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The Impact of Supply Chain Integration on Automobile Industry's Performance

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Abstract

This paper addresses integration issues in supply chain, and tries to investigate how different aspects of integration are linked with some product features. Integration, in this study, is interpreted as upstream and downstream. While knowledge transfers from upstream and downstream, directions were positively related to automobile manufacturer's performance where knowledge derived from customer was more powerful. Product features considered in this study are product quality. To examine the relationships between supply chain integrations, this research work follows a survey method used in the automobile industry in Tamil Nadu. The results imply that supply chain upstream integration has a higher impact on product quality, compared to supply chain downstream integration.

Keywords: Supply chain upstream & downstream integration, product quality.

Introduction

Currently, the competitive global marketplace has a great influence on business activities, whether they are domestic or multinational. Apparently, supply chain, as a key part of global business, should be considered in particular. In supply chain management, it is necessary for industries to develop and organise networks of activities involved in procurement, production and delivery of products globally. Considering the characteristics there should be proper mentor for successful Supply Chain Management (SCM) for the integration of material and information. Effective and efficient supply chain management requires integrated business processes that go beyond purchasing, supply chain and logistics activities.

Quality management practices have been extensively investigated at firm level, and several studies have also examined the relationship between quality management

practices and organisational performance However, the issue of quality management has not been sufficiently investigated in supply chain, specifically in Asian countries. This study, hence, attempts to identify the potential relationship between supply chain quality management practices, and the direct and indirect effects of practices on the performance of automotive industries in Tamil Nadu, based on the data obtained from few firms which are analysed. It contributes to the literature by extending the examination of quality management into the supply chain. It provides guidance for the effective management of the supply chain, through allocation of resources to improve practices that bring optimal results for firms.

Literature Review

Companies all over the world are aware of the importance of meeting the customer's needs as an important factor in their success in a competitive market place. To survive in such an environment, organisations should not operate as an "isolated and independent entity". On the contrary, they must seek to cooperate with others in order to identify sources of competitive advantages. The companies have also found that the involvement of suppliers, which is critical to the improvement of quality and fulfilment of the customer's specifications, can enhance their performance

Various types of integration have been proposed in the extant literature, technology and planning, measurement, relationship integration, and strategic integration. Consideration of the dimensionality of supply chain integration is important to understand the way that the individual dimensions influence performance, as well as how they influence each other.

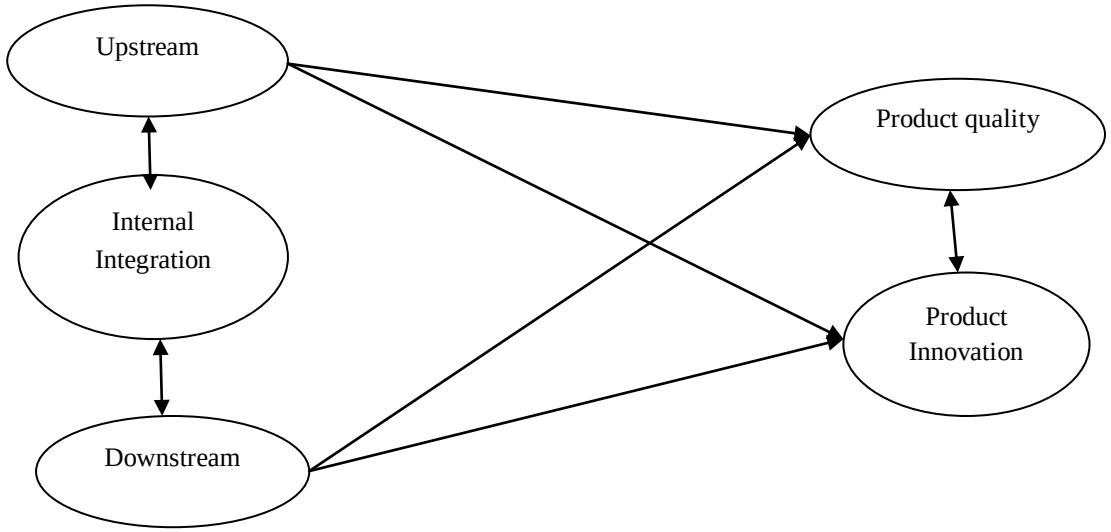
Forker (1997) has investigated the impact of quality management practices throughout supply chain and has found that management of supplier quality throughout the chain is directly related to the higher levels of quality conformance. On the other hand, Kanji and Wong (1999) have proposed a structured model for supply chain management to demonstrate the relation between supply chain management and quality management principles. Romano and Vinelli (2001) have analysed the performance of other product manufacturer operating in two different supply chain. They have reported that the whole supply network could be improved to meet the expectations of the final consumer in terms of quality through the joint definition and co-management of quality practices. But there has not been a single analysis done in automobile industries' in Tamil Nadu.

The Indian automotive industry is complex and different from the automotive industry in the west. It comprises different categories: two wheelers, three wheelers, passenger cars, light commercial vehicles, multi-utility vehicles and heavy commercial vehicles, agricultural and farm and earth moving equipment. Some of these manufacturers are lead players in more than one category. The Indian automotive industry came into being in the 1950s, and has grown since under a highly regulated and protected economic environment. The firms were subjected to strict product specific capacity licensing, foreign collaboration, asset size and scope of industrial operations. As a result, very few firms dominated all the products. These restrictions provided no motivation or incentive for the firms to bring about

technological improvements and new management strategies. But now it's totally different with globalization, many firms from all over the world are setting up manufacturing hub in Tamil Nadu.

Performance:

Literature review on business and organizational performance suggests a wide range of opinions regarding company performance. Chen argued that the main concept of company performance because the primary goal of an organization is to make profits for shareholders. The concept been used widely as a key theory of company performance. However, other researchers have pointed out the limitations. Although it is not within the scope of this article to debate the merits of each performance concept, given the complexity of the performance concept issue, we generally follow one principle when we choose performance concepts, namely, a balanced approach. Such an approach, which uses a combination of qualitative and quantitative concepts and a broader conceptualization of the performance concept, is essential to present a clear picture of organizational performance.



Gunasekaran has suggested that time has to be used as a strategic metric in performance measurement. This is because controlling and compressing time shall increase quality, reduce costs and enhance the responsiveness to customer demands and overall productivity. However, this emphasis on time meant that efforts were not carried out to consider the other important operational performance measures. However, most of the current performance measures fail to clearly distinguish various levels such as strategic, tactical and operational levels especially in a supply chain. In this context, he also identifies plan, source, make or assemble and delivery as four links of supply chain and proposes specific metrics to measure performance at strategic, operational and tactical levels. This proposed framework includes both financial and non-financial measures. Benchmarking, which consists of measuring, comparing, learning and improving, provides a framework to evaluate both the

operational and strategic effectiveness of the supply chain. It is used to identify best practice and key enablers for its effective transfer .It hence increases the knowledge about SCM processes and helps quantify the performance improvement opportunities across the whole supply chain.

Upstream in the Supply Chain:
It is found to have a positive effect of organizational learning antecedents on internal purchasing information system processing and cycle time performance. This corresponds favourably to the supply side of our conceptualization, even though there was primarily an internal study. While internal/external distinction is important, if sufficient effort are made to share and coordinate explicit knowledge with external suppliers then this should improve performance. Conversely if there is little or no explicit knowledge inflow from upstream, then a manufacturer will have to seek any improvements internally in its supply side with inventory investment. Sooner or later such a manufacturer will run into performance limiting problems, and over exploitation of internal knowledge leading to corporate inertia. The supply chain management literature as a whole treats low inventory investment as being synonymous with higher levels of organizational efficiency. In keeping with this perspective, low inventory investment is used in this paper as the desired outcome of explicit knowledge inflows.

Downstream in the Supply Chain:
It showed that facets of organizational learning have a positive influence on customer orientation and relationship commitment. In itself this provides no firm evidence to expect improved organizational efficiency, yet it does lead knowledge based support, which suggests that effective firms have more profound long term relationship with their external customers beyond a purely logistics concept. From a marketing knowledge perspective they suggest that performance can be enhanced when a market orientation is combined with organizational learning. Thus, while the existing knowledge literature relating specifically to the customer side of the supply chain is limited; it does provide important theoretical evidence for downstream knowledge inflow that can potentially improve organizational efficiency. The above argument is supported by the supply chain literature that considers downstream issues. Bowersox points to downstream initiative for establishing efficient effective and relevant downstream inventory solution by gaining an understanding of what drives customer purchase behaviour.

Methodology:
The choice of combined qualitative and quantitative methodology is essentially motivated by the need to gain an insight into the implementation and the relevance of the concepts of supply chain management and the performance measurement in the Indian automotive industry. In addition to the review of the academic literature, this research is also based on the secondary data provided by the Automotive Components Manufacturers Association of India, Society of Indian Automotive Manufacturers and the policy documents published by the Indian Ministry of Commerce and Industry.

The fieldwork was carried out in two stages. The first stage was carried through semi-structured interviews of senior managers of Indian auto assembler and component manufacturers. The main objectives of the first stage were to ascertain the issues pertaining to quality of supply chain in the Indian automotive industry and to investigate the main determinants associated with its implementation. Few top managers in charge of operations and supply chain were interviewed. The interviewees were drawn from four major auto assemblers and two auto component manufacturers.

The second stage of the fieldwork was based on a survey .They focused on the concept of performance measurement which includes performance frameworks, performance measures and issues of Quality Management.

Conclusion

The research signifies changes within both the internal and external environment of Indian companies resulting from the introduction of new economic and industrial policies. These policies are helping to create a more liberalized and open economy and fostering competitiveness through learning and innovation. There is an increasing awareness about the need to collaborate with world-class players and enhance performance through the use of new management concepts so as to improve the quality of the performance. Indian companies are increasingly attempting to improve the coordination and integration with their suppliers both within and outside the national boundaries. Learning is important but essentially aimed at the technical capabilities, which is perceived as tangible and easily measurable. This suggests that there is awareness about the need to measure and continuously improve performance. However, this is essentially carried out through traditional models of performance measurement based on tangible factors. There is also a tendency to believe that key factors such as quality, delivery and lead time can be improved by selecting the suppliers who possess significant technical experience and expertise. Performance improvement is essentially focused on the acquisition of technical and tangible factors. It also suggests that performance improvement is not seen as a common task based on shared learning and joint problem solving. It shows that the Indian automotive sector must understand the supply chain performance as highlighted in the literature review. This can improve the supply chain performance.

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