
Productivity improvement of manufacturing industry through supply chain management

DEEPIKA PATEL¹, NITIN VISHWAKARMA²

1. M.TECH SCHOLAR, DEPT. MECHANICAL ENGG., INFINITY MANAGEMENT & ENGINEERING COLLEGE, SAGAR (M.P.) INDIA

2. HOD, MECHANICAL ENGG., INFINITY MANAGEMENT ENGINEERING COLLEGE, SAGAR (M.P.) INDIA

ABSTRACT:

Supply Chain Management (SCM) focuses on sourcing, producing, delivering goods & services to end customers for gaining competitive advantage, cost reduction, increased quality, improved customer service etc. Its success is dependent on adopters developing specific capabilities, supply chain collaboration, open communication and outsourcing non-core competencies.

The dimensions covered by SCM are inventory, information sharing & technology, transportation, warehousing, trust, commitment & cooperation among partners and customer satisfaction. This paper primarily identifies the supply chain problems commonly faced by manufacturing firms and their impacts on pricing strategy to the entire supply chain. A range of solutions are suggested to address these problems, furthermore the applicability of each of these solutions significantly depends on their social ramifications that are systematically evaluated.

KEYWORDS:

cost reduction, manufacturing, pricing strategy, social ramifications, Retailers, Customers

INTRODUCTION

Supply chain management is a systematic approach to managing the distribution of goods from producers of raw materials, through manufacturers and eventually down to end users. Supply chain management affects manufacturing companies in a variety of ways, including the availability of inputs needed for production processes, costs and profitability of manufactured items, company infrastructure and ways in which companies interact with their suppliers and customers. Understanding the ways that supply chain management affects manufacturers from both a daily operational perspective and a strategic viewpoint is important for all managers and entrepreneurs in the industry. Supply Chain management constitutes the series of interdependent upstream, manufacturing and downstream processes targeted at transforming raw materials into products to meet customer demand. It has become common practice across industries since it addresses long-term strategic alliance, supplier-buyer partnerships, cross-organizational logistics management, joint planning, control of inventory, and information sharing. Effective supply chain management will lead to a lowering of the total amount of resources required to provide the necessary level of customer service to a specific segment and improving customer

service through increased product availability and reduced order cycle time. Invalid source specified.

The objective of every supply chain should be to maximize the overall value generated. The value a supply chain generates is the difference between what the final product is worth to the customer and the costs the supply chain incurs in filling the customer's request.

A typical supply chain may involve a variety of stages. These supply chain stages include:

- Component/raw material suppliers
- Manufacturers
- Wholesalers/distributors
- Retailers
- Customers

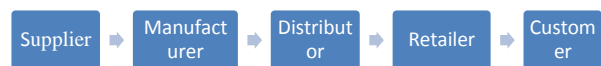


Figure 1: The Basic Supply Chain

The need to eliminate waste, embrace new Technologies, improve on supplier/ customer Relations, better manage inventory, comply with regulation, and be more cost efficient is becoming more apparent in the quest to achieve operational excellence

LITERATURE REVIEW

Since the decade of 1990's supply chain area has caught the attention of researchers and ever since various streams in supply chain

have evolved, namely – Supply Chain Management (SCM) strategy, SCM framework, trends & challenges, SCM alliances & relationships, logistics development, supplier development, IT integration, Vendor Managed Inventory (VMI), quality in supply chain, reverse SCM, green SCM, environmental & social issues in SCM, Marketing practices, Technology management etc.[1] Supply chain management is, "a set of three or more entities (organizational or individuals) directly involved in the upstream and downstream flow of products, services, finances, and/or information from source to customer"[2]

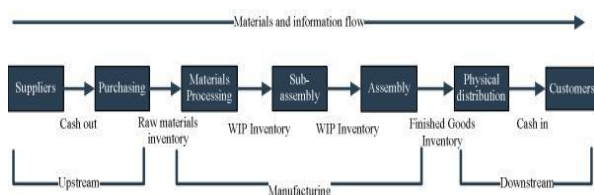


Fig:- 2 Illustration of the upstream, manufacturing and downstream activities within the SC

Based on literature, we find that the important supply chain practices concerns are mainly related to:

- Supply Chain Collaboration and Partnership with various stakeholders such as the product developers, suppliers, channel partners and end-users
- Supply Chain Structure including facilities network design taking into

account related transportation and logistics.

- Forecasting and Demand Management to cope with supply chain complexity in a cost effective and delivery-efficient way.
- Use of Information and Communication Technologies (ICT) to facilitate the above.

The best supply chain practices are the initiatives that influence the whole supply chain, its parts or key processes [3]. Ref. [4] stated that on the other hand used eleven supply quality-management practices to study and test manager's perception on the association between supply-chain quality management practices and organizational performance. The eleven factors were: top management leadership; training; product design; supplier quality management; process management; quality data reporting; employee's relations; customer's relations; benchmarking; supplier selection; and supplier participation. Despite the increasing popularity of SCM, most organizations have not fully implemented it to exploit the benefits. Most challenging aspect of SCM is the lack of understanding of the supply chain management concept.

There is little literature on logistics and SCM practices in India. Available literature focuses either on the best practices. In context of ICT, compare the manufacturing intent to be an manufacturer and their Information Technology ((IT) infrastructure in terms of scope

- develop assessment/ranking criteria for main suppliers and action arrange and tips e.g. for low concern communicate policy, for top concern need data on harmful materials, train purchasers in necessities and procedures
- identify suppliers wherever a partnership vogue may well be adopted and work with these directly on addressing problems, providing
- support wherever applicable integrate into existing buying processes as well as provider analysis for pre-selection, tender specification, marketer rating, provider auditing and quality programmers
- obtain information by appropriate methods including meetings, seminars, site visits and questionnaires

Where a company is involved in manufacturing and design, it will need to implement an eco-design management process alongside SCM. Where it is at the end of the supply chain, the marketing and purchasing functions, in consultation with environmental specialists, are likely to have a relatively greater role.

Where an organization is subject to Eco-design needs from customers it has to decide a way to respond. These needs might not be clear therefore the 1st stage is also to hunt clarification. It's going to be merely an

invitation for information which might be pronto equipped or obtained. If vital enhancements square measure needed and therefore the customer/markets square measure sufficiently necessary then the corporate might conceive to improve relevant aspects of its environmental management, or implement a full environmental management system. As a result the provider might conceive to implement Eco-design Processes of its own

POSITIVE IMPACT OF SUPPLY CHAIN MANAGEMENT

The main dimensions covered by SCM are inventory, information sharing & technology, transportation, warehousing, trust, commitment, cooperation between partners, quality management.

1) Inventory Management

Management of inventory has received extended attention over the years thanks to rising client service, hedging against worth changes & contingencies, achieving production, purchase & transportation economies, protective against demand uncertainties and equalization offer & demand. Stock holding of seasonal merchandise, that area unit slow moving, critical, perishable and whose peaks area unit comparatively sure area unit to be decreased, building them solely throughout peak

demand amount. Furor merchandise with extremely unpredictable level of demand, high criticality and long lead times, basically should hold high level of stocks thereby permitting index for delivery, lead times and demand fluctuations.

2) Information Sharing and Technology

The hard data generated by modern information technology in combination with the “qualitative” information collected by SCM provides the means for cross functional teams to respond resourcefully to the environment. Modern information systems are based on material flows and logisticians are well positioned to collect, act on and disseminate information concerning customer needs across the supply chain. It serves as a connection between the various stages of supply chain allowing them to coordinate their actions and schedule daily operations.

3) Transportation Management

Many firms found that production enhancements in quality, flexibility and output time don't have their full impact within the market place while not the corresponding development of logistics/transportation systems. firms these days needs glorious turned logistics/transportation processes for keeping guarantees to customers and maintaining.

Acceptable inventory levels & expenses.

Transportation is defined as managing the movement of goods (i.e. components, raw materials, supplies, equipment) from the point of origin (the supplier) to the manufacturer (inbound transportation) via truck, air, rail, water, pipeline or some combination thereof and maintaining the flow of finished goods from plant, through the distribution, concluding with delivery to the final customers

4) Warehousing Management

Warehousing management is defined as “the direct control of handling equipment producing movement and storage of loads without the need for operators or drivers”. Warehousing as a important activity in provide chain outperforms competitors on client service, lead times, prices embrace processing and inventory prices and helps in swish movement of products. Sound deposit methodology in operations ends up in the distribution of products from the assembly line to the purchasers economically and duly, employing a shorter path philosophy and avoiding needless waiting time. Deposit management in SC attributes for general sales growth by potential enhancements in productivity, order accuracy, reduced area necessities, redoubled volume capability, management of inventory and redoubled client service. With the arrival of provide chain management, warehouses serve a strategic role of achieving the provision objectives of reduced cycle times, inventories and redoubled client

service levels.

5) Quality Management

In addition, by making quality management an integral element of the supply chain, companies can avoid being simply reactive to the requirements of their supply chain customers and can strive to meet their demands more proactively. Quality management in SC assists in building relationship with the customers for improvements in profitability, serviceability, reduced costs in the supply chain and improvement in business performance by enhancing customer satisfaction & customer loyalty.

6) Customer Satisfaction

Customer expectations have ascended to very high standards and it becomes crucial for the marketer to retain & build long term relations with customers. Companies through effective supply chain management are focusing on revenue increasing methods, cost reduction and improving customer satisfaction. The supply chain management assists in fulfilling the demand and place desires of its customers and builds relationships between channel members with concentrate on their future retention.

CONCLUSION

Internal supply chain activities such as production planning, information system, and inventory control and warehouse management are main

problems. It is thus necessary to have a good practice on industrial management. The dimensions covered by SCM are inventory, information sharing & technology, transportation, warehousing, trust, commitment & cooperation among partners and customer satisfaction. reduced logistics, reduced material purchasing costs, increased workforce efficiency and improved customer responsiveness. A supply chain consists of all parties involved, directly or indirectly, in fulfilling a customer request. The supply chain not only includes the manufacturer and suppliers, but also transporters, warehouses, retailers, and customers themselves.

REFERENCES

1. Carter, C.R. & Ellram, L.M. (2003) Thirty-Five Years of the Journal of Supply Chain Management: Where Have We Been and Where Are We Going?. *Journal of Supply Chain Management*, Vol. 39, n.2, pp. 27-39.
2. Mentzer, J. T., DeWitt, W., Keebler, J. S., Soonhoong M., Nix, N. W., Smith, C. D., and Zacharia, Z. G. (2001), "Defining Supply Chain Management", *Journal of Business Logistics*, 22(2), pp. 1-25.
3. Cuthbertson R, Piotrowicz W (2008), Supply chain metrics – review of supply chain best practices, *International Journal of Productivity and Performance Management* 57(5): 389-404
4. Kuei, C., Madu, C.N., (2001). Identifying critical success factors for supply chain quality management. *Asia Pacific Management Review* 6 (4), 409–

5. Donovan R.M. (2005), SC Management:Cracking the Bullwhip Effect Part 3
6. Dowlatshahi, Shad, Production & Inventory Management Journal, 1999 1st Quarter, Vol. 40 Issue 1, p27-35, 9p; (AN 11934250)
7. Gopal, G. McMillan, E. “Synchronization: Acura for Bad Data Innovation” New ways of SC Management Review – May/June 2005
8. Gopal, G. McMillan, E. “Synchronisation: Acura for Bad Data Innovation” New ways of SC Management Review – May/June 2005
9. D. J. Bowersox,D. Closs, and T. P. Stank, 21st Century Logistics: “Making Supply Chain and Integration”, Harvard Business School Press, Boston, Mass, USA, 2nd edition, 2001.
10. Lee, H. L., Padmanabhan, V. and Whang, S: “Information Distortion in a Supply Chain: The Bullwhip Effect, Management Science”, 2004
11. Nyaga et al: “Supply chain collaboration: A literature review and empirical analysis to investigate uncertainty and collaborative benefits in regards to their practical impact on collaboration and performance”, 2010