

Evaluation and Selection of Contractors in Construction Projects with a View Supply Chain Management and Utilization of Promthee

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Abstract : There are many problems in contracting projects and their performance. At each project stage and due to different reasons, these problems affect cost, time and overall project quality. Hence, in order to increase the efficiency and performance in all levels of the chain and with supply chain management approach, there will be a coordination from the beginning of a project (contractor selection) to the end of project (handover of project). Contractor selection is the foremost part of construction projects which in this multi-criteria decision-making, the best contractor is determined by expert judgment, different variables and their priorities. In this paper for selecting the best contractor, numerous criteria were collected by asking from adept experts and then among them, 16 criteria with highest frequency were considered for questionnaire. This questionnaire was distributed between experts. Cronbach's alpha coefficient was obtained as 72%. Then based on Borda's function 12 important criteria was selected which was categorized in four main criteria and related sub-criteria as follow: Environmental factors and physical equipment: procurement and materials (supplier), company's machines, contractor's proposed cost estimate - financial capacity: bank turnover and company's assets, the income of tax declaration in last year, Ability to compensate for losses or delays - past performance- records and technical expertise: experts and key personnel, the past technical backgrounds and experiences, employer satisfaction of previous contracts, the number of similar projects was done - standards: rank and field of expertise which company is qualified for and its validity, availability and number of permitted projects done. Then with PROMTHEE method, the criteria were normalized and monitored, finally the best alternative was selected. In this research, qualitative criteria of each company is became a quantitative criteria. Finally, information of some companies was evaluated and the best contractor was selected based on all criteria and their priorities.

Keywords : contractor evaluation and selection, project development, supply chain management, PROMTHEE method

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