

Problems in Software Quality Assurance and Reasons

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Abstract

This paper is aimed at highlighting the problems which has been faced by the project managers as well as the companies regarding the quality assurance. It has been seen that people do not pay much attention towards the quality assurance issues and thus eventually end up with wasting their money as well as time. That's why it is important to make sure that the project meets the quality requirements.

Keywords: *software quality, Quality Assurance, software problem.*

1. Introduction

Software Quality Assurance (SQA) aims at monitoring the software engineering processes to ensure quality of the software. Quality has also been added in the triple constraints of the software development which includes time, scope and cost. Now it is known as quadruple constraint as quality has also been added to it. Multiple testing standards are available which have their own pros and cons. The researches for the testing standards are ongoing and are also highly important for the software development companies as this helps them in choosing the right standard for their company which suits their software requirements and fulfill their needs.

Research should be conducted to evaluate these testing standards and provide them with more improvements and amendments as this can help the companies for developing more quality software. The software companies are itself the stakeholders along with the clients and the sponsors. The sponsors and the clients want their software to meet all the four constraints which are time, cost, scope and quality. If the software does not fulfill the client's quality criteria then it is of no use and eventually ends up producing nothing. The software industry is the host for software quality assurance.

2. Background

Most people simply accept the poor quality software from the Information Technology products. So what if your

computer crashes twice a day? You simply backup your files. So what if you are not able to log in to your corporate intranet or internet? Just try after sometime when there is less traffic. Is this the solution? No! This shows the bad quality software which lacks in providing the features.

2.1 Timing Difference Quality Issue

In 1981, a small timing difference caused by a computer program change created a 1 in 67 chance that the space shuttle's five on-board computers would not synchronize. This error caused a launch abort. This real life example shows that how much it is important to ensure the quality of the project. (Dong, 1984)

2.2 Fatal Doses of Radiations

In 1986, two hospital patients died after receiving fatal doses of radiations from a Therac 25 machine. A software problem caused the machine to ignore calibration data. This does not seem like a little problem. This shows how a little problem in software can cause major problem. Similarly Britain's Coast Guard was unable to use its computers for several hours in May 2004 after being hit by the Sasser Virus. So it is highly necessary to maintain the quality of the software in order to avoid future problems. (Jones, 2011)

3. Problem Statement

The problem which has been faced in most of the software projects is due to the lack of quality. The developers do not pay much attention towards the quality assurance of the projects and thus face the difficulties in the future. The project either results as a failure or create much problems in future which eventually lead to a bigger problem.

4. Factors Influencing Success of the Projects

Many factors influence the success of the project. Cost, time and quality are the factors that influence the success of the project. If these triple constraints of the project are met then it is way easy to make or declare a project successful.

To construct the customer relation management system it is highly important to first analyze the issues the business is facing right now at the current time and then gather all the requirements for the new system. It is impossible to build a system if its requirements are not well known.

5. High Profile Projects' Failure – Reason “Lack of Quality”

Below are some high profile projects examples which lead to the project failure because of lack of project quality. One important thing which is to be noted that quality does not merely means that the project works fine.

There are a number of factors like the meeting the satisfaction needs of the clients, fulfillment of the requirements which include functional and non-functional requirements and also other important factors like long term maintenance. There are a number of bench marks across which the project is tested in order to see whether it fulfills the needs or not. (Muneo Kitajima, 2012). It is true that developing a project is easy but developing it within the budget, scope and requirements is different. As all these factors combine to form a complete quality project.

5.1 Huntington Bancshares, Inc.

A very best example of this high profile project is the Huntington Bancshares, Inc. (Schwalbe, The Importance of project phases and management reviews)The CIO of this company Joe Gottron said that there were “four or five very intense moments” when everyone was seeing this project as a major failure just because of its complexity.

5.1.1 Problems faced by Huntington Bancshares, Inc.

- The project developers decided and selected a technology which was complex enough but later it was discovered that it is not applicable in the real world thus resulting in a lot of wastage of time and money.

- They never prioritized the user requirements and a lot of trouble was created at the time of project completion. The problems should be categorized in the following categories:
 - Must have
 - Should have
 - Could have
 - Would have

5.2 Jordan Telecom (JT)

Another very interesting case is of Jordan Telecom (JT). It is Jordon’s only telecom operator. They were having a lot of problems regarding the project management criteria. As it was not possible for them to set the results according to the client’s benchmarks but later it turned out to be a success.

They managed a number of ways later to process the model in an effective way. JT developed a three lines of processes based on the size of the project. (Douz_Korned)

JT used the models of project development and also found ways on how to develop a customized design for the project and its development.

5.2.1 Problems faced by Jordan Telecom (JT)

- The managers did not consult with the clients and stakeholders which then lead to problems like the system does not produce the expected results and cause a lot time and money wastage.(www.bleuphish.com)
- The managers or developers assumed the requirements. The developers should ask the customers about what they are expecting from the system. Mostly the clients are not well aware of what they want from the system. The developer should help the client in conveying the requirements of the system in an effective way. They should ask the client about the requirements instead of assuming the requirements.
- The developers started to solve the before even knowing what exactly the problem is.

6. Reasons for Benchmark Failure

There are a number of benchmarks developed to maintain the quality of the projects. These benchmarks are actually the quality standards which help in understanding the current status of the project in terms of quality. Theses benchmarks make sure that the project is according to the quality standards or not.

At times these quality standards are also unable to check the standard of quality of the project. There are a number of reasons for the benchmark failure. Project managers play an important role in ensuring that the project is up to the mark and fulfills all the quality measurements.

6.1 Non-Termination of Failure Projects

It is the project manager's duties to terminate such projects which are most of times in lose but some managers' start to invest more money and resources in order to prove that the project is a success.

The project managers should view all the past and future outcomes of the project in order to decide whether to continue the project or terminate it. If the project managers have these three psychological factors which are information biasing, reinforcement and self justification then it is more likely to continue the project and make it a success.

Some project manager's terminate the projects because they don't want to expose their mistakes in front of others or they have lost all the hope. Lack of managerial support and insecurity of job even forces the managers to terminate the projects instead of investing more. It merely depends upon the managers' nature. If they have strong leadership qualities then even after great failure they continue with the project and eventually make it a success.

6.2 Lack of Vision

It is not necessary that the project vision remains the same from the very start. Sometimes the managers are not even sure about what they are going to develop. The project sometimes takes turn and to assure its success the managers need to take decisions which in turn results in change in the vision of the project.

Sometimes in order to fulfill the demands of the stakeholders, clients and sponsors it becomes really important to change the vision of the project in order to meet their goals and satisfy their needs.

The stakeholders are at times so interested in the success or progress of the company instead of the organization thus resulting in changed project vision to attain the company's specific goals instead of the overall goal for which the project was basically developed. The changed vision statement should be communicated to the team members in a very good way with some strong facts and figures. (Patil, 2011)

7. Conclusions

Now-a-days software developers are not paying much attention towards the quality of the software products. This attitude could lead to them to the road of failure and would eventually result in the wastage of time and money both. In order to highlight the importance of quality assurance there should be a separate department to carry out the quality assurance methodologies to each information technology projects.

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