



A Circular Framework for Evaluating Highway Construction Projects Success: AHP Approach

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Received 17 June 2016; Accepted 25 July 2016

Abstract

Success has always been the ultimate goal of every activity, and a construction project is no exception. There are few topics in the field of project management that are so frequently discussed and yet so rarely agreed upon as that the notion of project success criteria. Usually much of the national budget on infrastructure development is channelled to highway construction projects. However, no official studies have been presented before to evaluate the performance this industry in Egypt. Consequently, this reflects the importance of this study which aims at laying out a standard framework which identifies the criteria for measuring projects success. The identified criteria, in turn, can be used as a tool to help the stakeholders of the highway projects in Egypt in judging the project performance and success during the project's post-construction phase. Using a detailed literature review thirteen success measures are identified (four objectives and nine subjective). Furthermore, the analytic hierarchy process (AHP) is adopted to prioritize the identified measures based on accumulative knowledge of academic experts in highways construction industry through the application of questionnaire survey. The study establishes that project completed on time, project completed within budget, health, safety and number of accidents, profitability and quality in construction are the most significant measures used for assessing the highway projects performance and success.

Keywords: Measures of Success; Construction Projects; Highway Projects; Analytic Hierarchy Process (AHP); Questionnaire Survey.

1. Introduction

Measurement is an essential step in any control process [1]. Indeed, “what gets measured gets done” [2]. The concept of measuring project success can be evaluated through performance measures that can be developed from reviewing previous studies where various success criteria can be identified [3]. Lim and Mohamed (1999) [4] defined criteria as “set of principles or standards by which judgment is made and are considered to be the rule of the game”. Success has always been the ultimate goal of every activity and a construction project is no exception [3]. Due to the ambiguous definition of project success and the different perceptions of participants toward this concept, measuring project success is a complex task since success is intangible and can hardly be agreed upon for all stakeholders during all phases in the project life cycle. For instance, the architect may consider the aesthetics aspect as the project success criterion, while the contractor may rank profitability the most important factor. In addition, a project may be perceived a success one day and failure the next. Therefore, to think that one can objectively measure the success of a project is an illusion [3, 5]. One of the most widely used project performance measure has been the ‘iron triangle’ consisting of schedule, cost and quality at the three vertices [6]. With the passage of time, other criteria have been also proposed to measure a project’s performance. These performance measures can be characterized into objective and subjective categories. In the objective criteria we have tangible and measurable performance measures such as: schedule, cost, quality, safety and dispute while in the subjective criteria we have client satisfaction, contractor satisfaction and project management team satisfaction [5]. A summary of the success criteria used by different researchers is presented in Table 1. The present study seeks to identify the objective and subjective measures of success which can be used for evaluating the performance of highway construction projects in Egypt during the project post-construction phases.

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