

## **EVALUATING PROJECT MANAGEMENT TECHNIQUES IN SMEs DELIVERING INFRASTRUCTURE: A RESEARCH PROJECT**

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### **ABSTRACT**

South Africa is currently faced with the challenge of reducing the huge backlog of infrastructure delivery to communities that were previously disadvantaged. Given the prioritization of empowerment by the SA government, the previously disadvantaged and marginalized sector of the construction industry that comprises mainly SMEs are the preferred vehicle of delivery. However, consequent to their historic position outside of the mainstream construction industry, they lack the requisite project management expertise and experience to make good on this objective. This particular study investigates the effectiveness and potential applicability of various project management techniques to improve the performance of the SME sector in delivering the much-needed infrastructural installations on a community participation basis. This study could help identify those external and internal factors that are detrimental to the effective implementation of project management techniques. This paper presents a preliminary literature review of project management among SMEs, outlines the basis for a research project and should very much be considered a work in progress.

**KEYWORDS:** project management techniques, SMEs, infrastructure delivery

### **INTRODUCTION**

Sustainable development and management are critical components of the development of any society. Regional, provincial and national development are key challenges to governments all over the world. South Africa is faced with the challenge of delivering infrastructure to all its communities especially those that have been historically disadvantaged. Therefore, a larger share of infrastructure development is taking place within these disadvantaged communities.

Considering that the estimated current infrastructure backlog amounts to R170 billion, the SA government is dissatisfied with its infrastructure delivery (Sigcau, 2003). The South African government has prioritized the empowerment of the previously disadvantaged and marginalized sector of the construction industry that comprises mainly SMEs. This sector is the preferred vehicle of delivery of infrastructure to communities. However, consequent to their historic position outside of the mainstream construction industry, SMEs lack the requisite

project management expertise and experience to make good on this objective. There are several different constraints in the industry, which also deter the effective implementation of project management techniques. This project provides the opportunity to investigate the effectiveness and potential applicability of various project management techniques to improve the performance of the SME sector in delivering the much-needed infrastructural installations on a community participation basis within the anticipated cost, at the right time and with the right quality, efficiently and effectively.

## **PROBLEM STATEMENT**

This research study will attempt to answer the following research question:

What is the relationship between the use of project management techniques by SMEs, and their ability to deliver infrastructure in terms of time, cost and quality?

## **PRELIMINARY LITERATURE REVIEW**

Project management is a relatively modern managerial concept in that it characterizes new approaches to management restructuring and adaptation of special management techniques to specific tasks. Its origins can be traced back to the efforts of the United States (U.S.) Department of Defence in major weapons system development, National Aeronautical Space Administration (NASA) in space exploration, and other major construction and maintenance efforts (Charles et al, 1995). However, the growth of project management was a slow, developing mainly out of management necessity to solve complex tasks. The major reason offered for this slow growth was the lack of acceptance of management techniques or the fear of the "unknown" (Kerzner, 1979). This fear of the unknown acts as a deterrent factor for many managers wanting to change.

Project management is increasingly being adopted by all sectors of the construction industry because of the importance of delivering projects that meet predetermined objectives. It is being seen as the most effective way of implementing changes in business, whatever their nature. While the use of project management has been taken up by many business sectors over the few decades, it is interesting to note that its beginnings are generally regarded as being in the construction and engineering industries (Chaffey, 1997). However, the construction industry continues to be one that characteristically resists change (Haupt, 2001).

According to the Egan report (1998), the United Kingdom (UK) government has pointed out that over recent years, some sectors of the economy, particularly manufacturing, have made significant improvement in their productivity and ability to deliver high quality products at the right price to meet the client's requirement. This is less apparent in the construction industry, which John Prescott, the Deputy Prime Minister, perceived as being stuck in some sort

of 'time warp', unaffected by the great forward march of other industries (Construction Industry Board, 1999).

As in most other countries in the world, the construction industry is an important player in the economy of South Africa. Although the industry's current contribution to the Gross Domestic Product (GDP) has shrunk to approximately 3% compared to 7% in the 1970's, it still remains an important economic sector. According to the Department of Public Works (DPW, 1999), the industry contributed 35% to the total Gross Domestic Fixed Investment (GDFI) and employed approximately 230 000 employees in 1999 in the formal established sector. Preliminary statistics from the Construction Education and Training Authority (CETA) suggest that present levels of employment are closer to 500,000 including both the established and emerging sectors. The South African government is the single biggest construction client, accounting for between 40% and 50% of the entire domestic construction expenditure. The improvement of delivery in this public sector would therefore significantly affect the overall construction industry positively.

However, the construction industry faces some serious challenges in its' endeavor to deliver infrastructure projects to both private and public sectors efficiently and effectively. The DPW (1999) reports that some industry challenges are: a sharp decline in employment in the last 20 years, a steep decline in GDFI, and slow delivery of public sector projects due to poor capacity in both the public and private sector. The contractors' low productivity, poor quality of workmanship and low profit margins for contractors is mostly attributed to poor managerial skills among the SMEs.

The White Paper on Creating an Enabling Environment for Reconstruction, Growth and Development in the Construction Industry, describes the South African SMEs sector as underdeveloped, lacking managerial and technical skills and the sophistication enjoyed by larger, well-established contractors (DPW, 1999). A training program to attain the necessary skills and attitude of project management has been put in place by the government under the White Paper. This is to assist the existing SMEs and the emerging contractors who are from previously disadvantaged communities. This intervention seeks to alleviate the continuous backlog of infrastructure by most SMEs contracted for government projects (Sigcau, 2003).

A survey conducted by Rwelamila (2001) of 200 projects in various industries i.e. construction, information technology, research and development in South Africa, confirmed what many other studies have found outside South Africa. His study affirmed that failure and success do depend on good project management and positive organizational factors.

The fragmented nature of the construction industry means that functional differentiation tends to take the form of differentiation between firms. This implies that the market relations between firms, introduces a qualitatively new element into the process of integration. The theory and practice of project

management were not originally designed to handle differences between firms, but only differences between functional departments within single organizations (Winch, 1988). This is an element that tends to hinder the understanding of project management techniques.

Moreover, the project environment in many developing countries presents a special challenge for project managers. Some projects experience extensive cost and time overrun even before the project commences, and poor quality of work is common. These challenges emanate from inherent risks such as political instability, culture, excessively bureaucratic contract procedures and lack of infrastructure. It is therefore important to identify and implement instill the management tools and techniques specifically tailored to the construction project environment in developing countries (Faniran, 1999).

South Africa, like many other developing countries, is striving to add a socio-economic dimension to the traditional infrastructure project targets of quality, cost and time spent for a construction project. This has meant deliberately encouraging emerging contractors to procure for different projects. However, in the absence of a well, directed and resourced programme of enabling inputs, emerging contractors may not survive to reach a stage of self-sufficiency, for them to provide a responsive service to their clients (Miles, 1997).

In South Africa, sub-contractors have very little negotiating power with the prime contractors. As subcontracting is an effective means of involving SMEs in public sector procurement activities, the public sector is currently looking at measures that need to be taken, in addressing the shortcomings in the current subcontracting arrangements. Serious consideration is being given to measures such as mechanisms to deal with late payment to SMEs and protection against prime contractor insolvency. These are some of the factors that may deter the implementation of project management techniques (Gounden, 1997).

### **Research Approach**

A generic model will be adopted to assist in collection of data required. The generic model is a modification from the four-step model of the project stages depicted either as "Objectives, Plan, Implementation, and Control" (OPIC) or as "Plan, Do, Check, and Act" (PDCA), according to Healy (1997). The project model to be adopted for this research will however be broken down into five different stages depicting the various stages of the construction project, so as to gather more detailed information. The modifications that have been implemented are as follows:

Objectives and plan stages have been renamed as inception and pre-construction stages respectively. Implementation stage has been expanded to construction and completion and handing over stages. The control stage has been renamed post- completion review stage.

These stages will constitute what is known as the “project life cycle” (Healy, 1997). The project life cycle is supposed to assist in the management of the tasks needed to complete the project and also in identification of the work and when it is to be done.

In each phase of the construction project there will be a variety of project management techniques to be implemented. All necessary project management techniques will be outlined in each phase of the construction project.

The phases to be considered therefore will be as follows:

- Inception stage
- Pre-construction stage
- Construction phase
- Completion and handover phase
- Post-completion review.

### **POSSIBLE OUTCOMES**

The anticipated outcomes of the study might include the following:

- Project management techniques will be seen as being inadequate among most SMEs. This study will try and enlighten most SMEs of the project management techniques being used, to enable them to run their projects successfully.
- The study will reflect where SMEs are using project management techniques, and where there will be a possibility to alleviate backlog in infrastructure delivery, i.e. completion of projects at the right time, within the anticipated cost and at the required quality.
- The research will also identify possible factors that hinder the implementation of project management techniques. The factors may be internal or external factors.

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