

# Project Change Management: The Importance of Properly Managed Change Control

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**Abstract:** Changes are inevitable in projects. A systematic approach is needed to control changes and minimize their negative impact on the performance of the project. To achieve this, this paper intends to examine the importance of properly managed change control. It first identifies the aim and objectives of the dissertation. Then, it describes the research strategy that will be used to conduct the study. Finally, it provides a brief literature review on the topic to indicate of the problem and provide a start point for research. It has been shown that lack of change management can cause cost overruns and schedule delays; therefore, change management systems were proposed to anticipate potential changes, identify preventive measures and implement corrective actions.

**Keywords:** projects, control changes, change management systems, properly managed change control.

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## 1. THE IMPORTANCE OF PROPERLY MANAGED CHANGE CONTROL

Changes are very common in projects. These changes may affect the project's performance, and thus change management becomes a vital tool in construction and new product development projects. Proper change management contributes to the successful execution of projects. It helps to reduce the number and range of surprises and prepare the project team to implement changes. Therefore, change management results in an overall reduction of adjustment to completion time and total cost and improves the project original scope (Harrington, Conner, & Horney, 2000).

### Definition of Project Change

Changes are described as additions, deletions, or modifications to the project scope, whether positively or negatively impact the project's cost, duration or quality. (Hwang & Low, 2011). However, many theories and literature confuse project changes with deviations. Therefore, Steffens and Martinsuo (2007) differentiate between the two terms in Change Decisions in Product Development Projects. They argued that deviation is the situation that does not conform to the plan; however, it may not require change at a project level. In turn, change is the situation that diverges significantly from the project scope.

### Sources of Project Change

Project changes can be originated from both internal and external forces. Internal forces comprise the issues related to projects, organizations, and stakeholders. Namely, inaccurate cost estimating, a shortage of resources availability, change in management, design errors, or modifications. On the other hand, external forces may be caused by unforeseeable nature, circumstances, government, and economic and legal issues. Examples include climate, compliance with a statutory requirement, change in taxes and interest rates (Ibbs, Wong, & Kwak, 2001).

### Types of Changes

Despite the traditional view of project management that considered all the changes to be bad and cause a negative impact, Steffens and Martinsuo (2007) believed that the projects nowadays seek wider business benefits. Thus, some changes are highly encouraged. They further said that changes could be prerequisites, and key factors for successful projects. Accordingly, changes in projects can be categorized into beneficial and detrimental changes. Value engineering exercises result in beneficial changes, and thus they help reduce cost overruns and schedule delays.

On the contrary, detrimental changes have a negative impact on a project as they reduce owner value (Ibbs, Wong, & Kwak, 2001). It is imperative to identify the major negative effects of changes in order to contribute to a successful project. Some

of these effects are: increase in project cost, recruiting new professionals, quality degradation, decreased labor productivity, and delay in completion schedule (Hwang & Low, 2011).

### **Change Management Implementation Status**

Different studies and surveys conducted by Hwang & Low (2011) and Stare (2010) showed that the implementation of change management is relatively low and shall be enhanced. Hwang & Low, in their work, discussed the factors and barriers of change management implementation. The implementation is influenced by the project type, size, nature, cost, and statutory requirement. Some of the barriers to implementing change management are: company being comfortable with the current operation, project scale is too small, time-consuming, implementation cost, lack of management, and lack of resources. They concluded that the low uptake in change management might be because there is no direct improvement in the quality performance in some instances as change management only eliminates the potential risks. However, the respondents to this study were mostly small and medium-sized enterprises and hence, the results may not be generalized.

### **Change Management Systems**

Literature perceives changes and changes management from two different points of view. Uncertainties and thus changes are covered under risk management, while the impacts of the changes are considered in configuration management or change control. An integrated change management system necessitates complex scope projects and projects with high uncertainties (Steffens, Martinsuo, & Artto, 2007).

A comprehensive project management system comprised of 5 principles was proposed by Ibbs, Wong and Kwak (2001). Each of the principles must interact with the others to maximize the functionality of the system. The first principle is to promote a balanced change culture through establishing project goals and objectives, allocating roles and responsibilities, establishing contract strategy, identifying risks, and identifying the areas where changes are likely to occur. The second principle intends to identify the potential changes before their occurrence to prepare solutions proactively. After that, changes are evaluated and classified into two categories: required or elective. When the change is elective, it is normally assessed by a benefit-to-cost ratio scale to determine whether it contributes to project goals or not. The last two principles are to implement change and continuously improve from lessons learned to systematically correct errors.

An obvious limitation of this work is the research approach was descriptive and hence there is no supportive evidence of the system effectiveness. Authors need to investigate the efficiency of their model by carrying out surveys and questionnaires.

Stare (2010) in his work *Comprehensive Management of Project Changes* said, *“the probability of change can be reduced by taking preventive measures, while the negative impact of changes can be reduced by corrective actions.”* Consequently, he proposed an integrated model of change management, which comprehends project risk management, project control and proper change management.

Risk management tool plays a vital role in preventing changes to the project's scope by the use of experience. Each project's risk analysis documents develop an awareness of potential risks, changes and other causes of time and cost deviations. Project control is tracking the progress towards cost, schedule and quality performance by comparing the anticipated results to the actual ones. Then, identifying corrective actions to reduce or eliminate changes and deviations. The last component of this model is establishing a formal change management system for change approval and documentation procedure.

The study into the effectiveness of this model concluded that the individual parts helped to decrease the project delays while there was no evidence to support cost reduction. However, the comprehensive integrated model proved to mutually reduce the impact of changes on time and costs.

Although Stare managed to get various companies to participate in his survey and came up with more realistic results compared to the previous model, his study was purely based on numerical figures; he did not consider the different types and sizes of enterprises. Therefore, further investigation is required before the results can be readily generalized.

## **2. CONCLUSION**

Changes are any modifications to the project that affect the progress of the project. They can be either beneficial or trivial. The sources of these changes originate from unavoidable external factors such as government, economic and climate or internal factors such as project, customer or organization. Therefore, the impact of changes should be assessed and dealt with in a systematic manner so that it does not hinder the project progress and cause an increase in the cost of the project, delay in the completion schedule and degradation of the overall quality of the project.

Literature proposed different models for the process of managing changes. Two of the models were explored in the literature survey. It can be seen that even though the models had different structures, the overall process typically seeks to forecast potential changes, identify preventive measures and implement corrective actions.

The research conducted by Ibbs, Wong and Kwak was carried out using a descriptive approach and therefore, it lacks supportive evidence. The other research by Stare needs to consider project nature, size, complexity and contract method to evaluate the model's efficiency.

It can be seen that literature theories on this topic did not contradict each other; they came all into an agreement on the significance of an integrated model for change management even though they might use different approaches.

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