Quality Assurance and Communication Plan

Milestone 1

Date: 10 July 2014
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Owner: TAP Phase Two Transition Project Team
Project: TEN-T EC Decision STAR 2012-FR-91090-S
Version: V1.0
1. Document history

1.1 Document location

1.1.1 This document is available in the member’s area of the TAP TSI project extranet.

1.2 Revision history

1.2.1 This document was revised as follows:

<table>
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<th>Version</th>
<th>Summary of changes</th>
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<td>Original</td>
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<td>25/09/2013</td>
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<td>Updates of Software Tools and annexes</td>
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<td>06/11/2013</td>
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<td>Updates of Software Tools and annexes and Audit Procedures</td>
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<td>06/11/2013</td>
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<td>Added the Member State Reporting</td>
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<td>06/02/2014</td>
<td>V0.5</td>
<td>Modified the Organisational Structure</td>
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<tr>
<td>10/07/2014</td>
<td>V1.0</td>
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1.3 Approvals

1.3.1 The approval for this document is as follows:

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<tr>
<td>Project Team</td>
<td>Project manager, workstream leaders</td>
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1.4 Distribution

1.4.1 This document is distributed to:

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1.5 Document maintenance

1.5.1 This document is published by the TAP TSI Phase Two Transition team. Any reader detecting errors or needing clarification should contact the TAP TSI Phase Two Transition team.
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3. **List of abbreviations**

3.1.1 The following abbreviations are used in the text.

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<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<tr>
<td>ASR</td>
<td>Action Status Report</td>
</tr>
<tr>
<td>BP</td>
<td>Basic Parameter</td>
</tr>
<tr>
<td>CCG</td>
<td>Common Components Group</td>
</tr>
<tr>
<td>CRD</td>
<td>Common Reference Database</td>
</tr>
<tr>
<td>DG MOVE</td>
<td>European Commission Directorate-General for Transport</td>
</tr>
<tr>
<td>DQM</td>
<td>Data Quality Measurement</td>
</tr>
<tr>
<td>ERA</td>
<td>European Railway Agency</td>
</tr>
<tr>
<td>GM</td>
<td>General Manager</td>
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<td>IM</td>
<td>Infrastructure Manager</td>
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<tr>
<td>IRT</td>
<td>Integrated Reservation Ticket</td>
</tr>
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<td>ISO</td>
<td>International Standards Organisation</td>
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<td>ITT</td>
<td>Invitation to Tender</td>
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<tr>
<td>LCC</td>
<td>Life Cycle Costs</td>
</tr>
<tr>
<td>NRT</td>
<td>Non-integrated Reservation Ticket</td>
</tr>
<tr>
<td>PRR</td>
<td>Passenger Rights Regulation EC 1371/2008</td>
</tr>
<tr>
<td>PSO</td>
<td>Public Service Obligation</td>
</tr>
<tr>
<td>Regulatory Services</td>
<td>As defined in document TSGB Regulatory Services</td>
</tr>
<tr>
<td>RISC</td>
<td>Rail Interoperability and Safety Committee</td>
</tr>
<tr>
<td>RRD</td>
<td>Retail Reference Data</td>
</tr>
<tr>
<td>RU</td>
<td>Railway Undertaking</td>
</tr>
<tr>
<td>SB</td>
<td>Supervisory Board</td>
</tr>
<tr>
<td>Service Partner</td>
<td>means an organisation providing a service similar to a regulatory service who provides to TSGB Licencees a regulatory service as defined in the regulatory service document</td>
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<tr>
<td>TAP CCM</td>
<td>Telematics Applications for Passengers Change Control Management</td>
</tr>
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<td>TAP TSI</td>
<td>Commission Regulation (EU) No 454/2011 on the technical specifications for interoperability - Telematic Applications for Passenger Services – or as re-published from time to time</td>
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<tr>
<td>TSGB</td>
<td>means the TAP TSI Services Governance Body</td>
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<td>TV</td>
<td>Ticket Vendor</td>
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<td>UIC</td>
<td>Union Internationale des Chemins de Fer</td>
</tr>
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<td>UN/ECE</td>
<td>United Nations Economic Commission for Europe</td>
</tr>
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<td>Working Group</td>
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4. Quality Assurance Plan

4.1 Introduction
This Quality Assurance Plan (QAP) outlines the processes used to monitor and evaluate the project ‘Startup of the Telematics Application for Passenger Regulation (STAR)’ 2012-FR-91090-S. It sets out the procedures for review, audit and approval during the Action and assures the appropriate visibility for the results. The QAP is developed by the Team Members of the Project management Office and addresses each of the following areas:

- Organisational Structure
- Project Planning and Execution
- Risk Analysis
- Control, Monitoring and Audit Procedures
- Dissemination

4.2 Purpose
The purpose of the QAP is to guide the establishment of Quality Assurance (QA) activities within the processes and procedures used to deliver products and services within the environment. A robust QA plan will provide confidence that products and services are developed and delivered according to established processes and are of the highest quality. It defines the policy for QA activities, the organizational structure and responsibilities of the QA group, and identifies necessary reviews and audits. This plan should be tailored by each project or task order to fit specific activities.

4.3 Policy Statement
All activities are required to include QA activities as an integral part of the processes used for the development and delivery of products/services. This policy requires that:

QA goals must be rational so that they are accepted and supported.
- Continual improvement efforts must be supported.
- All quality control and quality measurement activities are documented.
- A manager or management team will be responsible for QA.
- Senior management will review QA activities.
- The QAP will be baselined and placed under Configuration Management (CM) control.
- The QA function will work to foster constructive communication, provide feedback to detect and prevent development problems, control risks, discuss alternative solutions, and ensure quality is built-in to all products/and Information Technology (IT) services to the customer.

4.4 Scope
The scope of this plan covers development activities as well as administrative approvals. This QAP addresses the following QA topics:

- Organizational structure
- Documentation required
- Procedures to be enforced
- Audits and reviews to be conducted
- Process improvement
- Problem reporting and resolution
• QA metrics

The example activities that will be reviewed by QA activities are:

• Project Planning
• Problem Tracking and Reporting
5. Management

5.1 Organizational Structure
The QA function will be provided as a service of the PMO. The PMO is responsible for the development of the final QAP that will be used to identify its roles and responsibilities.

5.2 Roles and Responsibilities
The role of the QA function is to assist the technical team to continually improve the quality of its work products and services. The QA function is responsible for facilitating the establishment of the processes and procedures that Project Team members follow as they perform their day-to-day activities. The QA function will perform periodic inspections and audits to ensure compliance with established policies and procedures.

The QA function will be involved throughout the life of the Project. It will participate in the development of the Project Management Plan (PMP), and the Phase I Transition Plan to establish its function within the project and to provide input into the project schedule and Work Breakdown Structure (WBS). To ensure that QA activities are identified and that time is allotted for QA activities funding for the QA function will be planned for within the task hours and cost structure available for the Project.

Project Manager
The Project Manager (PM) will:

- Provide management support, supervision, and oversight for the QA function.
- Ensure the independence of the QA function.
- Make staff available and other resources as needed to support QA.
- Ensure resolution of problem and concern issues.
- Review QA audits and reports.

STAR-Project (QA) Manager
The Sub-Project PM will:

- Manage individual project performance
- Ensure QA activities are conducted.
- Ensure compliance with the QA project.
- Ensure responses to deficiency reports from QA reviews and audits.
- Develop and maintain the QAP.
- Ensure work products adhere to the appropriate standards.
- Develop audit and review procedures for activities.
- Ensure QA processes and procedures adequately control project quality.
- Ensure QA activities accurately measure the product, service and process quality.
- Review and approves specified deliverables for release to the Commission
- Promptly reports results of audits to the Project Manager.
- Periodically reports unresolved noncompliant items to the Project Team.
- Ensure that the expectations of QA activities are identified and understood by the Task Leader and the team members.
- Recommend changes in procedures to improve processes.
**Project Team Members**
The Project Team members will:

- Implement task level quality control based on QA standards, policies, and procedures.
- Participate in reviews and audits.
- Perform corrective actions or process improvements in response to QA findings.
- Manage and controls defects/errors and corrections.
- Track the status of defects/errors until closed.

The effectiveness of QA function efforts depends on the support and commitment of the Project Team members and all levels of management. All affected groups should be trained in the principles of QA and be committed to the proper inclusion and performance of QA activities in their work efforts.
6. Required Documentation

All required documents for the Project will follow the appropriate standards concerning content and format. When industry standards are not available, the QA function, along with input from the Project Team, must develop the standards or adapt documents developed by other groups to use as standards within the Project. The information used from other groups’ documents will be used to ensure compatibility between other standards existing within the organization. Standards will be identified and followed for all required project documentation.

The activities are to be implemented according to TEN-T requirements. Documentation is necessary to ensure activities are planned, monitored and controlled as per TEN-T requirements. This documentation will also be used to verify that the actual processes and procedures used to develop and/or deliver products/services are adequate. Documentation may need to be developed for specific tasks when it is unavailable from other sources. For example, specific documentation for hardware and software repair may be needed in certain circumstances and should be referenced by team members in the performance of their daily work.

Documentation will be open to all project participants using a collaborative workspace. The documents shall be in made available using the formats as defined in supported software tools as defined in Appendix – Software Tools
7. Quality Assurance Procedures

Different methods and techniques will be utilized depending on the specific QA activity. The techniques, tools, and procedures that will be used are:

- **Walkthroughs** - Formal or informal, structured walkthroughs are used for orientation, examining promising ideas, identifying defects or errors, and improving products at any stage in the process.

- **Reviews** - An independent evaluation of an activity or process to assess compliance with the Project Plan or to examine products or processes against quality factors through the use of checklists, interviews, and meetings.

- **Audits** - An independent examination of a work product or process to determine compliance with specifications, standards, contractual agreements, or other pre-established criteria.

- **Evaluations** - An evaluation activity that examines products/services to determine compliance to customer requirements.

- **Process Improvement** - A process improvement project designed to reduce the error rate in a process.

QA will provide a review of the processes used at key check points. These reviews will seek to identify risks early, and will simplify monitoring and managing problem areas throughout the project. Due to the dynamic nature of activities, and the need to provide quick response requests, the QA function will identify the sign-off points at key check points of an activity to ensure that expressed goals and requirements are met.

### 7.1 Walkthrough Procedure

Walkthroughs are beneficial for evaluating plans, documentation and other deliverables and serve to orient staff members to new technology products and services. Walkthroughs will be conducted internally and on an as-needed basis. They will be used to:

- Present plans, documentation, or other deliverables for review and approval.

- Review material in the preparation stages.

- Critique and report quality deficiencies of plans, processes, and procedures.

Walkthroughs will be scheduled early enough in a process to allow for revisions if problems are identified. Records of these walkthroughs will be maintained, along with issues that were identified and the resulting action taken. Issues can be accepted “as is” or may require more work. If further discussion on the issue is required, additional Walkthroughs can be scheduled.

### 7.2 Review Process

Reviews are important to assess compliance with a project plan. Specifically, the review process examines products/services within a quality factors context. Quality factors are categories of product/service attributes. Examples of quality factors include:

- **Correctness** - The extent to which a product/service satisfies the customer requirements and the stated objectives.

- **Timeliness** - The product/service is provided when needed to the customer.

- **Reliability** - The extent to which a product functions accurately or service is provided on a consistent basis.

- **Productivity** - The amount of resources needed to correctly produce the product or deliver the service, including the relationship between the amount of time needed to accomplish work and the effort expended.
The QA function will plan and conduct a review according to accepted practices and standards. A typical review procedure includes:

- Identification of reviews in the WBS and project schedule.
- Verification that correct review procedures are in place.
- Document review results against quality factors:
  - Verification of product/service traceability, if applicable.
  - Verification of product/service against contractual requirements.
  - Verification of product/service against standards and procedures.
- Validation of corrections by scheduling follow-up actions and reviews.
- Validation that defects or errors are tracked to closure.
- Documentation that review results against product validation information.
- Summary of review findings for other technical groups/organizations (e.g., network engineering).
- Enhanced review procedures.

### 7.3 Member State Responsibilities

With reference to article II.2.5 of the Grant Agreement, the UIC will enable the Member State to exercise its responsibility of monitoring and control of the action through the following:

- A meeting with the Member State to present Commission Project Administrative Deliverables prior to submission for approval by the Member State
- Regular communication on the project via the risk log.
- UIC will furnish the external audit certificate with regards to the final financial prior to signature by the Member State.

### 7.4 Audit Process

The QA function will conduct process audits at the end of the calendar year as required by the TEN-T Agency in order to produce the Action Status Report (ASR). The purpose of audit is to identify deviations in process performance, identify noncompliance items that cannot be resolved at the technical support or project management level, to validate process improvement/corrective action achievements, and to provide relevant reports to all management levels.

A product audit is an independent examination of work product(s) to assess compliance with specifications, standards, customer requirements, or other criteria. Product audits are used to verify that the product was evaluated before it was delivered to the customer, that it was evaluated against applicable standards, procedures, or other requirements, that deviations are identified, documented and tracked to closure, and to verify corrections.

The QA function will perform the following activities when conducting an audit:

- Define the scope and purpose of the audit within the audit plan.
- Prepare audit procedures and checklists for the audit.
- Examine evidence of implementation and controls.
- Interview personnel to learn the status and functions of the processes and the status of the products.
- Discuss findings with the Technical Staff and Task Leader.
- Prepare and submit an audit report to the Technical Monitor/Senior Management.
- Refer unresolved deviations to the Technical Monitor/Senior Management for resolution.

### 7.5 Control Procedures

A separate account has been established that is dedicated specifically to this action. This account is audited by an external Auditor on an annual basis, in compliance with the professional standards applicable in France. These standards require examinations to be carried out to provide reasonable assurance that the annual accounts do not contain significant anomalies.

This audit is used as the basis for the ASR given to the TEN-T EA on an annual basis and will include budget consumption, realization of milestones and deliverables and any anomalies noted for the functioning of the Action.

### 7.6 Audit Procedures

A typical audit will include the following steps:

- Clearly understand and adhere to the audit scope.
- Conduct preparation meetings in advance of the audit:
  - a. Define areas to be reviewed.
  - b. Define review criteria.
- Conduct an overview meeting in advance of the audit.
- Develop an understanding of Sub-Project organization, products, and processes.
- Conduct the planned meetings, interviews, Samples, etc.
- Review the preliminary findings internally with the audit team.
- Verify and classify findings from the audit.
- Validate audit findings with the audit recipient.
- Prepare the audit report for the audit client.
- Provide recommendations on request only.
- Follow-up on corrective action/process improvement.
- Improve the audit process.

An audit is considered complete when:

- Each element within the scope of the audit has been examined.
- Findings have been presented to the audited organization.
- Response to draft findings have been received and evaluated.
- Final findings have been formally presented to the audited organization and initiating entity.
- The Audit Report has been prepared and submitted to recipients designated in the audit plan.
- Audit findings have been documented, and recommendations and the Audit Report have been forwarded to the PM.
- A recommendation report, if required by the plan, has been prepared and submitted to recipients designated in the audit plan.
All of the auditing organization's follow-up actions included in the scope of the audit have been performed.

7.7 Evaluation Process

Evaluations examine the activities used to develop/deliver products and services, ultimately determining if the activity is fulfilling requirements. The QA function establishes criteria for an evaluation, verifies the process has been performed, and collects the metrics to describe the actual results of those activities.

7.8 Process Improvement

The Project Team members are responsible for continuous process improvement. However, the QA function is ultimately responsible for facilitating process improvement by providing the means and mechanisms to do so in an efficient and cost-effective manner. Process improvement is successful when an effective process emerges or evolves that can be characterized as: practiced, documented, enforced, trained, measured, and improvable.

A corrective action plan must be developed when a deficiency in the process is detected. Corrective action should prevent the problem from recurring.

The steps for implementing a process improvement approach are:

1. Detection of quality-related problems
2. Identification of responsibility
3. Evaluation of importance
4. Investigation of possible causes
5. Analysis of problem
6. Preventive action
7. Process controls
8. Disposition of nonconforming items
9. Permanent changes

The QA function will analyze the results of their findings in relation to the results of the documented processes used to produce products or services. This comparison will be used to determine which process may need improvement and to determine the effectiveness of changes to the processes. This comparison will also be used to identify best practices that should be continued or implemented at other sites.
8. Problem Reporting Procedures

Errors, defects, issues, deviations and noncompliance items identified in activities must be itemized, documented, tracked to closure, and reported by the QA function. The QA function must verify all problems were tracked to closure and must provide continuing feedback to management and the Technical Support Team about the status of the problem.

8.1 Noncompliance Reporting Procedures

The appropriate escalation of a problem for resolution is:

- Problems are resolved with the appropriate Task Leader, when possible
- Problems that cannot be resolved with the Task Leader are elevated to the Project PM
- Problems that have been referred to the Project PM are reviewed weekly until they are resolved. Items that cannot be resolved by the Project PM within six weeks are elevated to the PM for resolution
9. Quality Assurance Metrics

The QA function will work with the Technical Support Staff to identify indicators and their associated measures (metrics) that are needed to control performance and predict the future status of processes used to produce products and services. The metrics will be used to help determine when and where a problem is occurring and what type of impact it will have on the product or service. The metrics will be used to base decisions concerning the selection of best practices to implement in the project.

Metrics that are necessary to monitor the effectiveness of QA processes and procedures are:

- Status of non-conformance items identified
- Status of action items open/closed/on-hold
- Number of days to correct and close a non-conformance item
- Lessons learned
10. Appendix - Quality Assurance Check Lists Forms

10.1 Quality Assurance Management Plan

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<th>Check List Description</th>
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<td>Are project tracking activities evident?</td>
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<td>___</td>
<td>___</td>
<td>Are project tracking and oversight being conducted?</td>
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<tr>
<td>___</td>
<td>___</td>
<td>Are all plan reviews conducted according to plan?</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>Are all issues arising from peer reviews addressed and closed?</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>Are status and review meetings conducted according to the schedule?</td>
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<tr>
<td>___</td>
<td>___</td>
<td>Is a WBS that supports all deliverables/long term projects developed?</td>
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<tr>
<td>___</td>
<td>___</td>
<td>Is change managed according to the Configuration Management Plan?</td>
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<tr>
<td>___</td>
<td>___</td>
<td>Have all deviations from standards and procedures documentation been approved?</td>
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<tr>
<td>___</td>
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<td>Are project roles and responsibilities defined?</td>
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10.2 Quality Assurance Required Documentation

<table>
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<th>No</th>
<th>Check List Description</th>
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<td>Does a Baseline exist?</td>
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<td>Does an Acceptance Plan exist?</td>
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<td>___</td>
<td>Does a Collaborative Workspace exist?</td>
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<tr>
<td>___</td>
<td>___</td>
<td>Does a Workspace Security Procedure exist?</td>
</tr>
<tr>
<td>___</td>
<td>___</td>
<td>Are Documents in the correct format and available in the proper tools/versions</td>
</tr>
</tbody>
</table>
11. Appendix – Software Tools

11.1 Schemas

All schemas and documentation shall be produced using an XML Editor – XML Spy 2011 or higher. All schema documentation shall be generated via this tool in both HTML and RTF.

11.2 Documents

Documents shall be produced in Word or RTF versions using Microsoft Office 2007 or higher.

11.3 Spreadsheets

Spreadsheets shall be produced in Excel using Microsoft Office 2007 or higher.

11.4 Data Modelling Tools and Architecture

All data models, class diagrams, architecture documents and ontology shall be produced in UML using Enterprise Architect 2011.

11.5 Project Management

All project management activities, including planning, staffing, baselining, progress, etc shall be documented using Microsoft Office 2007.