appropriate times and adequate response strategies are developed.

During risk monitoring and control the following tasks are performed:

- identifying, analysing, and planning for new risks;
- reviewing project performance information (such as progress/status reports, issues, and corrective actions);
- re-analysing existing risks to see if the probability, impact, or proper response plan has changed;
- reviewing the execution of risk responses and analysing their effectiveness;
- reviewing the effectiveness of the risk process to determine whether changes to the approach, tools or techniques are required.

Risk monitoring and control results in an updated risk register and in recommended corrective and preventive actions. Regular review of the risk register is performed during the project meetings and a Risk Report will be issued every 6 months by the PC to the GSC.

Project team members will be provided with an extract from the current Risk Register after each review, listing those risks and actions for which the individual is responsible.

During the course of the project, concerns may increase or decrease in their potential impact on the project. An issue is a situation that has occurred or will definitely occur, while a risk is a potential event. By moving a risk into an issue tracking, analysis and responses can be stepped up and status is reported more frequently. Alternatively, an issue may cease to be a concern or have been resolved but the PC may wish to periodically monitor the conditions of the surrounding situation.

On completion of the project, a risk section will be included in the AI4ED Toolkit, detailing generic risks that might affect other similar projects, together with responses that have been found effective in this project. Based on this analysis, the GSC will identify any improvements that can be made to the risk management process for future projects.

6 Quality management

Quality management is the process of defining the strategy and methods the project will deploy to ensure the project's deliverables are of acceptable quality before they are delivered.

Quality management addresses all the issues related to quality assurance, self-assessment and any ethical issues.

Quality management is fundamental to the success of the project, and the project adopts a methodology with two separated processes:

- *quality assurance* (which is the execution of processes and procedures to ensure the achievement of quality, to assure that the project satisfies the needs for which it was undertaken.)
- *quality control* (which verifies and assesses the achievement/product ; it is concerned with the operational activities and techniques that are used to fulfill the requirements of quality. Inspection and product testing are examples of quality control tools.)

Quality management is responsibility of the PC, who defines a Quality Assurance Procedure (QAP) which ensures quality of the project management and consequently, of all deliverables and provides measurement criteria to verify the success of the project.

6.1 Quality assurance procedure

The following quality goals for the quality management process shall apply:

- make sure that all standards and planning documents are available;
- make sure that standards appropriately address the criticality of the project;
- make sure that all team staff are familiar with the relevant planning documents and the associated rules and standards;
- verify that the outputs are delivered on time; ensure compliance with all relevant standards;
- follow the Quality Management process described in this Management Plan.

The quality management process defines quality objectives, working method, processes review, templates and responsibilities that are applied on the project. It defines internal and external processes applicable within the project (between WPs) and, in some cases, between the project and external partner/project/body.

Quality assurance is the monitoring of specific project results to determine whether the team is performing to relevant quality standards and the identification of actions required to correct unsatisfactory performance. These quality assurance activities consist of process quality reviews followed by recommendations and possible corrective action plans.

6.1.1 Quality organisation

The Quality organisation is under the responsibility of the PC. The PC is supported by the GSC in the definition of the QAP items applied to the AI4ED project, and in the execution of the control activities planned or considered useful during the project, according to what is defined in the following paragraphs. The Project Coordinator receives also support, advice and help at several levels:

- from Work Package leaders in several quality functions related to the delivery process. Activities leaders are fully responsible for scientific and technical quality check of all deliverables.
- from the European Commission. The European Commission, through the Project Officer, may provide advice on any quality issue related to the project. The Work Package Leaders may also request advice

from the Project Officer on quality issues whenever necessary, always communicating through the Project Coordinator.

The Project Coordinator is in charge of ensuring that deliverables to be submitted are structured, harmonized and organized to ensure that they are timely, exhaustive, clear and effective.

6.1.2 Document production process

During the project, many kinds of documents will be produced. It is crucial to define common formats of documents, uniform rules of their description, responsibilities, revision plans and revision procedures.

When producing any document to be distributed to at least another partner of the project, each contributor shall apply the rules below, in particular:

- Produce the document in an electronic file with the same name as the File Name;
- Use the English language;
- Use the appropriate template;

Deliverables structure:

- A front page with general data about the document and the AI4ED logo
- Version history
- A table of contents
- A list of figures and a list of tables (optional, but placed here if there are any)
- Glossary
- An Executive summary
- An introduction including the scope of the document
- Chapters constituting the body of the document
- Possible Annexes
- All the single pages of the document will include the GA number, the name of the document and the number of pages using the format “Page X of Y”

The different actors involved in the production of documents are:

- Document leader: is the deliverable responsible as indicated in the deliverable list
- Other contributors: are the partners/beneficiaries involved in the activities related to the Deliverable
- WP/Task leader
- Project Coordinator (PC)

The document leader is the person in charge of the production of a document. The production rules and guidelines and the document rules have to be applied under his/her responsibility.

6.1.3 Deliverables monitoring and control

The monitoring process should envisage in advance possible problems connected to the development of tasks and the production of deliverables. To facilitate communicating progress on each deliverable, each WPL reports progress and issues on deliverable production and on the work package implementation during project technical conference calls and plenary meetings.

A formal quality control process has been developed by the AI4ED project to ensure that the quality of deliverables generated meets the requirements of the European Commission and that any potential risks

affecting the project are properly managed. The deliverable quality assurance process is graphically depicted in Figure 4 below.

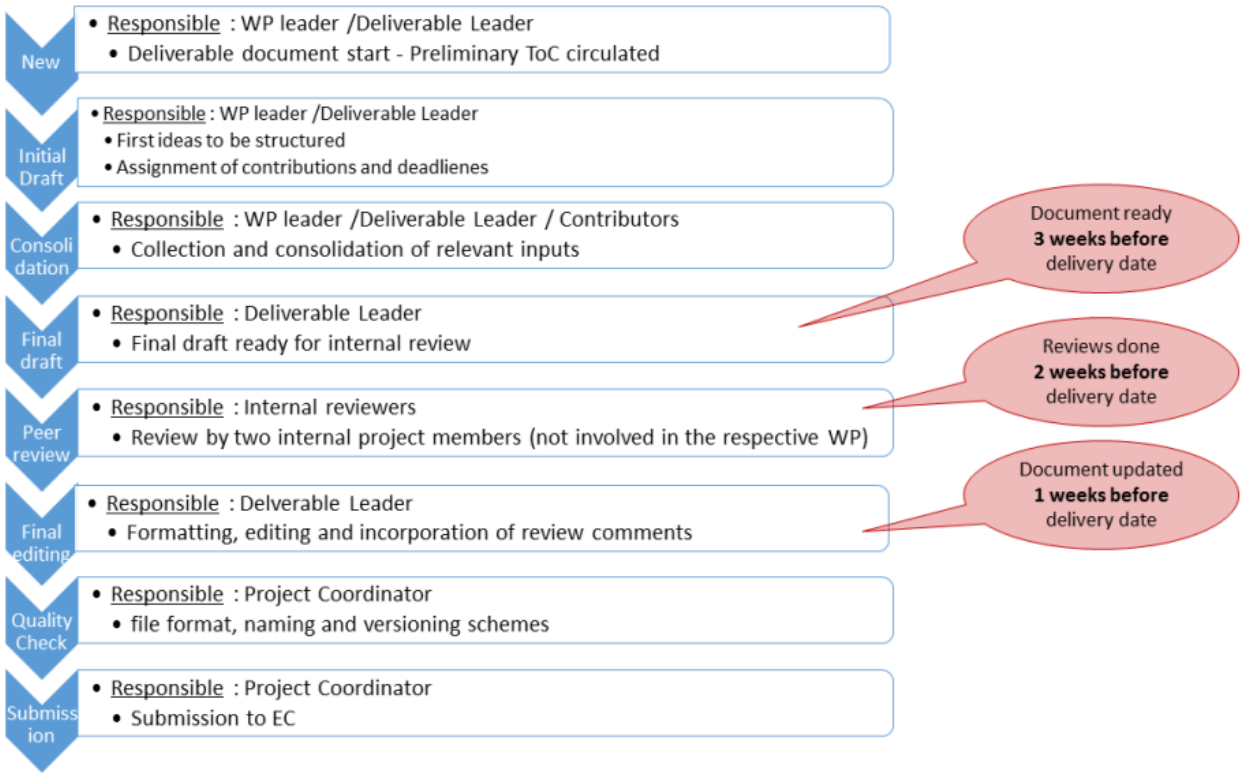

Figure 4 - Quality assurance process for deliverables

Deliverables are generated under the responsibility of the WP Leader, who will be charged with ensuring that all deliverables are prepared correctly and in time.

Each project deliverable will be the target of a peer revision by two reviewers before being submitted to the Commission, to guarantee that it meets the objectives of the project as a whole. The limit date for reception of comments is 5 working days should be considered.

During the review the PC checks if the deliverable meets the formal requirements regarding the file format, naming and versioning schemes. Further, he monitors and maintains the review process itself.

The document leader is in charge of the update of a document after internal review. He receives the comments from the reviewers, has to give an answer to all the comments and take into account the accepted ones. The Task leader should be in copy of documents, comments and answers.

The quality control process for deliverables requires that the deliverable owners and reviewers ensure that the deliverables adhere to the following quality aspects:

- the contribution of the deliverable to the WP and the overall goals of AI4ED should be clearly stated;
- the objectives of the deliverable should be clearly expressed. Specifically, the deliverable should feature a short 1-2 paragraphs introduction that clearly states the role and duty of said document, in the scope of AI4ED;
- the deliverable should be clearly related to previous and future deliverables in the WP and – if applicable – to deliverables from other WPs;
- the relation / additions / differences to previous deliverables in the same work package (i.e. in the case the deliverable is an improved version of a previous one) should be clearly stated;

- the deliverable should be a self-contained document, which can be understood without knowledge of the DoA (or previous deliverables);
- the deliverable contents should be consistent with its description in the DoA; if not, the deviation should be explained;
- the deliverable should be cohesive and concise (typically not more than 50-60 pages);
- the deliverable should not contain any claims that are not proven or supported by references.

The final version of the deliverables must be submitted to the PC in Word and pdf formats. The pdf is the electronic format requested by the EC for the submission of all the deliverables/documents elaborated during the project. If finally approved, deliverables will be published via the project web site.

6.1.4 Document naming

Naming documents is key for an effective record keeping. AI4ED project will follow the following naming procedure:

Naming of Documents

[Projectabbrevation]_[Workpackage]_[TypeOfData]_[Title]_[yyyymmdd]_[version]

Example:

AI4ED_WP1_PRES_KOMIntroDMP_20230110_v1.0

*Projectabbreviation:

AI4ED in capital letters

*Workpackage:

Using the abbreviation: WP followed by the number (if necessary it would be also possible to link it to subtasks in the way “WP3_1”, up for discussion…)

*Abbreviations Type Of Data:

PRES=Presentation

DMP=DMP

TAB=Table

DATA=Data

REP=Report

AG=Agenda

MIN=Minutes

INF=Information

[if there are data which do not match any of existing abbreviations, it can be added and included in the DMP living document]

*Title:

Short and meaningful

*Datum:

Could be this way: [yyyymmdd]. Could also be in the front

*Versioning

Depending how many versions will probably occur, please have a look at the presentation in WP3

6.2 Software development

The various processes associated with software quality are normally incorporated in the software development process. Quality encapsulates the totality of all the features and characteristics associated with software which are designed to address a specific need.

AI4ED Technical Team will implement a Technical Quality Assurance process during the overall software development and implementation cycle:

- Requirements
- Analysis and design
- Implementation
- Test
- Installation /deployment
- Users acceptance and validation
- Configuration and change management

Technical teams were based across a wide geographically distributed environment and a set of collaborative tools are going to be used in order to assure the requested quality of software.

6.2.1 Software quality control

In AI4ED Software Quality Assurance will based on the ISO 9126-3 and the subsequent ISO 25000:2005 quality model which identifies five characteristics to be evaluated and the associated metrics.

Starting from these models, the Consortium for IT Software Quality (CISQ) has defined five desirable structural characteristics: Reliability, Efficiency, Security, Maintainability and Size.

The software quality will be assessed manly over three dimensions:

1. Software functional quality, i.e. how well it complies with the specified design, based on functional requirements and specifications (from users);
2. Software structural quality, i.e. how it meets non-functional requirements needed to fulfil the functional requirements, such as robustness, reliability, security and maintainability;
3. Software interoperability and portability, i.e. how easy the software can be integrated into the IT environments where it must operate (in our case in the three pilot use case)

6.2.2 Measurements

The software functional quality will be measured by verifying how the software covers defined use cases and the level of satisfaction experienced by end-users.

The parameters to be measured include:

- adherence to users and technical requirements;
- reliability, i.e. the software should have no defects, no bugs open at the time of release;
- good performance, in terms of response time, time requested to use the software and to
- insert and retrieve data, accessibility etc.;
- ease of learning and use.

Software structural quality refers to aspects internal to the software construction, i.e. engineering aspects. We will measure the following parameters:

- code testability;
- code maintainability;
- code understandability, i.e. whether any IT engineer understand what the code does and how;
- code efficiency, i.e. if the software performs well also in case of resources constraints;
- code security.

Because structural quality is critical yet difficult to me measured, the Technical Manager will propose and agree with the other technical partners the appropriate measurements tools which can provide the necessary measurements.

7 Project communication

Properly communicating on a project is a critical success factor for managing the expectations of the project consortium and the European Commission. The Project Coordinator is responsible for communication between the Project and the EC.

The AI4ED project uses several mechanisms for ensuring open and frequent communications amongst its members:

- electronic mails (e-mail) and mailing lists;
- conference calls;
- face-to-face meetings.

7.1 Electronic mails and project platform

E-mail and the project platform are the principal means of interpersonal communication in AI4ED. They can be used for information exchanges, minutes of meetings, executive summaries. It is informal, fairly rapid and well suited for non-critical information.

The following rules should ensure the suitable use of the e-mail communication between project participants:

- address information ONLY to involved parties in communication: do not systematically copy everyone into communications, or if replying to a specific individual, be cautious not to press the 'reply all' function over 'reply'.
- use an explicit Subject title. When writing emails, the subject should be a clear indication of the project name and a reference to the email content (for instance, “AI4ED - Meeting minutes 2023-03-17“).
- in case the email message has an attachment, please use ZIP files to compress information. However, and as a general rule, it is always preferable to upload the file in the project platform and send an email form the platform, so relevant people can access the files and email content at the platform.

As a primary tool to facilitate exchange of information, a web based shared collaborative environment has been set up which serves as a project tracking system accessible to all partners, in order that all information/documentation is easily accessible and kept up to date with little effort. An odoo repository for the AI4ED project has been created which gathers all sorts of documents generated during the project lifetime. Odoo allows users to store files in the cloud, share files, and communicate with collaborators.

Besides being a repository of information it is a common environment for the day-to-day work enabling several users to follow progress on the tasks. A set of tasks has been created and shared among the list of representatives from each partner organizations. Requests for access should be addressed to the PC.

Documents must be uploaded under their correspondent task and must be named in a clear way so that everybody can have an idea of what the file is about, as described in 6.1.4 document naming.

7.2 Conference calls

Conference calls are used for meeting partners without spending time and budget on travelling. Videoconferences and teleconferences should be programmed at least a week in advance and should follow a set agenda. To hold conference calls zoom or Skype are generally used.

Telephone is used when personal interaction, a fast answer or reliable confirmation is needed. Telephone calls can sometimes be appropriate for urgent matters so it is important that up to date telephone numbers are made available. It is highly recommended to send an e-mail with the conclusion of a telephone call to limit any ambiguity.

7.3 Meetings

Regular face-to-face project meetings with all partners are scheduled to be held on a six month basis so that the entire project team can meet to share ideas and exchange experiences based on their work on the project.

Additional dedicated technical meetings in order to promote intra and inter-WP's cooperation on specific matters are held as appropriate.

Management meetings include the meetings of the GSC which will meet in conjunction with project meetings. Minutes of all meetings are taken and distributed by the PC for review within two weeks after the event, with the final minutes available after four weeks at the latest.

7.4 AI4ED project website

The AI4ED project website http://www.ai4ed-project.eu, is one of the main tools for disseminating information about the consortium and the achievements of the project, providing visitors with comprehensive information about its context and objectives.

The AI4ED website has also a Public Documents area containing the links to public documents that each visitor can download. There are three sub-areas: public deliverables, articles and scientific publications.

The website will also be used to involve external stakeholders in the AI4ED activities. Publicity material and publications will be made available or referenced. External users will thus find downloadable public documents from the project, notices on conferences either hosted by the AI4ED team or where the team will be presenting information on the project, academic papers generated by project team members concerning the project, and other documents that provide valuable insights on what the project is all about to external parties.

The website is developed by IMH and updated on a regular basis by CENFIM and has been made operational and accessible to the public since January 2023. For more information on the AI4ED website see project deliverable D7.1

7.5 AI4ED project templates

To ensure consistency in the AI4ED project when communicating with external stakeholders or interested parties, a set of standard templates for various communications activities has been developed. These templates include:

- Deliverable template
- standard PowerPoint presentation template
- standard logos for the project.

They are all available for download in a dedicated odoo task.

8 Project reporting

An activity report is generated every year, for each WP, by the WPL. Each partner is committed to provide to the PC all the necessary information and documentation to prepare the official periodic reports to be submitted to the European Commission. The reporting includes information about the technical progress, results obtained (e.g. deliverables), the compliance with the work programme and all the relevant information at management level (resources, costs, delays...). The PC synthesises the overall project status and planning and compiles the reports due to the EC. The following reports are prepared and officially supplied by the PC:

Periodic activity report. These reports include the following:

- a 'periodic technical report' containing:
  - an explanation of the work carried out;
  - an overview of the progress towards the objectives of the action, including milestones and deliverables, explanations justifying the differences between work expected to be carried out and that actually carried out,
  - an updated 'plan for the exploitation and dissemination of the results',
  - a summary for publication by the Commission;

The coordinator must submit a periodic report within 60 days following the end of each reporting period.

Final activity report. The final report must include the following:

- a 'final technical report' with a summary for publication containing:
  - an explanation of the work carried out;
  - an overview of the results and their exploitation and dissemination;
  - the conclusions on the action, the socio-economic impact of the action;
  - a summary for publication by the Commission;

9 Conclusions

This document presents the approach taken by the AI4ED team to manage the project. The PMP has to be considered as a guiding document to guarantee that the project will adhere to the original work plan. In addition, the tools used by the team to manage the project, communicate internally and externally about the project and to control the quality and risks associated with the project have been presented. The project management plan and the various instruments used to control the project will be continuously updated and refined as the project moves forward. As this is living document changes will be made as the project advances and partners develop more components of the project.