

DIFFERENT BARRIERS CONCERN WITH SUPPLY CHAIN MANAGEMENT: A REVIEW

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Abstract

Supply chain is an important part for the management of different issues rises in an industry. There are different issues, factors and barriers in supply chain that need to be focused. For proper management of supply chain, firstly there is need to focus on different barriers occurs in supply chain. In this paper, identification and proper management of different barriers in supply chain have been carried out.

Keywords: Supply Chain management, barriers

Introduction

Supply chain management (SCM) is the most important part of production system. There has been a growing interest in supply chain management (SCM) since late 80's. SCM has picked up consideration as it spotlights on material, data and money streams from sellers to clients or the other way around. A key element of present day business is the real trick that it is supply chains (SCs) that contend, not organizations (Christopher and Towill, 2001) and the achievement or disappointment of supply chains is at last decided in the commercial center by the end purchaser. Getting the right item, at the perfect time to the purchaser is the linchpin to aggressive accomplishment, as well as the way to survival (Agarwal et al., 2005). SCM takes care of this important objective of the companies for better customer satisfaction and it searches for the joining of a plant with its suppliers and its clients to be overseen right now and the co-appointment of all the info/yield streams (materials, data and funds) so items are created and disseminated at the right amounts, to the right areas, and at the perfect time (Simchi-Levi et al., 2008). SCM has turn into a vital center of upper hand for association business on the grounds that the chance of a coordinated administration of SC can decrease the proliferation of surprising/undesirable occasions through the system and can influence definitively the gainfulness of the considerable number of individuals (Guillena et al., 2005). The principle reason of SCM is to give a key weapon to develop

and improve practical upper hand by expense lessening without trading off consumer loyalty (Mentzer et al. 2001). Since these SCs involve manufacturers, distributors, retailers, as well as consumers, which are spatially dispersed and hence, they are characterized by heightened risks and uncertainty (Nagurney and Toyasaki, 2005). For the success of supply chains, it is very much important to study and analyze the barrier associated with supply chain. In this paper some barriers have been identified for the successful management of supply chain.

1. Barriers in Supply Chain Management

SCM is not an easy task. Many hurdles or barriers are experienced while implementing SCM in any company. Some of these barriers are discussed below:

2.4.1 Vendor Selection Problems in Supply of High Tech Equipment

Vendor selection is a key element in the industrial buying process and appears to be one of the major activities of the professional industries (Patton, 1997). Selecting an appropriate vendor is often a non-trivial task, and is complicated by the fact that various criteria must be considered in the decision making process (Weber et al., 1991). Vendor selection is a vital strategic issue for evolving an effective supply chain and the right vendors play a significant role in deciding the overall performance (Kumar et al., 2010).

2.4.2 Lack of Supply Chain Planning and Coordination

Supply chain planning and coordination (SCPC) is to coordinate the release of materials and resources in the supply network under consideration such that customer service constraints are met at minimal costs. The SCPC problem thus relates to the integration of the Master Production Schedule (MPS), Rough Cut Capacity Planning (RCCP),

Material Requirements Planning (MRP-I) and Capacity Requirements Planning (CRP) functions in the well-known MRP-II framework (Hopp and Spearman, 1996). Information from other parts of the chain is systematically used to planning and control activities. The primary objectives of SCPC are to realize cost reductions by means of lower inventories along the supply chain and efficient use of resources and to improve customer service levels. Recently, the Concept of Collaborative Planning, Forecast and Replenishment (CPFR) has been introduced (Barrat and Oliveira, 2001). Supply chain inefficiencies, like the bullwhip effect, can be counteracted by collaborative supply chain coordination initiatives (Lee et al., 1997). Within this concept, the focus is on designing and operating a joint decision-making process that coordinates the whole material flow between two supply chain partners (Ireland and Bruce, 2000).

2.4.3 Demand Uncertainties

Demand uncertainty (DU) means variation in demand. Demand uncertainty occurs when it is more or less than the requirement. In this, demand chain management will offer the companies new tools and models to develop their businesses in the global scale without missing the link to the end-customers. Jüttner et al., (2007) have introduced demand chain management as an approach that combines the strengths of marketing and SCM to build and manage global business networks. In developing competitive DU, the focus on marketing and SCM has to be changed to the customer and customer-centered supply chains. Jüttner et al., (2007) have defined three aspects of DU such as managing integration between demand and supply processes, managing the structure between the integrated processes and customer segments and managing the working relationships between the marketing and supply chain management.

2.4.4 Lack of Knowledge

Where there is no knowledge of the risks that may occur there is an increased likelihood that these risks will occur and also have a greater impact. According to Hallikas et al. (2004) where there is a greater understanding of the risks that may occur in an SC there is likely to be improved decision making and lower risk to each enterprise involved as well as to the whole undertaking. It is possible to categorise different forms of SC risks in terms of how their occurrence would affect a business and its environment (Harland et al., 2003). It is important for organisations to come collectively to

an understanding of the risks they may face (Jüttner, 2005).

2.4.5 Inadequate IT Infrastructure Resources

Information Technology (IT) and its use in organizations and across the supply chain has become a determinant of competitive advantage for many corporations. It also highlights the contribution of IT in helping to restructure the entire distribution set up to achieve higher service levels and lower inventory and lower supply chain costs. According to Macleod (1994) supply chain managers increasingly want to automate all of the supply chain, from forecasting to distribution, and to link every element of the chain. More and more companies want an integrated solution to enable them to see the entire supply chain at once. Unfortunately for many midsize companies in these times of economic recession, such clarity in global distribution remains largely restricted to major multinationals with deep pockets and volumes large enough to justify the hefty initial investment in IT that can run into millions of dollars.

2.4.6 Lack of Purchase Management

The performance of any firm is largely determined by the effectiveness and efficiency of its purchasing activities. Consequently, purchasing and supply managers are assuming more strategic roles in their organizations. According to Carr and Pearson (2002) purchasing strategy should be the part of overall corporate strategy. The movement towards global sourcing, rapid changes in technology and increased competition requires purchasing to assume more responsibility in the planning and implementation of strategies to support the overall corporate strategy. Hurdles faced by purchasing organizations are on time delivery, quality problems and transportation etc.

2.4.7 High Costs of Implementation

Cost of implementation is also the one of barrier in SCM. Cost is defined as the total amount of currency charged, incurred, or accrued for an item, part, or material from any organization operating as a supplier of goods or services. Cost is one of the leading criteria on which a supplier is selected. This method typically applies pressure on the supplier to reduce their bid price to match the price bid by a separate supplier. A supplier that has been awarded the sale because they quoted the lowest cost has no reason to make any improvements in

the product being supplied. Any defect in the product would likely remain in the design until the item was released for bid next time. So usually the potential supplier with the lowest calculated total cost is the one selected to join the chain of suppliers. Due to increase in the cost of materials supplied, transportation charges etc is directly affect the customers.

2.4.8 Lack of Sharing and Accurate Information

It is crucial for information to be shared where there is decreasing information visibility so that there is less risk including that of catalogue non-availability that includes up to date and standardized profiles of organizations. However, the availability of more information sharing can cause loss of IPR. In order for knowledge sharing to be accepted, an organization must have established values relating to sharing and collaboration as part of their fundamental ethos. Networks must share information because where it is lacking the result may be panic, confused behavior and increased costs (Childerhouse et al., 2003). It is agreed currently by models for SCM that sharing business information is vital, connecting SC completely together (Yu et al., 2001). Information sharing leads to better operational decision making within enterprises which leads to more efficient use of resources and lower costs (Lee et al., 1997). A bond made between two independent members in supply channels is called a supply chain partnership. It is formed by increasing the levels of information sharing in order to lower the total costs and inventories.

2.4.9 Lack of Time and Decision Making

Decision-making is often said to one part of three levels, the strategic, tactical and operational level. Strategic decisions typically deal with market entry and mobilizing resources needed to meet market requirements over time (Muckstad et al. 2001). On the tactical level, medium-level decisions are made, such as weekly demand forecasting, distribution and transportation planning, and materials requirement planning (Huin et al., 2002). The operational level is concerned with the very short-term decisions made from day-to-day (Huin et al., 2002). Dekker and Goor (2000) have presented a categorisation of logistics decision-making using strategic, tactical and operational levels. Strategic logistics decisions concern major capital commitments and long time horizon (typically several years), including the location choices

within a distribution networks or more basic make or buy decisions. Tactical logistics decisions are made on an annual, semi-annual or monthly basis tactical logistics decisions entail choices such as mode of transportation, type of materials handling equipment or layout of warehouses. Operational logistics decision-making relates to day-to-day operations and usually involves low capital investment.

2. Conclusion

The various directions for barriers and their benefits have been found for a successful supply chain management. From the literature, it is found that the main focused issues which affect the whole supply chain are information technology, performance measurement, lack of time, demand uncertainties flexibility and logistics etc. Among all the barriers, some of the important barriers in SC have been identified so that they can be analyzed for a successful supply chain management. It is concluded that industries should focus on the important barriers rather than non productive barriers, and try to improve by removing the barriers in the way of successful developed supply chain management. Some strategies should be developed to tackle the barriers, and to identify the key areas by utilizing the different methodologies tools and techniques.

References

1. Agarwal, A. and Shankar, R. (2005), 'Modelling the metrics of lean, agile and leagile supply chain: an ANP-based approach', *European Journal of Operational Research*, Vol. 173, No. 1, pp. 211–225.
2. Barratt, M., and Oliveira, A. (2001), 'Exploring the experiences of collaborative planning initiatives', *International Journal of Physical Distribution and Logistics Management*, Vol. 31, No. 4, pp. 266-289.
3. Carr, A. S., and Pearson, J. N. (2002), 'The impact of purchasing and supplier involvement on strategic purchasing and its impact on firm's performance', *International Journal of Operations and Production Management*, Vol. 22, No. 9, pp. 1032-1053.
4. Childerhouse, P., Aitken, J. and Towill, D.R. (2002), 'Analysis and design of focused demand chains', *Journal of*

- Operations Management, Vol. 20, No. 6, pp. 675–689.
5. Christopher M. and Towill D. (2001), 'An Integrated Model for the Design of Agile Supply Chains,' *International Journal of Physical Distribution and Logistics Management*, Vol. 31, No. 4, pp. 235-246.
 6. Dekker, H. C., and Van Goor, A. R. (2000), 'Supply chain management and management accounting: a case study of activity-based costing', *International Journal of Logistics*, Vol. 3, No. 1, pp. 41-52.
 7. Guillén, G., Mele, F. D., Bagajewicz, M. J., Espuna, A., and Puigjaner, L. (2005), 'Multiobjective supply chain design under uncertainty,' *Chemical Engineering Science*, Vol. 60, No. 6, pp. 1535-1553.
 8. Hallikas, J., Karvonen, I., Pulkkinen, U., Virolainen, V. M., and Tuominen, M. (2004), 'Risk management processes in supplier networks', *International Journal of Production Economics*, Vol. 90, No. 1, pp. 47-58.
 9. Harland, C., Brenchley, R. and Walker, H. (2003), 'Risk in supply networks', *Journal of Purchasing and Supply Management*, Vol. 9, No. 2, pp. 51–62.
 10. Hopp, W., and Spearman, M. (1996), 'Factory physics: foundations of factory management', *Invin McGraw Hill*, Chicago, IL.
 11. Huin, S.F., Luong, L.H.S. and Abhary, K. (2002), 'Internal supply chain planning determinants in small and medium-sized manufacturers', *International Journal of Physical Distribution and Logistics Management*, Vol. 32, No. 9, pp. 771-82.
 12. Ireland, R., and Bruce, R. (2000), 'CPFR: only the beginning of collaboration. Supply chain management review, Vol. 4, No. 4, pp. 80-88.
 13. Jüttner, U., Christopher, M., and Baker, S. (2007), 'Demand chain management-integrating marketing and supply chain management. *Industrial marketing management*, Vol. 36, No. 3, pp. 377-392.
 14. Kumar, S.K., Tiwari, M.K. and Babiceanu, R.F. (2010), 'Minimisation of supply chain cost with embedded risk using computational intelligence approaches', *International Journal of Production Research*, Vol. 48, No. 13, pp. 3717–3739.
 15. Lee, H.L. and Ng, S.M. (1997), 'Introduction to the special issue on global supply chain management', *Production and Operations Management*, Vol. 6, No. 3, pp.191–192.
 16. Mentzer, J. T., DeWitt, W., Keebler, J. S., Min, S., Nix, N. W., Smith, C. D., and Zacharia, Z. G. (2001), 'Defining supply chain management,' *Journal of Business logistics*, Vol. 22, No. 2, pp. 1-25.
 17. Nagurney, A., and Toyasaki, F. (2005), 'Reverse supply chain management and electronic waste recycling: a multitiered network equilibrium framework for e-cycling,' *Transportation Research Part E: Logistics and Transportation Review*, Vol. 41, No. 1, pp. 1-28.
 18. Patton, W. E. (1997), 'Individual and joint decision-making in industrial vendor selection', *Journal of Business Research*, Vol. 38, No. 2, pp. 115-122.
 19. Simchi-Levi, D., Kaminsky, P., Simchi-Levi, E. and Shankar, R. (2008), 'Designing and Managing the Supply Chain: Concepts, Strategies, and Cases', 1999, McGraw-Hill, New York.
 20. Weber, C., Current, J. and Benton, W.C. (1991), 'Vendor selection criteria and methods', *European Journal of Operational Research*, Vol. 50, No. 1, pp.2–18.
 21. Yu, Z., Yan, H., and Edwin Cheng, T. C. (2001). Benefits of information sharing with supply chain partnerships. *Industrial management and Data systems*, Vol. 101, No. 3, pp. 114-121.