Team 16

NGO Information Management Suite 1.0

Software Quality Management Plan

Overview:

Software Quality Management Plan for NIMS 1.0 describes various quality measures

Audience:

Developers

Client

Revision History:

Version	Primary Author(s)	Reviewed By	Date Completed
1.0	Surbhi Jatan Jesal	Megha	9TH April 2012

Table of Contents

1.0 Introduction:

Quality Management Plan is an integral part of any project management plan. The purpose of the Quality Management Plan is to describe how quality will be ensured throughout the lifecycle of the project. It also includes the processes and procedures for ensuring quality planning, assurance, and control. All stakeholders should be familiar with how quality will be planned, assured, and controlled.

Quality management is an important aspect of managing a project because it ensures that project objectives and deliverables are met in accordance with some formally documented standard of acceptable quality. Without this, there would be no governing document or process by which to measure or assess project quality and deliverables would be not as the user expects even if it meets all basic functionalities of the system.

2.0 Roles and Responsibilities:

Different members of the entire team are assigned a role responsible for quality management of the project. In this way entire project development team plays significant role in QA of the project.

Following are the roles and responsibilities for our team:

Roles	**Responsibilities**	**Member or group associated**
Project manager	The Project Manager is responsible for the implementation of the Quality Management Planning as well as ensuring all products, processes, and documentation adheres to the plan. He will work with the Quality Manager to ensure that quality standards are established at all levels in all areas of the project.	Aakash Solanki
Quality manager	The Quality Manager makes recommendations for processes, tools, methodologies, and standards of quality. He also assists the Project Manager in monitoring all project activities in accordance with the established quality standards. For our work it may be the standards like ease of use and improving the efficiency of system on both Android side as well as NGO management system side.	Lalit & Anshul

Project team	Project team members (analysts/product managers, developers, testers, and deployment team members) participate in the quality assurance and control process and discuss how to bring forth a good quality product, which works best for the client in minimal cost.	SEN Team 16, B.Tech 2009 batch
Project sponsors	The Project Sponsor is the approval authority for the NIMS project. The Project Sponsor is responsible for approving all established quality standards for the project	Investors and client
Design engineer	The Design Engineer is responsible for building quality standards into all product designs required for the NIMS project	Lalit & Anshul

3.0 Quality Management Approach:

Quality has to be planned into a project in order to prevent unnecessary rework which leads to a waste of time and cost. Quality can be considered from the process perspective as well as from the product perspective. The quality management approach adopted for NIMS is defined by three main activities:

Quality Assurance – This part of quality management pertains to the processes involved in the execution of the project. The purpose of quality assurance is to make sure that project processes maximize efficiency, minimize waste, and accomplish the successful delivery of a product that meets or exceeds the established quality standards.

Quality Planning – This activity involves selecting the suitable procedures and standards from a defined set of procedures and standards for a specific project.

Quality Control – This activity consists of enactment of the processes that ensure the software development team has obeyed the project quality procedures and standards.

3.1 Quality Assurance:

Quality assurance (QA) refers to the planned and systematic activities implemented in a quality system so that quality requirements for a product or service will be fulfilled. It is the systematic measurement, comparison with a standard, monitoring of processes and an associated feedback loop that confers error prevention.

Steps in quality assurance:

- Define “software quality”.

- Identify the set of activities that will ensure the achievement of the defined software quality.

The activities would filter out errors of work products before they are passed on.

3.2 Software Quality:

The quality of software is assessed by a number of variables. These variables can be divided into external and internal quality criteria. External quality is what a user experiences when running the software in its operational mode. Internal quality refers to aspects that are code-dependent, and that are not visible to the end-user. External quality is critical to the user, while internal quality is meaningful to the developer only. Some quality criteria are objective, and can be measured accordingly. Some quality criteria are subjective, and are therefore captured with more arbitrary measurements.

The table below lists the most obvious software quality criteria for our project:

3.2.1 EXTERNAL

Quality	Description	Measurable
• Features	• Providing all needed services/functionalities	• Yes
• Speed	• Quick access time (both sides)	• Yes
• Space	• Disk space occupied	• Yes
• Network usage	• Bandwidth and latency	• Yes
• Stability	• How often patching happens to fix problem?	• Yes
• Robustness	• Stable, freeze, or crash	• Somewhat
• Ease-of-use	• User friendly	• Yes
• Power	• Mainly for android	• Difficult

consumption	based devices	
• Repeatability	• Same result for same input	• Yes
• Back- compatibility	• New version with older version	• Yes

3.2.2 INTERNAL

• **Quality**	• **Description**	• **Measurable**
• Test coverage	• What is the proportion of code that is executed by some unit or regression test?	• Yes,
• Portability	• Run in smoothly on multiple OS, mobiles, all web browsers	• Yes
• Maintainability	• Debugging code, fast to provide a fix, understanding for a new developer	• Hard
• Legibility (readability of code)	• Commenting the code to provide its better understanding	• Subjective
• Scalability	• Extend features, add new features	• Subjective
• Testability	• To trigger any LOC or branching condition in code	• Hard

The task includes:

- Audits
- Verification & Validation
- Inspections & Review

3.3 Audits:

- Team members will have a report on their individual performance in every meeting (2 meetings per week). Any problems, question regardless on the performance of other team members will be also noted there.
- Members will write their daily work including hours in a document. And they also share among other members.
- Any changes that will affect the project will be presented to other team members before doing any changes. These are the changes that are minor or require little code change or change in any documentation.
- The client should be notified of all changes made. For minor changes, we will just notify a reprehensive from the client instead of the whole team from the client.
- This rule only applies to the minor changes or cosmetic changes, or minor functional changes. Any major functional change will still require the agreement from the client side.
- A changed version will also been carefully recorded. That included the copy of the project before and after the changes. And noted on the document that what kind of change will be making on where and by whom.

3.4 Verification & Validation:

In every project, as it continues it is necessary to keep control of the processes, in terms of time, quality and cost. Here we will discuss how team 16 has tried to keep a check on these to ensure a good quality in stipulated time.

The coding phase started around 1 March, where the team members were not in college, and hence it was pre decided as to who will do what tasks which were shared among all.(through Gmail and Bitbucket, when code works properly) The codes were verified by running on the web platform and android emulator as and when written, by the author and also the particular sub team member.

Prior to the coding phase, the requirements were understood clearly by 2 meetings with the client, by 3 team members, and a few more by the team leader. The questions to be asked and clarified were shared by all members to ensure it is complete.

We have tried to verify and validate for completeness and correctness of all documents (all documents shared on Google Docs) and the features in the web platform as well as

the Android application. To ensure higher quality, the documents are verified at least thrice, and application is run by all team members apart from field testing with client.

3.5 Inspection & Review

We made team of some members for reviewing documents such that each team consists of people who are not the main authors and one among the authors, to clarify doubts of reviewers that need not be discussed with the whole team.

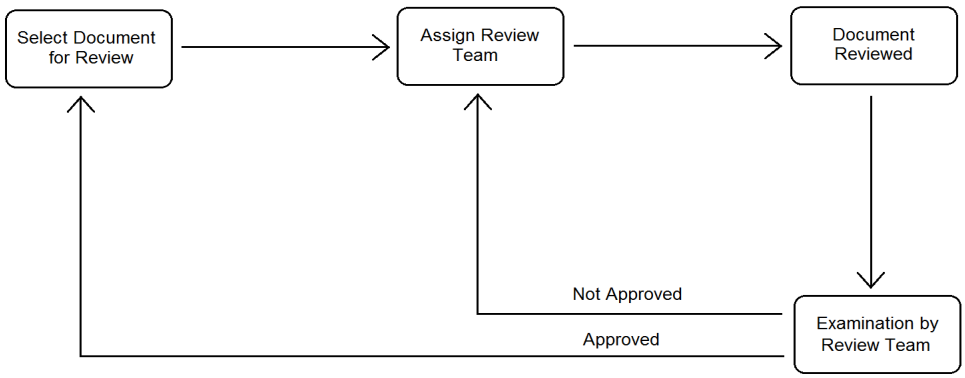
The following reviews have taken place till now:

- Project Plan Review
- Feasibility Report Review.
- SRS Review
- Design Document
- Risk Management Plan

3.6 Quality Control:

To exercise quality control for NIMS, the approach of quality reviews is adopted. Quality reviews are conducted by a person or a team of people to examine documents and software for any potential problems or errors. The different types of quality control activities undertaken are:

Quality Review for Documents:

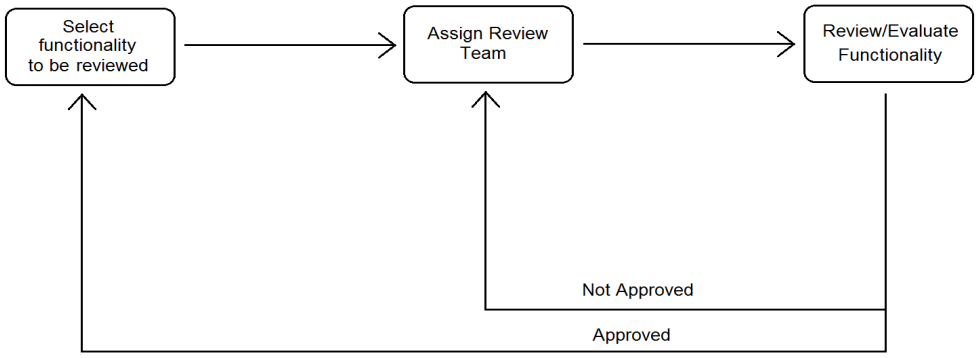


When a document is selected for review, a review team is assigned to that document which performs a quality review of the document. The factors a document is checked for

are: - completeness, correctness, easy to understand and ensuring there is no ambiguity.

After review, the team then undertakes an examination of the document to discover any problems. If the document is approved, then another document that needs reviewing is selected. If the document does not get an approval, then it is again assigned a new review team which carries on with the review process as shown above.

Quality Review for Software:



When a software tool or functionality is selected for review, a review team is assigned for it specifically. This review team reviews and evaluates the software to discover whether the software tool or functionality is operating as desired or not and whether the software shows any errors in functioning or not. If the software tool or functionality is approved, then another software tool or functionality is taken up for review. If it is not approved, then a new review team is assigned which repeats the same review process as shown above.