

Safe4RAIL2

D5.1 – Project Quality Plan

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|--------------------------------------|---|
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Executive Summary

This Project Quality Plan shows how quality aspects are taken into account in a variety of processes and activities within the Safe4RAIL-2 project. The interrelated quality processes – planning, assurance and control – have impact on the project work from its start to its end.

- Quality planning refers to quality policies like meeting, deliverable or publication policies, the definition of responsibilities as well as the creation of a project visual identity including a project logo, project-like designed templates etc. In order to communicate adequately within the project as well as to project external persons, several tools, such as project policies including meetings, deliverables and the publication process of scientific papers, are established and explained in this document.
- Quality assurance involves the establishment of Interim Management Reports (IMR), clear responsibilities and regular, clearly guided telephone conferences. A well-defined internal review process further supports the quality assurance of deliverables.
- Quality control focuses on feedback through internal processes (internal review process) and external advices (Advisory Board). It further monitors how feedback is implemented and assures the project outcomes through proactive risk management

The plan is effective throughout the lifetime of the project, but is open to revision if necessary. Responsibilities for quality planning, assurance and control are shared between all partners, which allow various views on quality issues in order to reach the optimal outcome.

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Chapter 1 Introduction

The project quality plan is an essential part of the Safe4RAIL-2 project management. Its purpose is to describe how quality will be managed throughout the project-lifecycle. Quality must always be planned in a project in order to prevent unnecessary rework, as well as waste of cost and time. Quality should also be considered from both, an outcome and process perspective. The processes and activities that produce deliverables need to fulfil certain quality levels in order to reach the expected high-quality outcome. To address all quality requirements and quality assurance mechanisms in the Safe4RAIL-2 project, 'Project Quality Plan' at hand has been developed by the project team. This plan acts as the quality bible for the project and all partners will adhere to the project quality plan.

Each project has its characteristics in terms of partners, WPs etc. and therefore requires a tailor-made quality plan, clear responsibilities and contact persons. This and how to get on board of the Safe4RAIL-2 project is described within Chapter 2.

The overall **Quality Management Strategy** of Safe4RAIL-2 is addressed in Chapter 3. It is divided in three key activities:

- **Quality Planning**

Quality planning comprises quality policies and procedures relevant to the project for both project deliverables and project processes. It defines who is responsible for what and documents compliance with the European Commission guidelines. A project visual identity represents the project internally, in partners' organisations as well as externally. In order to communicate adequately within the project also to project external persons, several tools are established and introduced in this chapter. Clearly defined project policies in terms of policies for deliverable naming, meetings, scientific publications or the procedure of internal deliverable review, etc. give security to the project partners, as they have clear guidance on how to deal with upcoming issues.

- **Quality Assurance**

Quality assurance creates and monitors project processes, which need to be performed effectively to reach the targeted outcome. This involves the establishment of Interim Management Reports, clear responsibilities and regular, clearly guided telephone conferences (telcos) but also face-2-face meetings. These activities within Safe4RAIL-2 are summarized in Section 3.2.

- **Quality Control**

Quality control will be actively performed by all partners, e.g. by acting as an internal reviewer of deliverables. A clear internal review process has been defined before deliverable submission to provide feedback to the editor. A proactive risk management has already been mentioned within the DoA. The risk management has been established as planned in order to guarantee the project quality and avoid delays or failures. Feedback on the project progress and outcomes by the Advisory Board will support the quality controlling and guide the project into the right direction. This is described in Section 3.3.

The goal of the following chapters is to give an overall explanation of how great quality can be assured.

Chapter 2 Getting on Board

This chapter introduces the project characteristics in order to allow new members to get easier on board and find most important information at a glance. Therefore, this chapter will introduce shortly the main elements of the Safe4RAIL-2 project in terms of participants, WPs and responsibilities.

2.1 Project Structure

Safe4RAIL-2 is a research project with five Work Packages (WPs) and eight partners, coordinated by IKL and supported by TEC.

- 1) **IKL** IKERLAN S. COOP., Spain
- 2) **TEC** Technikon Forschungs- und Planungsgesellschaft mbH, Austria
- 3) **TTT** TTTech Computertechnik AG, Austria
- 4) **MOXA** MOXA Europe GmbH, Germany
- 5) **WES** Westermo Teleindustri AB, Sweden
- 6) **EUR** EURECOM, France
- 7) **ETAS** ETAS GmbH, Germany
- 8) **LIEB** LIEBHERR-Transportation System GmbH & Co KG, Austria

The interaction, responsibilities and decision-making power is clearly split between the established project bodies as shown in Figure 1. The governing culture of the Safe4RAIL-2 project is based on democracy, co-determination and clear leadership.

The defined Safe4RAIL-2 project bodies, the decision-making process as well as the responsibilities were bindingly described in the Consortium Agreement and in the Grant Agreement.

The **General Assembly** (GA) is the assembly of all partners. It was established within the proposal and therefore included into the Consortium Agreement (see CA 6.3.1):

“The General Assembly shall consist of one representative of each Party (hereinafter General Assembly Member). ... Each General Assembly Member shall be deemed to be duly authorised to deliberate, negotiate and decide on all matters listed in Section 6.3.1.2 of this Consortium Agreement. The Coordinator shall chair all meetings of the General Assembly, unless decided otherwise in a meeting of the General Assembly. The Parties agree to abide by all decisions of the General Assembly. This does not prevent the Parties to submit a dispute to resolution in accordance with the provisions of Settlement of disputes in Section 11.8 of the Consortium Agreement. The General Assembly shall be free to act on its own initiative to formulate proposals and take decisions in accordance with the procedures set out herein. In addition, all proposals made by the Executive Board shall also be considered and decided upon by the General Assembly”

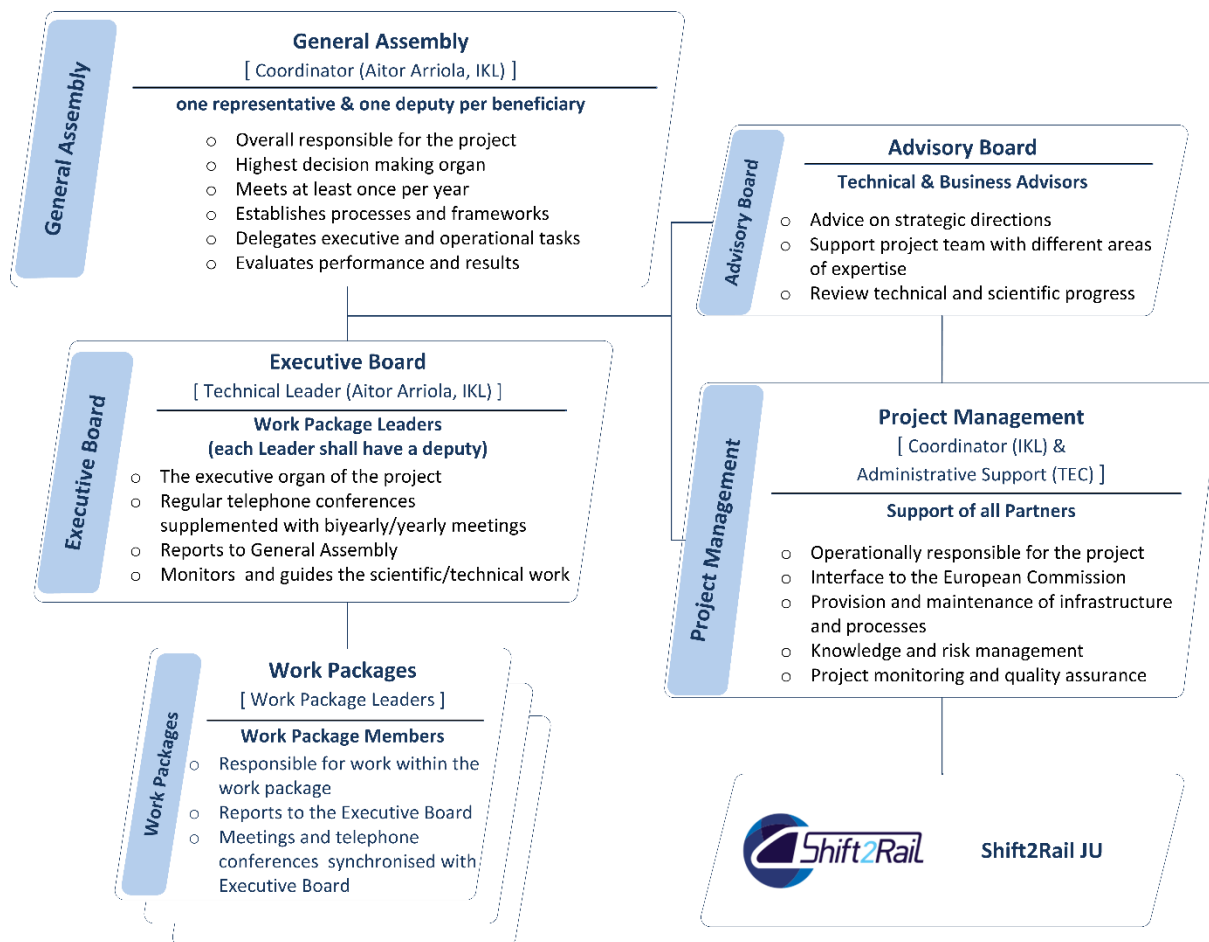


Figure 1: Safe4RAIL-2 Project Bodies

The following representatives and deputies have been defined to present their organization within the Safe4RAIL-2 General Assembly:

- **IKL** Aitor ARRIOLA, deputy: Rosa IGLESIAS
- **TEC** Klaus-Michael KOCH, deputy: Mario MÜNZER
- **TTT** Mohammed ABUTEIR, deputy: Arjan GEVEN
- **MOXA** Jordi PUJOL, deputy: Jean-Marc OLIVIER
- **WES** Pierre ÖBERG, deputy: Erik DANIELSSON
- **EUR** Jérôme HÄRRI, deputy: Raymond KNOPP
- **ETAS** Nuria MATA, deputy: Darren BUTTLE
- **LIEB** Reinhard AIGNER, deputy: Martin ZAUNER

The **Executive Board (EB)** is the assembly of all **work package leaders** and is chaired by the coordinator and technical leader, Aitor Arriola from IKL. It was established within the proposal and therefore included into the Consortium Agreement (see CA 6.3.2):

“The Executive Board shall consist of the Coordinator and the Work Package leaders. ... The Coordinator shall chair all meetings of the Executive Board, unless decided otherwise by a majority of two-thirds. ... The Executive Board shall prepare the meetings, propose decisions and prepare the agenda of the General Assembly according to Section 6.3.1.2. ... The Executive Board shall be responsible for the proper execution and implementation of the

decisions of the General Assembly. The Executive Board shall monitor the effective and efficient implementation of the Project. In addition, the Executive Board shall collect information at least every 6 months on the progress of the Project, examine that information to assess the compliance of the Project with the Consortium Plan and, if necessary, propose modifications of the Consortium Plan to the General Assembly.”

The following representatives and deputies have been defined for the Safe4RAIL-2 Executive Board:

- WP1: **TTT** Arjan GEVEN, deputy: Mohammed ABUTEIR
- WP2: **EUR** Jérôme HÄRRI, deputy: Raymond KNOPP
- WP3: **IKL** Iñigo ODRIOZOLA, deputy: Jorge PARRA
- WP4: **TEC** Mario MÜNZER, deputy: Astrid KIRCHER-YU
- WP5: **IKL** Aitor ARRIOLA, deputy: Rosa IGLESIAS

Each **Work Package Leader** is responsible for monitoring the progress of the technical work in his particular WP and for the coordination of the work carried out in respect to the WP objectives.

The **Project Management** team is composed of the **Coordination** (IKL) and the **Administrative Support** (TEC). This ensures that the work of the scientific and technological researchers/developers will stay focused on scientific and technological tasks, while an overall administrative synergy is achieved at the same time. The Project Management team will meet at least every three months to review the project and to discuss the technical progress and eventually emerging administrative issues. Regular telephone conferences will be held to monitor the progress of the project.

The project **Coordinator** is responsible for all aspects of the interface between the project and the Shift2Rail JU. The project coordinator is also in the role of the technical lead of the project and therefore responsible for ensuring that the project's technical objectives are met with respect to the selected application fields and supervises the overall technical content in this regard.

The project **Administrative Support** is the focal point for all administrative contents of the project and will provide assistance for the organisation of General Assembly and Executive Board meetings, support project administration and reporting (including aspects of finances), provide a help desk for partners, cater for user account management of Internet-based cooperation tools and support external event management and communications.

The last body in Safe4RAIL-2's project structure is the Advisory Board (AB), which is described in detail in the following chapter, see Section 3.3.1.

2.2 Steps towards Participation

1) Initial registration

New participants in the project need to contact the administrative support TEC (technikon@safe4rail.eu) in order to receive access, among other things, to the Safe4RAIL-2 Subversion server (SVN).

2) Contact details and mailing list

All contact details will be added to the Safe4RAIL-2 contact list and the new participant will be subscribed to relevant mailing lists, as these are central tools for all project internal communication.

| Mailing List | Description |
|--------------------------|---|
| ALL-Mailing List | All personnel actively involved in the project |
| WP1 Mailing List | For technical-only belongings/reaching partners involved in WP1 |
| WP2 Mailing List | For technical-only belongings/reaching partners involved in WP2 |
| WP3 Mailing List | For technical-only belongings/reaching partners involved in WP3 |
| GA Mailing List | General Assembly members and deputies |
| EB Mailing List | For all technical correspondence & EB member discussions |
| Financial Mailing List | Personnel responsible for financial questions and tasks |
| Publication Mailing List | Partners will be informed about Publication & Notices at least 45 days before publication |
| SVN-Log Mailing List | E-mail notification on SVN commits |

Table 1: Safe4RAIL-2 Mailing Lists

Further details are described in Deliverable D4.1 – “*Internal and external IT communication infrastructure and project website*”.

3) Project handbook

New participants will receive the handbook as short introduction to get familiar with:

- the *Safe4RAIL-2 infrastructure* (SVN, public website, mailing lists, conference call tools, etc.)
- the *project structure* (partners, hierarchy of bodies, most important documents at a glance) – see Section 2.1
- the *project procedures* (meetings, deliverables, publications)

The project handbook is designed in a way to be easily consulted and it provides quick answers in the project area. It is available as a PDF file on the SVN and the restricted area of the project website and should be a living document. This implies that it will be updated regularly to record and list the lessons learned in order to improve the quality of the project. The partners will be involved in the revision process and informed about handbook modifications. In general, TEC will be the main responsible partner for updating the project handbook. Modifications and updates will be performed whenever necessary, e.g. if there are changes to the mailing lists or if the project structure or the General Assembly / Executive Board composition changes. In any case, partners are always invited to propose updates if required.

4) Introduction to partners and start

Once being familiar with the project policies and the IT tools, newcomers will find the most relevant documents like the Description of Action (DoA), Grant Agreement (GA), Consortium Agreement (CA) and Collaboration Agreement (COLA) on our working directory - the SVN.

Chapter 3 Quality Management Strategy

Quality is the degree to which the project results fulfil the project's requirements. In order to fulfil and exceed the project requirements, a Quality Management Strategy has been defined within the Safe4RAIL-2 project through three key processes, namely Quality Planning, Quality Assurance and Quality Control. These three processes are connected and interact in order to guarantee efficient and high-quality work.

3.1 Quality Planning

Quality management planning determines quality policies and procedures relevant to the project for both project deliverables and project processes, defines who is responsible for what, and documents compliance with certain guidelines.

3.1.1 Visual Identity

The creation of a corporate visual identity plays a significant role in the way the Safe4RAIL-2 project presents itself to both internal and external stakeholders. A corporate visual identity expresses the values and ambitions of our project and its characteristics. In addition, it provides the project with visibility and recognisability. Our corporate visual identity is of great importance that people are aware of the project and remember its name and core objectives at the right time. The following subchapters present the actions, which were taken in order to create a visual identity of the project.

3.1.2 Project Policies

Internal project guidelines, our so-called project policies, were established to organize internal and external processes in terms of meetings, deliverables and publications, to ensure quality.

3.1.2.1 Meetings

Usually we try to execute the project meetings at partner's premises and if that is not possible, the host can also arrange/ ask for offers for conference rooms in a hotel.

The following bullet points should be helpful **for hosting upcoming meetings/ workshops:**

Meeting Room(s):

- On the first day we would need one big room for approx. 20-25 people (if every partner shows up with 2-3 persons; a participant list will be created and provides further details).
- For the second day parallel sessions might be suitable. To plan such sessions, one-two rooms (for approx. 15 persons each) would be required. (It will be discussed in advanced how many break-out sessions will be necessary for the dedicated meeting.)
- Are there any costs for the conference room/ day/ person? (coffee break, lunch)?
- Are there any other expenses?

Infrastructure/Equipment:

- Free WLAN at conference
- Internet connection
- Projector in each room
- Flip charts and pens
- Power plugs for all participants
- Optional: Microphone/Speaker for large rooms

According to our Consortium Agreement (CA) the chairperson of a Consortium Body shall give written notice of a meeting to each member of that Consortium Body as soon as possible and no later than the minimum number of days stated in the CA (e.g. 45 calendar days for an ordinary General Assembly meeting and 15 calendar days for an ordinary Executive Board meeting). The chairperson also shall prepare and send the agenda to the members well in advance (details about the days are listed in the CA 6.2.2.3).

The chairperson of the meeting and/or telephone conference is also responsible that meeting minutes are produced and circulated to the members. These meeting minutes shall be considered as accepted if, within 15 calendar days from receipt, no member has sent an objection to the chairperson. Afterwards the accepted minutes shall be sent to all members (they are stored on SVN).

3.1.2.2 Deliverables

Deliverables must be put into the “Deliverables Folder” of the corresponding Work Package on SVN. Please use the following **file naming**:

- **Safe4RAIL-2-[Dx.x]-[Short name]-[Level of Dissemination]-[Due-Month]**

Nature of Deliverables

- **“R”** (Document, report)
- **“DEM”** (Demonstrator, pilot, prototype)

Deliverables marked with nature “DEM” will be accompanied by a small written report outlining its structure and purpose in order to justify the achievement of the deliverable.

- **“DEC”** (Websites, patent filings, videos, etc.)

Deliverables marked with nature “DEC” will be accompanied by a small written report outlining its structure and purpose in order to justify the achievement of the deliverable.

- **“OTHER”** (Other)

Deliverables marked with nature “OTHER” will be accompanied by a small written report outlining its structure and purpose in order to justify the achievement of the deliverable.

As deliverables are the most important outcome of the project, excellent quality needs to be ensured. Therefore, an internal review process has been defined, which is described in detail in Section 3.3.2. Additionally, a more detailed description concerning document management and the projects’ collaborative tools can be found in Deliverable D4.1 “Internal and external IT communication infrastructure and project website”.

3.1.2.3 Policy for publishing scientific papers

Prior notice of any planned publication shall be given to the other parties concerned **at least 45 days** before the publication in accordance with the CA (8.4.2). Any objection to the planned publication shall be made in accordance with the GA in writing to the coordinator and to any party concerned within 30 days after receipt of the notice. If no objection is made within the time limit stated, the publication is permitted. (CA 8.4.2)

The beneficiaries may agree in writing on different time limits to those set above, which may include a deadline for determining the appropriate steps to be taken.

Furthermore, the paper/article, or the link to it will be published on our **official Safe4RAIL-2 project website**. Please inform the coordinator (IKL) or administrative support (TEC) as soon as a link or document in pdf format is available. The Commission will then be informed about the scientific publication via our website and also via Twitter.

In addition, in order to comply with GA Article 29.2, to provide open access to scientific publications, these papers will be uploaded to partners' repositories.

All publications or any other dissemination relating to foreground that was generated with the assistance of financial support from the Union shall include the following statement (GA 29.4):

“This project has received funding from the European Union’s Horizon 2020 research and innovation programme under grant agreement No 826073.”

Authorship "Rules of Thumb"

A person should be author and the person may veto a publication if

- the person has contributed significant portions of the text, and/or
- the person has contributed at least one significant idea, and/or
- the paper describes an implementation that has been performed by the person.

All other contributors/ influencers should be mentioned broadly in the acknowledgements.

As prior notice needs to be given 45 days before the publication, all partners have sufficient time to review the planned publication. This additional review process further contributes to high quality publications.

3.2 Quality Assurance

The focus of quality assurance is on the creation and monitoring of processes. Quality assurance creates and monitors project processes, which need to be performed effectively to reach the targeted outcome. This involves the establishment of Interim Management Reports, clear responsibilities and regular, clearly guided telephone conferences and face-to-face meetings.

3.2.1 Interim Management Reports (IMR)

The basic idea of internal “Interim Management Reports” is to implement a tool, which forces each partner to provide information regarding their ongoing and planned work as well as information on the resources spent. The IMR is planned as a short report on a half-year basis. It is an efficient tool to provide the coordinator a good understanding of the status and progress of the work and to detect any possible delays or deviations well in advance. Furthermore, the cumulative report serves as a helpful basis for the creation of the periodic reports. The following sections explain the structure and the section targets of the IMR. While Chapter 1 of the IMR gives a short introduction to the partners, Chapter 2 “Explanation of the

work carried out by the beneficiaries and overview of the progress including deviations” asks for partner information regarding the work performed within the respective quarter. This helps the coordinator to monitor partner activities and the progress made within the last quarter. It further asks the WP leader explicitly for the achievements and results per WP, in order to have a clear view on the results and how they will impact the ongoing work. It was also of high importance to add a section which gives the partners the opportunity to describe deviations and corrections. This section gives ideas of problems partners have to cope with and that may be related to other deeper problems.

| WP1 – TSN-based Drive-by-Data [M01-M31] | |
|--|--|
| Overview on Tasks in WP1: | |
| T1.1: General analysis of requirements of ETB for train inauguration [M01-M04] | |
| T1.2: Design and implementation of ETBN [M01-M24] | |
| T1.3: Design and implementation of car switches [M01-M24] | |
| T1.4: Design and implementation of end-devices & Integration into FDF [M01-M24] | |
| T1.5: Interoperability Testing & Demonstrator support [M01-M31] | |
| <i>Explain the work carried out in WP1 during the reporting period for your beneficiary!</i> | |
| <fill in> | |
| <i>Explain the <u>reasons for deviations</u> from the DoA, the <u>consequences</u> and the <u>proposed corrective actions</u>.</i> | |
| <i>Include explanations for tasks not fully implemented, critical objectives not fully achieved and/or not being on schedule. Explain also the impact on other WP/tasks on the available resources and the planning.</i> | |
| Deviation from DoA: <yes/no> | |
| <i>If yes, please provide the following information:</i> | |
| Reason: <fill in if applicable> | |
| Consequences: <fill in if applicable> | |
| Corrective actions: <fill in if applicable> | |

Figure 2: Extract of IMR I, Chapter 2 “Explanation of the work carried out by the beneficiaries and overview of the progress including deviations”

The IMR gives the coordinator and all partners the position to share information about ongoing work of the overall project, to be up to date and always able to provide a profound answer.

The third chapter of the IMR focuses on the use of efforts. A dedicated table where partners fill in rough estimates of their efforts each quarter provides a good comparison of “plan” vs. “is” person months. To control the risk of rejection of costs during the financial reporting, with the IMR the coordinator is able to advise partners on the eligibility of costs and activities.

| WP | Planned (according to DoA) | Actual Expenditure | | | | | Remaining resources |
|--------------|----------------------------|--------------------|-----------|-----------|-----------------|------------|---------------------|
| | | M01-M06 | M07-M12 | M13-M18 | Total (M01-M18) | Total in % | |
| WP1 | | <fill_in> | <fill_in> | <fill_in> | | | |
| WP2 | | <fill_in> | <fill_in> | <fill_in> | | | |
| WP4 | | <fill_in> | <fill_in> | <fill_in> | | | |
| WP6 | | <fill_in> | <fill_in> | <fill_in> | | | |
| WP5 | | <fill_in> | <fill_in> | <fill_in> | | | |
| Total | | | | | | | |

Figure 3: Extract of IMR II, Chapter 3 “Effort Overview”

This well-thought-out IMR concept will support the quality assurance within the Safe4RAIL-2 project in order to cope with potential risks, leap chances, and monitor the projects process towards objectives.

3.2.2 Responsibilities & Internal Review

Transparency of roles and responsibilities has a big impact on the project success. Uncertainty can dramatically affect individual, organisational as well as the consortium performance. Therefore, as already mentioned in Chapter 2, responsible persons for each organisation and per WP were defined. In a further step responsibilities for deliverables were defined. The table below shows an excerpt of the deliverables and milestones of the project and their main benchmarks. While deliverable leading organisations were already defined within the DoA, the concrete editor responsible for requesting and guiding partner inputs towards a punctual and high-quality submission, were named at the project start. In line with the concluded internal review process (described in Section 3.3.2) at least one specific internal reviewer for each deliverable was defined and clear deadlines for first draft version, the review feedback as well as for the submission were established.

Table 2: Deliverable and Milestones Overview

| Nr. | Nature | Type | Deliverables and Milestones | Lead Beneficiary | WP | Del. Month | Review Start | Deadline | upcoming DEADLINES | Name of 1st Reviewer | Name of 2nd Reviewer |
|------------|--------|------|---|------------------|---------|------------|--------------|------------|----------------------|----------------------|----------------------|
| D1.1 | PU | R | Drive-by-Data Requirements Specification | TTT | 1 | M04 | 10/01/2019 | 31/01/2019 | Deadline this month | IKL | EUR |
| D3.1 | PU | R | Report on requirements for integration of HVAC into the Functional Distribution Framework and Simulation Framework | IKL | 3 | M04 | 10/01/2019 | 31/01/2019 | Deadline this month | TTT | MOXA |
| D4.1 | PU | DEC | Internal and external IT communication infrastructure and project website | TEC | 4 | M04 | 10/01/2019 | 31/01/2019 | Deadline this month | IKL | EUR |
| D5.1 | PU | R | Project quality plan | TEC | 5 | M04 | 10/01/2019 | 31/01/2019 | Deadline this month | IKL | TTT |
| MS1 | --- | --- | Requirements fixed | IKL | 1, 2, 3 | M04 | 10/01/2019 | 31/01/2019 | Deadline this month | --- | --- |
| D4.2 | CO | R | Data Management Plan (DMP) | TTT | 4 | M06 | 10/03/2019 | 31/03/2019 | Deadline in 2 months | IKL | TEC |
| MS2 | --- | --- | Communication strategy and management of data fixed, project handbook released | TEC | 4, 5 | M06 | 10/03/2019 | 31/03/2019 | Deadline in 2 months | --- | --- |
| D2.1 | PU | R | Requirements of LTE Equipment and ETBNs for wireless TCMS | IKL | 2 | M08 | 10/05/2019 | 31/05/2019 | | TTT | MOXA |
| MS3 | --- | --- | Wireless requirements and State-of-the-art completed | IKL | 2 | M08 | 10/05/2019 | 31/05/2019 | | --- | --- |
| D3.2 | CO | DEM | HVAC subsystem compliant with Application Profile and data protocol | LIEB | 3 | M13 | 10/10/2019 | 31/10/2019 | | MOXA | WES |
| D5.2 | CO | R | Risk Assessment Plan | TEC | 5 | M13 | 10/10/2019 | 31/10/2019 | | IKL | EUR |
| MS4 | --- | --- | Design of network devices, LTE equipment and HVAC subsystem completed | EUR | 1, 2, 3 | M13 | 10/10/2019 | 31/10/2019 | | --- | --- |
| MS5 | --- | --- | Risk assessment strategy fixed, interim results on communication, dissemination, exploitation and standardisation available | TEC | 4, 5 | M15 | 10/12/2019 | 31/12/2019 | | --- | --- |

3.2.3 Telephone Conferences & Meetings

Communication is for sure one of the most essential foundations of successful project collaborations. Therefore, the Safe4RAIL-2 consortium established regular telcos and video-telcos (e.g. monthly Executive Board telcos requesting WP status reports and several WP-internal/ cross-WP meetings and telcos). Currently, TEC provides their telco system for regular Executive Board telcos as well as for WP related telcos. The virtual meetings are planned in parallel to the face-to-face meetings. The face-to-face meetings are needed because of the complexity and large number of interfaces to be developed within this project.

To ensure the project success it is necessary to implement an efficient meeting structure. At the beginning of the Safe4RAIL-2 project, the Kick-off meeting took place on 21st and 22nd of November 2018 in Munich, Germany. The different expectations and schedules were discussed in order to make a definitive plan about the further work plan and required actions.

We plan two Executive Board meetings per year which will be combined with the General Assembly meetings at the end of each project period (planned venue is at partner's premises). In addition, there will be some WP-internal/ cross-WP face-to-face meetings on request, but due to experience there will be more telephone conferences instead of physical meetings.

At the end of the Safe4RAIL-2 project there will be a Project Finalisation meeting. Following the good practice of Safe4RAIL and CONNECTA, meetings with CFM project will be held every 2 or 3 months to align the activities of both projects and set the next steps for the following months. This will allow a continuous steering of the progress. Further, it is planned to participate in several workshops and conferences.

3.3 Quality Control

The focus of quality control is on feedback and deviation management in the project.

Quality control ensures that feedback: it is taken into account from internal as well as from external advisors and therefore positively influences the work towards project objectives. Risk Management is an integral element of quality control as the proactive notice of deviations from the DoA allows the consortium to control the consequences or even transform those consequences to opportunities.

3.3.1 Advisory Board

The consortium will be supported and advised by an external Advisory Board (AB), consisting of around ten selected European organisations not directly involved in the project as partners. Their valuable feedback to the technical process of the project brings many benefits for the Safe4RAIL-2 project. The AB members will provide an external unprejudiced view advising on strategic directions of the project in terms of detailed technical goals and impact, comment on economical feasibility and achieved or missed targets. To attain high quality results within the Safe4RAIL-2 project, a strong cooperation with the AB members will actively be pursued and facilitated by frequent interaction in the form of face-to-face meetings, conference calls and feedback rounds.

The Advisory Board is planned as a continuation of the joint advisory board that was set up by the Safe4RAIL and CONNECTA project. Confirmed members include Metro de Madrid, MEN and VDS-Rail from railway industry, HUAWEI and NOKIA from LTE industry, and MARVELL and Qualcomm RF IC manufacturers. The participation of LTE and wireless IC manufacturers will be crucial for monitoring the development of LTE modules for the train backbone in WP2, in order to align the obtained solutions for future industrialization and standardization.

Through the integration of an Advisory Board, interim feedback of enormous importance regarding the overall orientation of the project outcome is expected. This supports the path towards objectives and controls the quality of the project work as well as the quality of expected outcomes.

The coordinator is the chair of the AB and is in charge of preparing the implementation of the AB's suggestions. If confidential information will be provided to the AB members, the coordinator will ensure that a non-disclosure agreement (NDA) is executed between the consortium and each AB member.

3.3.2 Internal Review Process

To ensure quality of deliverables, an internal review process has been defined. The main goal of this process is to establish internal feedback by partners who did not directly participate as editor to the deliverable before submitting it to the European Commission and Shift2Rail Joint Undertaking. The review process is shown and explained below.

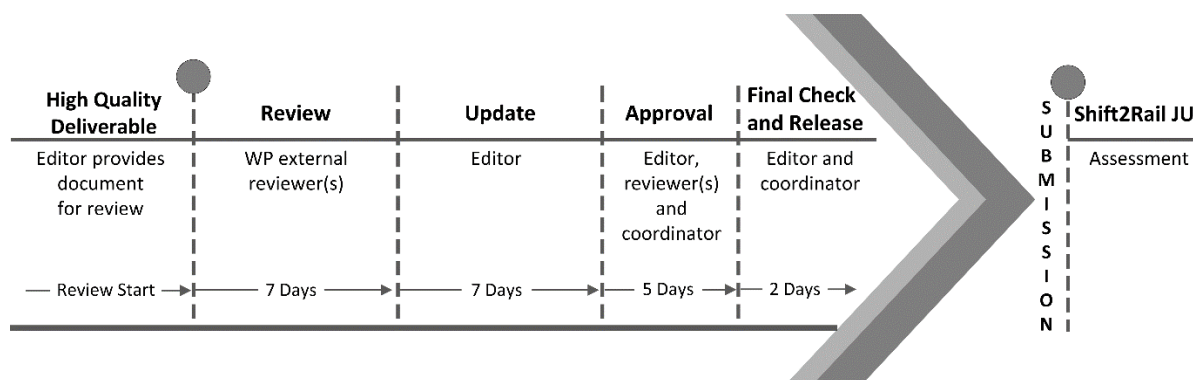


Figure 4: Internal Review Process

Step 1 “Review”: partners send the draft to the project management team (IKL and TEC) and to two assigned internal reviewers, who was not directly involved in the deliverable work (*Review = 7 days*). The reviewer reads the draft and compares the content against its objective as defined in the work plan. The review result is a draft with mark-up as follows:

Word: For Microsoft Word, the author protects the draft against changes (always save with “track changes” activated). Typos and small changes are directly entered on the text while using “track changes”. Comments are entered into the text as Microsoft Word comments. The internal reviewer has to fill in an **Internal Review Template** (depicted in Figure 5). The internal review form guides the reviewer through specific questions, in order to make sure that the content complies with the quality claims of the EC and S2R JU (e.g. required information, structure, etc.) as well as the project partners. It monitors the structure as well as the compliance with the description in the DoA. This gives feedback to the editor of this deliverable in a clearly structured form and helps the editor to address all comments.



Review form for the internal reviewer of Safe4RAIL-2 deliverable:

* Type of comments: **M** = Major comment, **m** = minor comment, **a** = advice

| Date of Internal Review: | Internal Reviewer: | | |
|--|---|----------|--|
| | Answer | Comments | Type* |
| 1. Is the deliverable in accordance with | | | |
| i. the Description of Action? https://s4r2.technikon.com/02-Legal-Documents/03-DoA/ | <input type="checkbox"/> Yes <input type="checkbox"/> No | | <input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a |
| ii. the international State-of-the-Art? | <input type="checkbox"/> Yes <input type="checkbox"/> No | | <input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a |
| 2. Is the quality of the deliverable such | | | |
| i. that it can be sent to the S2R JU? | <input type="checkbox"/> Yes <input type="checkbox"/> No | | <input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a |
| ii. that it needs further editing? | <input type="checkbox"/> Yes <input type="checkbox"/> No | | <input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a |
| iii. that the content needs to be improved? | <input type="checkbox"/> Yes <input type="checkbox"/> No | | <input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a |
| 3. Does the Deliverable include | | | |
| i. a clear structure (e.g. appropriate, understandable presentation of the work performed) | <input type="checkbox"/> Yes <input type="checkbox"/> No | | <input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a |
| ii. a sufficient and meaningful executive summary | <input type="checkbox"/> Yes <input type="checkbox"/> No | | <input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a |
| iii. an appropriate introduction | <input type="checkbox"/> Yes <input type="checkbox"/> No | | <input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a |
| iv. a meaningful summary & conclusion | <input type="checkbox"/> Yes <input type="checkbox"/> No | | <input type="checkbox"/> M <input type="checkbox"/> m <input type="checkbox"/> a |

Figure 5: Internal Review Form

Step 2 “Update”: After the review, the editor has to make the necessary changes and updates. For the update it is important that in general, comments are not removed. Instead, there must be first a discussion between the involved authors to update the deliverable according to the received comments. Secondly, the author either adds text to comments how they were addressed or adds additional comments on its own (*Update = 7 days*).

Step 3 “Approval”: Send the final version to the project management team for the final review. During approval, the reviewer removes all comments that were sufficiently addressed (*Approval = 5 days*).

Step 4 “Final Check and Release”: If there were final changes necessary, the editor has to update the document and send the project management team the final version for submission (*Release = 2 days*). The project management team will then submit the final document to the EC/S2R JU.




3.3.3 Risk Management

To guarantee the achievement of the objectives of the Safe4RAIL-2 project, it is essential to identify and understand the significant project risks.

The continuous risk management process is based on the early identification of, and the fast reaction to, events that can negatively affect the outcome of the project. The frequent meetings of the project bodies therefore serve as the main forum for risk identification. The identified risks are then analysed and graded, based on impact and probability of occurrence.

Technical risks were analysed and graded, based on their probability of occurrence in order to answer the governing question: “How big is the risk and what its impact is?” Knowing how a risk impacts the project is important as several risks of the same type can be an indication of a larger problem.

The risks defined in the DoA, will be graded into low/medium/high risk levels.

| | | |
|---|--------|---|
|  | low | low probability of occurrence and low impact |
|  | medium | low/ high probability of occurrence and high/low impact |
|  | high | high probability of occurrence and high impact |

The risks will be monitored on a regular basis and an updated risk table will be provided within the periodic reports. Further, a detailed classification and evaluation will be provided within D5.2 “*Risk Assessment Plan*” in M13. The Risk Assessment Plan will show how potential risks are assessed and mitigated in order to avoid any negative influence on the Safe4RAIL-2 project objectives.

In addition to the above-mentioned tools and procedures, the project partners’ and the project management team’s profound experience with H2020 projects implicates a high level of competence, expert knowledge, skills and qualifications, which further increases the quality of the project work. Furthermore, besides these hard skills, also soft skills, such as motivation, team spirit, and interpersonal interaction contribute to high quality project performance.

Chapter 4 Summary and Conclusion

This Project Quality Plan demonstrates that quality aspects are taken into account in a variety of processes and activities within the Safe4RAIL-2 project. The interrelated quality processes – planning, assurance and control – impact the project work from its start to its end. The project aims at obtaining a high degree of quality, where outcomes are achieved in terms of the effectiveness and efficiency of working practices, as well as products and standards of project deliverables and outputs. This plan seeks to establish the procedures and standards to be employed in the project, and to allocate responsibility for ensuring that these procedures and standards are followed.

The project management team (coordinator IKL and administrative support TEC) monitors that the above-described processes are fulfilled. In case of any deviations to the planned work the management team is in charge of taking necessary mitigation measures. The plan is effective throughout the lifetime of the project, but is open to revision if necessary. As described in Chapter 2, responsibilities for quality planning, assurance and control are shared between all partners, which allow various views on quality issues in order to reach the optimal outcome.

Chapter 5 List of Abbreviations

Table 3: List of Abbreviations

| Abbreviation | Translation |
|--------------|--|
| AB | Advisory Board |
| CA | Consortium Agreement |
| CPA | Critical Path Analysis |
| DoA | Description of Action (Annex 1 of the Grant Agreement) |
| EB | Executive Board |
| EC | European Commission |
| GA | Grant Agreement |
| H2020 | Horizon 2020 |
| ICT | Information and Communication Technologies |
| IMR | Interim Management Report |
| NDA | Non-Disclosure Agreement |
| PM | Person Month |
| PR | Periodic Report |
| RTD | Research and Technical Development |
| SME | Small and Medium-sized Enterprise |
| SVN | Subversion server |
| Telco(s) | Telephone Conference(s) |
| WP | Work Package |