Causes and Effect of Cost Overrun on Construction Projects in Bahrain

A Thesis Submitted in Partial Fulfillment of the Requirements for the Master Degree in Science of Engineering Management

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September, 2016
Abstract

The main concern of a construction industry is to procure a facility that is able to meet its functional requirements, of the required quality, and delivered within an acceptable budget and timeframe. The cost aspect of these key performance indicators usually ranks highest. In spite of the importance of cost estimation, construction projects have routinely overrun their estimates due to a number of risks that effect final cost of a project. This study investigated the effect of these risk factors affecting cost performance in construction projects. Investigation was carried out using quantitative and semi qualitative approaches of: questionnaire survey, actual projects data and interviews to understand the perception of practitioners involved in construction industry towards various factors causing cost overrun. The targeted respondents were client, contractor, and consultant involved in handling construction projects in Bahrain. A total of 74 completed responses and 40 actual construction project data were collected. Collected data were analyzed with risk zone mapping by creating a risk map for cost overrun factors using severity and frequency indices, then risk factors were ranked according to their importance index. Data were also analyzed with advance multivariate statistical approach of Partial Least Square Structural Equation Modelling (PLS-SEM). It modelled the relationship of various factors and their relative effects to cost overrun.

Based on the final risk map result, frequent design changes, mistakes during construction, and schedule delay were the most prominent factors in exhibiting effect on cost performance in construction projects. Outcome from the model identified that project management and contract administration related factors group has the highest impact on construction cost overrun with path coefficient value of 0.286. The developed model indicated that approximately 60% of variance extraction was achieved, which means that in Bahrain 60% of cost overrun is subjected to these factors. Further, Global Fit Index value of the models was 0.591, which confirms that the developed path models had substantial power in explaining the relationship between the factors and cost overrun in construction projects. It is hoped that these findings will guide efforts to improve the performance of the construction industry in the future.

Keywords: Construction industry, Cost overrun, Risk mapping, PLS-SEM model, Bahrain