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Improving supply chain performance by Supplier Development program through enhanced visibility

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Abstract

Established collaborative relationship with supplier in form of Supplier Development (SD) has gained ample popularity among manufacturing organizations due to significant benefits in product development time, capacity utilization, product quality and manufacturing cost. Sometime, slender supply chain is a result of extensive SD program at multiple stages of a value chain. The leaner the supply chain lesser the time to respond the market change and other uncertainty. The increasing uncertainty because of market dynamics creates the new panorama of visibility issue where the existence of proper visibility deliver a seamless operation in supply chain performance, but its absence create havoc in entire value chain. In presence of SD where the supply chain is leaner, the visibility is a significant governing issue which can produce all the disadvantages of SD, if not dealt properly. In this paper, an attempt is made to address the criteria and their orientations those govern the supply chain performance through visibility under the presence of a well-defined SD. An Interpretive Structural Modeling (ISM) method is used to get a structural framework in a case environment.

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1. Introduction

The era of product to product competition has been over and post globalization comparison among the supply chain has been started. Increasing competition and decreasing product life-cycle forced many organizations to focus on their core competency only. By this process, organizations have outsourced most of their non-valued activities to their suppliers to enhance supply chain capability through Supplier Development (SD) program. By doing so, the supply chain become leaner with larger number of players are involved along the value chain. The ability to handle the complexities with these value chain members in value chain is key to achieve competitive advantage [1]. These complexities in terms of relationship has been advanced from cooperation to coordination and now to collaboration either in form of long term contract or adoption of visibility mechanism [2]. Though we have achieved better quality product at lesser price in very short time, we are lacking in the visibility of complex supply chain environment which has been evolved as a key issue in supply chain research [3]. Hence, the uncertainties and its impact raised due to the visibility issue, in spite of availability of SD program, are quite high and increasing day by day. Customarily, the organizations are unable to visualize more than half of their risks [4]. May be due to this reason organizations considered visibility as their top priority [5]. In this paper, an effort is made to identify the governing criteria and their articulation to enhance supply chain capability through visibility in presence of well-defined SD program. The subsequent sections are organized in this way. Sections 2, literature review of SD program, visibility, and criteria for supply chain capability has been carried out. In section 3, research methodology Interpretive Structural Modeling (ISM) is discussed. In section 4, implementation of ISM to a case environment is discussed whereas the managerial implications are mentioned in section 5. In section 6, conclusion and future research is proposed.

2. Literature review

The rapid market change and outsourcing became common phenomenon for every industry. So, the dependency on supply chain partners has been increased manifold, not only to achieve better supply chain performance but also to sustain in market. Wide range of research is the evidence of SD adoption by organizations to get the benefit such as future capability, strategic out-sourcing, mass customization and reliability. Various aspects of SD starting from its enablers [6, 7, and 8], impediments [9], adoption in green programs [10], benchmarking model [11] and supplier integration to supply management [12 and 13] are extensively discussed. As more numbers of suppliers are involved in different stages of supply chain, the complexities are the undesired outcomes alongside of enormous benefits. These complexities can be seen as supply chain barrier towards performance. Many organizations are largely agreed on the aspect that better information sharing in terms of point-of-sales (POS) and Radio Frequency Identification (RFID) eliminate supply chain barrier [14] which enhance supply chain capability [15] in terms of stability and demand fluctuation [16].

When there is synchronization as well as an access of information to each partner of supply chain whether in form of strategic or operational data, then the existence of visibility appears in true sense. The visibility can be defined as the readily available of information to the needy [17] to analyze data for mitigation of risk and process improvement [18]. By this process, the ability to execute the alternate options in supply chain with help of data can be achieved for mutual benefit. However these exchanged information should not lose its usability and authenticity in desired time frame [19]. This form of visibility may be expressed in logistics also [20]. Each supply chain is competing with others in terms of cost, quality, on-time delivery and flexibility. The visibility has larger impact on these aspect whether it may be in form of distribution and inventory cost [21], stock-in and stock-out cost [3 and 22], back order cost [23], internal and external quality [21], response time [24], flexibility and responsiveness [25 and 26], product development time and cycle time [27]. The visibility in supply chain has greater benefits in improving supply chain performance [28] by better forecasting as well as scheduling [22], enhanced response [29], improved operation [30], better inventory management [31], improved transportation [32] and lesser supply demand uncertainty [33]. Caridi *et al* [34] has documented impact of visibility and benefits in detailed manner on primary competitive criteria at single tier, two tier and multi-tier supply chain relationships.

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