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Supply Chain Management: The Role and Issues in the Present and Future

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Abstract— *The way the business is done is not same as before and it has undergone radical transformation due to globalization, outsourcing and other vital factors of business entity. Supply chain management has for environmental degradation and social responsibility in business management. There various reasons for supply chain to be sustainability. The business scenarios are not stable it takes different shapes with changing environment of business. The decision and strategy adopted today may be inactive in the near future. The complex dynamic business nature is unpredictable and needs to be studied with time. The issues that have been solved today may not be same as in the near future. The issues needs to be identified and proactive measures have to be formulated. The paper will discuss various problems and prospects of supply chain a management and will try to lay stress on measure for various issues.*

Keywords— *supply chain, issues, business enterprises, trends*

I. INTRODUCTION

Today the product and service are very dynamic and demanding. Organization needs to be very fast in delivering their activities to the end customers. This value chain activities can be achieved by responsive supply chain management. The world is very complex and the services are not same as before. The fastest service without delay is appropriate for organization to sustain in the competitive market. Supply chain management theme is for discussed in every aspects for small and large organization. The goal of the organization is to coordinate activities in the supply chain and reduce cycle time. APICS Dictionary stated the SCM as "design, planning, execution, control, and monitoring of supply chain activities with the objective of creating net value, building a competitive infrastructure, leveraging worldwide logistics, synchronizing supply with demand and measuring performance globally." The importance of supply chain management has grown over the years and various planning models have been put into practice by organizations. In today's scenario decision of a firm entirely depends on its supply chain activities, therefore supply chain management can be viewed as a multiple product flows across multiple enterprises. The present focus of enterprises has shifted toward entire supply chain process as it requires coordination within a firm for its proper functioning. Mentzer et al. (2001) presented the definition of supply chain as "A supply chain (SC) is a set of three or more entities directly involved in the upstream and downstream flow of products, services, finances, and information from a source to the customer"

DEFINITION OF SUPPLY CHAIN MANAGEMENT

Authors	Definitions
Oliver and Webber (1982).	"Supply chain management (SCM) is the process of planning, implementing, and controlling the operations of the supply chain with the purpose to satisfy customer requirements as efficiently as possible. Supply chain management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of-consumption."
Tan, Kannan and Handfield (1998)	"Supply chain management encompasses materials/supply management from the supply of basic raw materials to final product (and possible recycling and re-use). Supply chain management focuses on how firms utilise their suppliers' processes, technology and capability to enhance competitive advantage."

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Sweeney (2007)	“Supply Chain Management is the systemic, strategic coordination of the traditional business function and tactics across these business functions within a particular company and across business within the supply chain, for the purpose of improving the long term performance of the individual companies and the supply chain as a whole.”
Krajewski, Ritzman and Malhotra (2007)	“Supply Chain Management consists of developing a strategy to organize, control and motivate the resources involved in the flow of services and materials within the supply chain.”
Bozarth and Handfield (2008)	“Supply Chain Management is the active management of supply chain activities and relationships in order to maximize customer value and achieve a sustainable competitive advantage.”
Wisner, Tan and Leong (2012)	“Supply chain management is the integration of trading partners’ key business processes from initial raw material extraction to the final or end customer, including all intermediate processing, transportation and storage activities and final sale to the end product customer.”

II. LITERATURE REVIEW

The used of supply chain synchronization and integration of players can be identified in ancient years. Mentzer, et al., 2001 has differentiated supply chain in business and management supply chain. It has originated from physical distribution management and logistics management. Forrester stated inter organizational relationship as “there will come general recognition of the advantage enjoyed by the pioneering management who have been the first to improve their understanding of the interrelationships between separate company functions and between the company and its markets, its industry, and the national economy.” In 1960s and 1970s logistics and physical distribution have been identified as vital parameter for a firm. Heskett et al., (1964) explained the concepts of material flows within a supply chain with coordination between physical supply and physical distribution. In 1980 the term encompassing supply chain management was used by organizations. Subsequent to Houlihan (1985) suggested new concepts for managing supply chain management. Ganeshan et al. (1999) stated that supply chain management goes beyond decision of operations to strategic decisions. Oliver and Webber (1982) stated supply chain as “as management of flow of goods from supplier to end consumer”. La Londe and Masters (1994) proposed that “a supply chain is a set of firms that pass materials forward”. Beamon in 1998 proposed a supply chain model as an integrated process of production planning and inventory control process. The concept of supply chain first came in the year 1980 due to its importance in business.

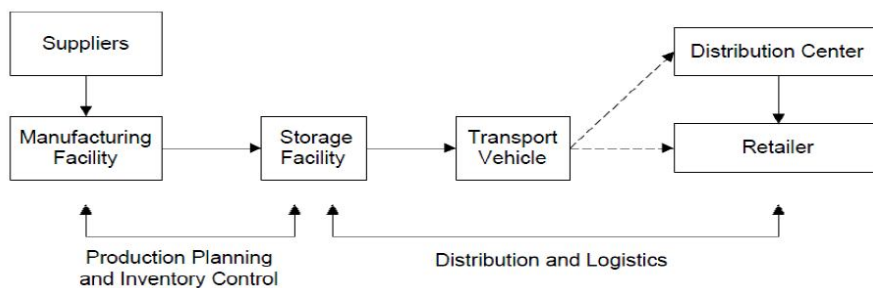


Figure: The Supply Chain Process (Source: Beamon, 1998)

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Mentzer et al. (2001) stated supply chain as “a supply chain is the network of organizations that are involved, through upstream and downstream linkages, in the different processes and activities that produce value in the form of products and services delivered to the ultimate consumer”. Mentzer et al. (2001) proposed a new model for supply chain management.

A MODEL OF SUPPLY CHAIN MANAGEMENT

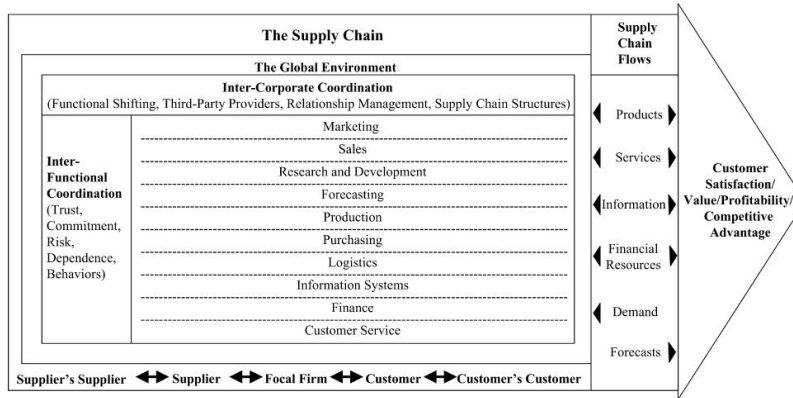


Figure: A Model of Supply Chain Management (Source: Mentzer et al., 2001)

Fox, et al., 1993 stated supply chain “as a set of activities which span enterprise functions from the ordering and receipt of raw materials through the manufacturing of products through the distribution and delivery to the customer. In order to operate efficiently, these functions must operate in an integrated manner”.

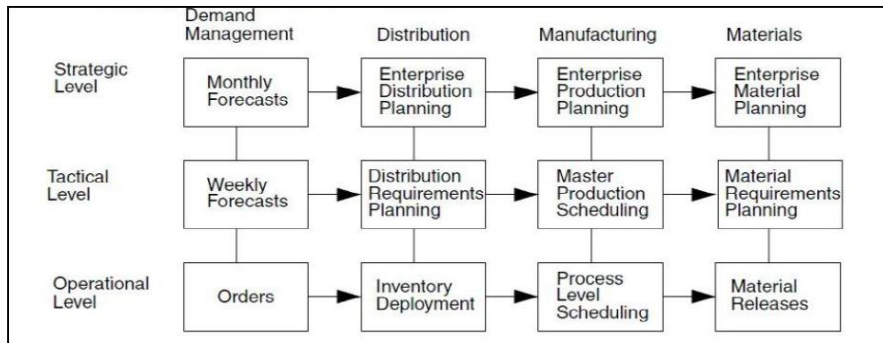


Figure: Supply chain management functions (Source: Fox et al., 1993)

The matrix that comprises the operational, tactical and strategic analysis for decision making at short-term, mid-term and long-term levels respectively (Fleischmann and Meyr (2003)).

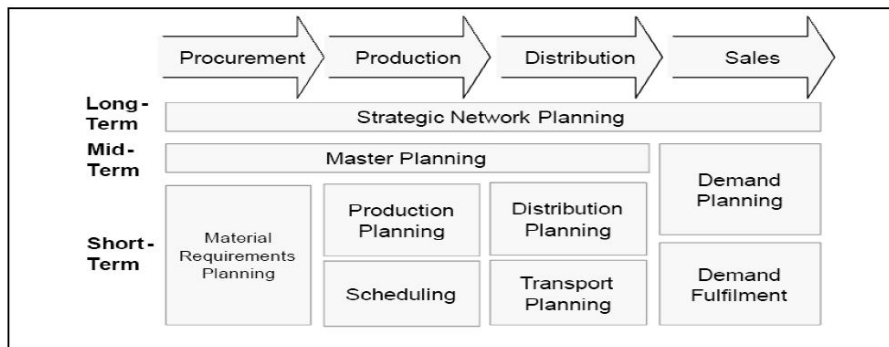


Figure: Supply Chain Planning Matrix (Source: Fleischmann and Meyr, 2003)

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Beamon (1998) provide a definition of supply chain performance measurement as “a performance measure, or a set of performance measures, is used to determine the efficiency and/or effectiveness of an existing system, or to compare competing alternative systems”.

Kaplan and Norton proposed the ‘balanced scorecard’ method which uses a set of measures to reflect the holistic approach of supply chain management performance. The balanced score card provides a good guidance for proving core values in supply chain. Supply Chain Council (SCC) first generated accepted performance measures for supply chain performance measurement called supply chain operations reference (SCOR) model. The model defines supply chain management as “the integrated process of plan, source, make, deliver and return spanning suppliers’ supplier to customers’ customer, aligned with operational strategy, material, work and information flows”.

III. THREE A’S OF SUPPLY CHAIN

To meet the challenging and dynamic environment of the market, supply chain has need to be agile and flexible. Companies has to be adaptable to meet the crisis at any point of time

Term	Definition
Agility	It can be achieved though information sharing in the supply chain activities. Needs excess inventory and reduce cost to achieve supply chain agility
Adaptability	Company needs to restructure its supply chain when needed
Alignment	Companies need to create interest with its supply chain participants.

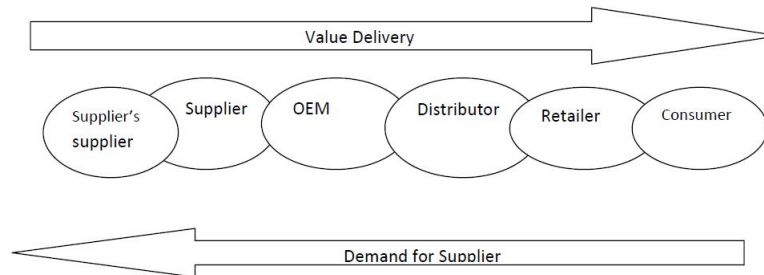


Fig: The Basic Supply chain model

The four intrinsic flows in supply chain are material, information, finance and commercial flow. Companies that depend on speed, flexibility, cost and quality use the best value supply chain.

Long term relationship and trust

Development of contract

Benchmarking

Supplier assessment

supply chain alignment

The development of supply chain between customers and suppliers encompasses the following

IV. CRITICAL FACTORS AFFECTING SUPPLY CHAIN

The factors that can affect supply chain activities are

Environmental uncertainty

Company environment

Government support

Uncertainty aspects from overseas

Information technology

Supply chain relationships

Value-added process (manufacturing)

Supply Chain Management performance (SCM)

Business management

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Customer satisfaction

V. DIFFERENCE BEST VALUE AND TRADITIONAL SUPPLY CHAINS

Theoretical perspective	Best value supply chains	Traditional supply chains
Transaction cost economics	Focus on total costs, not just transaction costs, as the basis of "make or buy" decisions. Short term costs play a secondary role if the potential for long term, trusting relationships exists	Focus on transaction costs as the basis of "make or buy" decisions. Opportunism undermines trust; short term costs are a primary consideration
Agency theory	Use reward structures and cultural competitiveness to align members' interests. Potential for opportunism minimized	Interests of supply chain members only partially aligned. Strong potential for opportunism
Resource dependence theory	Supply chain members recognize that dependence can create forbearance and trust	Each member tries to avoid becoming dependent on others and tries to make others dependent on it
Institutional theory	Use industry recipes and best practices to inform, but not dictate, supply chain management activities	Rely heavily on industry recipes and best practices to guide supply chain management activities
Game theory	Mutual dependence and trust overcome members' temptation to pursue self-serving behavior	Some members use free riding, hold up, and leakage to benefit themselves and to the detriment of the chain
Network theory	A blend of strong and weak ties that matches supply chain needs is created in order to maximize supply chain performance	Strong and weak ties formed on a case-by-case basis rather than strategically
Social capital theory	Shared goals, values, and experiences create shared sensemaking and improved performance	Mix of shared and firm-level goals, values, and experiences circumscribe shared sensemaking and limit performance
Strategic choice	Strategic decisions made with concern for the chain as the primary driver. This "strategic supply chain management" opens the door to unique blended strategies that transcend the firm	Strategic decisions made with concern for the firm as the primary driver. This approach constrains firms to using a generic strategy such as prospector or low cost leader
Resource-based view/knowledge based view	Assume that unique resources exist at the supply chain level, and that supply chains can be inimitable competitive weapons	Assume that unique resources reside within firms. Supply chain management is thus a tool to complement these resources

Source: Ketchen et al., 2007

VI. PROBLEM THAT MUST BE ADDRESSED BY SCM

Problems	Issues
Distribution network configuration	Supply chain management has number of locations and facilities. This specific network configuration has to be designed to collaborate its network partners
Distribution strategy	How the supply chain management will be operated has to be analysed and problems has to be solved
Trade-offs in logistical activities	All the activities must be coordinated for efficient cost optimization
Cash-flow	Cash flow mechanism should be mechanised
Information	Integration of information can provide efficient flow of supply chain activities
Inventory Management	To meet uncertain demand and met the demands, Supply chain management has to be responsive

VII. SCM PERFORMANCE

SCM performance is very important in the competition of business environment. For example, PIRES, 1998 and Carr Pearson, 1999 stated that the process of SCM can enable new technology and productive in the value chain activities. Bozarth *et al.*, 2009 stated the objectives of identifying supply chain performance measures. Pires(2004) stated that SCM is a traditional model

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of material management integrating all the value chain in strategic way. Frohlich and Westbrook (2001) defined that the following are the parameters for measurement: sharing of production planning , electronic data interchange, knowledge and inventory mix levels, packaging , delivery frequency, shared use of containers, equipment and logistic services. Li *et al.* (2006) discussed the relationship among five supply chain practices : strategic partnership with suppliers, customer relationship, information sharing, information quality and postponement
 Buyer–supplier relationships

VIII. DRIVERS OF SCM

Cross coordination of supply chain drivers are very crucial in efficient flow of information in the chain system

Sl.	Supply chain Drivers	Applications
1	Facilities	Facilitates inventory
2	Inventory	Satisfy demand and supply
3	Transportation	Faster delivery of items
4	Information	Communication among drivers in the supply chain
5	Sourcing	To which location to source
6	Pricing	Strategy to compete

IX.SUPPLY CHAIN PERFORMANCE PRACTICE

The use of supply chain practice enables better performance over their competitors. Many authors had studied the relations among the supply chain practice dimensions and stated that there are relations among some supply chain practice dimensions. The identification elements dimensions from organizations vary. The following are the integration and supply chain practice being followed in many organizations.

- Strategic Outsourcing
- Supplier Capability
- Supplier evaluation systems
- Buyer–supplier relationships
- Strategic purchasing
- Level of Strategic Purchasing
- Supplier Responsiveness;
- Supplier Communication;
- Change in Supplier Market
- Direct involvement
- Supplier incentives
- Competitive pressure
- JIT Purchasing
- Supply chain integration
- Supplier JIT manufacturing
- Buyer-supplier relationship development
- Supply base leveraging
- Supplier performance evaluation
- Strategic purchasing
- Top Management Commitment
- Training
- Employee Relations;
- Supplier Value Addition
- Transportation
- Quantities Delivered
- Company’s integration with suppliers
- Internal integration across the supply chain
- Company’s integration with customers
- International market diversification
- Product diversification
- Integrative Information Technologies

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- Top management leadership
- Product/service design
- Supplier quality management
- Process management
- Quality data reporting
- Employee relations
- Customer relations
- Benchmarking learning
- Quality-oriented supplier selection
- Cost-oriented supplier selection.
- Communication
- Co-operation
- Trust
- Adaptation
- Customer relationship;
- Strategic supplier partnership
- Level of information sharing
- Quality of information

X. SUSTAINABLE SUPPLY CHAIN PLANNING AND MEASURES

SUPPLY CHAIN PLANNING	SUATAINABLE SUPPLY CHAIN PLANNING AND MEASURES
Organization policies	Corruption free practices, Transparent market practices, Customer satisfaction survey, Equal opportunity employer, Research and development
Risk mitigation	Business community plan, Natural disaster survival plan, emergency plan
Demand and supply planning	Demand forecast accuracy, collaborative planning
New product development	Collaborative and new brand supplier

XI. FLEXIBILITY OF SUPPLY CHAIN

Flexibility is to respond to uncertainty in environment. The word flexibility is not clear and it's different for managers in organization. Entrepreneurs respond to uncertainty in adaptive methods. Flexibility is a term used in many organizations that respond to the dynamic market environment and is a key to competitive strategy; The following are the dimensions of flexibility

Dimensions	Definitions
Temporal	Ability of the organization that can respond within a allotted time frame
Range	How organizations will respond to changes
Intention	Organization has to take defensive strategy to respond to uncertain environment
Focus	This type of flexibility is to obtain internal in the manufacturing activity and external flexibility in the products and markets

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XII. ISSUES OF SUPPLY CHAIN IN INDIA

Terms	Problems
Taxation	Like any other country tax is a major issues in India
Logistics infrastructure	This has led to poor logistics service in India
Environment uncertainty	Unable to predict environment changes is one of the factor
Global connectivity	Less exposure in international platform
Demanding customers	Unable to meet customers demand
Supply and demand	Failure to meet demand and supply
Security of supply chain	Risk in security of supply chain
Bandh culture	Affects supply chain service in Indian business in some state of India
Supply chain risk	Unavoidable supply chain risk and anti social activities of doing business
Supplier risk	Common problem for all business. Difficult to analyse supplier as it involves trust and better relation
Transportation	some regions of India unreachable.

XIII. BARRIERS TO SMALL AND MEDIUM ENTERPRISES

Barriers	Type of barriers
Management	Organization polices Competitive issues Management commitment Training, poor level of technical knowledge Difficulties in appropriate performance management system No best practices of sharing knowledge Low strategic planning and structure for reverse logistics Bad technical expertise
Financial	Financial resources Monitoring system Tax policies
Policy	Lack of supportive policies Lack of waste management practices Awareness in environmental regulations No good policy to support organizations
Infrastructure	Lack of systems Coordination and support Lack of facilities Lack of modern technology

XIV. CONCLUSIONS

Supply chain management has many obstacle and issues to be addressed by organizations. The type of issues completely varies

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among organizations. It depends on regional scenario for supply chain management activities. There is always a scope for further research in the supply chain process. The problem continues to arise in business scenario and it needs to be tackled with proper decisions and tools. The coordination of various players within the supply chain process can improve supply chain performance.

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