ABSTRACT

Performance of projects using traditional design-bid-build method is an important area to study, but few studies have investigated attributes that affect project success in a detailed manner. This research aims to determine project attributes that have significant impact on the project performance. Regression models have identified project attributes that help explain and predict aspects of project performance.

Five project performance criteria identified are project cost, project schedule, project quality, owner's satisfaction level and owner's construction administrative burden. These are operationalized into 11 measures namely Unit Cost, Cost Growth, Intensity, Construction Speed, Delivery Speed, Schedule growth, Turnover Quality, System Quality, Process Equipment Quality, Owner's Satisfaction Level and Owner's Overall Construction Administrative Burden.

Data were collected through interviews and self-administered questionnaires from clients, consultants and contractors. From this information, Spearman's Rank-Order Coefficient, at 5% significance level, identified significant project attributes that affect project performance. Stepwise Regression technique was used to construct models to predict project performance. Models were selected based on high adjusted $R^2$ and good validation result.
The models for predicting construction speed, delivery speed and owner’s satisfaction level are robust with high adjusted $R^2$. The capability and practicality of these three models are affirmed through validation with test projects. Statistically significant attributes found correlated to project success (from the three models) include contractor’s plant and equipment, gross floor area, contractor’s design capability, contractor’s technical expertise, number of variations, contractor’s ability to complete past projects to acceptable quality, extent to which contract period is allowed to vary during the tender evaluation, and flexible scope of work.

The findings are meaningful because they highlighted critical project attributes that demand special attention from the parties in the construction industry in order to attain success in building projects.

Key words: Project performance, Significant project attributes, Project success.