

Designing an IT Change Management Process for Mid-size Accounting Firms

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Accounting firms provide financial services, such as bookkeeping, tax returns, and audit services, for their clients. The Information Technology (IT) department within such organizations supports the firm by ensuring that critical software applications and necessary equipment are available and functioning properly. The lack of effective methods for managing IT system change control processes often results in unplanned downtime, security risks, frustration for the IT department, and compliance issues, which negatively impacts productivity, customer satisfaction, and bottom-line performance. To address these problems, this work describes how the Design for Six Sigma methodology can be used as an underlying framework to establish an IT change management process for mid-size accounting firms. This approach uses service blueprinting, user needs analysis, and affinity diagrams to design a process that fits the needs of the work environment. In addition, a survey of the literature provides additional content from this field, which can be used to create a generalizable framework for managing IT system changes in mid-size accounting firms.

Keywords

Design for Six Sigma, service processes, IT systems, change management, change control processes

1. Introduction

Accounting firms provide financial services, such as bookkeeping, tax returns and audit services, for their clients. The Information Technology (IT) department within such organizations supports the firm by ensuring that critical software applications and necessary equipment are available and functioning properly. Change management is a central IT control that is responsible for controlling and managing requests to change aspects of the IT infrastructure or service in order to improve organizational operations while minimizing the risk of disrupting IT services [1]. Many IT changes occur on a daily basis within organizations, including daily activities (such as installing, moving, adding and and/or changing hardware/software), new projects, enhancement projects, and maintenance activities. The number of change requests can range from 300/month for a small company to 10,000/month for a Fortune 500 company [2]. Problems that result from poor IT change management include unplanned downtime, security risks, compliance issues and frustration for the IT department, which negatively impacts productivity, customer satisfaction, and bottom-line performance.

Research suggests that 80 percent of unplanned downtime can be attributed to an IT system change [3]. Half of the time, this problem is the result of application failures, and the other half is caused by operator errors. Because companies are increasingly reliant on IT services, their potential failure represents increased risk for many organizations [4]. In fact, 40 percent of companies that suffer a critical IT system failure go out of business within one year of the event [5]. Furthermore, the Verizon Business 2009 Data Breach Investigations Report identified errors as a contributing factor in nearly all data breaches. According to the report, "Poor decisions, misconfigurations, omissions, noncompliance, process breakdowns and the like undoubtedly occur somewhere in the chain of events leading to the data breach"[6]. To address these issues, private companies can use "best practices" from the corporate compliance field to help protect owners' capital and shareholders' equity and to increase client confidence by having strong control functions, which signify the importance of quality, accountability and accuracy [7]. Yet, unmanaged changes can also cause frustration for the IT department. Research has shown that the attribute of the work environment most valued by service employees is being able to achieve results for their customers. Thus, having the necessary knowledge and tools available to do their jobs result in more productive staff and more

satisfied customers [8]. Many of these issues could be at least somewhat, if not greatly, improved through the use of an effective IT change management process.

Effectively managing IT system changes is challenging, as evidenced by change management being listed in the top ten IT issues of 2008 [9]. A 2008 poll suggests that IT organizations continue to struggle with the development of a change control policy that is consistently followed by the entire IT department [10]. Another study revealed that 60 percent of IT managers believe that their change control processes are not effective in communicating and coordinating changes in their production environments [1]. As recently as 2007, almost 50 percent of companies surveyed considered themselves at the “reactive” maturity level in the IT change management process [11]. At this level, organizations are coping with high risk changes, continuing to answer repetitive end user requests, and reacting to the same problem over and over again. Instead, organizations need to move to the “proactive” maturity level in order to provide higher system availability; yet, they cannot move to this level without implementing some method of change management [3]. To develop a solution to help address this issue, this work describes how the Design for Six Sigma (DFSS) methodology can be used as an underlying framework to establish an IT change management process for mid-size accounting firms.

2. Design for Six Sigma

The DFSS methodology is a structured approach for designing quality into service processes in order to meet or exceed customer expectations [12]. This method uses a disciplined set of tools to ensure that a quality service is provided to the customer beginning the first day the service is offered [13]. This methodology consists of a five phase process, which is known as DMADV (Define, Measure, Analyze, Design and Verify). The goal of a DFSS project is to translate customer expectations into design requirements and then evaluate and choose the best design alternative [14].

In the Define phase, the goals of the project are identified and a business case is developed. In this stage, project management techniques are used to create a project charter and develop a project plan for the design team that is aligned with the objectives of the overall organization [15]. During the Measure phase, the customer is identified and their needs are quantified. The customer’s expectations are obtained using research methods such as interviews and/or surveys. Using this information, the Critical to Quality (CTQ) features of the service process are selected and ways to measure how well the design fulfills the customers’ needs are established [13]. In the Analyze phase, techniques that foster creativity are used to develop several high-level, potential design ideas [12]. Prioritization tools are then used to choose among alternative design ideas and alternative designs are evaluated to determine the best overall design through focus groups and/or simulations. During the Design phase, a detailed design of the new service process is developed. In this stage, the Critical to Process (CTP) elements of the selected design are identified and the capability of the design to meet the established targets is assessed. Finally, the design team pilot tests the design of the new service process in the Verify phase. During this test, the new service is validated to ensure that it meets customers’ requirements. As a result of the pilot test, if necessary, final adjustments are made to the design [12].

3. Project Implementation

The DFSS project discussed in this work was conducted within the IT department at Gainer, Donnelly & Desroches, which is a mid-size certified public accounting firm located in Houston, Texas. This firm specializes in serving individuals and private entrepreneurs, and it is the eighth largest public accounting firm in the Houston area [16]. Gainer, Donnelly & Desroches currently employs more than 60 CPAs in Texas and offers professional services, including audit, tax, bookkeeping and risk services, in a variety of industries, such as real estate, energy, and manufacturing.

The internal IT department is composed of three employees who, along with one external consultant, administer the network and support the firm’s employees. The IT department is responsible for maintaining and upgrading all software applications, keeping laptops and desktops up-to-date, configuring new servers and managing server resources. Additionally, the IT department is responsible for maintaining the security of the network and ensuring that confidential client data remains secure.

The following sections describe the work completed to date on this project as well as future tasks scheduled for completion in the coming months. Due to space limitations, only a sample of the overall project work is illustrated through tables and figures.

3.1 Define Phase

The first step in this project was to create a project charter. This document identified the project team members' roles and responsibilities as well as the problem and mission statement for the project. In addition, a project plan was developed and a Gantt chart was used to manage the project timeline and deliverables. The goal of this project was to create a method for effectively managing IT system changes within the IT department at Gainer, Donnelly & Desroches, as described below in the problem and mission statements.

Project Problem Statement: The IT department at Gainer, Donnelly & Desroches does not currently have a formal process for managing IT system changes, resulting in unplanned downtime, security risks, compliance issues and frustration for the IT department, which negatively impacts organizational productivity.

Project Mission Statement: Design a process for effectively managing IT system changes in the next six months, by April 2010, resulting in improved productivity and increased customer satisfaction.

3.2 Measure Phase

In the Measure phase, several improvement techniques were used to identify the customer/user and their needs. To map the work of the IT department at a high level, the SIPOC diagram shown in Figure 2 was created. This diagram shows that the work completed by the IT department directly affects company employees, IT staff, and consultants (i.e., users) and indirectly affects clients. To explore the work processes within the IT department in further detail, a service blueprint was created for online change requests, as shown in Figure 2. This type of process map provides a visual representation of the service process and differentiates between "onstage" (i.e., aspects of the service process that are visible to the customer) and "backstage" (i.e., aspects of the service process that are not visible to the customer) activities performed by the service provider, which highlights the customer's role in the process. In addition, the service blueprint shows each point in the process where the employees interact with the customer/user.

Suppliers	Inputs	Process Steps	Outputs	Customers
Help Desk Staff	User Issues	Receive Requests via Email/Phone	Problem Resolved	Company Employees
IT Manager	Staff Experience	Gather Customer Information	Standard Operating Procedure	Company Clients
Training Department	Staff Training	Classify Issue	Ticket Closed & Logged	IT Staff
External Consultants	Staff Availability	Analyze Issue	Documentation	External Consultants
Vendors	FAQ Database	Solve Problem	Resolution Added to FAQ Database	
HR Department	User Availability	Manage Requested Changes	New Configurations/ Versions	
Users	Hardware/Software	Install New Hardware/ Software	New Hardware/Software Installed	
Staff	New/Terminated Users	Perform System Maintenance		

Figure 1: SIPOC diagram

Once the customers were identified, a user needs analysis was conducted using the approach described by Ulrich & Eppinger (2004) [17]. The "Voice of the Customer" (i.e., the customer's/user's expectations) was obtained through interviews with IT department staff, consultants and IT system users about their typical uses, likes, dislikes, and suggested improvements regarding the current change management system, which is very basic and highly informal. The data collected from these interviews was organized into an affinity diagram, as shown in Figure 3, by a group of employees from the original interview pool. This data was later used to create a survey that helped prioritize users' needs.

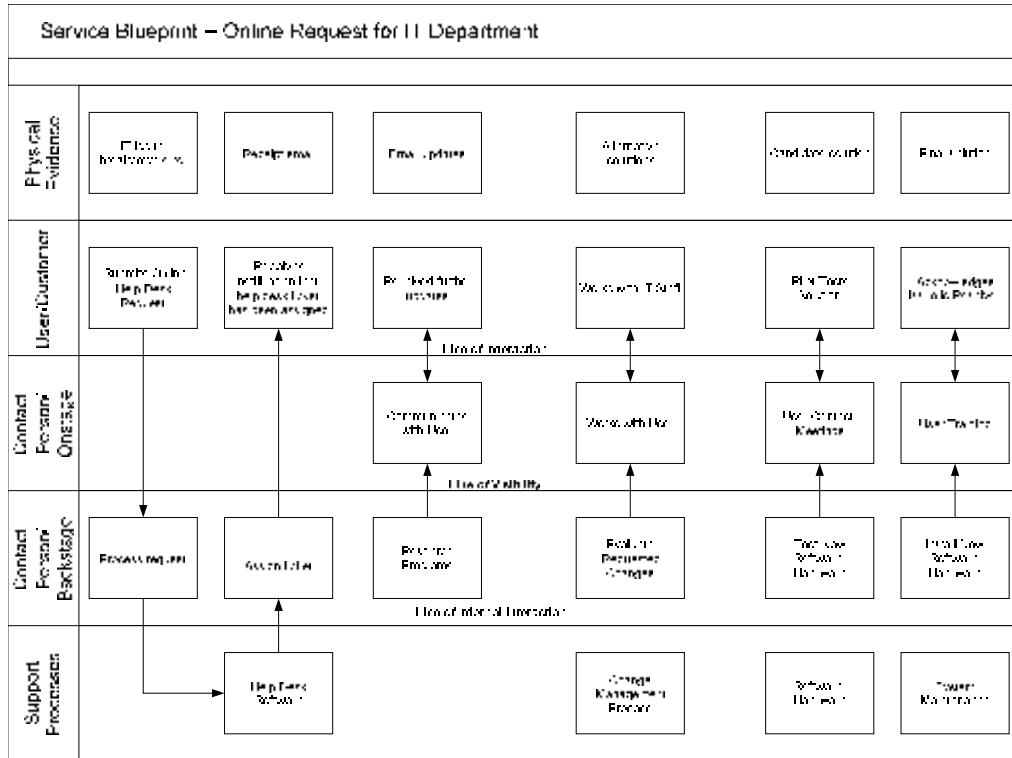


Figure 2: Service blueprint

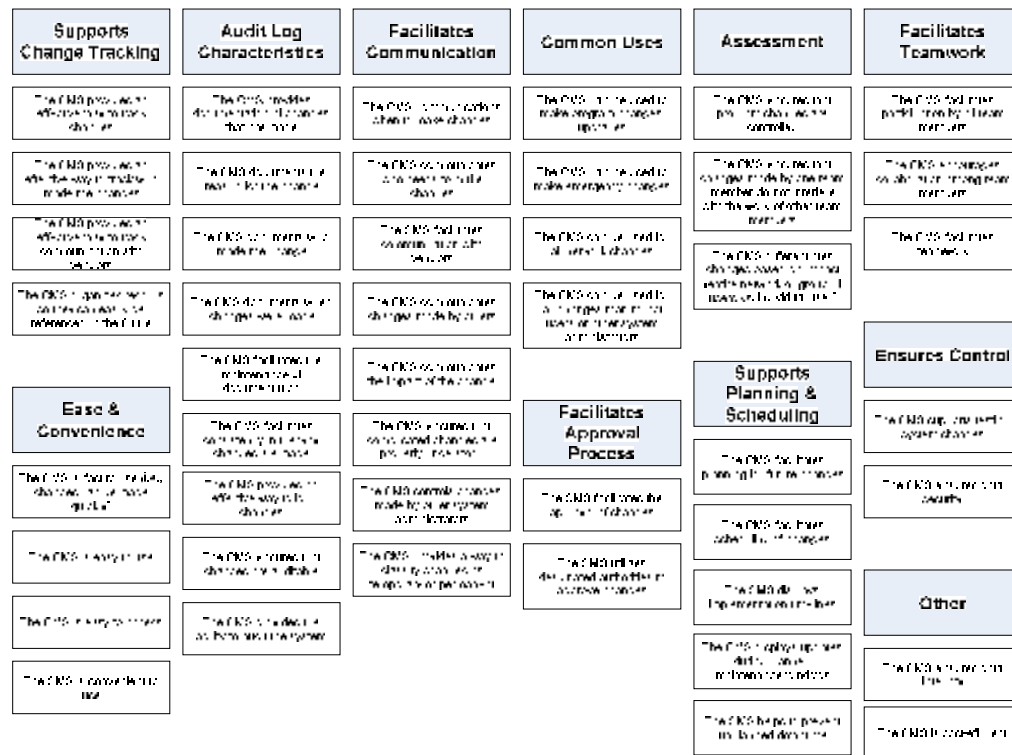


Figure 3: Affinity diagram

In the survey, a portion of which is displayed in Figure 4, respondents ranked the importance of needs that the change management system should fulfill based on the interviews and affinity analysis discussed previously. Survey results were analyzed to determine the highest ranked users' needs, thus identifying the CTQ features of the service process, as shown in Figure 5. Therefore, development and verification of the proposed design in subsequent phases will focus on these elements to ensure that the final design fulfills the needs of the work environment for which it was designed.

Change Management System User Needs Survey

For each of the following features of a Change Management System, please indicate on a scale of 1 to 5 how important the feature is to you.

Please use the following scale:

1. Feature is undesirable. I would not consider a Change Management System with this feature.
2. Feature is not important, but I would not mind having it.
3. Feature would be nice to have, but is not necessary.
4. Feature is highly desirable, but I would consider a Change Management System without it.
5. Feature is critical. I would not consider a Change Management System without this feature.

Also please indicate by checking the box to the right if you feel that the feature is unique, exciting and/or unexpected.

Importance of Feature on Scale of 1 to 5

The Change Management System is easy to use.
The Change Management System communicates who needs to make the change.
The Change Management System makes it easy to find the information that I need.
The Change Management System makes it easy to document changes.
The Change Management System displays updates during planned maintenance windows.
The Change Management System communicates how the change needs to be made.
The Change Management System provides an effective way to track what was changed.
The Change Management System provides an effective way to track when the change was made.
The Change Management System communicates what change needs to be made.
The Change Management System provides an effective way to log planned changes.
The Change Management System provides an effective way to track communication with vendors.
The Change Management System communicates when to make the change.
The Change Management System communicates why the change needs to be made.

Figure 4: User Needs Survey

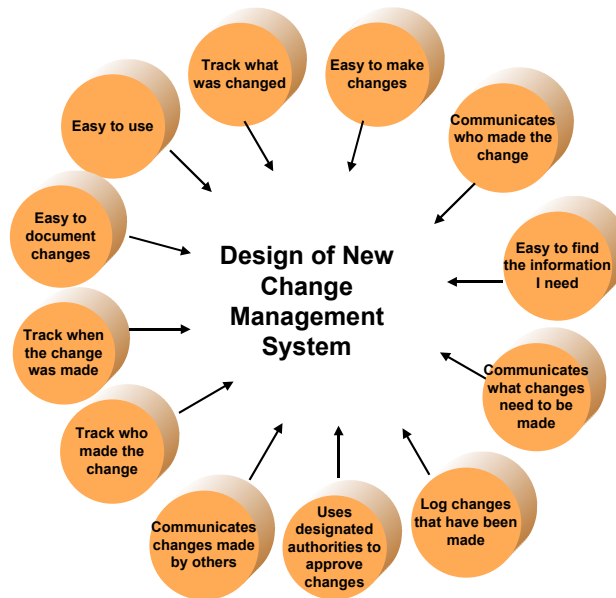


Figure 5: Highest Ranked Users' Needs Identified by Survey Results

3.3 Analyze Phase

In the analyze phase, brainstorming and benchmarking were used to generate high-level, potential design ideas. During this process, the IT manager, internal IT staff, IT managers from other firms, and users of change management systems from other industries, including project managers and firefighters, were interviewed. Ideas obtained from these interviews were categorized in an affinity diagram (not shown) and shared with the IT department staff during a focus group in which preliminary design ideas were developed and further refined.

3.4 Design/Verify Phase

The design phase focused on developing a detailed design for the new IT system change control process. This process addresses documentation, communication and collaboration. Once created, the proposed design was evaluated through a two week pilot test in the IT department. At the conclusion of the pilot test, additional interviews/focus groups were conducted to ensure the design fulfilled the needs of the IT department staff. Final adjustments were made to the design based on the results of the pilot test.

4. Summary

The work completed in this project illustrates the use of the Design for Six Sigma methodology to create an IT change management system in mid-sized accounting firms. By using the DMADV process and tools, customers' needs were identified and an effective change management system was designed. Utilizing the new change management system will result in reduced unplanned downtime, security risks, frustration for the IT department, and compliance issues, which will improve employee productivity, customer satisfaction, and bottom-line performance.

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