

# Supply Chain Management: Challenges of New Global Competition

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## ABSTRACT

Supply chain management (SCM) is an integral part of our daily life. The supply chain concept has become a concern due to global competition and increasing customer demand for value because the companies try to improve their industrial performance in term of cost, delays, adaptability, variety and traceability. Supply chain management is one of the most important and developing area. The original motive of supply chain is “elimination of barriers within the organization as well as among the trading partners to facilitate synchronization of information between them. The aim of this paper is to explore the recent supply chain management and its challenges. In this study identify critical success factors for Industrial Engineering in India. In the present era of intense competition, manufacturing companies are under increasingly diverse and molting pressure due to more sophisticated markets, changing customer choice and global competition.

**Keywords:** Supply chain management, Enterprise resource planning, Green supply chain management, global competition.

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## INTRODUCTION

The term supply chain management (SCM) is made up of three words, supply + Chain + Management .The term supply chain management was coined in 1982. Current research work of supply chain management includes all activities and processes involving planning, coordination, control, operation and optimization of the whole supply chain system. Supply chain management influences more than large number of human and economic activity. A supply chain management is a system of organization, people, activities, information and resources involved in moving a product or services from supplier, manufacturer, and distributor to the end customer [17]. A supply chain is a set of facilities, supplies, customers, products and method of controlling inventory during production, controlling the unnecessary movement of the inventory, purchasing and distribution [18].The logistics function in supply chains is concerned with the efficient coordination of all entities, activities and resources involved in moving a product or service from its origin to final customers. Supply chain management encompasses all activities involved in the transformation of goods from the raw material stage to the final stage when the goods and services reach to the end customer. In order to attain competitive advantage over the rivals, various business houses are paying more attention towards the end consumer, i.e. customer. Supply chain management (SCM) is one of the most important and developing areas. It includes basically demand fulfillment, demand planning and supply planning. It integrates internal and external logistics across many manufacturers, suppliers, distributors, retailers, and transportation providers to increase productivity and to obtain a competitive advantage for all parties involved. In today’s globalize and highly competitive business era the manufacturing organizations have begun to realize that in order to gain and sustain the competitive advantage they have to deliver the best customer value at the lowest possible cost [12]. In this study emphases on the Enterprise resource planning, Green supply chain management practices, Information sharing through technology.

## CHALLENGES OF NEW GLOBAL COMPETITION

- Competition- the corporate business Olympic
- Value innovation - strategic logic for high growth
- Creating a new value curve
- Creating industry break points

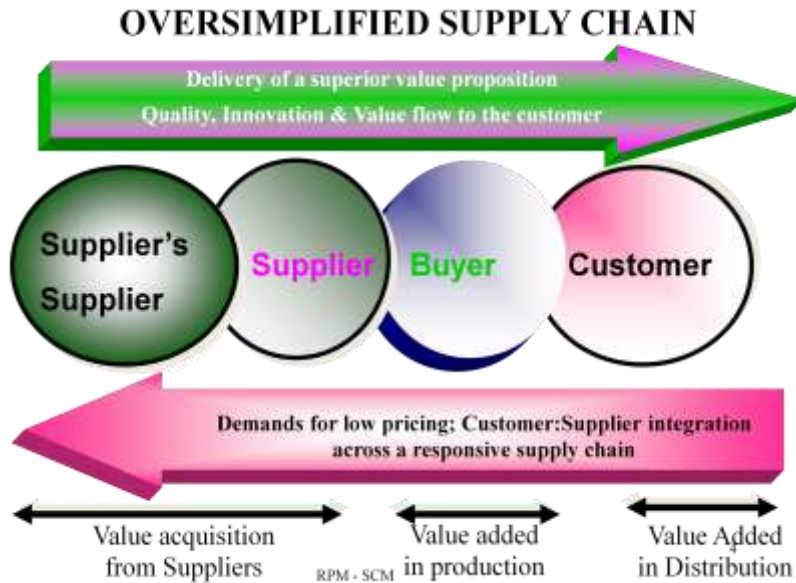
## COMPETITIVENESS

F<sup>n</sup> (Competitive Assets, Competitive Process)

Supply Chain is a Competitive Asset.

Competitive Process attributes include:

- Service ,Agility, Velocity, Responsiveness, Quality, Cost ,Innovation



SCM: What?

### SUPPLY CHAIN MANAGEMENT AS A LOOP:

- It starts with the customer and it ends with the customer.
- Through the loop flow all materials, finished goods, information, and all transactions.
- It requires looking at the business as one continuous, seamless process.
- This process absorbs distinct functions such as forecasting, purchasing, manufacturing, distribution, sales and marketing into a continuous business interaction.

**Definition of Supply Chain Management:**

Supply Chain Management is that coordinated function responsible to: plan for, acquire, store, move and control raw materials, work-in-process, finished goods, so as to optimize the usage of: physical facilities, manpower, capital funds and improve customer services (Pre-transaction, transaction, post-transaction) in line with corporate goals; profit, growth, and survival.

**SCM: How?**

Six Keyholes

To develop and implement supply chain agility, there must be an optimal balance in six key areas. [Six decisions of SCM]

Ø Production, Ø Supply, Ø Inventory, Ø Location, Ø Transportation, Ø Information.

## Pathway to effective SCM



The pathway to effective SCM

Advanced SCM relies on four success factors being in balance

*How Supply Chain participants collaborate and share information*

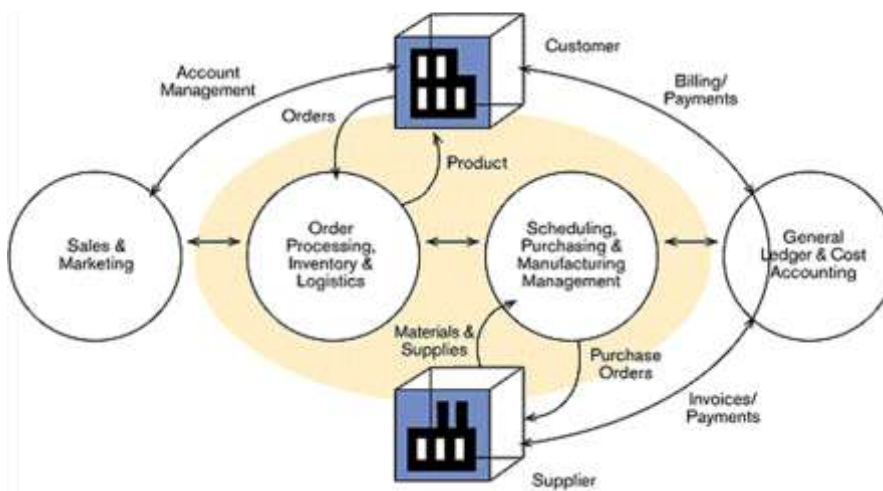
*The level of standardization along the Supply Chain, e.g. data, milestones, metrics, responsibilities*



*How we use technology to create new opportunities and to support existing processes*

*How professionally we operate our basic business functions in the supply chain*

## SUPPLY CHAIN BUSINESS MODEL



**ACTION PLAN:**

- Efficient Customer Response (ECR)
- Centralized Distribution Centers and Cross Docking
- Demand Forecasting and Planning
- Cycle Time Compression/ Lead Time Reduction
- Synchronized Production

- Just-in-time applications
- Improvement in purchasing efficiency
- Improvement in quality and delivery performance of suppliers
- Isolation of factors that influence the cost of material.
- Removal of unnecessary cost factors in the materials supply system.
- Outsourcing
- Third party purchasing
- Supply base Reduction
- The Use of sourcing teams
- Co-location of buyer and supplier
- Strategic alliances with suppliers
- Time based purchasing
- Supplier Managed Inventory
- Consolidation of vendors
- JIT purchasing: Reduced lot sizes. Frequent and reliable delivery schedules. Reduced and highly reliable lead times consistently high quality levels for purchased materials.
- Each of these elements constitutes a major benefit to the purchasing firm, not the least of which is shorting the procurement cycle.
- Streamlined Logistics and Distribution
- Driving Out Complexity in Purchasing/Distribution
- Capability Development in the Supply Chain
- Transaction cost management
- Use of EDI
- Organizational integration by restructuring

#### **POTENTIAL FOR SUPPLY CHAIN IMPROVEMENTS**

- Costs of Distribution
- Total Resource Employed
- Manufacturing Space
- Investment in Tooling
- Raw Materials Purchase Costs
- Order Cycle Time
- New Product Development Cycle
- Inventory
- Paperwork and Documentation
- Quality Defects

#### **ACTIONS OF PRIORITY**

- Set Immediate Goals for Inventory Reduction
- Locate Principal Bottlenecks and Target Them
- Review and Develop Appropriate Supplier Selection Criteria
- Apply the Criteria to Rationalize the Supply Base
- Identify a Number of Pilot Project Areas for Greater Supplier Involvement
- Experiment With Alternative Forms of Inventory Management With Suppliers Accepting Greater Responsibility for Replenishment
- Set up Joint Purchaser-supplier Training Programs
- Launch a Complexity Reduction Program Across Low Value Purchasing

#### **SOME POSITIONS**

Rule 1: -Only make products which you can quickly dispatch and invoice to customers.

Rule 2:-Only produce in one period those components to need for assembly (blending) in the next period.

Rule 3: -Minimize the material throughput time, i.e. compress all lead times.

Rule 4: -Use the shortest planning period. i.e. the smallest run quantity which can be managed efficiently.

Rule 5: -Only take deliveries from suppliers in small batches when needed for processing or assembly.

Rule 6: -Eliminate all process uncertainties.

Rule 7: -Understand, document, and simplify the whole supply chain.

Rule 8: -Ensure all information is up-to-date and undistorted.

Rule 9: -Ensure all relevant operations information is visible at all points within the total supply chain.

Rule 10: -Use only proven decision support systems based on appropriate feedback and feed forward logic.

### **SOME BEST GLOBAL PRACTICES:**

Measures “Service Performance to Customer”

Measures Nortel’s end-to-end affectivity in: Cycle Time, Delivery, Order Management Costs, Asset Velocity

Integrates Internal Functions, Suppliers and Customers

Integrates Processes & Applications

### **KEY MEASURES**

Interval (days) to Accept and Deliver an Order

Performance of 100% Complete Delivery

Order Management as % of Revenue

Cash to Cash Cycle in Days

Inventory Days to Support Business

Receivables

### **POTENTIAL AREAS FOR RESEARCH**

- Agile Supply Chain: Design, Development, Validation
- Measurement of Flexibility in the Supply Network
- Capability Integration of Trading Partners
- Issues Such as Capacity, Commonality, Schedule Nervousness, Lead Time Uncertainty in the Broader Context of Supply Chains
- Vendor Managed Inventory Systems and Development of Optimal Gain Sharing Proposal for Negotiation

### **INTEGRATED OPERATIONS IN SUPPLY CHAIN**

- Study of technical challenges relating to data and information integration and application integration
- Micro environmental challenges like; transactional cost analysis, operational flexibility
- Macro environmental challenges like; culture and change, competence globalization
- Impact of supply chain fit on financial performance of the firm
- Collaboration between stakeholders
- Information coordination in the supply chain
- Mapping and optimization of financial flows in logistics
- Supply Chain Risk Management
- Operational, Financial and other kinds of risk.
- Data mining for Supply Chain Management
- Customer Relationship Management
- Supplier Relationship Management
- Supply Chain Event Management

### **Green SCM**

Green Operations of manufacturing Supply Chain

Low carbon green manufacturing Supply Chain : Design and operation

Reverse manufacturing Supply Chain

Green by-product synergy and industrial symbiosis

Green Supply Chain and industrial ecology

Measurement of resource use efficiency

## SUPPLY CHAIN QUALITY MANAGEMENT

Studying cost of quality in manufacturing/ construction/ service supply chain  
Impact of supply chain quality management on supply chain performance (efficiency and responsiveness)

### RESEARCH OPPORTUNITIES

- Design of a flexible and responsive architecture for Humanitarian logistics.
- Role and Impact of Information Technology in managing the supply chains.
- Comparison of Humanitarian logistics with traditional supply chains.
- Investigation into the Coordination problem
- Design and development of performance measurement systems
- Identification of specific competencies for managing such supply chains.
- Evolution of Standards for humanitarian logistics.

### PUBLIC DISTRIBUTION SYSTEM

- In India, public distribution system (PDS) offers very interesting scope. Due to huge population below poverty line, public goods need to be distributed through PDS. This chain involves both service as well as production considerations. PDS occupies a major share of our economy, both in terms of employment and the benefits that it generates. This chain manifests itself in a variety of application of formal supply chains. Though the PDS contributes significantly, its contribution has not attracted the attention it deserves.
- There is huge gap between the way supply is organized and the way the distribution is organized.
- Often there are no "best practices" available for unorganized sector such as PDS. Mapping of such best practices from organized to unorganized is a big challenge.
- Process benchmarking of PDS supply chains.
- Estimation of losses in PDS.
- Mapping of Quality Cost(Prevention, Appraisal and Failure costs)framework associated with PDS.

### SOCIAL NETWORKING AND SUPPLY CHAINS

Today, social networking sites such as Facebook, Zorpia, LinkedIn etc. have gained immense popularity. These sites have changed the way people correspond and interact with each other. Thanks to web 2.0, these sites offer an interesting, and interactive medium. The voice of customers can be heard and an appropriate response can be developed. The interface of marketing and distribution can be substantially improved by deploying such social networking. Crowd sourcing is being increasingly recognized as a valid mechanism to leverage collective knowledge base which otherwise could have gone unnoticed.

- Supply chain vulnerability is a relatively new and not much explored area in SCM. Such vulnerability may occur on account of various reasons. It may be due to risks, due to supplier not supplying adequate quantity or quality or both, uncertainties in logistics, transportation, machine break downs, etc. Today, there is one more significant source of vulnerability- that is due to information , information systems or information technology. Information is a vital corporate asset having value to an organization and consequently needs to be protected
- Today's supply chains entail a constant flow of information spanning different business processes across the network. Developments in IT have resulted in improving response times drastically and setting up of large databases, which store highly valuable and sensitive data. However, these developments have also offered interesting opportunities for "Cyber crimes" and also potential opportunities for breaching the information network through hacking.

### RESEARCH OPPORTUNITIES

- i. Exploration of Data security issues - Information leakage & misappropriation in supply chain networks can lead to demand overriding information, thus causing distorted view of the entire chain. The product and service deliveries may not be in tune with expectation of customers. Vital Information related to design, operation or distribution may be passed on to wrong hands (may be to the competitor) causing loss of competitive edge . Quantification of such contingencies and consequently evolving a data secure architecture could provide ample scope for research.
- ii. Examination of Technology related issues- Vulnerabilities in IT infrastructure may not be adequately controlled. There could be legacy issues related to migration of technology platform from one version to another or due to compatibility

- issues due to different technology providers. Examining such technology related issues and suggesting appropriate technology platform based on a set of comprehensive attributes could be an interesting area for researchers.
- iii. Issues related to Standards- Various standards are evolving to streamline supply chain operations from security aspects. Interoperability of such standards, their impact and implementation guidelines for such standards will offer a good opportunity for exploration.

### SUPPLY CHAIN MANAGEMENT - SCENARIO

According to some authors mentioned in the literature review they suggested that in the supply chain management practices whole organization is cope up using the Enterprise resource planning (ERP). Enterprise resource planning system is an important tool for business process planning, information flowing, execution and controlling, regarding the sources of the manufacturing industries. Supply chain management and ERP system both are working together and enhance the efficiency and industry performance [7]. The coordination costs may include communication as well as administration costs. These costs might be eliminated with the help of ERP implementation within and outside of the industries [11]. Enterprise resource planning (ERP) is an integrated system, which is designed to automate and integrate business process and operation together [16]. In recent era there is a question, how enterprise resource planning would be effectively implemented within the industries to enhance the smoothness of manufacturing processes. To explore the dynamic nature of environment issues, it might be required to implement the green supply chain management in every industry and it is really very pleasant that the industry have taken the initiate for the green supply chain management. Green supply chain management can be defined as integrating environmental issues into supply chain management. Increasing environmental concern from the customers, supplier, manufacture, distributor, buyers, communities and government rules and regulations have forced to implement Green supply chain Management (GSCM) [6].

### CONCLUSION

This paper emphasize on the contemporary trend of supply chain management in Indian industries. Green supply chain management has also been put the important role to save the environment which is being polluted by the industries since many years. In the present paper, lack of information sharing among partners, forecasting uncertainties, lack of trust in supply chain linkages, lack of flexibility, missing long-term buyer-supplier relationship, poor infra-structural facilities, disparity in trading partners' capability, non-availability of cross functional workforce, lack of top management commitment, fund unavailability, and resistance to change and adopt innovations have been considered as critical factors which affect supply chain integration.

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