ABSTRACT

Purchasing is one of the important functions of Supply chain management. Selection of right source (vendor) of inventory is a major decision in purchasing function, executed by the purchase manager of any organization. This strategic decision affects the organization strongly and hence, there are many issues regarding vendor evaluation and selection.

Traditional vendor selection is based on the criteria like cost, quality, and delivery performance. Yet the selection of vendor with respect to product ranking and customer expectation has not been given sufficient attention. Hence, this research is focused towards the development of a model which integrates the above criteria. As vendor selection problem is multi-attribute in nature, a multi criteria decision making method, Analytic Hierarchy Process (AHP) is utilized to evaluate the vendors. Then, AHP weightages are normalized with customer-focused product prioritization weightage and a composite scale is obtained. This composite scale is used to formulate as a mathematical model to assign a set of vendors for a set of products.

The model is tested with a case study data which are taken in a two- stage supply chain of an agricultural equipment wholesaler. Initially, the
vendor selection problem is formulated with single objective of maximizing the preference weightages of vendors. Then, minimization of procurement cost is also added to the original problem to formulate as a multi-objective optimization model. The solution obtained from the multi-objective optimization model gives an assignment of vendors which reduces the procurement cost better than the earlier formulation. Also, when the solution obtained by the multi-objective optimization is compared with the actual assignment of vendors practiced by the wholesaler, the solution from the above model appears to be profitable as it reduces the procurement cost.