



D5.1 Risk management plan and quality assurance routines

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1. Introduction

The purpose of this PIA deliverable is to establish an apparatus for discovering potential risks that may arise during the life cycle of the PIA project, and to manage these.

The PIA project deals with risk management as a process of five (iterative) activities: During risk **planning** we create management procedures and responsibilities connected to risk management. Risk **identification** concerns the detection of risks before they turn into problems. Risk **analysis** involves evaluating the risk(s) in detail, including ranking the risks according to criticality, probability and impact. Risk **response** is the process of deciding what can/should be done in order to handle a risk. Finally, risk **monitoring** is the process of keeping track of the risks and evaluating the effectiveness of the response actions. This will also take place continuously in the PIA project.

The everyday challenge during the project is to identify the risks early enough and to provide appropriate strategies which result in better quality and performance. Continuous risk monitoring is one of the coordinator's main tasks. In addition, a careful review of the risk landscape of the PIA project will be conducted in all physical consortium meetings.

The risk management of the PIA project is based on an idea of *evolving risk analysis*. This document includes the risks that have been analysed in detail. The likelihood of each risk is estimated and solutions to decrease their impacts are sketched. This is a living document. So if a new risk is identified by any partner, the project coordinator must be informed immediately in order to so that risks can be periodically checked, reviewed and modified. There is also the possibility that the project fails to identify risks that may occur at any phase of the project, causing overspending, delays, and the like. In the kick-off meeting of the PIA project (April 2013), a larger number of risks than what is described in this document, was sketched. These newly identified risks that *may* arise in the PIA project, but which are *not* yet described in this (version of) the document, are:

1. Software or hardware components are not available on time.
2. The family tools (IADL, carer stress and quality of life analysis) of the PIA system do not bring about results in the desired level or quality.
3. Shortage of resources and/or change of personnel.
4. The PIA system and the envisaged home components/services do not achieve the needed pre-market maturity or they face interoperability problems. Exploitation fails.
5. Failure to give a real feeling of a personalised service.
6. Country- or culture-specific requirements make it difficult to create internationally marketable product/service.
7. Difficult to engage carers in using the social network.
8. Disagreements in underlying matters.
9. Partners lose focus during the project.

The project team will evaluate the relevance of these risks during summer 2013 (months 4-5).

The PIA project has an implementation plan which includes both **internal** and **external** risks. The internal risks can be dealt with the project, provided that they are identified and that appropriate actions are taken. These risks are foreseen and presented together with a plan for risk management in the tables in Chapter 2. External risks concern matters outside the direct control of project management. For the PIA project such risks might be unexpected technical developments, lack of appropriate standards and interoperability, lack of interest by central stakeholders, changes in relevant legislation concerning technologies for older people etc. These risks can best be dealt with by continuous information acquisition, active dissemination, and communication with central stakeholders in each participating country.

Finally, a large number of issues and procedures are described in the **Consortium Agreement** of the PIA project.

2. Risk management in the PIA project

The risk landscape of the PIA project is composed of four main categories of risks:

- **Technology-related risks**
- **Organisational and management risks**
- **User risks**
- **Financial risks**

All risks and management of these is in this document described as a table with following content:

Title:	Short descriptive title
Description:	Comprehensive description of the risk.
How to prevent; what if occurs:	Describes how to handle the risk in PIA.
Probability of occurrence:	Describes how likely the risk is. There are five levels: <ul style="list-style-type: none"> • Almost certain • Likely • Possible • Unlikely • Rare
Severity of the risk:	Describes how severe the consequences are if the risk is not adequately managed. There are five levels: <ul style="list-style-type: none"> • Critical • Major • Moderate • Minor • Low

2.1 Technology-related risks

2.1.1 Human Computer Interface (HCI) is not adaptable to user preferences

Title:	Human Computer Interface (HCI) is not adaptable to user preferences
Description:	Adaptation of the HCI is not sufficient for primary or secondary end-users' needs and preferences. A number of disabilities can affect elderly users' ability to see or interact with the system (vision or hearing impairment, cognitive decline such as memory problems etc.). Depending on the specific disability, seniors may not be able to interact with the HCI. There will also be other needs and preferences that relate to individual and cultural factors.
How to prevent; what if occurs:	Focus groups and user tests to identify HCI needs and requirements. Conformance with standards for personalisation. The system must provide configuration parameters for adaptation of the HCI of the system/service to the requirements of each pilot country for cultural differences, and requirements of different end-user group.
Probability of occurrence:	Unlikely

Severity of the risk:	Critical
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2.1.2 Developed technologies are obsolete

Title:	Developed technologies are obsolete
Description:	Other technology/services in the PIA (IADL) domain reach the market faster than PIA. This might occur because the integration of different technology components introduce problems which result in delays, and which in turn decreases the probability of reaching the market whilst other solutions have already been introduced.
How to prevent; what is occurs:	Continuous monitoring of technology trends and potential competitors. Redesign tasks, development activities and deployed technologies to fulfil new concepts and ideas brought to satisfy user requirements, needs and expectations. Re-exploit.
Probability of occurrence:	Possible
Severity of the risk:	Critical

2.1.3 Poor quality of results

Title:	Poor quality of results
Description:	The quality of results from the PIA project is not satisfactory. Consortium partners provide results of low quality, including data. Poor results are not usable for other partners and are not acceptable for deliverables and publications.
How to prevent; what is occurs:	Peer-review procedures and standardised guidelines. Project management will execute an internal review procedure for deliverables, central publications, data and prototypes; ensure effective communication between partners throughout the project; cf. Chapter 3. Scientific publications targeting well-established scientific journals and proceedings will undergo academic peer review before publication. Standardised guidelines (how to proceed in focus groups and field trials, as well as for interviews) and questionnaires will be produced to ensure the quality (including comparability) of the information that are gained through the evaluation in every country.
Probability of occurrence:	Rare
Severity of the risk:	Major

2.1.4 Damage, breakage or loss of equipment

Title:	Damage, breakage or loss of equipment
Description:	Carers will during trials handle mobile devices as they test the PIA solution (video clip production). Primary end users will use tablet PCs or smartphones in their homes. Any mobile use of devices introduces the risk for damage (dropping).
How to prevent; what is occurs:	Choose robust smartphones with protective cases. In homes of primary users prioritise mounted tablet PC when possible. Damage insurance.

	Damages and total breakage are difficult to prevent. There are robust smart-phones on the market, which are produced to tolerate falls and water. Such models should be considered for field trials.
Probability of occurrence:	Possible
Severity of the risk:	Moderate

2.2 Organisational and management risks

2.2.1 Failure to meet objectives

Title:	Failure to meet objectives
Description:	The consortium is not able to reach one or more goals one way or another. A number of different circumstances (e.g., technical problems, lack of communication between partners of the consortium etc.) may result in failure to meet the objectives of the PIA project.
How to prevent; what is occurs:	Peer-reviews. Contact with NCPs. To mitigate this risk, all deliverables, prototypes, demonstrators, etc. will undergo an internal review process (cf. Section 3). This process should prevent failures to meet the objectives. In addition, NCPs will play an important role by giving feedback, thus ensuring that goals are likely to be met.
Probability of occurrence:	Unlikely
Severity of the risk:	Major

2.2.2 Delayed hand-in of deliverable or delayed milestone

Title:	Delayed hand-in of deliverable or delayed milestone
Description:	The consortium cannot meet the deadline for a deliverable or a milestone. Given that deliverables will require input from several consortium members, the consortium may fail to meet the deadline if the task leader does not manage to collect all the inputs in time.
How to prevent; what is occurs:	Project management (coordinator, technical manager, ethics manager and impact manager) will ensure that deadlines are met. Through active monitoring of progress, possible delays will be recognised at early stages and managed accordingly. Each WP leader will be required to regularly present an overview of work progress and any arising issues. If necessary, ad-hoc telecom meetings will be arranged and corrective actions will be taken. Extra effort will be put into place to ensure that other deliverables or milestones will not be affected.
Probability of occurrence:	Possible
Severity of the risk:	Major

2.2.3 Loss of partner

Title:	Loss of partner
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Description:	Project partners drop out of the project. This may depend on bankruptcy, health issues, organisational or economic problems, etc., and may lead to the loss of a partner that is critical to accomplish the project, i.e. partner tasks that cannot easily be re-allocated to other partners.
How to prevent; what is occurs:	<p>All partners must implement a competency redundancy plan.</p> <p>The PIA consortium is built with some redundancy and overlap concerning the skills of partners. This permits the consortium to reallocate crucial resources. In case of a loss of a critical skill, project management will maintain a list of replacement partners from the consortium's network that can be called in to the project by means of emergency subcontracting or by joining the project. The CMU of the AAL JP will be informed as soon as information about possible complications exists.</p>
Probability of occurrence:	Rare
Severity of the risk:	Moderate

2.2.4 Illness of work force

Title:	Illness of work force
Description:	The workforce of the project may fall ill so that project activities cannot be completed in due time. The PIA project requires specific competences to accomplish the tasks planned. This is true for end users aspects, ethics and technologies, to mention some. This means that the PIA work must be accomplished by skilled people very familiar with the project. More importantly, they cannot be easily replaced with unskilled labour. Hence, if someone falls ill during the project, tasks and deliverables may be postponed or delayed, thus causing a de-synchronisation of the scheduled progress.
How to prevent; what is occurs:	<p>Duplicate crucial competencies in partner organisations and inform partner organisation employees frequently about the PIA project.</p> <p>In worst case, a re-scheduling of the project must be performed. Each partner is responsible for his own contingency plans in order to envisage and handle illnesses in their own teams. If a severe illness is suffered from any of the participants, the project coordinator should be informed to review the project scheduling and proceed accordingly.</p>
Probability of occurrence:	Possible
Severity of the risk:	Moderate

2.2.5 Poor communication

Title:	Poor communication
Description:	Lack of effective and efficient communication routines within the consortium may result in deterioration of the project work. Communication is a very important challenge, both because of language differences (we communicate in a language which is not the native language for the majority of participants), and because partners come from different domains/backgrounds. It is not uncommon for someone to understand terms differently, causing misunderstandings. If the partners are not able to communicate effectively and efficiently, misunderstand-

	ings may arise and complicate daily collaboration and anticipated progress. This may delay the deliverables and thus the whole project.
How to prevent; what is occurs:	Regular telecom-meetings in addition to physical consortium meetings. In all meetings, regular updates and progress reports will be given and all partners should discuss any sensitive issues to ensure that allocated tasks progress as expected. Project partners have agreed in the CA and the DoW what they are responsible for allocated tasks. In a critical situation, the project partners need to be guided to re-arrangements of schedules and deliverable submissions.
Probability of occurrence:	Unlikely
Severity of the risk:	Major

2.2.6 Low level of dissemination activities

Title:	Low level of dissemination activities
Description:	The dissemination activities of the PIA project do not leverage a sufficient number of entries in one or several participant countries. Partners do not fully understand how dissemination must be accomplished in industrial or academic domains. Responsibilities to produce dissemination material to conferences, exhibitions etc. is not clear. A high number of activities are performed towards the end of the project, resulting in low impact.
How to prevent; what is occurs:	Dissemination log and regular discussions in the consortium. Concrete plans for yearly AAL Forums. Support to co-publishing. The dissemination plan is specified in WP4 (Task 4.4.) with input from all partners. The dissemination activities must be checked every 3 rd month defining responsibilities, collaboration and targeted arenas. Periodic Skype conferences will be held to manage the dissemination activities and to unblock the situation if necessary.
Probability of occurrence:	Possible
Severity of the risk:	Moderate

2.3 User risks

2.3.1 Ethical approvals fail

Title:	Ethical approvals fail
Description:	All participating countries are obliged to follow national and European regulations of research ethics. The approval procedures vary a lot. In some countries the procedure is based on information from the project to the supervising body, and in other countries on real application/approval. Failure to receive ethical approval in one country risks the progress in all countries.
How to prevent; what is occurs:	Adjust plans and re-apply. If even one approval fails, it may be that all other countries must adjust the plan to harmonise the research ambitions and ethical requirements. Re-apply.
Probability of occurrence:	Unlikely

Severity of the risk:	Critical
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2.3.2 Intrusion of users' data privacy

Title:	Intrusion of users' data privacy
Description:	Information or raw data about participants is leaked, breaching users' privacy. End user profiles, log files, and laboratory data containing the participants' IDs, names or other sensible material leaks out of the databases to unauthorised people.
How to prevent; what is occurs:	Data safety and anomymisation. Provision of clear guidelines to all partners; regular discussion and monitoring; tailored instruction of laboratory staff; suitable consent procedures; data encryption and storage in a restricted repository (safe) exclusively accessed for authorised personnel. Anonymisation or pseudo-anonymisation of all data before transfer to any other project storage (or to another partner). Maintenance of the network and data security infrastructure in the laboratories. Notification according to law of how data is used. Also make sure that only user data that is really needed is included in the documentation. Work will be done according to the regulations laid out by each country where data collection will take place.
Probability of occurrence:	Rare
Severity of the risk:	Critical

2.3.3 Difficulties to recruit enough users for a fieldwork study

Title:	Difficulties to recruit enough users for a fieldwork study
Description:	The PIA project depends on information from user groups to inform the work on the user requirements and for evaluating prototypes that are created within the project. There may not be enough participants for a study, such as user tests or field trials. Depending on the time of the year and especially the holiday seasons, recruiting participants may be a challenging task. Especially senior citizens themselves may represent a major problem as they e.g. travel quite a lot.
How to prevent; what is occurs:	Flexible scheduling and information. Allow longer periods of user studies in order to re-schedule meetings for user studies. Several PIA partners have close contacts with user groups and organisations. Start recruiting early and keep user informed and interested.
Probability of occurrence:	Possible
Severity of the risk:	Moderate

2.3.4 Participant misses a field work session

Title:	Participant misses a field work session
Description:	Sometimes participants cancel an appointment for a session (e.g., interview or focus group), or simply do not show up. This may introduce a problem because a session may take place at a specified location and time slot, thus influencing the

	results of the study. Also, a low number of participants affect the reliability of the study.
How to prevent; what is occurs:	Recruit more participants than minimum amount needed. Having one or two participants too many is an appropriate strategy. Also, performing field studies in parallel in all participating countries minimises the severity of the risk.
Probability of occurrence:	Likely
Severity of the risk:	Moderate

2.3.5 End-users reject or misunderstand the technology

Title:	End-users reject or misunderstand the technology
Description:	End-users do not accept or understand the PIA technology. The PIA project introduces new uses of known technology (IADL support on tablet PCs and smart-phones). However, it may occur that users will not understand the technology and eventually reject it.
How to prevent; what is occurs:	Continuous user-centric approach. Researchers should take into account end-users perspectives throughout the project in order to always keep in mind their needs and the way they interact with the technology. Information to end users about the development will be provided frequently. In addition, an end-user training protocol will be developed in order to minimise the risk of rejections.
Probability of occurrence:	Unlikely
Severity of the risk:	Major

2.4 Financial risks

2.4.1 Overspending

Title:	Overspending
Description:	Partners or the entire consortium exceed the budget (this does not include planned overspending). Overspending leads to insecurity about planned results and deliverables.
How to prevent; what is occurs:	Continuous registering and audit of expenditure vs. income. Financial control is central to ensure project stability. Management will carefully check on spending and ensure financial stability. As a result, financial reports are submitted periodically to the NCPs (National Contact Point) of the participation countries.
Probability of occurrence:	Rare
Severity of the risk:	Major

2.4.2 Delayed refunding of project costs

Title:	Delayed funding of project costs
Description:	All participant countries have different funding and refunding schemas. In some cases, money may be received months after that the funding request has been handed in. This delay may hazard the economy of some partners, such as small enterprises.
What is occurs:	Financial planning. Swift reporting. In order to avoid financial difficulties, all partners must plan their project economy carefully and implement buffers or other financial mechanisms that protect against funding delays. Swift reporting to funding bodies is strongly advised.
Probability of occurrence:	Almost certain
Severity of the risk:	Major

3. Quality assurance routines of the PIA project

Quality assurance in the PIA project is based on a small number of clear rules and routines. The focus is on everyday project activities, and the scope of each rule and routine has been designed to make it feasible in practice. The quality assurance routines are as follows:

3.1 Technical quality

1. In order to ensure the technical quality of the PIA system/service, appropriate technology standards will be applied. Technical manager will monitor compliance with appropriate standards.
2. The system components and services, and interoperability between these, will be subject to continuous and systematic testing. Technical manager monitors and logs the test activities.

3.2 User interfaces

1. HCI design will be based on published guidelines for accessibility in general and cognitive accessibility in particular.
2. Focus group evaluations will be arranged in order to let end user representatives evaluate the HCI mock-ups.
3. User testing of HCI in laboratory will be performed in all participating countries, according to common test guidelines.

3.3 Ethical issues

1. All field work will be based on appropriate ethical guidelines (Code of Conduct). The ethical manager will monitor the use of these guidelines and deal with any uncertainty or issues as they arise.
2. Ethical issues will be a permanent agenda point in consortium meetings.

3.4 Test and trial guidelines

1. A comprehensive set of field work (tests and trials) guidelines will be produced first in English, and then translated into other project languages. All partners must follow these.

2. Health-related information represents an important privacy issue in many countries. In order to produce comparable results between participating countries, no health-related screening or variables connected to eligibility screening, questionnaires, user profiles, or the like, will be included in the empirical studies of the project.

3.5 Deliverables

1. Deliverables from all work packages will be based on a common document template.
2. All deliverables will, before handing-in, be peer-reviewed by at least two other project partners.

3.6 Project web site

1. Project coordinator shall appoint a web editor and his/her deputy.
2. All partners are responsible for delivering publishable material to the web editor without delay so that the project web can be kept updated.
3. The impact manager shall monitor the project web's appropriateness for effective dissemination and exploitation.

3.7 Publications, abstracts, overheads

1. Normally, all dissemination material such as manuscripts, abstracts, overheads presentations and the like shall be distributed to all partners one week before submission/presentation.
2. Dissemination material shall when possible include the project logo as well as the AAL JP and EU logos.
3. Funding bodies and contributing partners must be appropriately acknowledged.

3.8 Dissemination material

1. In order to offer harmonised dissemination material, the baseline version should be produced first in English, and then translated into other project languages.
2. All partners shall register dissemination in a dissemination log which follows the AAL JP yearly progress reporting template.
3. Impact manager will plan and follow up the dissemination activities.

3.9 Meeting documentation

1. All partners shall keep a log of project meetings, including date, location, participants, agenda and decisions/conclusions.
2. Consortium meetings documentation shall be based on document templates.
3. All documents shall be made available in Dropbox or other file sharing facility.