Abstract

Ahmed R El-Bheiri

RISK FACTORS IN CONSTRUCTION PROJECTS CASH-FLOW ANALYSIS

Financial Management has long been recognized as an important tool in construction management. However, the construction industry suffers the largest rate of insolvency of any sector of the economy. Many construction companies fail because of poor financial management, especially inadequate attention to cash flow forecasting .The major problem that construction managers encounter in making financial decisions involves both the uncertainty and ambiguity surrounding expected cash flows. This study presents a new methodology for net cash flow prediction. This methodology depends on applying risk factors that affect the cash flow process. The probabilistic S curves are used as an alternative of the Standard S curve and the traditional method that neglect the effect of risk and uncertainties. These risk factors have been determined through a questionnaire survey. This survey was conducted among the main three parties in construction industry, contractors, consultants and owners. In this questionnaire these risk factors were evaluated according two criteria, frequency and impact. The most important cash flow risk factors were clearly identified. A simulation programs as Primavera P6 and Primavera risk analysis were used for generating the probabilistic S curves that provide a probability distribution of required cost and time to finish the project for any ed point at the project. The probabilistic cash flow prediction enables the users to accurately determine the project cash flow position. A model was designed to generate the desired probabilistic data. The model consists of three widely software, Primavera p6, Primavera risk analysis and M.S Excel. This model has been validated through an example construction building project and found to produce more accurate data than estimated deterministic data for this project with the respect to the actual data. A real case study has been applied as well, a medium size building project. In this project after applying the model we choose five cases to develop the envelop probability to cover all probability for time and cost. Finally the presented model was found to develop reliable probabilistic data and it's recommended to use by the decision maker. For future work it's recommended to integrate the previously mentioned risk factors in the cash inflow and the proposed model to be augmented to include different types of construction projects.