## 6.8. Quality Management Plan

6.8.1. Introduction

Quality Management Plan for the SurveiRams System is essential to maintain the project’s quality. With this this plan, the team can evaluate the system for the betterment of it. Additionally, the plan has a framework for evaluating the quality.

Goals of the quality management plan:

* Ensure that the project meets stakeholder expectations.
* Specify the quality criteria to be used for evaluating the project.
* Clarify the roles and responsibilities of team members to meet quality standards.
* Identify and fix any potential quality issues.
* Establish a framework to effectively manage and maintain project quality throughout the course of the project.

The SurveiRams System will operate completely functional, have a user-friendly interface, and be compatible with the organization's existing technology infrastructure. The Quality Management Plan will cover both product and process quality standards. The plan will outline specific procedures, tools, and techniques for monitoring and reporting quality performance.

A quality management plan's tools include:

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| **Definition of Done** | A clear explanation of what makes a finished product increment. |
| **Acceptance Criteria** | Criteria must be met for it to be approved by the project manager. |
| **Continuous Integration** | Regularly updates the code to make sure it is good for releasing. |
| **Test-Driven Development** | A way that emphasizes creating tests prior to writing code to ensure that the resulting code meets the desired quality standards. |

In conclusion, the quality management plan will create a comprehensive framework to efficiently manage project quality from beginning to end. It will ensure that the project meets and/or exceeds stakeholder expectations and provide a clear framework of procedures, resources, and roles for locating and resolving quality issues. It is crucial that all parties involved are aware of the plan and comprehend how they may help to make it effective.

6.8.2. Quality Management Approach

The Quality Management Plan for the Dispatch Directory system project will utilize an Agile and Scrum method to ensure that the project meets or exceeds all stakeholders' quality expectations. The approach will prioritize delivering high-quality products and meeting customer requirements over following a rigid process.

The following are the roles and duties for the quality management plan:

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| **Role** | **Description** |
| Project Manager | The Project Manager is in charge in establishing the standards and making sure the final product satisfies all stakeholders. |
| Project Team Leader | The Project Team Leader is responsible for ensuring that the team is following the Scrum framework and works with the Product Owner, Product Manager and Development Team to enhance the final product. |
| Project Development Team | The Project Development Team’s responsibilities include producing a high-caliber product and upholding the specified quality policies and standards. |
| Project Sponsor | Provides executive support for the project. |

*Table 6.8—1: Quality Management Roles and Responsibilities*

Quality management will be incorporated throughout every part of the project and engage the entire team. In order to improve the product, the team will work to develop a Minimum Viable Product (MVP) for the team to have early feedback from the users.

The approach will include the following steps:

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| **Set Quality Standards** | The project manager will define quality standards based on Agile and Scrum methodology, with a focus on delivering value to the client. |
| **Quality Planning** | The team will work closely with stakeholders to identify the requirements of the project and prioritize the most important features. To make sure that each version of the project complies with the set standards, the team will create a Product Backlog. |
| **Quality Control** | To identify issues or bugs, the team will conduct testing during each sprint to manage and control the quality of the project and meet its requirement or goal. |
| **Quality Assurance** | To avoid problems during the project, preventive measures will be implemented through quality assurance. The team will implement proper testing procedures to ensure that the project follows the set standards. |
| **Continuous Improvement** | To ensure continuous functionality of the project, the team will regularly monitor and assess its performance. They will gather feedback from stakeholders, identify areas that require improvement, and make necessary adjustments to enhance the overall quality of the project. |
| **Communication** | In order for the project to succeed, communication with the stakeholders is needer to give them awareness on the product’s status and have their feedbacks on it. |

A risk management strategy will be created to detect and mitigate any potential quality issues that may arise throughout the course of the project. Overall, the SurveiRams system's quality management approach will prioritize using an Agile and Scrum methodology to provide a high-quality product that satisfies the intended client's criteria. To guarantee that the project meets or exceeds all quality requirements, the methodology will be adaptable and continually improved.

6.8.3. Quality Requirements / Standards

The team will work together to establish and record quality requirements and standards because the SurveiRams System places a high priority on them. Adherence to these standards will be ensured by client feedback, testing, and evaluations. The SurveiRams System project will adhere to the following criteria and quality standards:

**Requirements for Product Quality:**

* The SurveiRams System shall be fully functional and adhere to the technical specifications listed in the product backlog.
* For ease of use by users, the interface should possess simplicity.
* The system must be compatible with the technology used by the institution.
* To protect the customer's personal data, the system will have a high level of data security.

**Requirements for Ensuring Quality of Processes:**

* The product owner and development team will evaluate and approve all project deliverables before they are handed to the client.
* The development team will set up a continuous process of testing and quality assurance to ensure that the system complies with all technical specifications and guidelines.
* To ensure that any system modifications are properly recorded, approved, and reviewed, the development team will employ a version control technology.
* To identify and promptly address any quality issues, the development team will perform frequent sprint reviews.
* The development team will follow a predetermined configuration management procedure to guarantee uniform system development, testing, and deployment.

**Compliance Demonstration:**

* Before being delivered to the client, the SurveiRams System will go through extensive testing and evaluation to make sure it satisfies the necessary quality requirements.
* The development team will keep thorough records of all testing and quality assurance procedures, which the client can request.
* The customer will participate in a formal acceptance test to make sure the system satisfies their particular needs and expectations.
* To guarantee that the system continually complies with the defined quality requirements in the long run, the development team will offer ongoing support and maintenance services.

**Continual Improvement:**

The development team will set up a strategy for continuous improvement by routinely collecting and reviewing client feedback, monitoring system performance, and conducting internal audits to identify potential improvement opportunities. They will also create a procedure for identifying and addressing any non-conformities that may arise throughout the project. This comprises locating the non-conformity, figuring out why it exists, devising a solution, and then evaluating how well it worked. These procedures will be used in the project to ensure that the SurveiRams System actively adapts to meet shifting client needs while maintaining the required level of quality.

6.8.4. Quality Assurance

To ensure quality is achieved through collaboration and continuous improvement, the SurveiRams Ticketing System project will integrate the QA process into the Agile and Scrum methodology. The following steps will be taken:

* **Defining Quality Standards:** The project team, in collaboration with stakeholders, will establish and document the quality standards in the Quality Management Plan. These standards will be effectively communicated to all stakeholders involved.
* **Agile Quality Auditing:** Regular quality audits will be conducted by the project team using Agile practices such as peer reviews, test-driven development, and continuous integration. These practices will be utilized to verify compliance with the defined quality standards and to identify areas that require improvement.
* **Quality Metrics:** The project team will employ quality metrics to monitor and report on the project's adherence to the defined quality standards.

To effectively monitor the quality process, the following metrics will be utilized:

* + Agile Metrics: Velocity, Burn-Down Charts, and Sprint Reviews
  + Defect Density: Number of defects found per unit of measure (e.g., per KLOC)
  + Defect Severity: Classification of defects based on their impact on the system
  + Test Coverage: Percentage of the system that has been tested
  + Test Case Pass Rate: Percentage of test cases that have been successfully passed
  + Root Cause Analysis Effectiveness: Percentage of issues resolved at the root cause level.
* **Continuous Improvement:** The project team will leverage feedback received from quality audits and metrics to drive continuous improvement in both the product and the quality process. Opportunities for enhancement will be identified in collaboration with stakeholders, and appropriate changes will be implemented.
* **Compliance with Industry Standards:** The project team will ensure adherence to relevant industry standards, including accessibility, security, and data privacy regulations. Regular audits will be conducted to verify compliance with these standards.
* **Reviewing Customer Feedback:** Regular reviews of customer feedback will be conducted to identify any issues or areas requiring improvement. This feedback will play a crucial role in informing the continuous improvement efforts and ensuring that the product aligns with customer needs and expectations.

The project will implement rigorous monitoring, tracking, and reporting of quality assurance metrics to ensure the delivery of a high-quality outcome. Any deviations from the established standards will be promptly reviewed and rectified. The project team will receive regular reports from the software application, which will capture relevant data for these metrics. The quality assurance process will undergo frequent reviews to identify opportunities for enhancement and implement necessary improvements. The objective is to ensure that the Dispatch Directory System meets the most stringent quality standards, with close monitoring of all quality assurance metrics to guarantee project success.

6.8.5. Quality Control

In Agile and Scrum methodology, the development process incorporates quality control measures to emphasize continuous testing and feedback. The Quality Control process for the SurveiRams Ticketing System project entails the following steps:

* **Continuous testing and feedback:** The project team will engage in ongoing testing to identify defects and ensure alignment with customer requirements. Automation will be employed whenever possible, and results will be tracked within a continuous integration/continuous delivery (CI/CD) system.
* **User Acceptance Testing (UAT):** Representative end users will conduct UAT at the end of each sprint to validate the system's adherence to their needs and expectations. Feedback from users will guide necessary modifications.
* **Compatibility Testing:** The Dispatch Directory System will undergo testing on multiple platforms, including mobile devices and browsers, to ensure compatibility and address any challenges encountered in different environments.
* **Continuous Monitoring:** Post-deployment, the project team will closely monitor system effectiveness, focusing on key performance indicators such as user satisfaction, response time, and system uptime. This data will inform system upgrades, issue identification, and bottleneck resolution.

The following quality metrics will be utilized to monitor and evaluate system performance:

* Defect Density: Number of defects identified per unit of measure (e.g., per KLOC).
* Defect Severity: Classification of defects based on their impact on the system.
* Test Coverage: Percentage of the system subjected to testing.
* Test Case Pass Rate: Percentage of test cases successfully executed.
* User Happiness: Measured through surveys and user feedback.
* Response Time: Duration for the system to respond to user requests.
* System Uptime: Percentage of time the system is available and functioning as expected.
* **Monitoring and Documenting Quality Assessments:** The project team will diligently track and record the results of the Quality Control process, enabling ongoing monitoring of the project's advancement and the impact of any corrective measures implemented. Thorough documentation will provide valuable insights into the project's quality status.
* **Continuous Improvement:** The Quality Control process will undergo regular reviews to identify areas for enhancement and embrace opportunities for improvement. The project team will proactively seek out avenues to refine the process and swiftly incorporate necessary adjustments. This commitment to continuous improvement ensures that the Quality Control process remains adaptable to evolving requirements and industry best practices.

In conclusion, the SurveiRams Ticketing System project's Quality Control process will be deeply integrated into the development cycle, encompassing continuous testing, user feedback, and performance monitoring. The project team will vigilantly evaluate and maintain product quality, ensuring alignment with established standards and customer expectations.

6.8.6. Quality Control Measurements

The SurveiRams Ticketing System project will leverage Agile and Scrum methodologies to foster continuous inspection and adaptation throughout its lifecycle, promoting a transparent and collaborative approach to quality control. Quality control measures will be implemented at each stage of the development process and documented on a shared, accessible platform, replacing static spreadsheets or tables.

The platform will include essential details such as the measurement date, type of measurement (e.g., automated testing, code review, peer review, user story acceptance), measurement findings (pass/fail, number of discovered flaws, code coverage percentage), comparison with requirements and standards, team member responsible for measurement, team member assessing the results, corrective actions taken, completion date of remedial measures, and team member responsible for their implementation.

Real-time dashboards and visual tools will be utilized to track quality control metrics, enabling all team members to access and understand the data easily. These dashboards will highlight patterns and areas of concern, facilitating prompt action and necessary adjustments.

Regular team reviews, including sprint reviews and retrospectives, will entail the review of quality control metrics and allow for adjustments to the process as needed. Collaboratively, the team will identify potential areas for improvement and implement necessary changes.

In summary, the SurveiRams Ticketing System project will adopt Agile and Scrum methodologies to establish a collaborative and dynamic quality control strategy. Continuous assessment of the product's quality will be performed, with regular improvements implemented. All quality control measurements will be collected and tracked on a shared platform in real-time. The team will collaborate to address any issues and drive necessary enhancements.