MUSTANG BANKING CONSOLIDATION PROJECT

PROJECT QUALITY MANAGEMENT PLAN

Version 1.1

Date: 10/31/2021

VERSION HISTORY

Version #	Implemented By	Revision Date	Approved By	Approval Date	Reason
1.0	Yash Katariya; Siddham Sharma	10/30/2021	Aaron Holle	10/30/2021	Draft of the plan
1.1	Harsh Chaudhari; Aaron Holle	10/31/2021	Aaron Holle	10/31/2021	Formatting, Finalization of the document

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1 INTRODUCTION

1.1 PURPOSE OF THE PROJECT QUALITY MANAGEMENT PLAN

The Project Quality Management Plan documents the necessary information required to effectively manage project quality from project planning to delivery. It defines a project's quality policies, procedures, criteria for and areas of application, and roles, responsibilities and authorities.

The Project Quality Management Plan is created during the Planning Phase of the project. Its intended audience is the project manager, project team, project sponsor and any senior leaders whose support is needed to carry out the plan.

2 PROJECT QUALITY MANAGEMENT OVERVIEW

2.1 ORGANIZATION, RESPONSIBILITIES, AND INTERFACES

Name	Role	Quality Responsibility
Aaron Holle	Project Manager	Create test strategy and set boundaries for the testing process
Harsh Chaudhari	Team Lead	Develop tools and techniques to support and monitor product quality
Siddham Sharma	QA Engineer	Responsible for script creation for automated testing and work on high-level as well as low-level testing
Yash Katariya	Test Architect	Create test infrastructure and select tools for auditing modules and processes

2.2 TOOLS, ENVIRONMENT, AND INTERFACES

Tool	Description
Pareto chart	With a combination of bar and line graph, it can used to identify the major factors contributing to the system's problems. For instance, in the web application if the single sign-on is non-responsive, then it could block the work of the associated 50 web apps that are in use at Mustang Bank.
Check sheet	Used to identify the defect pattern and errors in the process. Through check sheet, frequency of a particular issue can be identified in the project for quicker resolution of major issues.
Scatter Diagrams	Used to identify the relationship between quality defects and their probable causes can help modify process to better deal with the source of the problem.
Control Chart	Used to identify the stability of a particular module or process in the project, it can be leveraged to identify resource consumption and process performance of the application. For instance, Mustang Project web application, there could be an acceptable latency in data retrieval from database and if this latency changes, control chart could be used to determine if changes should be done on the underlying process.
Benchmarking	Benchmarking of various previous relevant projects to be taken into account while creating the quality plan to estimate the progress and later on solidify the results of the quality of project work.

3 PROJECT QUALITY MANAGEMENT

At the highest of levels Quality Management involves planning, doing, checking, and acting to improve project quality standards. PMI PMBOK breaks the practice of Quality Management into three process groups: Quality Planning (QP), Quality Assurance (QA) and Quality Control (QC). The following sections define how this project will apply each of these practice groups to define, monitor and control quality standards.

3.1 QUALITY PLANNING

4Chap consulting will gauge the quality of the project using various tools, techniques and standards that can help establish a process through which the client can have more faith in the deliverable. The quality will be broken up into 3 different perspectives that will include, Quality of security, Quality of front end, Quality of backend. These 3 perspectives will be further broken down and elaborated upon in 3.1.2 Section.

Quality of Security: All the websites to be developed using the HTTPS standards, the backend database access to be provided to only 2 stakeholders and will require 32-bit hash encrypted passcode files. All the data that will be transferred over the clouds will be encrypted as well.

Quality of Front End: The Frontend (App and Website) will be tested on the following parameters:

- **Content:** All the content on the frontend will be tested against the Flesch Reading Ease Test and the score should be above 75

- **Services**: Frontend to follow and comply by WCAG 2.0 Standards

Quality of Backend: The backend of the system will be passed through various test cases/scenarios that the development team and client team will work together to identify and formulate. Along with it, the codes must pass through SonarQube to hold utmost coding quality standards. Also, periodic stress testing of the database with various loads to be done in order to track the performance of the database.

These tests and standards will be complemented by the ones listed in section 2.2 at a WBS and Milestone level.

The tools and techniques to measure the quality will be used before the UAT of each milestone once the phase is about to go live. At the same time, each task in the work break down structure will have its own due date before which those tasks will have their own set quality checks.

The overall implementation of quality planning will be governed using the **Quality Circle QM Methodology**. In this methodology the team would regularly meet-up, use the issue tracker to identify, analyze and solve problems. As the team is a lean team, it works perfectly. There will be full visibility of the issues to the client and will involve all the team members' input. Although the final implementation will be the owner's decision.

The broad quality expectations from the deliverables are listed down below:

Expected Functionality:

- Apps/Website: Users will use the SSO functionality to the websites and apps and with different roles, and permissions should see relevant content.
- Reports: Must consolidate the data across the apps that the user uses and then provide a metric level analysis of the performance of each user. The Report should be able to filter for the apps as well and must have appropriate granularity.

Performance requirements:

- Apps/Website: Each of the apps/websites will be logged in through SSO and the notification for Dual factor authentication should come in under 2 seconds. Also, the active session should last for 2 hours while inactive sessions for more than 10 mins should be terminated.
- Reports: The reports should be generated on weekly basis and should be available every Thursday Morning 8:00 AM on dashboards, while by 12:00 AM, an email notification and summary of user performance must be sent.

System outputs

- Apps/Website: SSO notifications to the users, Failed/Suspicious login attempt notifications
- Reports: Downloadable reports; Email summary of the reports to upper management

Reliability requirements

- Apps/Website: Downtime of system to be less than 1 hour per quarter per website
- Reports: Accurate data collected for the week; metrics correctly calculated

Maintenance requirements

- Apps/Website: To be up-to 1 hour per quarter, and should not be a full shut down
- Reports: The backend report maintenance to be only done when a ticket is raised, unless it should have 24*7 availability

3.1.1 Define Project Quality

Following is the list of tests/standards to be used to define project quality:

- **Overall System:**
  - **App/Website:** Must allow correct access to the correct user and be secure enough to deliver the same
  - **Report:** Should be created using the metrics that the development team and the client team has aligned to
  - **General**
    - Pareto Chart: Periodically conduct Pareto Chart analysis resolve the 80//20 issues
    - Check Sheets: To be updated after every WBS is ready and must be cleared off before the milestone starts
    - Issue log list and IT tickets: Should be under 10 per week and decrease as the operations enter steady state
    - System Downtime should be under 1 hour per quarter
- **Security:**
  - HTTPS standards for all the apps and websites
  - 32-bit Hash encrypted passcode for all admin level logins
  - Role level privileges
  - Less than 5% broken authentication per user per year
- **Front-end:**
  - Flesch Reading Test score should be higher than 75
  - WCGA 2.0 Standards must be followed
- **Backend:**

- SonarQube testing of each code
- SSO two factor Authentication to be implemented
- Quality check notebooks to be created for Application Usage Dashboard data
    - Must compare Raw, Processed and Output data
    - Email summaries to be accurate as per the dashboard

3.1.2 Measure Project Quality

The Overall project quality will be measured using the number of issues that the users log in during the UAT along with the tickets that the client generates during the maintenance phase.

To facilitate this, an issue tracker will be created that would consist of the following list of data points:

- Issue type: Can include Technical, Business, Resource
- Identifier: Autogenerated ID
- Timing: When the issue was faced, when it was logged in, how long it persisted
- Description: Provide Details of the issue
- Priority
- Assignment/Owner
- Target Resolution Date
- Status

3.2 QUALITY ASSURANCE

Quality Assurance will be provided by matching certifications once the global quality standards are met. Along with it, weekly GIT repository for backend codes to be maintained and the client will be given access to look at the code logics, QC notebooks and to be invited to UAT for an extensive testing of the implementation of the milestones. Along with these, acceptable access to the redacted documentation repositories will be provided to the client.

3.2.1 Analyze Project Quality

The Project Quality data will be primarily collected using Pareto Chart, Check Sheet, Issue Log, and control sheet. These will be analyzed to identify the root cause of issues, prioritize them and allocate an expected time to resolve by the owner.

Along with the analysis, thorough documentation on how the resolution was implemented, tested will be maintained to help improve the turnaround time of similar issues in the future.

3.2.2 Improve Project Quality

Following are the initial consideration to improve the current system quality in major

App/Website logins: The SSO proposed just requires user credentials. This could be improved by

Reporting Data:

- Currently the reporting data that is collected through the various website is not correlated and must pass through Kafkaesque IT department reviews that doesn't promote quick consolidation. These tasks will be directly linked to a hash key that will connect it to the user login thus reducing the overhead of These will reduce the overhead on the database usage for multiple long queries and the effort to combine them
- Also, a CDL will be implemented at enterprise level to allow ad-hoc request to improve the performance and turnaround time for Upper Management data requests

3.3 QUALITY CONTROL

Defect Management

In order to validate deliverables or determine any necessary reworks regular quality checks will be performed by both team leads and project managers. Prior to large progress checks involving all teams, team leads should perform the quality checks outlined in this document on all relevant deliverables. If the deliverables are validated that can be reported to the project manager, if a rework is required, a plan to solve the quality concerns must be developed prior to any project-wide progress meeting. The plan presented to the project manager must include follow-up check-ins and reporting of the remedied deliverable. Once the deliverable has been reworked to a satisfactory level, a reflection must be performed to ensure that the root cause of the defect is identified and a plan to prevent further defects from the same cause from occurring.

Assumptions

Type	Sr no.	Assumptions
Resource	1	Trained resources will be assigned to the project and will be guided by the seasoned members.
	2	The team will have the appropriate number of Developers, UI/UX Designers, Testers to balance the team.
	3	Exhaustive Automated Test Suites will be executed to provide the coverage for each use case. The results will be captured and put on the common SharePoint.
	4	The contract with the vendors is final and binding.
	5	The feedback gathered from the users and the beta testers will be carefully assessed and incorporated in the subsequent iterations.
Budget	1	The project will be successfully accomplished within the approved budget of $120,000.
	2	The maximum hardware, infrastructure and leasing costs will be $50,000.
	3	Licensed software’s should cost within $10,000.
	4	R&D and user training will cost up to $25,000.
	5	Employee Salaries, staff and contractor fees will cost up to $35,000.
	6	Other costs including travel and currency conversion expenses will be covered within $10,000
Scope	1	Scope Creep will be avoided by well-defined requirements and planning. Boundaries of the project will be clearly delineated. Every change and ad-hoc requests will have to be formally approved and documented and should be routed through change management team.

Technology	1	Tools and Technology used for the consolidation project should be latest, stable and in compliance with the established security standards of the organization.
	2	Vulnerabilities in the system architecture will be detected, assessed, and addressed during development.
	4	Sufficient data storage and infrastructure would be available for the entire team.
	5	Elaborate wireframes, mockups, prototypes, and UML diagrams should be put on a common share point link along with the correct documentation.
	6	Continuous Integration and Continuous Delivery (CI/CD) will be enabled for developers.

QM constraints

Sr no.	QM constraints
1	Lack of skilled resources can affect the quality of the project.
2	Unavailability of the resources may lead to delay in delivering the key milestones of the project.
3	Insufficient budget allotted to the quality control measures.
4	Less number of people authorized to perform the quality assurance and management tasks.
5	Inappropriate technological components i.e., software, hardware, storage, and infrastructure may hamper the quality of the delivered system.
6	Lack of exhaustive penetration testing may let vulnerabilities go undetected and expose system to security attacks.
7	Trivial Disaster Recovery and Risk Management plan can exacerbate the impacts of the unexpected and unknown threats.

Appendix A: Project Quality Management Plan Approval

The undersigned acknowledge they have reviewed the Mustang banking consolidation project **Project Quality Management Plan** and agree with the approach it presents. Changes to this **Project Quality Management Plan** will be coordinated with and approved by the undersigned or their designated representatives.

Signature:	Aarone Holle	Date:	10/31/2021
Print Name:	Aarone		
Role:	Project Manager		
Signature:	Harsh Chaudhari	Date:	10/31/2021
Print Name:	Harsh		
Role:	Team Lead		
Signature:	Siddham Sharma	Date:	10/31/2021
Print Name:	Siddham		
Role:	QA Engineer		
Signature:	Yash Kataria	Date:	10/31/2021
Print Name:	Yash		
Role:	Test Architect		

Appendix B: References

The following table summarizes the documents referenced in this document.

Document Name and Version	Description	Location
Web application testing checklist	Consists of the list of tests that can be performed on the application	https://nmgtechnologies.com/blog/web-application-testing-checklist.html *(Section 3.1)*
WGCA standard	Accessibility standards and guidelines	https://www.w3.org/WAI/standards-guidelines/wcag/ *(Section 3.1)*
Framework for a global quality evaluation of a website	Paper referring to the various global practices	Álvaro Rocha, (2012),"Framework for a global quality evaluation of a website", Online Information Review, Vol. 36 Iss: 3 pp. 374- 382 *(Section 3.1)*

Content testing tools	List of content testing tools for website	https://prosandcontent.knotch.com/posts/content-testing-tools *(Section 3.1)*
SonarQube	Code testing platform	https://www.sonarsource.com/ *(Section 3.1)*
Project Issue Management	Issue tracker specification document for IT projects	https://www.mindtools.com/pages/article/newPPM_69.htm *(Section 3.1.2)*

Appendix C: Key Terms

The following table provides definitions for terms relevant to this document.

Term	Definition
PMI	Project Management Institute
PMBOK	Project Management Body of Knowledge
WCAG	Web Content Accessibility Guidelines
WBS	Work Breakdown Structure
UAT	User Acceptance Testing
SSO	Single Sign On
GIT	Global Information Tracker