Lean Supply Chain Strategies to Improve Business Performance
Navneet Keshav Patil¹, Dr. N. V. Halegowda², Dr. V. S. Patil³

¹Research Scholar, Department of Mechanical Engineering, North Maharashtra University, Jalgaon, India
²Principal, Adsul's Technical Campus, Chas, Dist. Ahmednagar, India
³Professor, University Institute of Technology, North Maharashtra University, Jalgaon, India

Abstract — Today lean supply chain became a vital tool used for enhancement of organizational performance. The manufacturing sector has moved from vertically organizational structure to horizontal organization; that is today’s companies located anywhere in the world control only pieces of the supply chain. This enable companies to focus on the finest part but supply chain has become more complex. Owing to supply chain as a target oriented network of processes and stock points used to deliver goods or services to customers, lean strategies are imbibed for coordinating within and between firms with a focus on eliminating waste, achieving efficiency, or overburden and creating value in products. Lean Supply Chain provides rapid response to customer needs. Most significant part of lean supply chain strategies is that substantial improvement is achieved using existing equipments.

Keywords — Supply Chain, Lean, Stock points, Inventories.

I. INTRODUCTION

In today’s global market supply chain became a vital entity to the organizations performance measurements. To support this, research team from Stanford University and Accenture showed a statistical correlation between companies with a supply chain strategy and important financial success. Boyson (1999) studied that number of companies seek to enhance performance beyond their own boundaries through supply chain management. However, only a few companies use new organizational concepts and technological solutions strategically in a supply chain. The manufacturing sector has moved from vertically organized structures to horizontal organizations; that is today’s companies located anywhere in the world control only pieces of the supply chain. This enable companies to focus on the finest part but the supply chain has become more complex. According to Wallace Hopp, a supply chain is a target oriented network of processes and stock points used to deliver goods and services to customers. Processes correspond to the individual activities involved in producing and distributing goods and services. They could be manufacturing operations, engineering design functions, service operations, or even legal proceedings. Definition involves stock points, which represent locations in the supply chain where inventories are held. These inventories may be the result of deliberate policy decisions (retail stocks) or the consequence of problems in the system (defective items awaiting repair). It is vital to include stock points in the definition of a supply chain as managing inventories is a key component of effective supply chain management. One efficient strategy for coordinating within and between firms with a focus on eliminating waste, achieving efficiency, or overburden and creating value in products is the concept of lean management.

II. SUPPLY CHAIN MANAGEMENT

Supply chain management integrates and coordinates topics from manufacturing operations, purchasing, transportation, and physical distribution into a unified program into a seamless process. Bernard J. (Bud) LaLonde, professor emeritus of Supply Chain Management at Ohio State University, LaLonde defines supply-chain management as follows: “The delivery of enhanced customer and economic value through synchronized management of the flow of physical goods and associated information from sourcing to consumption”. Seventy-five percent or more of respondents included the following activities as part of their company's Supply Chain Management department functions like Inventory management, Transportation service procurement, Materials handling, Inbound transportation, Transportation operations management and Warehousing management. Consistent application of appropriate information technology throughout the Supply Chain Management pipeline results in shortened cycle times and lowered effort.
Supply Chain Management becomes a tool to carry out corporate strategic objectives like reducing working capital, accelerating cash-to-cash cycles, taking assets off the balance sheet increasing inventory turns, and so on. Supply chain design as consisting of two parts; ensuring operational fit with strategic objectives and achieving maximal efficiency within the constraints established by strategy.

2.1 Implementation of Supply Chain Management in an organisation

The important characteristic of firms that could apply SMC is the will to accept innovations and new methods of working. The following steps are required to achieve superior performance for implementation of supply chain management.

- Various requirement to align the supply chain with the business strategy
- Various level of customer services to be provided to each customer segment
- Various channels of distribution that best meet our goals and our customers’ needs
- Structured physical network of plants and distribution
- Rationalisation of current network
- Use of contract manufacturing or third-party logistics capabilities
- Best transportation services that link together the network of facilities
- List of activities that can be outsourced
- Identification of core supply chain processes driving the business
- Adoption of best-in-class approaches to current core processes
- Design effective linkages with suppliers and customers
- Level of cross-functional integration required to manage core processes effectively
- Leverage cross-company skills and abilities
- Effective performance-measurement and reporting structure
- Use of IT platform and core applications software

2.2 Challenges in SCM

Several issues exist in the global supply chain processes. One of the most common problems in supply chains is the so-called bullwhip effect. Sharing of information is another challenge as the companies in a supply chain may not be prepared to share their production data, lead time, etc. The difficulties of formulating and adopting a new process, the lack of teamwork between vendors, and the difficulty of inter-organizational coordination are also the major challenges in SCM.

Thorough cost/benefit analysis lays the essential foundation for prioritizing and sequencing initiatives, establishing capital and people requirements, and getting a complete financial picture of the company’s supply chain—before, during, and after implementation.

3. LEAN SUPPLY CHAIN (LSC)

Nowadays supply chain had got entangled between entire flow of product and production process. To make supply chain management efficient concept of lean is to be introduced. This will automatically provide a boundary line between manufacturing and supply chain logistics. Application of lean to supply chain converts the process of pushing of product by
the company to pulling of product by the customer. LSC enables to define the product value form the customer’s point of view instead of companies. It is a continuous process which never ends to eliminate waste in materials, manpower and processes. Process standardization, product standardization, demand management, collaboration and cultural change are necessary attributes of lean supply chain. Enterprise resource planning technology tuned with process plays a key part of developing lean supply chain management process. Proactive approach is required to develop sound communications within and among customer and supplier firms. Organization must study the causes and drivers of waste and non-value added activities and processes. The eight wastes in lean are: Defects, Over-production, Waiting, Non-utilized talent, Transportation, Inventory, Motion and Extra-processing, acronym as DOWNTIME.

Fig. Eight Wastes in Lean

LSC represents a hybrid approach in supplier partnerships and strategic alliances. In horizontal integration organization buys all inputs from outside specialized suppliers. In such case there is lower production costs and higher coordination cost. In vertical integration organization produces all required inputs in house only.[3] This process involves high production costs and lower coordination costs. Lean approach optimizes both customized and standardized inputs. Such model confers lowest production costs and coordination costs.

4. LEAN SUPPLY CHAIN PERFORMANCE

Lean Supply Chain is a combination of two separate but complementary process improvement methodologies. Applying lean to supply chain involves following procedures.

i) Analyzing: Study the existing processes and proper documentation is done.

ii) Modeling: Simulating different alternative scenarios for improving performance

iii) Information Technology: Organizations need to recognize that information technology is more than just computers. Communication technologies, data recognition equipments, factory automation and other hardware and software’s comes under information technology.

iv) Execution: Core team is restructured by empowerment of people, use of technology, promotion of creative thinking, flexibility, higher satisfaction level, building corporate culture of openness and continuous performance improvement.

v) Monitoring: Continuous tracking and tuning of processes is established.

vi) Control: Short term and long term changes in demand patterns, quicker response to unexpected events and improvement in customer satisfaction is controlled.

5. CONCLUSION

Lean supply chain provides rapid response to customer needs. It also shortens process cycle time, reduces “bull whip” effect, reduces inventory costs, improves customer services, reduces communication gap among different levels. Enhancement in inter-organizational information systems is achieved in lean supply chain integration. Most significant part of lean supply chain strategies is substantial improvement is achieved using existing equipments. Decisions for implementing LSC is easy during management review it as a strategy for increasing competitiveness, revenues, profit margin, market share, reducing labour and inventory costs. Study shows that consistency of reliability and validity in performance improvement depends on types of industries and competitiveness in market. Furthermore, scope of research exists in clustering of related industrial areas.

REFERENCES

Open Access, Croatia, September 2011.