Complex projects and managing project complexity essay sample

Business, Management

1. Introduction

Research shows that complex project performance is widespread with significantly challenged and failed projects. It is not secrete that conventional project management processes do not adequately address the management of complex projects. This has been found to be true for practically all types of projects. Complex projects are seen in all aspects of life including World Health Organisation and World Bank projects such as addressing HIV AIDS in Africa, World governments' projects seeking to address the ongoing climate change and financial crisis, business transformation projects that have sometimes resulted in bankruptcy such as mergers and acquisitions, implementation of large IT systems and re-engineering business processes.

According to Alvarez & Lowell (2001), today's business world that is interconnected is dynamic and characterised rapid changes making it very complex. Traditional project management continues to lag behind other organisational and corporate processes in its pursuit for simplicity even as global entities have embraced and incorporated complexity. Enterprises today have established complex organisational communities consisting of partnerships with suppliers who are strategic, network of customers, alliances with regulatory entities, key political groups and sometimes even with competitors. It is through these allowances that businesses are able to handle the pressures associated with unprecedented change. Complexity is therefore natural in the business world and projects must become complex for them to solve complex issues. It is therefore imperative for project

management to address project complexity otherwise; news of failed projects will become an everyday thing.

The economic cost and consequences of failed or challenged projects is significant. The impact is not just limited to lose of billions of dollars, Sometimes organizations collapse and cease existing. The impact of this to stakeholders and in particular shareholders who have invested in the project can only be left to our imagination. Complexity is also a risk on its own and as such should be managed or mitigated to avoid the impact of its consequences. To sustain economic competitiveness as well as security, organizations, through their project managers must simply increase project performance. Complex project management is perceived to be the next big thing in business leaders' and managers' quest to realize improved project performance. The benefits of managing project complexity are very significant. They include among several others substantial returns for the firm as it is saved from incurring the heavy loses that are associated with failed projects both in terms of financial, time, material and human resources. This paper seeks to explore complex projects so as to establish ways of managing project complexity.

1. 1 Aim of the Study

The aim of this study is to establish ways of managing project complexity so as to develop a strategy that will empower project decision makers to; evaluate the various complexity dimensions of a project, to establish the complexity profile of the project and to apply suitable techniques so as to

maximise successful results. This study is based on the concept of complex project management and will use this concept to identify ways and probably develop a module for managing project complexity to ensure project success.

1. 2 Research Questions (Objectives)

The researcher seeks to attain the following objectives in order to achieve the aim of this research study.

1. To identify the characteristics of complex projects.
2. To establish the impact of project complexity on development and success of projects.
3. To identify the management approaches to complex projects currently in use.
4. To establish strategies for reducing complexity in project management.
5. Literature Review

Complex projects are those projects which are typified by ambiguity, uncertainty, significant political as well as external influences and dynamic interfaces. Projects can also be defined as complex if they run over a period that goes over the expertise or technology cycle time of the expertise or technologies involve or if they can not be defined by solution but are defined by effect (Mooz, Forsberg & Cotterman 2003). Complex projects are as a result of globalisation an increased awareness which has increased the urgent need for enhanced delivery of projects that are not only complex but also large, critical and long term. Complexity in projects is also as a result of

the inevitable changes in today’s business environment which make adjustments a necessity to almost all elements of the project (Uhl-Bien, Russ & McKelvey 2007). A lot of money is being invested in such projects. Though a lot of research has been conducted on project management and models developed for improving efficiency and effectiveness in project management, it has been revealed that most of these models are not sufficient to manage the complexities of the globalised world. It has also become apparent that current project managers, engineers, architects and business analysts are not able to meet the challenges created by complex projects.

As business environments adjust to the rapid changes, they become more complex. According to the law of requisite variety, organizational structures also become more complex as the business environment does. In a closed system, this law argues that, “ the faster the change in the environment, the faster the system has to respond for stability to be maintained” (Stacey 1992). This is what is actually happening to projects as they are being used to develop complex systems and technologies within business environments that are more complex. Remington, Zolin, & Turner define a complex project as one that displays several sources of uncertainty to a level of severity that make controlling, managing or prediction of project outcomes extremely difficult.

Remington & Zolin (2007) have conceptualized project complexity in terms of four main sources of complexity; directional, technological, structural and temporal. Temporal complexity exists when there is major environmental change that is beyond the control or influence of the project. An example of

this is the 2008-2009 global economic crisis. directional complexity occurs in a situation where; the goals of stakeholders are not clearly defined, there is misunderstanding and disagreement on project goals among the stakeholders or where the project's progress is hindered by political goals that are unknown (Remington & Zolin 2007). Technical complexity on the other hand occurs when a project uses immature technology or when the design characteristics of the project are untried or unknown. Structural complexity is as a result of ambiguity regarding numbers of elements such as organisations, people or teams involved in the project and the massive level of interconnectedness between these elements. According to these authors, temporal and directional complexities surface from the project environment (external) while structural and technological complexities emerge from within the project itself.

According to Complexity Leadership Theory, complex environments require leadership that is adaptive and enabling for complexity to be effectively managed (Uhl-Bien, Huss & McKelvey 2007). This argument corresponds to the observation made by other researchers such as Lumpkin & Dess 2001, who argue that entrepreneurship is the key to survival in the increasingly turbulent and dynamic business environment. Adaptive leadership fosters adaptability, learning and creativity, while enabling leadership deals with the conflicts that are inevitable between adaptive leadership and the traditional approach to leadership. Adaptive leadership is therefore concerned with the recognition of opportunities to adapt while enabling leadership entails exploitation of the recognized opportunities. This argument is consistent with

Turner & Müller (2005) who emphasize on the role of the project manager in the success of a project. Halpern (1990) explains that complexities of projects call for particular attention to planning of the project, selecting team members, sustaining a high-performing team throughout the long haul and developing and delivering the solution.

3. Methodology

The aim of this research is to study complexity in projects and find ways of managing them. To achieve this, a survey will be carried out in which both qualitative and quantitative data will be collected. The approach of combining the two methods was used because it provides results that are more persuasive as well as conclusive than if either of the methods was used alone. According to Creswell (2007), combining quantitative and qualitative methods in a single study gives results that are more valid and reliable because quantitative data is used as a check of qualitative data in that it either supports or opposes the themes rising from qualitative data.

3. 1 Sampling

The study will collect data from various project managers and employees. Stratified random sampling will be used so that those picked represent various kinds of projects. This is so as to make the results more representative hence possible to generalize to all projects.

3. 2 Data Collection

Semi-structured interviews which have been recommended as the best tool to use when conducting explanatory studies such as this case will be used to collect qualitative data. The researcher chose to use semi-structured interviews because of their flexible nature which allows the complexity of the phenomena to be explored (King 2004). In semi-structured interviews, the researcher follows a standard set of questions structured around the topic and covering different themes of the same. These are then followed by other individually modified questions that seek to probe the respondent's understanding as well as further clarification and details. Semi-structured interviews therefore allow rich, in-depth and detailed data to be collected for analysis. These will be used to collect data from project managers.

Quantitative data will be collected through questionnaires with closed-ended questions. Questionnaires will be used to collect data from employees. The respondents will be required to respond to the questionnaire using provided answers. Likert-five point scale will be used to categorize the responses. This scale will be based on the following weights; 1, 2, 3, 4 and 5 to signify; strongly agree, agree, not sure, disagree and strongly disagree.

3. 3 Data Analysis

Thematic analysis will be used for qualitative data. This tool is valued because it is highly inductive in that the resulting themes are derived from the data itself. This increases the validity of the results as themes are not imposed by the researcher. Data from different sources is evaluated, similarities or differences highlighted in process that goes on until the

researcher is content that the data contains no more new themes. Data is categorized from the arising themes such that those in the same category can be regarded as having the same theme or of the same kind. Apart from allowing, the researcher to identify the main themes, thematic analysis also allows similarities in data from the different respondents to be highlighted. This is important as it makes it quantification of data possible.

Data collected by the likert tool will be analysed either using excel or SPSS computer programmes. These programmes analyse quantitative data and present results as graphs or charts.

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