

Project Handbook



Version: 0.40
Date: 2008-09-10
Author: EIAO
Dissemination Level: Public
Status: Working draft

This document consists of 19 pages plus this cover

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1 Introduction

1.1 Brief project description of the EIAO project

The project will establish the technical basis for a prototype of a European Internet Accessibility Observatory (EIAO)¹. The objectives of the project are:

- Developing reliable methods and tools for large-scale assessment of websites accessibility
- Checking websites with the developed methods and tools
- Making the results available
- Helping web masters and web designers to improve accessibility
- Helping decision makers to assess accessibility of websites

The project is based on the development of open source applications and aims at being as open as possible in its relations and activities. There are several reasons for this goal:

- Offering the possibility for others to verify developed methodology and tools
- Offering the possibility for others to extend the application by use of plug-ins
- Offering a solution that is available free of charge for research and improvement
- Offering full access to all published data and guaranteed integrity of data

The project will be carried out in co-operation with various stakeholders and selected users to secure the applicability for the end users. While some stakeholders are included in the project as a reference group, the project will also seek co-operation with other stakeholders.

The EIAO project is funded by the European under the IST contract 2003-004526-STREP. The project will be carried out as part of the Web Accessibility Benchmarking cluster (WAB)² together with the projects Support-EAM and BenToWeb.

1.2 Scope and structure of this document

Quality of a software product should be planned, maintained and improved. The Project Handbook is the guideline for achieving quality in software and software development. It describes organisation of the project and quality organisation, goals for the software development process, quality goals of the software product and means to achieve these.

The project handbook is the guide to the Quality Management System (QMS).

Figure 1 gives of an overview of the contents of this document and its relation to other documents. The EIAO's *Quality Policy* states the high-level commitments of the project as a whole and is one of the sources to define the projects *Quality Goals*. The other sources are the Technical Annex (TA) [1], risk matrix driven from risk analysis and quality standards.

1 Note that this project will not deal with the legal framework required to create a fully operational European Observatory.

2 For details on the WAB Cluster see Technical Annex Appendix B. Appendix D is illustrating relations between EIAO and the WAB cluster.

Quality processes (or simply processes) are means to achieve quality goals. A process is a sequence of activities performed for a given reason following the provided guidance, resulting in one or more work products or artefacts [2]. Processes are described in *procedures*; a description of the objectives, the inputs and outputs, the activities to be performed and the responsibilities.

Quality processes and procedures describe how tools and the environment should be used to produce the deliveries. In Figure 1, deliveries are divided in three groups:

- Software code
- Documents or deliverables to the EU
- Measurement results

Quality of all these outputs is the subject of QMS and its processes.

1.3 This document - precedence

Where there are any apparent or real inconsistencies between this document, the contract with the Commission or with the Consortium Agreement, then the following order of precedence will be applied:

1. Contract with European Commission (EU)
2. Consortium Agreement
3. This handbook

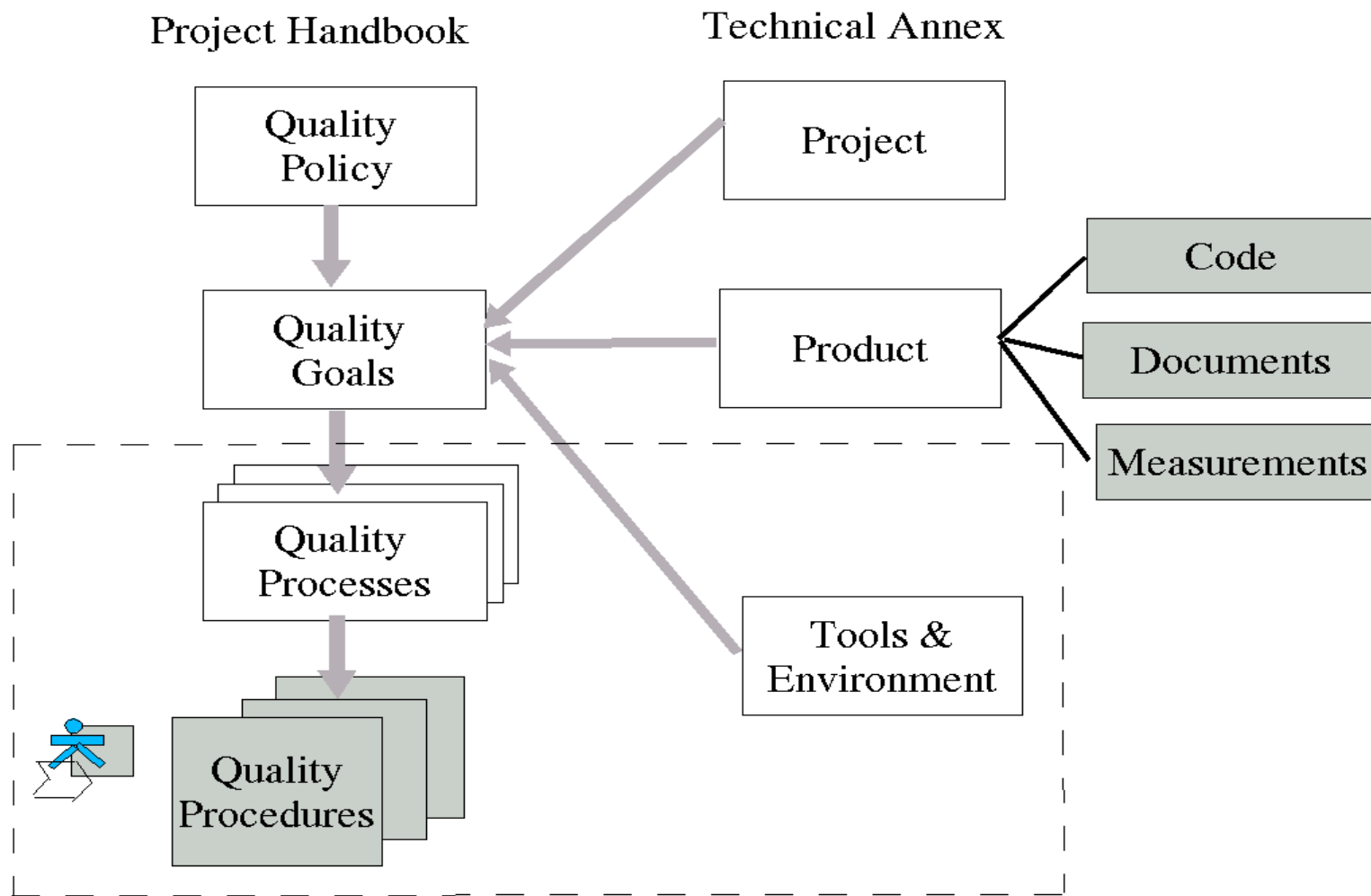


Figure 1: Content of Project handbook and relation to Technical Annex

2 Project management

2.1 Project team

The project team includes:

- The Project Coordination Committee (PCC)
- The Co-ordinator (CO)
- The Project Manager (PM)
- The Work package leaders (WPL)
- The Partners (P)
- The Reference Group (RG)
- The National Accessibility Case (NAC)
- The Invited Contributors (IC)

3 Tasks and responsibilities

3.1 Project Coordination Committee (PCC)

The **PCC** will be responsible for the successful completion of the project and the exploitation of its result. It will be chaired by the appointed PM and will consist of a senior representative from each partner.

The responsibilities of the PCC will include, but are not limited to:

- Supporting the Co-ordinator in fulfilling obligations towards the EC
- Management of resources in order to meet schedules and goals
- Ensuring the quality management of the project
- Proposals for the amicable resolutions of conflict
- Proposals for the creation of a technology implementation plan and its updating
- Promoting gender equality in the project
- Overseeing science, society and ethical issues, related to the research activities conducted within the project

Decisions regarding the project will be made by vote with each partner having a single vote. In cases of a tie, the project manager will have a casting vote.

3.2 Coordinator (CO)

The Coordinator (CO) is Agder University College (AUC). The CO will submit all reports to the Commission, handle all financial statements and payments, and chair the PCC meetings.

The tasks for the CO will include:

- Coordination of the technical activities of the project
- The overall legal, contractual, financial and administrative management of the project
- Co-ordination of knowledge management and other innovation-related activities
- Obtaining audit certificates (after 18 and 36 months) by each of the participants
- Establishing a culture based on disability awareness.

The last point is a special focus in this project as its aim is to improve accessibility for the disabled. Disability awareness will be reflected in all

activities, information and documents. Therefore the CO will assume a special responsibility for making information on this subject easily available to all partners. All personnel in the project should be acquainted with the European Disability Strategy and how this strategy influences the practical work at all levels in the project.

3.3 Project Manager (PM)

The PM appointed by the CO will be in charge of the overall management of the project i.e. the administrative and technical co-ordination. The PM will report to the PCC, and shall be responsible for preparing the decisions for the Committee. The appointed PM is *Dr. Techn. Dipl. Ing Mikael Holmesland Snaprud*.

3.4 Partners (P)

The partners are:

- Agder University College (AUC)
- Vista Utredning AS (VU)
- Forschungsinstitut Technologie-Behindertenhilfe of Evangelische Stiftung Volmarstein (FTB)
- The Manchester Metropolitan University (MMU)
- Nettkroken AS (NK)
- University of Tromsø (UOT)
- FBL S.R.L (FBL)
- Politechnika Warszawska - Warsaw University of Technology (TUW)
- Aalborg University (AAU)
- Intermedium (IM)

Partners participate in activities defined in Work Packages (WPs) according to Annex 1, section 7.5 of the project Technical Annex [1].

The partners should as soon as possible inform the WPLs of any delay or problems in the performance of their tasks. The partners should also inform each other of any relevant communications they receive that may be useful for the partners in relation to their tasks in the project.

3.5 Work Package Leaders (WPL)

The EIAO project is divided into eight Work Packages (WPs) and two cluster work packages. The WPLs are partners responsible for the WP progress of one or more WPs. The progress is determined by the development of deliverables produced in the WP and fulfilment of tasks contained in the WP. The WPL will participate in the development and maintenance of an inspection plan.

The WPLs are responsible for the fulfilment of their obligations under the contract and consortium agreement, and to submit all information and deliverables according to Annex 1, section 7.5 of Technical Annex [1] and the inspection plan.

The WPLs should as soon as possible inform the CO of any delay or problems in the performance of their tasks. The WPLs should also inform each other of any relevant communications they receive that may be useful for the partners in relation to their tasks in the project. The WPLs are responsible for resource management in their work packages within the consortium budget.

The appointed WPLs are listed in Table 1.

WP no.	Name	Partner	person
WP1	Project management	AUC	Mikael Snaprud
WP2	User Requirements	MMU	Jenny Craven and Peter Brophy
WP3	WAM	FTB	Olaf Perlick and Helmut Heck
WP4	User Testing	MMU	Jenny Craven and Peter Brophy
WP5	ROBACC	AUC	Mikael Snaprud
WP6	ROBACC DW	AAU	Torben Bach Pedersen
WP7	Dissemination	VU	Finn Aslaksen
WP8	Exploitation	AUC	Mikael Snaprud
WAB1a	Cluster WP M1-18	AUC	Mikael Snaprud and Nils Ulltveit-Moe
WAB1b	Cluster WP M19-36	AUC	Mikael Snaprud and Nils Ulltveit-Moe

Table 1: Appointed WPLs

3.6 Reference Group

The Reference Group has representatives from stakeholders that may use and benefit from the project. There are representatives for groups of disabled users who may benefit from better inclusion (blind or low vision, various physical disabilities etc.). There are also representatives for national bodies responsible for inclusion. The responsibility of members of the RG is to comment on produced material from the project according to the inspection plan.

3.7 National Accessibility Case (NAC)

To facilitate the take-up of the EIAO measurement results, a National Accessibility Case consisting of members of the reference group has been established in Norway (NAC-NO).

The NACs are formed as a subset of the RG. The responsibility of the NACs is the same as for the RG. Additional responsibility related to the take-up is yet to be defined together with the NAC.

3.8 Invited Contributors (IC)

Invited contributors are for example students participating in software development or invited experts contributing to core open source components. The responsibility of the ICs is to provide their contribution in accordance with the quality policy of the project.

4 Quality Management System (QMS)

4.1 Introduction

The QMS includes functionality for quality planning, quality measures, quality control and quality assurance [1]. This is accompanied by defining a quality policy for the project as a whole, quality goals, quality processes and procedures.

4.2 Quality policy

The objectives of the project are:

- Developing reliable methods and tools for large-scale assessment of websites accessibility
- Checking websites with the developed methods and tools
- Making the results available
- Helping web masters and web designers to improve accessibility
- Helping decision makers to assess accessibility of websites

The other high-level commitments of the EIAO project are:

- Openness in product and processes
 - Open standards for interoperability and competition by merit and freedom of choice
 - Open source to distribute research results fairly and to promote co-operation
 - Open access to collected data for research availability
- Increasing the knowledge and competence of the involved people and the community on accessibility concerns
- Involving users, decision-makers, developers and other stakeholders in development and assessment of the results
- Meeting requirements defined in the TA
- Quality focus in all aspects
- Web-centric development concerning product development, access and information exchange.

4.3 Quality goals

The goals are derived from :

- Risk matrix
- Technical Annex (TA)
- Quality Management (QM) standards
- Quality policy

Goals should be defined in a way that their achievement can be confirmed; i.e. measurable and verifiable.

4.3.1 Project quality goals

The project quality goals are:

- Delivery according to the agreed time schedule
- Delivery according to the agreed budget
- Reporting the progress as required by the Commission and internal routines

Thus the progress in deliverables, costs, effort spent, and reporting performance are monitored and actions to prevent or correct delays or overruns are planned and performed.

4.3.2 Process quality goals

The following goals are defined:

- All activities internal in the project and external are based on openness, accessibility and inclusion.
- Quality Control is performed by performing reviews, audits and measurements
- Methods and standardized processes and procedures for software development activities based on best practices should be developed and the project will monitor their use.

4.3.3 Product quality goals

The overall goals are as follows. More precise definitions and metrics for these goals or quality attributes are given in the measurement plan:

- **Maintainability:** Maintainability is often defined as the ability of a product to undergo repairs and modifications. Maintainability can for example be measured in how changes can be made locally, with little ripple effect on the other parts. Dependencies between components is also a measure of maintainability.
- **Extensibility:** Requirements of a software system and its environment will evolve. Extensibility is the ability of a software product to evolve with these changes. While maintainability is often used for corrections (fault removal), extensibility is related to new and changed requirements. Type and frequency of changes and their impacts are examples of related metrics.
- **Scalability:** Scalability is related to the number of simultaneous users, number of web sites to assess, or multiple instances of ROBACC.
- **High performance:** TA has requirements on the number of websites to be assessed. Other requirements may be frequency of assessment or data storage capacity.
- **Interoperability:** An example of interoperability in TA is interoperability of WAMs developed in different languages or platforms.
- **Reliability:** Reliability is continuity of correct service or how likely it is to deliver a service as requested under stated conditions. Reliability has multiple dimensions such as hardware and software reliability.
- **Reuse:** Reuse has two aspects: development for reuse and development with reuse. The open source nature of the product and the results motivates both of these aspects. The reuse percentage (relative to the size of the product) is a measure of reuse. Development for reuse allows others to extend the product. Development with reuse may lead to shorter development time and higher quality.
- **Security** defined as integrity of data and access to data.

4.4 Quality Organisation

QMS committee members are:

- Mikael Snaprud - chairman
- Peter Brophy
- Parastoo Mohagheghi
- Boleslaw Szomanski

The Main task of the committee is to build the QMS according to the goals, monitor project and QMS performances, and improve these. In details, the tasks are:

- QMS development and approval
- QMS maintenance
- Organizing audits and management reviews

- Audit results analysis
- Analysis of risk analysis results
- Proposing corrective and preventive actions

The chairman is responsible for QMS and changes to it.

4.5 Contents of QMS

Processes in the QMS are (see Figure 2 in Appendix A):

- In the core of the QMS is the *main development process* transforming requirements to deliveries (WP2, WP3, WP4, WP5, WP6, WP7 deliverables, software code and measurement results). The main development process guides activities for producing all deliveries. *Clients* (European Commission, People with disabilities, web master, clusters, reference group etc.) formulate requirements and use the results of the main development processes of EIAO.
- The project *management process* contains all necessary actions to manage project and monitor its effectiveness. It includes processes for risk management, time/effort/cost monitoring, communication, meeting and minutes from meeting, reporting, also measurements and review of project and prepare improvements to QMS.
- *The resource management process* includes processes considering human resources, infrastructure and web development and maintenance.
- The *quality management process* includes quality assurance, measurement and control processes.
- The security management process includes processes regarding information security and availability, data integrity and confidentiality when necessary.

A short description of these processes are given in the handbook, while procedures will be developed according to the road map for implementation of QMS. Where processes are already described in the project work site, a reference is given.

4.5.1 Main development processes

The deliveries of the project are either:

- Source code, produced and delivered according to the software development life cycle process
- Textual documents or deliverables (reports, specifications, documented code, design documents, plans etc.)
- Measurement results from tools

Deliveries may be internal or external (to the EU).

The EIAO project will have an evolutionary approach to development. Three releases of the software are planned. The necessary processes for developing software (requirement management, modelling, design, and coding standards) are defined in the software development life cycle process .

4.5.2 Project Management processes

a. Reporting

The reports required by the Commission are described in Project Reporting in FP6 Guideline notes³. Reporting templates, dates and versions are further defined in the Worksite⁴. Note that the folder structure in the work site follows the structure described in the Project Reporting in FP6 Guideline notes. This information includes:

3 <http://www.cordis.lu/fp6/find-doc-management.htm#reporting>

4 <http://ws.eiao.net/WorkPackages/WP1/WP1Archives/Reportingtemplates>

- Templates for all needed reports (this is make sure all partners use correct versions)
- Internal reporting due dates (feedback on draft reports is to be organised by the PM)
- Reports from previous reporting periods
- Report status

A report uploaded to the Worksite may be in two states:

- A draft prepared by the responsible
- A final report approved by the PM

Periodic activity and management reports:

Coordinator:

- Periodic activity report (including dissemination report)
- Periodic management report
- Summary financial report
- Report on the distribution of the Community's contribution
- Interim science and society reporting questionnaire

WP Leaders:

- WP progress reports

Partners:

- Justification of cost items
- Justification of cost items Table 3 Budget vs. actual costs
- Justification of cost items Table 4 Person Month status table
- Person month Planned
- Form C (Audit certificates are to be submitted with Form C if required)
- Dissemination report
- Interim socio-economic reporting questionnaire
- Interim reporting questionnaire on workforce statistics

b. Risk management

The aim of risk management is to identify risks for the project and to take all needed preventing steps. In the EIAO project, risk management is performed by:

- Identifying risks, estimating their probabilities and identifying risk treatment activities at the beginning of the project
- Re-evaluating the risks at least once a year
- Evaluating the process of risk management during the audits

c. Information and communication

Internal communication

Internal communication is handled by:

1. Project Internet site: The project Internet site will be used both as a tool to inform and communicate with the IST-sector and as an internal communication platform for the partners and the RG.
2. Project meetings: Project meetings should be announced on the work site and by email at least one month before the planned date. The agenda should be published at least one week before the meeting to allow preparation. The meetings will be leaded by the PM.
3. Telephone meetings: There will be frequent telephone meetings between the partners.

4. Monthly reports from the WPLs: A monthly report (WP progress and challenge report) is a brief report (1-2 pages) that is sent to the project manager on 15. of each month containing the following issues:
- Resources and progress: Any deviations from the work plan, problems (progress and challenges covering resources, technical, deliverables from other partners etc.) This does not include the detailed person month reporting covered by the reports to the EC.
 - Results: Any results of milestones achieved, plans for dissemination of the results, problems or challenges
 - General: Any other issue of interest for partners
 - Publication intentions

The Worksite provides a template for monthly reports.

External communication

The dissemination activities are described in detail in the dissemination plan.

This section describes the procedures for some special cases.

- When a publication is prepared with results from the projects, the WPL will report the intention to do so in the monthly 'WP progress and challenge report' and upload the submitted draft after submission. This is to make sure that all partners who have been actively involved in producing the results are given credit and that the result is presented in a consistent way from the project. Partners not having a WPL role and members of the RG will upload the intention statement to the monthly report folder on the Worksite.
- The projects Internet site will contain a FAQ. A procedure to handle critical external questions will be defined.
- To enable the ICs to take part in the development a procedure will be defined.

There will be an **open collaboration with the open source community and scientific society**. This is possible as the project is based on open source development and the project as a whole intends to be open to users, scientist etc. to discuss development and get input to the project. Also as the project's main objective is to provide the public and decision makers with quantified background for the promotion of and actions to improve e-Inclusion, the project has a nature of supporting political action and should be as visible as possible, and seek the maximum collaboration with the scientific society. The importance of this will be reflected in the project management through information, communication and collaboration with the scientific society and other initiatives related to e-Inclusion.

Each publication and presentation must include the following statement:

The EIAO project is co-funded by the European Commission, under the IST contract 2003-004526-STREP.

d. Management reviews

The organisation shall continuously improve the effectiveness of the QMS through the use of the quality policy, quality goals, audit results, analysis of data, corrective and preventive actions and management review. Project management shall review the QMS at planned intervals to ensure its continuing suitability, adequacy and effectiveness. This review shall include assessing opportunities for improvement and the need for changes to the QMS. Records from management reviews shall be maintained.

The input to management review shall include information on

- Results of audits,
- Customer and EU feedback,
- Process performance and product conformity,
- Status of preventive and corrective actions,
- Follow-up actions from previous management reviews,
- Changes that could affect the QMS, and
- Recommendations for improvement.

The output from the management review shall include any decisions and actions related to:

- Improvement of the effectiveness of the QMS and its processes,
- Improvement of product related to customer requirements, and
- Resource needs.

Frequency and dates of management reviews will be defined in the inspection plan.

e. Monitoring costs, effort and time

Monitoring is done by:

- Monthly reports from the WPLs about work progress inside each of WPs to the project management
- Reports from all partners to the PM as specified in the TA, and in the form specified by the Commission.
- Metrics in the measurement plan

f. Measurement and improvement

The measurement plan should include metrics for monitoring of :

- project performance (cost, effort, time, reporting),
- process performance (inspection coverage, inspection efficiency, change requests, functionality coverage etc.)
- product performance (load, storage, scalability etc.) according to product quality goals.

Procedures for collecting data and analysing data, and reporting will be provided.

4.5.3 Resource management processes

a. Human resource management

The WPLs and the Partners should:

1. Determine the necessary competence for personnel performing work affecting product quality
2. Help to provide training or take other actions to satisfy these needs. One of the actions may be job rotation
3. Evaluate the effectiveness of the actions taken
4. Ensure that its personnel are aware of the relevance and importance of their activities and how they contribute to the achievement of the quality objectives, and
5. Maintain appropriate records of education, training, skills and experience
6. Ensure achievable goals and plans for personnel and avoid overtime

b. Infrastructure maintenance

To ensure the continuous operation and provide access to the collected data through the web interface, hardware and software need to be maintained. Three main areas are identified for this process:

- Maintenance of IT security, backup, routines etc.
- Maintenance of collected data
- Maintenance of installed software packages

c. Web development and maintenance

The project Worksite is the platform for collaborative distributed development, and internal and external communication. The QMS should provide guidelines for file structures, naming conventions, uploading documents, maintenance and principles for roles and responsibilities related to the content and processes implemented on the Worksite.

4.5.4 Quality management processes

a. Reviews and Inspections and testing

All external deliverables should be subject to formal inspections as defined in the inspection plan. The PM and WPLs will define an inspection plan and appoint persons responsible for inspections.

Testing should be automated as far as possible and a test framework should be developed before the implementation starts. Test cases are defined for all requirements and bugs and run successfully before delivery. Exceptions will be documented.

b. Change management

Change management covers processes for managing requirements and changes to requirements, release management, and changes to deliverables plans or contents.

c. Audits

Audits are internal control mechanisms. Audits are prepared based on the COBIT standard [COBIT]. Several audits are planned during the life time of the project. Detailed objectives in each audit, responsibilities and roles are defined in the procedure.

d. Control of documents and records

The chosen version control system in the EIAO project is Subversion. Guidelines for usage will be defined.

e. Nonconforming code

The project should include a bug reporting system and procedures for reporting and handling bugs. A good candidate for this task is Bugzilla or Trac.

f. Corrective and preventive actions

The project organization shall take action to eliminate the cause of nonconformities in order to prevent recurrence. Corrective and preventive actions shall be appropriate to the effects of the nonconformities encountered. The quality organization should identify corrective and preventive actions and recommend those to the PM.

4.5.5 Security processes

The EIAO project is based on open source rules, i.e. the results and used methodology will be openly available as soon as feasible. However, some of the information like the results of risk analyses, reports from audits and personal information about people taking part in user tests will be confidential.

The EIAO project should perform the following actions for achieving security:

- Preparing backup procedure and backup server
- Testing of backup solutions
- Emergency plan preparing and testing
- Checking integrity of data

5 Practical issues

5.1 OpenOffice

OpenOffice is used as the main tool for creating documents in the project. This provides platform neutrality. The OpenOffice document format is subject to standardization in the OASIS consortium. The language of the documents is English (UK).

5.2 Document formats

All official project deliverables will be issued to the Commission in PDF format to minimize incompatibilities and the risk of spreading viruses. Internally, documents will be exchanged and stored in HTML, plain text or OpenOffice formats:

- ODF for textual documents

The deliverable reports will be prepared in OpenOffice and be submitted in tagged pdf format.

The spreadsheets used for reporting are provided by the EC in Microsoft Excel format. Until an open format is provided by the EC this format will be used for the tables to be reported to the EC.

Publications for conferences may be in other formats but a pdf or OpenOffice version will be available at the Worksite. If only proprietary formats are available from a conference organizer, the partner submitting a paper should request a template in an open format.

5.3 Document templates

As the project progresses we will develop templates for the main types of documents such as deliverables, presentations, minutes, travel reports etc. The templates supported in OpenOffice (sxt-files) will be used to implement the EIAO templates.

The templates will serve several purposes

- Allow for more straight forward merging of documents
- Give all project documentation the same visual profile
- Checklist to support a defined coverage
- More convenient sharing of resources e.g. list of acronyms and list of references

6. Bibliography

[1] EIAO Technical Annex

[2] Ebert, C., Dumke, R., Bundschuch, M., Schmietendorf, A.: Best Practices in Software Measurement. Springer-Verlag Berlin Heidelberg 2005, ISBN 3-540-20876-4.

[COBIT] COBIT - Control Objectives for Information and Related Technologies.
<http://www.isaca.org>

Appendix A Process Map

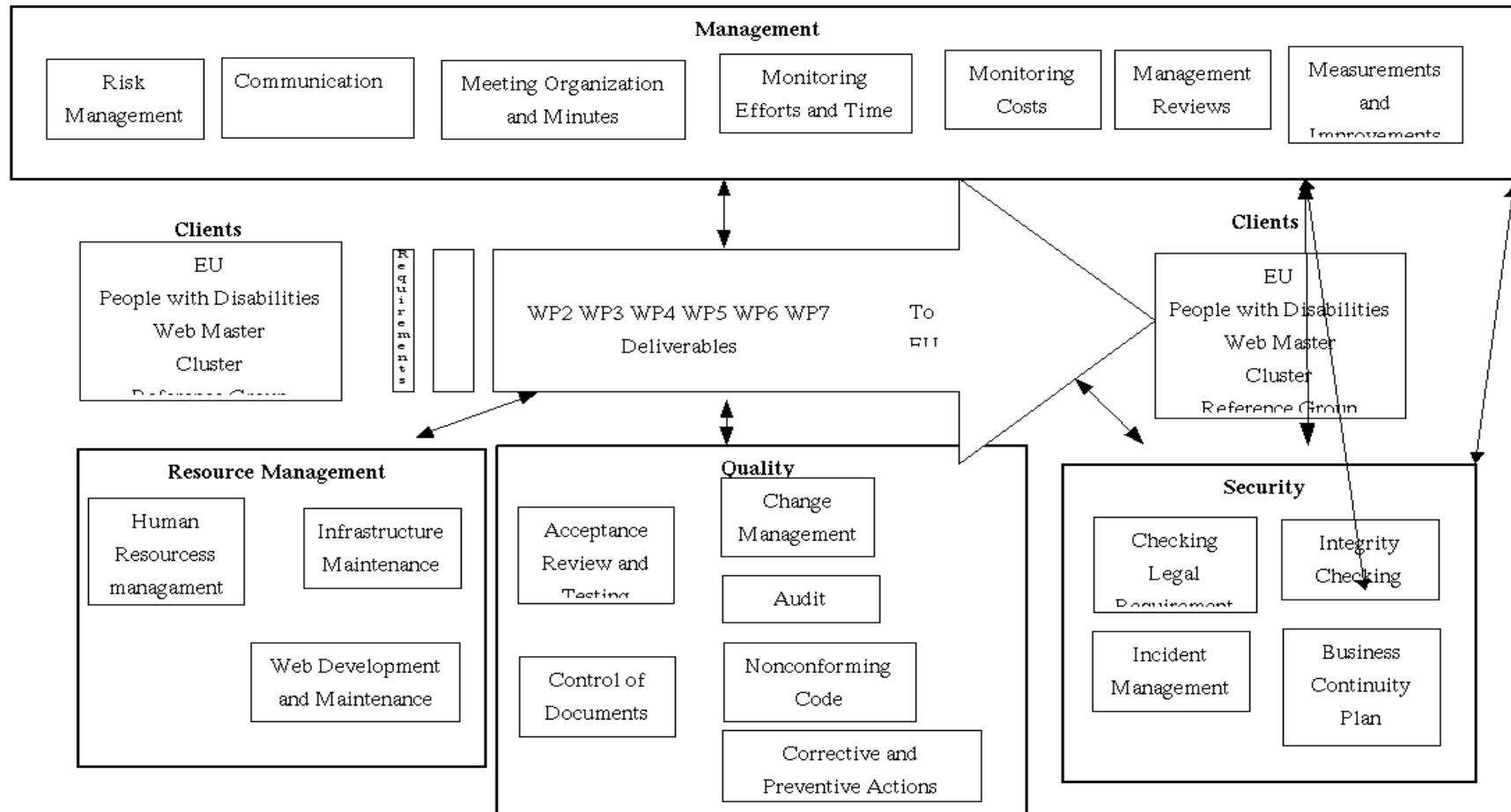


Figure 2: Map of processes in Quality Management Systems in EIAO project