EXECUTIVE SUMMARY

History of the Supply Chain Initiative

The history of the supply chain initiative can be traced to early beginnings in the textile industry with the quick response program and later to efficient consumer response in the grocery industry. More recently a variety of companies across many industries have begun looking at the entire supply chain process.

The modern concept of “Supply Chain Management” has evolved from a very old concept of “Logistics”. It is a word originally associated with major wars. It means planning and soldiers, armored vehicles, artillery and ammunition to the battlefield as per the strategies of the generals. It involves also all supporting activities like food and suppliers, medicines, bringing back injured personnel, maintenance of vehicles, equipment and many other tasks for the soldiers at difficult locations. It also involves coordination with fighter aircrafts, communication (signals), and engineering for roads / bridges in the forward areas. Due to the development in supply chain management, logistics has become a focal point for organizations today in both manufacturing and services organization employ special “Logistics Managers”.

The “Supply Chain Management” has evolved over a period of time. The major phases through which the present SCM evolved can be summarized as follows:

a) Before 1960’s: M.R.P.-I


c) Post – 1980’s: SCM

Introduction to Supply Chain Concepts

A supply chain is a network of facilities and distribution options that performs the function of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers. Supply chains exist in both service and manufacturing organization, although the complexity of the chain may vary greatly from industry to industry and firm to firm.
Firms can no longer effectively compete in isolation of their suppliers and other entities in the supply chain. Interest in the concept of supply chain management has steadily increased since the 1980s when companies saw the benefits of collaborative relationships within and beyond their own organization. The Major Objectives of SCM can be summarized as given below:

a) To reduce the overall cost of the finished product sold to the customer
b) To reduce the overall delivery time – from customer order to delivery of goods
c) To minimize losses at every stage of the supply chain
d) To achieve higher customer satisfaction through quality, variety, cost and time.

**Interest in Supply Chains**

Why has managing the supply chain become an issue for the 1990s? Some of the major reasons for popularity of SCM practice are:

a) Competition and saturation of markets in developed countries need for new markets.
b) Globalization practices being politically accepted by most of the nations.
c) Higher expectations and affordability of products by customers
d) Growth of transportation and manufacturing facilities within and across countries.
e) Shortened Product-life cycles and faster introduction of new products.

In part, the answer lies in the fact that few companies continue to be vertically integrated. Companies have become more specialized and search for suppliers who can provide low cost, quality materials rather than own their source of supply. It becomes critical for companies to manage the entire network of supply to optimize overall performance. These organizations have realized that whenever a company deals with another company that performs the next phase of the supply chain, both stand to benefit from the other’s success. A second reason partially stems from increased national and international competition. A third reason for the shift in emphasis to the supply chain is due to a realization by most companies that
maximizing performance of one department or function may lead to less than optimal performance for the whole company.

**Collaborative Supply Chain Initiatives**

Recently, several industry collaborative groups have developed to research aspects of supply chain management. The findings of these groups should provide practitioners with guidelines for “best practices” in supply chain design and accelerate the implementations of these practices.

**Linking the Supply Chain to the Business Strategy**

Supply chain capability is as important to a company’s overall strategy as overall product strategy. Supply chain management encourages management of processes across departments. By linking supply chain objectives to company strategy, decisions can be made between competing demands on the supply chain.

**Activities / Functions**

Supply chain management is a cross-function approach to manage the movement of raw materials into an organization, certain aspects of the internal processing of materials into finished goods, and then the movement of finished goods out of the organization toward the end-consumer. These functions are increasingly being outsourced to other entities that can perform the activities as per following for better or more cost effectively:

**Supply Chain Business Process Integration**

Supply chain business process integration involves collaborative work between buyers and suppliers, joint product development, common systems and shared information. According to Lambert and Cooper [2000] operating an integrated supply chain requires a continuous information flow. The key supply chain processes stated by Lambert [2004] are:

- Customer relationship management
- Customer service management
- Demand management
- Order fulfillment
- Manufacturing flow management
Best in Class companies have similar characteristics. They include the following:

a) Internal and external collaboration  
b) Lead time reduction initiatives  
c) Tighter feedback from customers and market demand  
d) Customer level forecasting

**Supply Chain Modeling Approaches**

The strategic decisions are, for the most part, global or “all encompassing” in that they try to integrate various aspects of the supply chain. Consequently, the models that describe these decisions are huge, and require a considerable amount of data. Often due to the enormity of data requirements, and the broad scope of decisions, these models provide approximate solutions to the decisions they describe. The operational decisions, meanwhile, address the day-to-day operation of the supply chain. Therefore the models that describe them are often very specific in nature. Due to their narrow perspective, these models often consider great detail and provide very good, if not optimal, solutions to the operational decisions.

**Stages / Components of SC**

The basic stages / components in a supply chain can be classified as:

a) Supplier’s / Vendors / Sub-Contractors  
b) Processing plants / facilities  
c) Distribution / sale channels of finished products to customers.

However, the chain becomes very large and complex in larger organizations due to the large number of suppliers from whom raw materials / components and other services are procured, located at different places geographically as well as processing factories which may at more than one location and finally the warehouses, wholesalers and retailers spread over large regions to reach customers. All the external organizations involved in this supply chain are considered as “SC PARTNERS” who have a share in the profits and risks of the total chain performance. This creates a deep sense of participation, overcoming individual objectives of each partner.
Outsourcing Widely to Focus on Core-Competencies

It is realized that organizations whether within a country or multinational companies (Global) have to continuously grow to remain competitive and sustain profitability. They need to build extensive suppliers, service providers and distribution facilities to make wider variety; cheaper products needed for customers and deliver them fast. Constant efforts to reduce product cost and provide better return to customers involve close coordination among all the partners in the supply chain. In chapter no.2 it is discussed in detailed.

TQM in Supply Chain Management

The primary focus of total quality management (TQM) is customer satisfaction. Continuous improvement with cost reduction, worker empowerment with measurement of results of high quality goods and services are primary vehicles for achieving customer satisfaction. Effective TQM hinges also on management performance in planning, organizing, influencing and controlling activities in all functional areas with proper teamwork (such as marketing, purchasing, design, and engineering, production, distribution, finance and accounting, human resources etc.).

Role of SCM

Traditionally, marketing, distribution, planning, manufacturing, and the purchasing organizations along the supply chain operated independently. These organizations have their own objectives and these are often conflicting. Many manufacturing operations are designed to maximize throughput and lower costs with little consideration for the impact on inventory levels and distribution capabilities. Purchasing contracts are often negotiated with very little information beyond historical buying patterns. Supply chain management is a strategy through which such integration can be achieved. In chapter no.2 all the decisions are discussed regarding the role of SCM.
Developments in Supply Chain Management

Six major movements can be observed in the evolution of supply chain management studies:

1) Creation Era
2) Integration Era
3) Globalization Era
4) Specialization Era-Phase One-Outsourced Manufacturing and Distribution
5) Specialization Era-Phase Two-Supply Chain Management as a Service

SCM in India

Today’s businesses have become extremely complex. The interplay of the three Cs, namely, consumers, competition and convergence, has thrown open new challenges for organizations all over the world. Consumers have become highly discerning in their choice of products and services. The pressure of competition has accelerated product changes, supercharged by shortening product and technology development lifecycles.

Worldwide interest in supply chain management has increased steadily since the 1980s when organizations began to see the benefits of collaborative relationships. This management concept is, however, nascent in India. India’s economic and infrastructure scenario Before the 1990s, Indian organizations operated in a protected environment. However the de-regulation of the Indian economy in the last decade has attracted global players in every industrial sector and has unleashed a new competitive spirit in the Indian organizations. Statistics reveal that India, the fifth largest country in terms of gross national product (GNP) and purchasing power parity (PPP) and a consumer base of over a billion (CMIE, 2000), constitutes one of the fastest growing markets in the world.
Research Methodology

The present research study has been conducted in two phases. Phase-I of the research follows an exploratory research design. The basic purpose is to identify the factors and variable and formulate problem for more precise investigation or of developing the working hypotheses from an operational point of view. The major emphasis of this phase of the study was to identify the aspects related to the implementation of SCM in an organization.

Phase-II of the research follows a descriptive research design. Based on the variables / factors identified during the phase-I of the study, a questionnaire was designed. The questionnaire comprises of three parts. Part-I of the questionnaire aims to collect the basic details of the firms that participated in this study. Part-II of the questionnaire deals with the issues and challenges that the firms faced while implementing SCM. The management’s perception about the SCM’s performance and the outcome of the SCM implementation is included in Part-III of the questionnaire.

Data Analysis and Findings

Interesting findings have emerged leading to a better understanding of the implementing and non implementing supply chain management practices in large, medium and engineering units in Gujarat such as rejection rate, market share, annual turnover, customer satisfaction, resistance of employees, thinking about SCM, issues during implementation, use of resources, effectiveness of SCM, usefulness of SCM, etc.

Appropriate statistical tools have been used for analysis of data. Some of tools used for data analysis include Chi-square, Bar Chart and One-Way ANOVA test in addition to the basic statistical tools.
Conclusion and Recommendation

A detailed discussion on data analysis and concluding remarks based on the research findings has been presented. It also provides recommendations for implementing supply chain management practice for overall growth of the large, medium and small-scale engineering units of the Gujarat State.

It is found from the study that the companies face similar issues and challenges related to the implementation of SCM irrespective of their scale of operation. Some of the major issues are number of locations, flow of materials, product design, scheduling and routing. The firms that implement SCM are likely to obtain certain advantages such as increase in annual turnover, increase in market share, improvement in productivity of labour & machines, and improved customer satisfaction. The study also revealed that implementation of SCM could help in reducing the rejection rate, customer complaint and cost of production.