Deliverable D8.2
Project Quality Plan

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Lead contractor

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Executive Summary

The Quality Management Plan provides the framework by which quality will be implemented within the NeTIRail-INFRA project. The quality process proposed puts the customer and end user’s expectations of the Products from the project as the criteria against which the Products are assessed. The methodology described here clearly defines for the consortium members what is expected with regard to developing the quality plans for each task and the review process for the project’s Deliverable reports to INEA.
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1 Introduction

This Project Quality Management Plan compliments the Project Management Plan and describes the processes by which the NeTIRail-INFRA consortium will define the quality criteria and the quality management process. This includes the review procedure, the definition of the roles of the reviewers, and the assignment of reviewers to Work Package Products. This Project Quality Plan is designed to be used by all members of the NeTIRail-INFRA project consortium to ensure that they have a process for checking that the Products of their work are fit for use and meets the demands required of them.

This document provides guidance and template material which is intended to assist the relevant management or technical staff, whether client or supplier, in producing a project-specific document/product. It is also useful background reading for anyone involved in developing or monitoring the NeTIRail-INFRA results.

For the purpose of the NeTIRail-INFRA project the definition of Quality is based on ISO9000 and PRINCE2 definitions and defined as:

Quality – the totality of features and/or assigned characteristics of a Product or system that reflect on its ability to show that it meets the expectations or satisfies the stated needs, requirements or specifications.

The quality management plan has the aim to ensure that the customer for any of the products produced within the NeTIRail-INFRA project is considered at the beginning of each task, their needs identified and that upon completion the products can be assessed to verify that they meet the needs of the customer.

For most tasks the needs of the customer will form the basis of the aims and objectives of the task and whether the task has met these needs should be reported in the conclusions of the deliverable report related to the task. The quality management process provides a framework for ensuring that these are considered at the outset of the task and assessed at the end of the task.

In the case of the NeTIRail-INFRA project a Product is any item produced during the course of the project, this will include the compulsory deliverables, internal reports, software, decision making tools, databases, measurement hardware and analysis of data. For each of these Products a quality criteria should be considered to ensure that these are fit for purpose and provide the customer for these products with the information or product to meet their requirements.

Customer – Within the NeTIRail-INFRA project the customer is anyone who will use the products generated within the Project. Customers will include INEA and the EC who will use the project’s deliverables as a project management tool to ensure that the project is progressing and is completing the tasks as described within the Description of Action within Annex 1 of the Grant Agreement. Customers will also include other work packages or tasks within the project, other external projects which will utilise the results of the NeTIRail-INFRA project, and for some products the Customer will be defined as railway undertakings, rail supply industry (end user) or the general public.
Supplier – Within the context of the NetIRail-INFRA project a Supplier is anyone who is inputting to the tasks and products; for example a supplier may be a sub-contractor, it may be a member of the consortium working on a task, or it may be data provider from either within the consortium or from the User Group.

The benefits of the Project Quality Management Plan are that:

- there is effective communication between project partners in development of the Products of this project, eg. equipment, software, reports and studies,
- all changes to project plans, specifications, etc. are adequately controlled in a specified and agreed manner,
- all partners have a clear understanding of project task objectives, of the progress towards attaining these objectives and any risks to their attainment,
- there is clear understanding and agreement of the NetIRail-INFRA project Customers requirements and its Suppliers on the standards, procedures and methods employed to meet project objectives,
- procedures are in place for ensuring that the NetIRail-INFRA project provides all the Products specified by the contract, to agreed standards of quality and timeliness.

2 Quality Management Process

2.1 Quality planning
The quality planning process defines the quality criteria for each of the Products produced within the NetIRail-INFRA project. It identifies the customers, the quality methods and responsibilities.

There are four main types of products which will be developed within the tasks:

- Products for internal use within the same task only
- Products for internal use within the same task and other tasks or work packages
- Products for external use by end users
- Project deliverable reports

The quality planning process for each of these deliverables will be defined by different persons within the project and the quality control process for each will be different. For example if some products are only to be used within the same task then the quality planning and control may all be done within the task. However, if the products from the task are required by other tasks or for external use the quality management process should be monitored by the Project Executive Board.

The quality control of project deliverable reports will be managed by the Project Executive Board.

Throughout this section on quality planning examples have been given, these are not intended to be complete examples or perfectly correct, but simply to indicate the process.

2.1.1 Define Products
From the Description of Action within the Grant Agreement, each task should identify the different products that will be produced.
2.1.2 Identify Customers

In identifying the customer you are identifying those people or organisations who will use the Product being developed and will therefore need to consider their expectations and needs into the list of customer expectations and acceptance criteria.

2.1.3 Customer’s Expectations

The customer’s expectations form the basis of the quality process, these are the attributes which a product is expected to show to satisfy the customer. Examples of these attributes may be: easy to use, low cost, sufficient detail to carry out calculations, format is accessible, delivered on due date, etc.

2.1.4 Acceptance Criteria

The acceptance criteria should form a prioritised list of measurable attributes required from the product. The acceptance criteria then allow attributes to be prioritised if there is a trade-off between any conflicting criteria.
The principal criteria for the acceptance of the project results must be the accomplishments of the requirements included in the Description of Action in the Grant Agreement Annex 1. These requirements should be elaborated within each task to consider the requirements of the end users including infrastructure managers, railway undertakings, and partners in the project.

A method for prioritising acceptance criteria is the MoSCoW prioritisation technique, where each criteria is rated as either Must have, Should have, Could have or Won’t have for now. Acceptance criteria should also be measurable using a quality control method.

2.1.5 Quality Method

The quality method is the activity used to ensure that the product meets the quality criteria. Quality methods could include inspections, measurements, performance tests, usability tests, or feedback/questionnaire from sample User Group.

The quality method which will be used is based on a structured approach having at the low level the monitoring and control performed at task level. High level monitoring and control of the main Products of the NeTIRail-INFRA project is performed by the Project Executive Board to ensure that the Customer’s expectations are integrated in the project results.
### 2.1.6 Examples of Customer Expectations, Acceptance Criteria, and Quality Method

<table>
<thead>
<tr>
<th>Customer expectations</th>
<th>Acceptance criteria</th>
<th>Quality method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must have/Should have/Could have/Won’t have for now</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>INEA/EC</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evidence that the work carried out within the task corresponds to that described in the Grant Agreement Annex 1 Part A</td>
<td>Must have</td>
<td>Inspection</td>
</tr>
<tr>
<td>Report produced before the deadline in the Grant Agreement Annex 1 Part A</td>
<td>Must have</td>
<td>Inspection</td>
</tr>
<tr>
<td>Good English language and grammar</td>
<td>Should have</td>
<td>Inspection</td>
</tr>
<tr>
<td>Clear structure to the deliverable</td>
<td>Should have</td>
<td>Inspection</td>
</tr>
<tr>
<td>Documents formatted according to the project templates</td>
<td>Must have</td>
<td>Inspection</td>
</tr>
<tr>
<td>Evidence that a quality process has been performed demonstrating that the Customers needs have been considered and followed in the delivering the task.</td>
<td>Should have</td>
<td>Inspection</td>
</tr>
<tr>
<td>Technical content is accurate and good scientific approaches have been followed in the interpretation of results and generation of conclusions</td>
<td>Must have</td>
<td>Inspection</td>
</tr>
<tr>
<td><strong>End-users</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description of the work carried out, results and conclusions presented in enough detail to enable results to be replicated, methods, results or conclusions to be used by the end user.</td>
<td>Must have</td>
<td>Inspection</td>
</tr>
<tr>
<td><strong>Project Executive Board</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Report to provide documentation to support the Reporting to INEA tasks have been completed</td>
<td>Must have</td>
<td>Inspection</td>
</tr>
<tr>
<td>Provide information which can be reused in dissemination materials, as input to other work packages, to be included in technical summaries and press releases</td>
<td>Must have</td>
<td>Inspection</td>
</tr>
</tbody>
</table>

*Table 1 - Example 1 - Task 2.1 Product - Deliverable*
2.2 Quality plan for deliverables

2.2.1 Roles within the Quality Management Process
The quality review process for deliverables follows a hierarchical structure, with initial reviews carried out by the Task Leader, the deliverable is then reviewed by the Work Package Leader and a final review is carried out by the Project Executive Board.

2.2.1.1 Task leader
The Task Leader should review the progress of all the Products against the quality criteria throughout the task duration and is responsible for escalating any concerns regarding quality to the Work Package leader and if necessary to the Project Executive Board.

2.2.1.2 Work package leader
The Work Package Leader is responsible for the first level review of the project deliverable and any comments or corrections identified by Work Package Leader should be corrected before passing on to the Project Executive Board. If the Work Package Leader or Task Leader has serious concerns that the comments and recommendations of the Work Package Leader cannot be implemented in the timescale necessary before the deliverable is due to Project Executive Board, then they must notify the Project Management Team immediately and the Project Management Team will if necessary convene a meeting of the Project Executive Board to decide upon a contingency strategy.

The Project Management Team should also be informed if there is any conflict between the Work Package Leader and Task Leader regarding suggested content and presentation of the Deliverable, and the Project Executive Board will define the course of action.

2.2.1.3 Project Executive Board
The Project Executive Board takes ultimate responsibility for the quality of the Deliverables produced in the project. The whole of the Project Executive Board will have the opportunity to review each Deliverable. However, for each deliverable a Principle Reviewer has been assigned from the Project Executive Board to collate feedback and comments (with the support of the Project Management Team) and ensure that actions are taken. Feedback from the Project Executive Board should be implemented before being passed on to the Project Management Team.

<table>
<thead>
<tr>
<th>Deliverables</th>
<th>Principle Reviewer</th>
</tr>
</thead>
<tbody>
<tr>
<td>WP1</td>
<td>WP leader for WP5 – ALU-GR</td>
</tr>
<tr>
<td>WP2</td>
<td>WP leader for WP6 – UIC</td>
</tr>
<tr>
<td>WP3</td>
<td>WP leader for WP4 – TUD</td>
</tr>
<tr>
<td>WP4</td>
<td>WP leader for WP3 – ADS (with the exceptions of D4.5 and D4.6 which should be reviewed by USFD)</td>
</tr>
<tr>
<td>WP5</td>
<td>WP leader for WP1 – ULEEDS</td>
</tr>
<tr>
<td>WP6</td>
<td>WP leader for WP2 – SZ</td>
</tr>
<tr>
<td>WP7</td>
<td>WP leader for WP8 - USFD</td>
</tr>
<tr>
<td>WP8</td>
<td>WP leader for WP7- UIC</td>
</tr>
</tbody>
</table>

Table 3 – Principle reviewers for each Work Package, as agreed at the kick-off meeting
2.2.1.4 Project Management Team
The Project Management Team will complete the final quality checks before uploading to the EC Participants Portal. The Project Management Team will ensure that all documents fit the formats specified in the templates, will correct any remaining grammatical errors or ambiguous language.

2.2.2 Schedule for quality reviews for deliverables

The review schedule for deliverables is given below.

Review process for deliverables

| T-4 weeks | Review by WP leader – draft deliverable should be presented to WP leader for review a minimum of 4 weeks before deliverable date |
| T-3 weeks | Review by the Executive Board (another WP leader is assigned to be principle reviewer) – draft deliverable delivered to Executive board a minimum of 3 weeks before deliverable date |
| T-1 week  | Final review by project co-ordinator and upload to EC portal. Deliverable should be presented to the co-ordinator a minimum of 1 week before due date |

Figure 3 - Review Process for Deliverables

2.3 Quality plan for other products
The quality plan for products other than the Deliverables should be determined at the start of the tasks. The level and formality of the quality process should be decided upon by the task leader and draw in members of other tasks and work packages as necessary to provide or validate the customer expectations. If the quality process requires input from the Project Executive Board, this will be provided as well as support from the Project Management Team.

The quality of the task’s products will be monitored by the Project Executive Board and quality concerns should be escalated from the Task Leaders and Work Package Leaders to the Project Executive Board for consideration.
3 Quality Register

The Quality Register will log for each deliverable the Quality Criteria assigned to that product and the review process. The Quality Register will log the Products, the Customer Expectations, the Quality Acceptance Criteria and Quality Methods and for each it will record whether the products have passed or failed, with the date and the person who has carried out or was responsible for the quality check. Where modifications have been required, the Quality Method may be repeated until it achieves a pass status.

Where a task leader wishes to add other products to the quality register, in addition to their deliverables, they should notify the Project Manager and these products will be included in the same review process as the deliverables.

<table>
<thead>
<tr>
<th>Work Package</th>
<th>Task</th>
<th>Product</th>
<th>Product type (eg deliverable, software, data)</th>
<th>Customer Expectation</th>
<th>Quality Criteria</th>
<th>Quality Method</th>
<th>Task Leader</th>
<th>Work Package Review</th>
<th>Project Executive Board Review</th>
<th>Project Management Team Review</th>
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*Figure 4 - Structure of the Quality Register*
4 Conclusions

This Quality Management Process document provides a concise description, for all members of the NeTIRail-INFRA project, of the methodology which will be adopted within the project to ensure that quality is considered as part of all of the Products produced. The methodology used puts the Customer’s needs as a focus for everything that is done within the project, whether that Customer is an internal Customer working in another Work Package or an external body, an end user or the general public.

The Project Management Team will support the implementation of quality at all stages within the project and can help each task leader to develop their own quality plans for their Products.