

SOFTWARE STAKEHOLDER MANAGEMENT-

It's not all it's coded up to be

BY ROBIN DUDASH, CQManager, CQA, CQE, CRE, CSQE, QS-LA

Innovative Quality Products & Systems, Inc.
934 Whitestown Road
Butler, PA 16001

Abstract

Quality software is typically defined as 'defect-free' code. However, a more inclusive definition is meeting customer expectations, which is accomplished through applying a project stakeholder management model.

Robin Dudash has 18 years experience in computing from business mainframes, client server, to real-time process control platforms. Through her successful project management she has led major capital expenditures budgeting in excess of \$2 million. Some of these projects were fully automated control systems and contracted to attain 99.9% system reliability.

Ms. Dudash has been a Senior ASQ member since 1994 and the ASQ Pittsburgh Education Chair for the last seven years. She has also taught the CSQE Refresher course based on the ASQ CSQE BOK (<http://www.asq.org/cert/types/csqe/bok.html>). This course has realized a pass rate of 95% for the last 5 years, and is now available on-line.

Ms. Dudash currently owns her a company - Innovative Quality Products and Systems - that conducts consulting for ISO/QS/TE-9000 quality system development, training services and internal quality auditing. She is also a subcontracted Lead Assessor.

Robin has degrees in Computer Science and Applied Mathematics, and an MBA, concentrating in finance, from the University of Pittsburgh. Ms. Dudash holds CQManager, CQA, CQE, CRE, CSQE, QS-LA, and QS-9000 certifications. She may be contacted at www.iqps.net.

The Project

It was time for the Project Team's unveiling of the new software system. A year had passed since they were first commissioned to develop a new order entry system. The Project Team was especially proud of the work they had done. They worked hard to make sure that the project was done on-time, on-budget, and performed exactly as they thought everyone said that it needed to function. "We finally did things right this time," said the Project Manager. Everyone was sent to the application's training class to learn how to use the new system. Today was the day for the new order entry system to be used by those who had been trained.

On the other hand, the Sales Representatives did not understand why the order entry system had to change; the old one worked just fine. The first anxious Sales Representative sat down at the sophisticated new computer station to enter the first order, and said, "This is too complicated. I can't use this!" Another Sales Representative picks up the rhetoric and says, "Yes, this will never do!" The Sales Department swells with groans of frustration. A concerned Sales Manager hears the complaints and thinks about all the money spent. The Sales Manager glares at the Project Manager and says, "This isn't what I wanted! This will never do!" These are the very same people trained a month and a half ago. The Project Team feels betrayed. How could they do this to people who have worked so hard to get them what they wanted?

The story may be exaggerated (just a little), but haven't we all heard of or been a part of a project like this in our lifetime? Unfortunately, some of us have been the user, the proud team member, the trainer, and yes, even the one that will take the fall – the Project Manager.

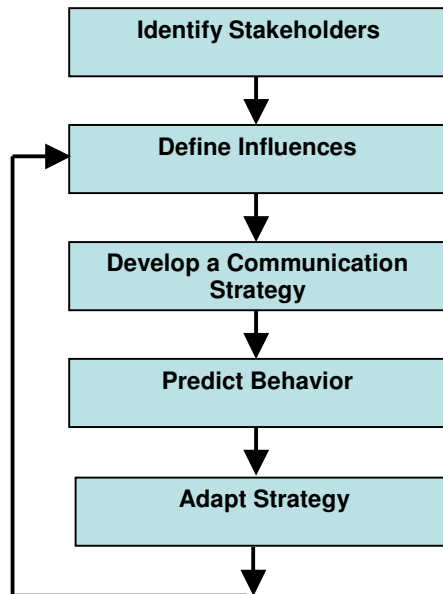
Project Stakeholder Process

This Project Manager failed to realize that not only is s/he responsible for delivering the software system, but is also responsible for managing stakeholder expectations. Perhaps not even realizing who are software system's stakeholders is the first mistake. We must recognize that "software stakeholders" extend beyond just the user.

A formal project stakeholder process assists in the:

- identification of these stakeholders;
- definition of their specific stake in the project;
- development of a communication strategy to specifically address stakeholder interests;
- prediction of stakeholder behavior to analyze project impact;
- and, adaptation of this strategy in the project implementation.

Project Stakeholder Process



Identifying Stakeholders

There are many 'software stakeholders' to be identified for a project. To identify all of the current and potential stakeholders, let us examine how software quality might be characterized with respect to stakeholder expectations. A typical software quality attribute and expectation is the lack of defects. However, this is a very narrow view of software quality. A more comprehensive view is defined by IBM, which measures the ability of its software products to satisfy CUPRIMDSO quality attributes -- capability, usability, performance, reliability, installability, maintainability, documentation/information, service and overall. Quality attributes such as these are what Juran called quality parameters for 'fitness for use'.¹ Subsequently, a software product that was thoroughly tested and "bug free" may not meet current (or even future) stakeholder (customer) expectations, such as easy to use, short response time, and easy to change, resulting in dissatisfaction.

Looking at this broader definition of software quality, the Project Manager in the project described can identify all of the "stakeholders" -- the Project Team, the Software Supplier, the User Department, and the IS Department Manager. Each of these stakeholders has a different reason for having an interest in the software system, which influences their behavior. Management of these "stakeholder interests" is referred to as Stakeholder Management. While this is important in every project, it is especially important for software development where the deliverables are not as tangible as constructing a building.

Identify Behavioral Influences

Projects are developed in an organizational environment within a company, consisting of functional departments with organization goals and objectives. These goals and objectives

¹ Stephen H. Kan, Metrics and Models in Software Quality Engineering, (Addison-Wesley, 1995), pg 5.

evolve as the organization reacts to market and other environmental impacts. Project managers need to identify and interact with key organizations and individuals within the project systems environment. This management process is necessary to determine how the stakeholders are likely to react to project decisions, what influence their reaction will carry, and how they might interact with each other and the project manager to affect the chances for project success. The impact of project's strategy and decisions on all the stakeholders must be considered in any rational approach to the management of a project.² The following Stakeholder Management Model is depicted for the described Order Entry project:

Stakeholder Management Model

Stakeholder	Behavior Influence/ Interest	Reason
Project Manager	Ultimate responsibility of the project execution and deliverables	Personal credibility
Project Team	Responsibility for completing assignments	Job performance Personal credibility
IS Manager	Ultimate responsibility for fulfilling the business need Responsible for maintaining the software in the future	Departmental worth
Sales Representatives	Responsibility for using the software to service customers	Job performance
Sales Manager	Ultimate responsibility for fulfilling business goals	Affects ability to service customers
Software Supplier	Responsibility for fulfilling requirements	Payment (commission) Future sales performance

² D. I. Cleland, Project Management-Strategic Design and Implementation, 1st ed., (TAB Books, 1990), pgs 94-95.

Develop a Communication Strategy

Once the stakeholders are identified and their interests understood, the most important activity as a project manager is to define the project goals, scope and end results. While organizational goals may have initiated the project, these goals may not have considered all of the stakeholders. The project manager must revisit the project deliverables with all of the stakeholders, and process the information received from the stakeholders. This understanding must then be articulated back to the stakeholders to obtain definition and agreement. In all cases, this definition and agreement must be documented.

Not only are these goals, scope and end results established at the start of a project, but they must also be communicated throughout the project lifecycle. Again, a project is developed in a dynamic organizational environment. The project manager must manage stakeholder expectations by listening to current business needs, addressing any yet unstated stakeholder requirements, and adjusting project deliverables to address those needs. What was perceived as a need a year ago when the original goals and scope were defined may not be what is needed now.

The project manager must also be sure that the project owner, the IS Manager in this case, is clear on project goals and objectives. The IS Manager can assist in managing business requirements, acquiring additional resources to meet changing needs, and breaking down organizational barriers to success.

With clear goals and objectives, the project manager also can direct the project team towards the agreed upon requirements. Given the most talented people in the company on the project, the Project Team still cannot reach the goal without a clear target.³

The goals and objectives must also be communicated to the end users of the software. In return, the project manager must listen to the needs and concerns of the users, and assure them that their concerns are understood. User 'buy-in' is key to managing their expectations. Methods to obtaining user 'buy-in' can include prototyping interfaces and conducting training early in the design phase to solicit user feedback. Obviously the more the user interface differs from the current system, the more resistance that will be expressed by the user. It is important to keep this aspect in mind when developing the end user communication strategy as it will mostly definitely impact their behavior.

If a software supplier is used, the project manager must also communicate goals and objectives to the supplier and make these part of the contract. In need of special attention, but often overlooked is the contractual training to be provided. Often, training is conducted once after the design is mostly complete, which may be too late to accommodate specific needs. Typical training provided by the software supplier is a 'show-and-tell' class, and may not address the users' deepest concerns, for instance 'How will I use it on my job?' While a good introductory class, this type of 'show-and-tell' class may present more questions for the users than answers, creating a stage for animosity. The project manager should use this opportunity to address

³ Paraphrased from W. A. Randolph and B.Z. Posner, *Effective Project Planning & Management*, (Prentice-Hall, 1988), pg. 16.

concerns and specific 'likes' and 'dislikes' to build a communication channel, and/or present actual user prototype screens as more focused alternative.

A second training class scheduled close to system startup should train users using actual examples. It has been my experience that the closer training is conducted to actual system startup, the more successful the startup. A few individuals may even need one-on-one training. Of course, user manuals as much as we like to keep them in the drawer should be part of the project as they also are part of the end user communication strategy, perhaps in the form of a quick reference written from the users' perspective. Of course, an ideal method of delivering user assistance would be an integrated on-line help, and throw away the manuals, but then this may not be cost-effective for smaller implementations. A widely distributed software application such as Microsoft Excel or Word would significantly benefit maintenance costs.

Thinking that all this training adds costs to the project? Yes, it does, however I have observed project after project which shortcuts training by not properly planning, and/or not soliciting user feedback costs 2-3 times their original estimate in the end (if there is an end). Without user "buy-in" throughout the project lifecycle, users will find every reason not to use the system, and the project will incur un-needed costs just to ease their complaints.

The following depicts a communication strategy based on quality parameters for the project manager to use with respect to each stakeholder:

COMMUNICATIONS STRATEGY									
Stakeholder	Capability	Usability	Performance	Reliability	Installability	Maintainability	Documentation/ Information	Service	Overall
Project Manager	Define and document agreed-upon goals Document agreed-upon changes Assess training needs for project team	Assess training needs for users Readability of user docs	Define and document agreed-upon goals Address 'likes' and 'dislikes' about current system Document system test plan	Agree upon software development methodology	Define and document installation plan	Define and document resource requirements for future growth	Re-affirm goals throughout project lifecycle Project status Obtain approval of milestones Assign work breakdown packages	Design for system expansion Assess training needs for system maintenance	Re-affirm goals throughout project lifecycle Keep a global awareness to changing needs Communicate project status Obtain approval of milestones Assume empowerment of project management Keep positive attitude
Project Team	Understand goals	Comply with development procedures	Comply with development procedures	Comply with development procedures	Comply with development procedures	Comply with development procedures	Comply with development procedures Project status	Comply with development procedures	Project status Keep positive attitude

Stakeholder	COMMUNICATIONS STRATEGY								Overall
	Capability	Usability	Performance	Reliability	Installability	Maintainability	Documentation/ Information	Service	
IS Manager	Agree upon goals	Define and document standard user-interface	Agree upon acceptance criteria for testing	Define and document software development methodology	Agree upon installation plan	Define and document software development methodology Define requirements for future growth Provide software maintenance tools and training	Agree upon acceptance criteria Approve milestones	Conduct project compliance audit Prepare for ownership and maintenance of the system Assist in developing relationship with Software Supplier for future maintenance	Project status
Sales Reps	Understand goals	Provide 'show-and-tell' training class early Provide user prototype entry screens for review Provide training using actual test cases	Understand expectations and use	Communicate project expectations	Understand installation plan	Anticipate expectations and future use	Project status	Prepare for ownership	Project status
Sales Manager	Agree upon goals	Invite a Sales Rep to represent the users on the Project Team	Understand expectations and use	Communicate project expectations	Agree upon installation plan	Assess 5 year business goals	Project status	Prepare for ownership	Project status

COMMUNICATIONS STRATEGY

Stakeholder	Capability	Usability	Performance	Reliability	Installability	Maintainability	Documentation/ Information	Service	Overall
Software Supplier	Agree upon goals Provide evidence of capability	Assign through contract review	Assign through contract review	Assign through contract review	Assign through contract review	Assign through contract review	Project status	Assist in developing relationship with IS Manager for future maintenance contract	Contract milestone progress payments Project status

Predict Behavior and Adapt

Based on an understanding of stakeholder behavioral influences and a communication strategy, the project manager can proceed to predict stakeholder behavior in executing a project. Stakeholders with a high-vested interest should be studied carefully by the project manager, and their strategies and actions noted to see what effect such actions might have on the project's outcome. Once the potential effect is determined, then the project execution should be modified through resource reallocation, replanning, or reprogramming to accommodate or counter the stakeholder's actions through the stakeholder management model.

For example, perhaps the Sales Manager takes the attitude that the department is too busy to provide input in accepting project deliverables. Offer to have the project status meeting in the Sales area, communicate the decisions that need only Sales participation, and provide a meeting agenda with a time-frame. If a Sales Representative on the Project Team is not possible, then negotiate that yourself and/or a project team member observe a Sales Representative's different situations. It is important to establish a communication channel with the end user department to establish their project ownership.

Effective Stakeholder Management → Stakeholder Satisfaction

A formal Stakeholder Management process ensures that multi-year projects which are subject to so much change are adequately managed. The typical reliance on informal or hit-or-miss methods for obtaining stakeholder information is ineffective for managing the issues that can come out of any type of project. By developing a Strategic Management Model for each project, the project manager has assembled adequate intelligence for the selection of realistic options in the management of stakeholders.

The body of knowledge for the Certified Software Quality Engineer (CSQE) recognizes that delivering quality software that satisfies stakeholder expectations is contingent on successful project management. Not only is the project manager responsible for the project definition and execution, but the successful project manager also accepts the responsibility for stakeholder management. In order to satisfy stakeholder expectations, their needs (stated and unstated) must be managed, and the ultimate responsibility is the project manager.