



Quality Management Plan

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1. Introduction

The EDSSI L2 project builds on the EDSSI project, which aims to harmonise the operation of the different building blocks of the digital Erasmus+ ecosystem, mainstream the usage of secure authentication and extend the interoperability network to the student service providers. EDSSI created a core infrastructure that provides students with a seamless mobility experience.

The purpose of this document is to create a general framework for the quality management activity performed in the project, namely:

- To outline the quality strategy, approach and process to be used for the project;
- To identify the roles and responsibilities related to project quality management;
- To define the quality assurance and control activities and to plan them throughout the project;
- To support the agreement on project quality requirements and metrics, and the method to evaluate them;
- To specify the methodology, standards, tools and techniques used to support quality management.

2. Quality management objectives

Project quality management aims to ensure that the current project will meet the expected results in the most efficient way and that deliverables will be accepted by the relevant stakeholders. It involves overseeing all activities needed to maintain a desired level of excellence. This includes creating and implementing quality planning and assurance, as well as quality control and quality improvement.

This project will follow the PM2 quality management process that comprises the activities related to the identification, planning, execution, and monitoring & control of project quality related activities.

The main project quality objectives are:

- The project's quality characteristics are defined, agreed and achieved throughout the project;
- Quality assurance activities are performed as planned;
- Assure compliance with the organisation's rules and regulations, as well as with relevant governmental and industry rules, regulations and legislation;
- Any non-conformity (or opportunity for quality improvements) is identified and implemented;
- Deliverables are accepted by the relevant stakeholders based on the defined quality/acceptance criteria.

3. Team organisation

The EDSSI L2 service team will be led by Humboldt-Universität zu Berlin (HUB) for the general project and administrative management aspects. The service team is composed of different teams focused around six main activities, with each activity having an activity leader, responsible for the overall performance and quality of the tasks performed and deliverables created under the activity.

The activities and activity leaders are:

- Activity 1 - Enabling eCard Interoperability – led by HUB,
- Activity 2 - Deploying CEF building blocks and e-Services – led by SRC,
- Activity 3 - Performing testing and roll-out – led by UB,
- Activity 4 - Maintenance and operations – led by GEANT,
- Activity 5 - Enhance adoption by the community – led by EUF,
- Activity 6 - Project management – led by HUB.

Each activity consists of several tasks, with their own sub-teams lead by different members of the consortium, who are responsible for the performance and quality of the given tasks. Each of the

organisation leading a sub-team will work closely with another partners to make sure that there is no information asymmetry that could lead to the disruption of a given service.

4. Quality management process

The project quality management process comprises all activities (related both to processes and deliverables) that will increase the ability to meet the project expected results defined in the Grant Agreement.

Quality Reviews and Approval Process

Activities performed in the context of the Quality Review and Approval Process include:

- Quality review and inspection of deliverables prior to their dispatch to relevant stakeholders;
- Periodic status reviews of all tasks and their progress;
- Appointment of the appropriate individuals in the execution of the tasks required to complete project activity; and
- Organisation of a document management system including a classification scheme and maintenance of all significant correspondence between the PM and project stakeholders.

The Quality Manager (QM) is responsible for overseeing, monitoring, and evaluating the reviews, inspections, testing and audit activities, and follow-up activities in case of deficiencies.

In the context of this project deliverables may fall into a number of domains including:

- Written deliverables, i.e. documents, reports, architecture and system plans, etc;
- Software products either as a standalone product or deployed to destination platforms, implemented as a service.

These deliverables are likely to occur at various stages in a project's lifecycle. Prior to their dispatch, quality reviews take place in order to find errors and remove defects early and efficiently. For the purpose of storing and sharing for internal review and audition, all document-type deliverables are to be stored in the project's Google Drive store, while all the codes are to be uploaded and stored in GitLab.

The following table provides an indication of the Quality/ Inspection Review Points that are normally undertaken.

Activities	Goal of the Quality Assurance Inspections and Reviews
Requirement Specification	Requirements are complete, understandable, unambiguous, testable, and properly expressed as functional, performance, and interface requirements.
Architecture and system plan documentations	All architecture design issues are addressed; Planned functionalities are complete, understandable and match all the requirements; Any oversights have been identified; Accessibility and Usability requirements have been incorporated.
Development and Integration	Activities include the audit of: Results of coding and design activities – Source Code Reviews; Status of all deliverable items; Compliance with security guidelines; Non-conformance reporting and corrective action

	system.
Testing and Verification	<p>The readiness for testing of all deliverable items.</p> <p>That all tests are run according to test plans and that any non-conformances are reported and resolved.</p> <p>That Test reports are complete and correct.</p> <p>That testing is complete and software is ready for delivery.</p>
Deployment and proof-of-concept implementations	<p>That all installation package and scripts are correct and complete.</p> <p>The deployment process is clearly defined and ready for implementation.</p> <p>The deployment process is documented, issues including issues and non-conformities identified during the process.</p> <p>The effectiveness, the reliability and the quality of all elements of the delivered system follows known metrics for quality and performance tests.</p>
Documentation and Hand-over reports	<p>The Hand-over file includes all updated and necessary functional specifications, technical architecture, content schemas, guides and recommendations.</p> <p>That the technical and implementation guides are simple, complete, straightforward and unambiguous.</p>
Acceptance and Delivery	<p>Inspections, at a minimum, include assuring the performance of a final configuration audit to demonstrate that all deliverable items are ready for delivery.</p>

4.1. Quality Assurance Activities for Digital Deliverables

Quality Assurance Activities for digital deliverables associated with the Erasmus+ App and associated services concern Reviews and Inspections. During implementation of these products, a series of documented reviews corresponding to deliverable milestone will take place. Progress to the next task which uses the item under review is dependent on the item under review being approved. Items which have been reviewed and approved become incorporated into project baseline and are then subject to change control. Review techniques concern source code reviews (Peer Reviews, Concentrated Inspections, Pre-Delivery Reviews), Defect Tracking Metrics and Online Tools which monitor and measure quality.

For all software technical deliverables quality control process are undertaken on each deliverable in line with the proposed test strategy. Final products are provided with documented source code, transformed data, used media and relevant technical documentation.

Follow-up, Corrective and Preventive Actions

The results of the internal reviews and audits are recorded and brought to the attention of the personnel having the responsibility in the area evaluated. The management personnel

responsible for the area must take timely corrective action on the deficiencies found. Follow-up activities verify and record the implementation and effectiveness of the corrective action taken. Observations requiring corrective action must be documented for each identified item. Procedures for corrective and preventive actions which the QM implements and records include:

- [C] Effective handling of stakeholder complaints and reports of non-conformities;
- [C] Investigation and recording causes of product, process and quality system non-conformities;
- [C] Determination of the corrective action needed to eliminate causes of non-conformities;
- [C] Application of controls to ensure that effective corrective action is taken;
- [P] The use of appropriate sources of information and stakeholder's complaints to detect to analyse and eliminate potential causes of non-conformities;
- [P] Determine steps needed to deal with the problems requiring preventive action;
- [P] Initiation of preventive action and application of controls to ensure that it is effective; and
- [P] Ensuring that relevant information on actions taken is submitted for management review.

4.2. Quality Controls of Written Deliverables

Reviews/Inspections are considered key to the production of high-quality products. Inspections are the most effective mechanism for removing defects from technical documentation and will be used to review all documentation/reports/studies/training material, etc. produced within the project.

Each written deliverable will be *reviewed by at least one member* of the Project Team acting as Internal Inspector, which will be the most relevant (technically) with the deliverable under consideration/examination – *appointed by the Activity leader*.

All deliverables should have *at least one round of Internal Review before delivery*. Deliverables are to be *forwarded for review at least five working days in advance of the delivery date* to the appointed Internal Inspector, who will assess the documentation based on the following key points and criterias:

- General comments which relate to:
 - ☐ Deliverable contents thoroughness;
 - ☐ Innovation level (if relevant);
 - ☐ Correspondence to project objectives.
- Specific comments which related to:
 - ☐ Completeness, Accuracy, Relevance and Coherence;
 - ☐ Response to specifications and user needs;
 - ☐ Methodological framework soundness;
- Quality of presentation of achievements;
- Deliverable layout, format, spelling and proofreading in general including:
 - ☐ Document created in the correct template;
 - ☐ Proofreading texts (including all footnotes and/or endnotes, captions under photographs, lists, etc.) and insuring excellent English language, vocabulary, syntax, expression, grammar and relevant terminology;
 - ☐ Ensuring that no typographical errors are left in final texts.

The results of the inspection should be recorded, indicating the points that may need to be corrected, and sent back to the team member responsible for producing the deliverable for processing and correction. If the proposed corrections are unacceptable or require further investigation and the team responsible for the deliverable and the Internal Inspector are unable to agree on a solution before the delivery date, the team responsible escalates the case to the Project Management.

Once the deliverable is approved internally, the last, updated version is to be uploaded to the Google Drive of the project and it will be dispatched to HADEA for review and acceptance.

5. Quality of Service and Corrective Means (KPIs)

All quality of service activities presented in the previous sub-chapters are underpinned from planning to end of project stages by quality indicators. This monitoring and evaluation of a provided service is the cornerstone of the Quality Assurance and therefore needs to be performed in a precise and consistent manner. Additionally, Service Reporting is a major activity of Quality Assurance and Project Management since it is the main mechanism for providing evidence that performance is as expected, and the identified targets are met. It is the main mechanism for:

- Providing evidence that the identified targets are met;
- Providing information that justifies the initiation of reactive or proactive measures for the protection of the service quality and performance;
- Justifying the estimated impact of changes on the service levels; and
- Making service operational information available to other internal processes and external parties and stakeholders;

The following KPIs are suggested to be included in the Progress Report as indicators of service improvement and quality.

KPI		Measurement	Threshold Tolerance
Contractual	Deliverable Timeliness	Number of Deliverables Submitted on Time / Total Number of Deliverables.	<= 10% of the total number of deliverables are submitted late for the reporting period.
Deliverable	Acceptance Rate	Number of Deliverables Accepted in Time / Total Number of Deliverables (Within reporting period).	<= 10% of the total number of deliverables are accepted later than planned for the reporting period.
Internal	Document Timeliness	Number of Documents Submitted on Time for review / Total Number of submitted Documents.	<= 10% of the total number of deliverables are submitted late for the review during the reporting period
Internal	review timeliness	Number of Documents Reviewed on time / Total Number of submitted Documents	<= 10% of the total number of deliverables are reviewed late during the reporting period
Actual	Performance versus Planned Performance	Number of Planned Tasks with Baseline Finish Dates past 20 days / Total Number of Tasks in 30 day look ahead. (Within reporting period)	<= 10% of planned tasks are outside of 20 days from the baseline finish date.
Baseline	Finish versus Actual Finish	Number of Planned Tasks that should have finished / Total Number of Tasks in 30 day look ahead (Within the reporting period)	<= 10% of planned tasks are late as per the baseline finish date



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