Chapter 5
Evaluation of Supplier Performance and Efficiency: A Critical Analysis

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ABSTRACT
In the present competitive business environment, it is essential for the management of any organisation to take wise decisions regarding supplier evaluation. It plays a vital role in establishing an effective supply chain for any organisation. Most of the experts agreed that there is no one best way to evaluate the suppliers and different organizations use different approaches for evaluating supplier efficiency. The overall objective of any approach is to reduce purchase risk and maximize overall value to the purchaser. In this paper Data Envelopment Analysis (DEA) technique is developed to evaluate the supplier efficiency for an organisation. DEA is a multifactor productivity technique to measure the relative efficiency of the decision making units. The super efficiency method of DEA provides a way, which indicates the extent to which the efficient suppliers exceed the efficient frontier formed by other efficient suppliers. A case study is undertaken to evaluate the supplier performance and efficiency using DEA approach.

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INTRODUCTION

Over the past decade, the traditional purchasing and logistics functions have evolved into a broader strategic approach to materials and distribution management system known as Supply Chain Management. Supply chain management involves the flow of material, information and finance in a network consisting of customers, suppliers, manufacturers, and distributors. It begins with raw materials, continues through internal operations, and ends with distribution of finished goods to the ultimate users. The main aim of supply chain management is to integrate various suppliers to satisfy market demand. The short-term objective of supply chain management is primarily to increase the productivity and reduce the entire inventory along with the total cycle time. Whereas the long-term objective is to increase customer satisfaction, increase the market share, and profits for all members of the supply chain (Tan, 2001).

In supply chain management, coordination between a manufacturer and a supplier is typically a difficult and important link in the channels of distribution. Since suppliers are manufacturer’s external links, the coordination with the suppliers is not easy unless the systems for cooperation and information exchange are properly integrated. The coordination between a manufacturer and suppliers is important because, the failure of non-coordination results in excessive delays which ultimately lead to poor customer services. Consequently, inventories of incoming parts from suppliers or those of finished goods at the manufacturer and distribution centres (DCs) may accumulate. Hence, the total cost of the entire supply chains will rise. Manufacturers are able to assist their suppliers by providing knowledge, skills, and experience, and to benefit in turn from suppliers’ improved delivery performance and from fewer production disruptions that are caused by poor quality materials. The suppliers also can benefit by becoming more competitive than other suppliers as performance improves and costs go down. Thus, supplier development is a vehicle that can be used to increase the competitiveness of the entire supply chains.

Supplier evaluation is one of the fundamental steps to evaluate a supplier’s efficiency on the adaptability towards one’s organization. Supplier evaluation techniques adopted in an organisation are mainly based on simple, weighted scoring methods which primarily rely on subjective judgments and opinions of purchasing managers or staff involved in the supplier evaluation process. In this approach, the experience and contextual knowledge of purchasing staff is utilized to assign weightages arbitrarily to the supplier performance attributes. Consequently, the final ranking of the suppliers is heavily dependent on the assignment of these weights, which are often difficult to specify in an objective manner. It is the major limitation of the weighted scoring method for supplier evaluation.

Companies usually spend a large amount of their sales revenue on purchasing of raw material and components. So, decision on selecting a competent supplier
On Developing and Performance Evaluation of Adaptive Second Order Neural Network With GA-Based Training (ASONN-GA) for Financial Time Series Prediction
Advancements in Applied Metaheuristic Computing (pp. 231-263). 

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