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A Review of Supplier Evaluation and Selection Approaches in Supply Chain of Construction Industry

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Abstract : ***Supplier Evaluation and Management is a very strong concept in manufacturing industry, but has to come a long way in the construction Projects. In projects, especially in India, it is considered as a part of the unorganised sector. While developing a supplier survey for the purchaser it is to be decided which performance categories to include. The primary criteria are cost/price, quality and delivery, which are generally the most obvious and most critical areas that affect the buyer. For many items, these three performance areas would be enough, however for critical items needing an in-depth analysis of the supplier's capabilities, a more detailed supplier evaluation study is required. This paper reviews the literature of various approaches for supplier evaluation and selection. Supplier Evaluation and Management initiates them to adopt the most efficient approaches in order to ensure the smooth flow of the execution of the Project. Study puts efforts in effectiveness in selection of vendors and their evaluation.***

Keyword -Supplier evaluation, Supplier selection, Supply chain management, Multi-criteria decision aid methods.

I. Introduction

Construction industry is broad industry which includes large activity of construction. In this activity material and their procurement is important parameter. About 60-70% cost engaged in construction are for material itself .Material procurement is prior important step of purchase action. Wider range of supply activity included in procurement process as compared to purchasing action. Vendor is important aspect in procurement process. In general no importance is given to evaluation and development process of vendor. While developing a supplier survey for the purchaser it is to be decided which performance categories to include. The primary criteria are cost/price, quality and delivery, which are generally the most obvious and most critical areas that affect the buyer. For many items, these three performance areas would be enough, however for critical items needing an in-depth analysis of the supplier's capabilities, a more detailed supplier evaluation study is required Supplier Evaluation and Management is a very strong concept in manufacturing industry, but has to come a long way in the construction Projects. In projects, especially in India, it is considered as a part of the unorganised sector. Its importance is not only in aspects of logistics in projects but also holds an important position in growth and survival of project organisation itself .The Supplier cull study in Construction supply chain management is relatively unexplored in Indian context. Much enlightened business had commenced with this concept with the avail of experts and consulting firms. However, expectedly Indian enterprises had not taken this approach thus far. This study would be a paramount approach towards integrating vendors in the Construction supply chain management and ameliorates its deliverables. Supplier Evaluation and Management initiates them to adopt the most efficient methods in order to ensure the smooth flow of the execution of the Project, thereby avoiding delay and cost overrun of projects.For achieving better value for money careful detail investigation for supplier evaluation in construction industry is necessary. Study will ensure that customer will be more satisfied. Study puts efforts in effectiveness in selection of vendors and their evaluation).

II. Literature review:

Akintola Akintoye ii) The author mention details the results of a questionnaire survey of supply chain collaboration and management in the top the UK construction industry contractors. The results indicate the formation of a significant number of partnerships/ collaborative agreements between contractors, suppliers and clients following the publication of the Latham (1994) and Egan (1997) reports. It appears that construction supply chain management (SCM) is still at its infancy but some awareness of the philosophy is evident. Contractors identified improved production planning and purchasing as key targets for the application of SCM in construction. Barriers to success included: workplace culture, lack of senior management commitment, inappropriate support structures and a lack of knowledge of SCM philosophy. Training and education at all levels in the industry are necessary to overcome these barriers.

Mohammed Saada [vi] The author examines the early progress towards the adoption of supply chain management (SCM) relationships in construction. It was based on a literature review and survey of the views of construction practitioners. He contends that SCM has many of the features associated with a 'fifth generation innovation'. The author suggests that although construction practitioners have some knowledge of SCM they need a better conceptual understanding of it and new and more systematic approaches to its implementation.

William Ho [ix] Supplier evaluation and selection problem has been studied extensively. Various decision making approaches have been proposed to tackle the problem. In contemporary supply chain management, the performance of potential suppliers was evaluated against multiple criteria rather than

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considering a single factor-cost. The author reviews the literature of the multi-criteria decision making approaches for supplier evaluation and selection. Related articles appearing in the international journals from 2000 to 2008 are gathered and analyzed so that the following three questions can be answered: (i) Which approaches were prevalently applied? (ii) Which evaluating criteria were paid more attention to? (iii) Is there any inadequacy of the approaches? Based on the inadequacy, if any, some improvements and possible future work are recommended. This research not only provides evidence that the multi-criteria decision making approaches are better than the traditional cost-based approach, but also aids the researchers and decision makers in applying the approaches effectively.

Yuh-Jen Chen [X] The main aim of this research was to demonstrate strategic supplier performance evaluation of a UK-based manufacturing organization using an integrated analytical framework. Developing long term relationship with strategic suppliers was common in today's industry. However, monitoring suppliers' performance all through the contractual period is important in order to ensure overall supply chain performance. Therefore, client organizations need to measure suppliers' performance dynamically and inform them on improvement measures. Although there were many studies introducing innovative supplier performance evaluation frameworks and empirical researches on identifying criteria for supplier evaluation, little has been reported on detailed application of strategic supplier performance evaluation and its implication on overall performance of organization.

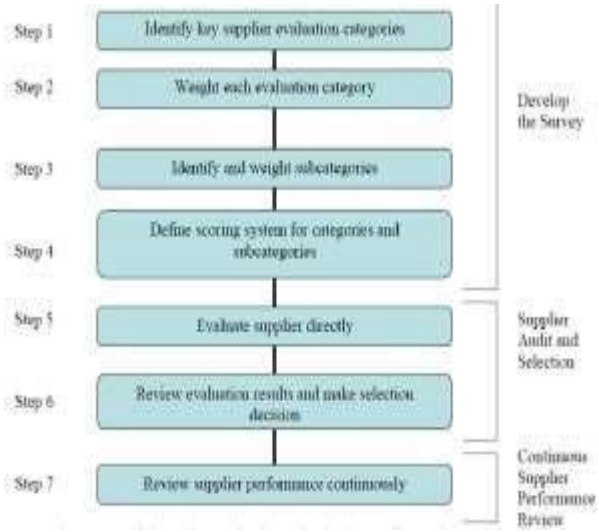
Supply chain management in construction industry

The construction supply chain, by direct analogy with manufacturing practice, refers to the goods, information and money flow for a particular construction project. Goods flow from the raw material producer to the end customer, and money flows in the opposite direction from the end customer to the raw material producer. Money is distributed as a function of the value added services provided and the amount of risk taken by each trade. Information flows in all direction as indicated between all stakeholders in the project.

Unlike the manufacturing supply chain, value integrated accommodations provided by several trades like the architect, engineer, consultant, trade contractors, construction managers, financiers etc. This is not to verbally express that equipollent parties are not involved at some level in a manufacturing supply chain , but rather than such parties in construction plays a much more active role in construction process then they do in manufacturing. The short term and prototype nature of construction project implicatively insinuates that designers and engineers will play a more immensely colossal role in working of construction supply chain.

Supplier selection process

No best way subsists to evaluate and cull suppliers, and thus organizations utilize a variety of approaches. The overall objective of the supplier evaluation process is to reduce risk and maximize overall value to the purchaser. An organization must cull suppliers with which it can do business for an elongated period of time. Supplier evaluations often follow a rigorous, structured approach through the utilization of a survey. An efficacious supplier survey should have certain characteristics such as comprehensiveness, objectiveness, reliability, flexibility and conclusively, has to be mathematically straightforward. To ascertain that a supplier survey has these characteristics is recommended a step-by-step process when engendering this implement. Figure presents the steps to follow when developing such a system. This general framework is explicated in detail below.



Data collection

Data collection is the most critical part of study since the precision of the data will determine the prosperity or failure of the research. Data obtained through these questionnaires will be analysed accordingly utilizing opportune analysis techniques. Replications from questionnaires will then be compiled and analyzed. Data amassed from different question will be accumulated to answer different objective. Analysis is done predicted on sundry categories by utilizing the statistical methods.

Analytical Hierarchy process (AHP)

An AHP is a structured technique for dealing with complex decisions. It helps decision makers to find out which is the best suitable vendor of their needs. It aims at quantifying the relative priorities for the given set of the alternatives on the ratio scale, based on judgment of decision makers and stresses the importance of initiative judgment of decision maker as well as consistency of the comparison of alternative decision making process.

III. Conclusion

The main aim of the work is to understand the supply chain management in construction industry and various suppler

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evaluation approaches used in construction industry. The success of work depend upon factors consider for evaluation which depend upon questionnaire and data collection methods. This paper is based on literature review on supply chain management and approaches used in supplier evaluation and there selection. The paper suggests that instead of using single criteria multi-criteria approaches should be used. The multi-criteria decision making approaches are better than the traditional cost-based approach, but also aids the researchers and decision makers in applying the approaches effectively. The paper concludes that strategic supplier performance evaluation impact on overall performance of organization.

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