Chapter I

Introduction

1.1 Concept of Supply Chain Management
1.2 Effects of Supply Chain Management
1.3 Essential Features of the Supply Chain Management
Chapter - I

Introduction

The decade of 20's was turning point in the Indian economy, as well the business environment. The future may pose many challenges to Indian corporations. If we see to the demand and supply ratio's of various products at global level we hardly find any product which is in supply deficit. Looking to the textiles we can hardly find a single consumer who finds any brand to be short in supply. The statistical outline published by the Tata Services Ltd. suggests that every person in the world must purchase 7 sqm. of fabric every year that should have Indian origin.¹ A telescopic view of the consumer would suggest that some of the following changes have taken place in the consumer's mind:

- Quality Concuss
- Time Concuss
- Design Concuss
• Value Concuss

• More Informed

Under the limelight of the above circumstances organisations need to meet the customers expectations by using various modern business concepts and supply chain management is one of them.

1.1 Concept of Supply Chain Management

Supply Chain Management is the systematic strategic coordination of the traditional business functions within a particular company and across business within the supply chain. Supply chain firstly concerns with the examination of the business functions, secondary how these functions are coordinated and lastly how they are coordinated across companies. A general model is illustrated in Fig. No. 1.1.
Flow of Demand

Supplier's Supplier ↔ Supplier ↔ Focal Firm ↔ Customer ↔ Customer's Customer

Flow of Products / Services

Flow of Information

Flow of Financial Resources

Results

- Customer Satisfaction
- Increased Value
- Profitability
- Differential Advantage

Fig. No. 1.1 - Supply Chain Model
In the process there may be upstream flow of products, services and downstream flow of the financial resources and information. It must be noted that the companies who are trying to implement Supply Chain Management (SCM) must have a Supply Chain Orientation (SCO). Supply Chain Orientation is the recognition by a company of the systematic, strategic implication of the activities and processes involved in managing the various flows in a supply chain.

1.2 Effects of Supply Chain Management

Applying any modern concept must lead to some advantage to the organisation. If we look into the organisations, we find that organisations requires benefits in terms of the following:

- Competitiveness
- Profitability
- Customer satisfaction
- Risk reduction
- Lowering cost
If we look into the supply chain management perspective, we find that it leads to the above benefits. Supply Chain Management enhances the competitiveness by delivering enhanced customer service and economic value through synchronized management of goods and associated information from sourcing to consumption. Improved competitiveness is an outcome of the increased customer value and in turn adds to profitability. The customer satisfaction is reached through a customer – enriching supply system focused on developing innovative solutions and synchronizing the flow of product, services and information to create unique, individualized sources of customer service value. The high degree of cooperation and trust among the chain member reduces the various business risk. The cost reduction in supply chain is reached by reducing the inventory, outsourcing etc. In nutshell we can state that the Supply Chain Management improves customer value and satisfaction and profitability to achieve differential advantage.
While devising the supply chain of the organisation the following factors should be considered:

a. Strategic Fit with Organisation Objective  
b. Nature of the Product  
c. Logistics  
d. Benchmarking  
e. Postponement Strategy  
f. Agility and Leanness  
g. Decoupling Point  
h. Material Requirement Planning  
i. Marketing Function  
j. Sales force function and Supply Chain  
k. Forecasting in the Supply Chain  
l. Outsourcing  
m. Research & Development in the Supply Chain  
n. Purchasing and Supply Chain Management  
o. Financial Issues in the Supply Chain  
p. Coordination in the Supply Chain  
q. Vendor Management
1.3 Essential Features of the Supply Chain Management

The Supply Chain Management consists of member from both internal and external to the organisation and shares some vested interest in the ultimate success of the chain in meeting needs and expectations of the customer at the same time increasing chain profitability. The supply chain must reflect the following:

1. Continuity of trust and relationship among the chain members
2. Reliability and quality of products and services
3. Responsiveness to the needs of the customers
4. Flexibility and adaptability to changing environment and technological breakthrough.
5. Directed to optimize systems performance
6. Facilitate and give push to innovation and differentiation
7. Promote renewing, learning, creation and transfer of knowledge.

a. Strategic Fit with Organisation Objective

Organisation has a competitive strategy. The competitive strategy of organisation means defining the set of customer needs and wants to satisfy
through its product or services. Different functional departments play vital role in realizing the competitive strategy. These all-functional sections have to develop their own strategy such as product development strategy, marketing and sales strategy, supply chain strategy. Here we are concerned with the competitive strategy and supply chain strategy. For a strategic fit it is necessary that the competitive strategy and the supply chain strategy must have the same goal. A company’s success or failure is closely linked to the following:²

- Competitive strategy and all functional strategies must fit together to form a coordinated overall strategy. Each functional strategy must support other functional strategy and help a firm reach its competitive strategy goal.

- The different functions in a company must appropriately structure their process and resources to be able to execute these strategies successfully.
Strategic Fit between Supply Chain and Competitive Strategy

A competitive strategy will specify one or more customer segment that a company hopes to satisfy. To achieve strategic fit, a company must ensure that its supply chain capabilities support its ability to satisfy the targeted customer segment. The following process can achieve this:

➢ Understanding the customer
➢ Understanding the supply chain
➢ Achieving strategic fit

Besides the strategic fit among the competitive strategy and supply chain strategy what we require is Intra Company Intra operation strategic fit and Intra Company Intra function strategic fit.

Intra Company Intra Operation

It is related to one operation within a functional area. Let us consider distribution as one operation of the supply chain function. Within this distributed operation we may have warehousing, transportation, storage etc. Each element of the operation must be such simulated that the overall
objective is achieved otherwise concentrations on one element objective in isolation may have negative impact on the other and the operation overall.

**Intra Company Intra Function Strategic Fit**

It is related to achieve strategic fit between the various operations of the function. Say the supply chain function involves various operations such as warehousing, manufacturing, transportation and others. If the warehouse manager is willing to reduce the warehouse cost he has to work with the transportation manager together and then only both can reduce the functional cost, otherwise trying to reduce the warehouse cost independently, can increase the transportation cost and as a whole the functional cost.

**b. Nature of the Product**

The nature of the product like its demand patterns, product life cycle, product variety etc. plays an important role in devising the right type of supply chain strategy. If one classifies the product on the basis of demand pattern one gets a parameter, which reflects the impact of other factors
also. On the basis of demand variability the products can be classified in either of the two:

1. Functional

2. Innovative

Functional products include the staples that people buy in wide range. Those products tend to satisfy basic need which normally remain stable for a considerable longer time. The demand pattern for these products can be predictable, they have stability and passes longer life cycle. Innovative products poses newness in the product, their demand pattern is unpredictable as well these products have a shorter life cycle. The innovative product may be enjoying a higher margin but it faces a fear of the imitators, which erodes the competitive advantages. Thus for such companies it becomes compulsion to come with a steady stream of innovations.

These two types of products involve different demand predictability and profit margins. It is advised to have different supply chain models for these two. The critical decisions involved here on the demand pattern of the
product are to insure the elemental requirement. For a functional product the demand is predictable and as it involves higher competition and less profit margin, we need to devise a supply chain, which ensures low cost involvement. It needs to minimize the inventory cost and maximize the production efficiency.

On the other hand for the innovative product the demand is uncertain and it has smaller product life cycle. Here the critical decisions regarding inventory and capacity are not about minimizing cost but where to position inventory and avail production capacity in order to cushion against uncertain demand. Here the choice of the supply chain is based on their speed and flexibility and not on their low cost operation. Depending upon the product category we can have two supply chain approaches:

1. Physically efficient supply chain – push orientation
2. Market responsive supply chain – pull orientation

Physically efficient chain supplies predictable demand at lowest cost, it tries to minimize the inventory, it has shorter lead-time. It focuses mostly
on low cost and quality. The market responsive supply chain has a very efficient information system, which involves the supply chain to respond quickly to the demand of the market. Its inventory is so maintained to meet the functions of the demand by managing significant buffer stock. It focuses on speed, flexibility and quality. The first step into formulating the supply chain in such case is to see whether your product is functional or innovative. Secondly you need to see whether the companies supply chain is physically efficient or market responsive. Thirdly we have to match as per the matrix given in Fig. No. 1.2:\(^3\)

<table>
<thead>
<tr>
<th></th>
<th>Functional Product</th>
<th>Innovative Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>Efficient Supply Chain</td>
<td>Match</td>
<td>Mismatch</td>
</tr>
<tr>
<td>Responsive Supply Chain</td>
<td>Mismatch</td>
<td>Match</td>
</tr>
</tbody>
</table>

Fig. No. 1.2 - Supply Chain and Product Category

c. Logistics

Logistics is the process of strategically managing the procurement, movement and storage of materials, parts and finished inventory and the
related information flows through the organisation and its marketing channels in such a way that current and future profitability are maximized through the cost-effective fulfillment of orders. Logistics involves particularly the flow of materials in the following:

1. Inbound  
2. Outbound  
3. Reverse

Logistics is an important element of supply chain management. It is seen as the link between the marketplace and the operating activity of the business. All successful companies either have a productivity advantage or have value advantage. Fig. No. 1.3 represents the gaining competitive advantage through logistics.

![Diagram](image)

Fig. No. 1.3 – Gaining Competitive Advantage through Logistics
Measures of Logistics

1. Reliability factors
2. Failure rate

3. Inventory considerations
4. Effectiveness factor

5. Organisational factors
6. Facility factors

7. Software factors
8. Technical factors

9. Availability factors
10. Economic factor

11. Transport packaging and handling

d. Benchmarking the Supply Chain

Benchmarking is a continuous process to improve your performance by comparing and bridging the gap between your product, service and process with that of the best product, service, process of organisations around the world. Benchmarking focuses on the practices of top performing companies regardless of their industry sector. It is advised to focus on improvement of process and process control to achieve the desired objective of the supply chain. It becomes evident that one must focus on understanding the structure of process. In order to understand the structure of process one has to flowchart the steps along the chain, which begins, from customer order/ forecast and ends up with delivery. Next we
can identify the critical points where something goes wrong it affects the entire process. At these points we can exercise process control and use benchmarking against ‘best in class’ companies. The issue, which comes here, is how to flowchart the supply chain which can enable us to identify the critical point. An introspect view of the supply chain will be constituted of value adding activities as physical movement activities. The physical movement also adds up to the means of creating exchange. These two can be clubbed as value adding activity. On the other hand the system may be constitutive of some cost. We can make a chart on two parameters value added in terms of time, place & form utility vs cost added. Fig. No. 1.4 has shown those activities, which are value adding and non-value adding.6 The supply chain map should be a time based representation of the process and activities that are involved as the materials move through the chain. Here we will be taking horizontal time and vertical time. The horizontal time represents the time spent in the process. It is not necessary that this time only constitute of value adding activity but represents that something is going on. The vertical time may represent the time when nothing is going on. In the vertical time no value addition is there.
Fig. No. 14 - Supply Chain Mapping - An example
Supply chain map can give us an opportunity for benchmarking if we compare it with the best practices. Also, it gives us an opportunity for internal benchmarking. Apart from the process in the supply chain, we can focus on benchmarking the suppliers and distributors. The various types of issues that need to be addressed in supplier and distributor benchmarking are as:

1. The suppliers and distributors' willingness to work as a partner
2. Their commitment towards continuous improvement
3. Their acceptance towards innovation and change
4. Their focus on throughout time reduction
5. Their approach towards latest techniques of management
6. Their concern towards suitable logistics system design
7. Suppliers/distributors' employees' concern towards share of common core value of customer concern.
8. Their concern to use IT as a communication tool
9. Their concern towards total quality management.

The idea of supplier benchmarking is relatively new. The distributor too has to be benchmarked against others with a reputation for superior performance.
Steps in Benchmarking the Supply Chain

- Identify the activities in the supply chain, which are of strategic nature.
- Set priorities of the activities as per their importance and impact on business.
- Understand and measure your current performance.
- Identify what is to be benchmarked and why.
- Ask your people for internal benchmarking.
- Find best performance in that area.
- Benchmark it against the best performer
- Recalibrate benchmarking.
- Continuous improvement.

*e. Postponement Strategy*

When in the supply chain we are talking about the flexibility, lower inventory cost and higher customer services standard a particular approach comes to the mind i.e. Postponement Strategy. Postponement is delaying an operational process to a later point of product differentiation
either in terms of time or place. Postponement strategy can be used to reduce working process inventory (WIP) and transportation cost. Postponement strategy also acts as a cushion the forecast errors. Here we may be delaying at least one operational process to a later point in the supply chain and in return it has impact on lowering the transportation cost because transporting part's cost less than transporting finished goods. Postponement strategy is advantageous in following situations

- When the product is highly customized.
- High uncertainty in demand
- Low value addition in transportation
- Considerable difference in transportation, tariffs of finished goods and components in different markets.

Some of the Indian organisations are also adopting postponement strategy, like the Asian Paints, TELCO. Asian Paints offers four emulsion brands in turn each brand offers a vide variety of colour shades which is essential in the emulsion market. An emulsion comprises of a base and strainer. The base constitutes 99% of the final emulsion by volume. Asian Paints have
sales point where its tinting is carried out. On every 400 retailers there is one sales point. The selected shade is delivered to the customer in 1-2 days except the fast moving colours. This way Asian Paints has reduced its inventory, transportation cost and attained flexibility to the demand and reduced forecasting error. Similarly TELCO and the Indian Bicycle Industry and Beneton have adopted postponement strategy.

f. Agility and Leanness in the Supply Chain

If we look to the product variety that the organisations are offering we find that some organisation offer few variety and other offer lot of variety like paint industry The supply chain configuration related to variety offered plays an important role in the effectiveness of the supply chain. Agility and leanness are the two various configurations that organisations may focus on.

Lean Supply Chain

The dictionary meaning of lean is containing little fat. In leanness we try to develop a value stream intended to eliminate all types of wastes, which
may include time, manpower, inventory and by-product etc. The Toyota production focuses on leanness concentrating on elimination as waste.

**Agility**

The dictionary meaning of agile is quick in movement. It aims at using the market information and cooperation of channel partners to exploit the market opportunities. Fig. No. 1.5 represents information based agile supply chain.

![Diagram](image)

*Fig. No. 1.5 – Information Based Agile Supply Chain*
### Differences in Agile and Lean Supply Chain

<table>
<thead>
<tr>
<th>Distinguishing attribute</th>
<th>Lean Supply</th>
<th>Agile Supply</th>
</tr>
</thead>
<tbody>
<tr>
<td>Typical product</td>
<td>Commodities</td>
<td>Fashion goods</td>
</tr>
<tr>
<td>Market place demand</td>
<td>Predictable</td>
<td>Volatile</td>
</tr>
<tr>
<td>Product Variety</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Product life cycle</td>
<td>Long</td>
<td>Short</td>
</tr>
<tr>
<td>Customer Drivers</td>
<td>Cost</td>
<td>Availability</td>
</tr>
<tr>
<td>Profit Margin</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Dominant Costs</td>
<td>Physical costs</td>
<td>Marketability cost</td>
</tr>
<tr>
<td>Stock out Penalties</td>
<td>Long term contractual</td>
<td>Immediate and volatile</td>
</tr>
<tr>
<td>Purchasing policy</td>
<td>Buy goods</td>
<td>Assign capacity</td>
</tr>
<tr>
<td>Information enrichment</td>
<td>High desirable</td>
<td>Obligatory</td>
</tr>
<tr>
<td>Forecasting mechanism</td>
<td>Algorithm</td>
<td>Consultative</td>
</tr>
</tbody>
</table>

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**Martin Cristopher has given seven steps to agility**

- Substitute information for inventory
- Work smarter, not harder (eliminate or reduce non value adding activities)
- Partner with suppliers to reduce in bound non value adding activities
- Seek to reduce complexity
- Postponement final configuration/assembly of products
- Manage processes not just functions
- Utilize appropriate performance metrics e.g. end-to-end pipeline time.

The lean supply chain works best in high volume and low variety and predictable demand whereas agile is successful where the demand is unpredictable and the market demands a very high variety of products.

<table>
<thead>
<tr>
<th></th>
<th>High Variety</th>
<th>Agile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Predictable</td>
<td>Lean</td>
<td>Unpredictable</td>
</tr>
</tbody>
</table>

**Fig. No. 1.6 – Variety, Demand and Agility, Leanness**
g. Decoupling Point

The demand pattern in the market can be considered as the force, which drives the supply chain. The organisations face problems because they face limited visibility of real demand. Normally organisations tend to be forecast driven rather than demand driven and the inventory is at multiple times from one end of the supply chain to the other end. There becomes important to find out that point where the real demand penetrates upstream in the supply chain. “The decoupling point separates that part of the supply chain geared towards directly satisfying customers order from that part of the supply chain based on planning.” One important feature of the decoupling point is that it also suggest the form in which the inventory is to be hold. Billington and Amaral suggest that the combined effect of shared information and delayed configuration through postponement can significantly improve responsiveness.

h. Material Requirement Planning

Material requirement planning is a logical approach to determine the number of parts, component and materials required to produce each end
item. The main objective of material requirement planning is "Getting the right material to the right place at the right time". There are three main inputs to the MRP system:

1. Bill of Materials  
2. Master Schedule  
3. Inventory record file

**Overall view of MRP**

- Firm order from known customers
- Engg. Design Changes
- Forecast of demand from random
- MPS
- BOM File
- Inventory Transaction
- Inventory Record File
- Aggregate planning
- MRP

In extended form it can be viewed as an information system used to plan control inventories and capacity in manufacturing industries. The orders

Fig. No. 1.7 - Flow Diagram of Material Requirement Planning
resulting from part expansions are checked to see if sufficient capacity is available – Decide to change Master production schedule or off load.

Material Requirement Planning Problems

1. Poor inventory level accuracy (Physical & Record)
2. Inaccurate lead time
3. Inaccurate Bill of Materials
4. Inconsistent Master Production Schedule
5. Out of date data
6. Poor System Discipline

i. Marketing Function

The marketing concept can be stated as a corporate state of mind that insists on the integration and co-ordination of all the marketing functions which, in turn, are melted with all other corporate functions, for the basic purpose of producing maximum long range corporate profits.
The marketing concept has strong influences on the management of a firm, an inter firm relationship and the supply chain. Fig. No. 1.8 shows the impact of marketing concept on supply chain.\textsuperscript{13}

Fig. No 1.8 - Impact of Marketing Concept
The marketing function involves the gathering and storing of valuable information, which is needed in the process of building, maintaining and enhancing supply chain relationship. The implementation of the marketing concepts is composed of three set of organisation vide activity.

a. Generating of market intelligence pertaining to current and future customer needs.

b. Dissemination of the intelligence across of departments.

c. Responsiveness to market intelligence.

If the firm has information about customers, suppliers, competitors, socio-political environment and technological trends, it could help in selecting best suitable supply chain management. Information sharing among the partners in the supply chain will be within the boundaries of the supply chain rather than within the boundaries of the organisation. This can facilitate two way relationship with suppliers with improved information exchange and can utilize creativity, improve process. A close long term inter firm relationship and inter firm cooperation are a component of the marketing concept.
The major impact of relationship marketing is in building close and long term relationship in the supply chain. This close inter-organisation relationship tie firms to each other and tie their success in the chain as a whole. There is a close inter firm relationships such as partnerships, strategic alliances, joint ventures, which increases inter-firm cooperation including joint inventory and cost reduction as well as joint planning. These all assume mutual, interdependent relationships governed by corporative norms. These cooperation and close inter organisational relationship helps partners achieve a high level of customer satisfaction in a rapidly changing business environment.

j. Sales Force Function and Supply Chain

The sales force function in the traditional way focuses on pre purchase orientation. Due to the change in the business environment and organisations strengthening the supply chains, the roles of the sales force changes here. The sales force now must focus on the post purchase orientation of delivering services and creating valuable solutions to the channel partners. The primary need of this service must be to meet the needs of various supply chain partners and improve the overall
performance of the supply chain. The new role is to design and negotiate strategic partnership with vendors and technology partners through which the firm deploys its distinctive competencies to serve particular market opportunities. The sales force is involved with various supply chain activities and goes beyond organisational boundaries. The sales force is basically involved in the following activities:

- Implementing cooperative behaviours
- Mutually sharing information
- Nurturing supply chain relationship

Implementing Cooperative Behaviours

The cooperative behaviour of the sales force in the supply chain intends to work cooperatively with the chain partners on many integrated projects. These integrated projects include joint planning, evaluation and demand forecasting. To achieve the goals of the supply chain, partners need to work toward common goals and objectives.\textsuperscript{14}

To achieve supply chain goals and objectives, tactical and strategic plans need to be synchronized so that synergies can be realized between supply
chain partners. A cooperative planning is required at this stage. The sales force can be very useful at this stage because the sales force is a facilitator of many activities with other supply chain partners. Sales people will likely understand their firm’s strengths and weaknesses from the supply chain partners perspective. With this knowledge, the sales person can represent the “Voice of the Supply Chain” to drive continuous improvement.15

Mutually Sharing Tactical Strategic Information

Sales people are boundary-spanning agents; the sales force plays a key role in mutually sharing critical information among various supply chain partners, up and down the supply chain. Thus a critical role for the supply chain should be to share accurate information on a timely basis with the appropriate upstream and downstream supply chain partners. Much of this information sharing in the supply chain occurs at both tactical and strategic levels and revolves around logistical issues, operations, integrated process and systems.
Relationship Manager

Generally the sales person focuses on sales volume and profit, but the new role of the sales person is to act as a relationship manager. Acting so he has to ensure that the organisation meets the needs of the various channel partners. He has to identify the needs and requirements of the channel partners and communicate it to the various inter functional areas so that various internal processes can be improved to meet the requirements. Marketing and sales must be the integrator both internally – Synthesizing technological capability with market needs and externally – bringing the customer into the company as a participant in the development and adaptation of goods and services. In supply chain management, many of the supply chain partners needs and requirements will be associated with logistical issues. The sales person may need to implement, facilitate and/or coordinate logistical services delivered to meet the requirements of various supply chain partners. The sales person requires having logistical expertise. Fig. No. 1.9 represents the sales person logistical expertise.
### External (SCM Partners Expertise) Internal (Company) Expertise

<table>
<thead>
<tr>
<th>Supply chain partners needs and requirements for:</th>
</tr>
</thead>
<tbody>
<tr>
<td>* On Time delivery</td>
</tr>
<tr>
<td>* Inventory Level</td>
</tr>
<tr>
<td>* Order Processing</td>
</tr>
<tr>
<td>* Order cycle lead times</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Company logistical processes and systems:</th>
</tr>
</thead>
<tbody>
<tr>
<td>* On time service rates</td>
</tr>
<tr>
<td>* Fill rates</td>
</tr>
<tr>
<td>* Packaging design</td>
</tr>
<tr>
<td>* Order processing systems</td>
</tr>
<tr>
<td>* Information systems</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supply chain partners strategic goals and objectives:</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Current state of logistics competence</td>
</tr>
<tr>
<td>* SCM partner’s logistics goal and objective</td>
</tr>
<tr>
<td>* What do they need from a supplier to reach their logistical goals and objectives</td>
</tr>
<tr>
<td>* Supply chain strategic goals and objectives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Company strategic logistical capabilities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>* EDI Capabilities</td>
</tr>
<tr>
<td>* JIT capabilities</td>
</tr>
<tr>
<td>* Vendor – Managed inventory programmes</td>
</tr>
<tr>
<td>* Logistical strategic capabilities and limitations</td>
</tr>
</tbody>
</table>

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**Fig. No. 1.9 – Salesperson Logistical Expertise**

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### k. Forecasting in the Supply Chain

The supply chain operates on the push or pull approach. The push process is performed in anticipation of customer demand and pull process are
performed in response to customer demand. Planning the level of production becomes important in the push process. Planning the level of capacity is an important aspect in the pull approach. In both the cases it becomes mandatory to forecast the demand of the product in the future. This is because the supply chain activity will be planned on the basis of the estimates of when and how many sales to the customer will take place.

There are some important decision in the supply chain listed below which are based on demand forecast:

<table>
<thead>
<tr>
<th>Functional Area</th>
<th>Decisions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Production</td>
<td>Scheduling, Inventory Control, Aggregate planning</td>
</tr>
<tr>
<td>Marketing</td>
<td>Sales force allocation, promotions, new product introduction</td>
</tr>
<tr>
<td>Finance</td>
<td>Plant/Equipment investment, budgetary planning</td>
</tr>
<tr>
<td>Personnel</td>
<td>Workforce planning, hiring, layoffs</td>
</tr>
</tbody>
</table>

All these decisions should not be segregated as they make impact on each other. It is advisable that the decision must be made jointly. Facts to be known by the Supply Chain Managers:
➢ Forecast is always wrong and should thus include both the expected value and a measure of forecast error.

➢ Long-term forecast is usually less accurate than short-term forecasts, i.e. long term forecast have a larger standard deviation of error relative to the mean than short term forecast.

➢ Aggregate forecast are usually more accurate than disaggregate forecasts. Aggregate forecasts tend to have a smaller standard deviation of error relative to the mean.

1. Outsourcing

We need a firm only to do those things in which it is peculiarly and specially capable of delivering better than other arrangements. This leads to outsourcing of services and goods. The justification for such outsourcing have typically been the greater flexibility, lower long-term costs, freedom from the hassles of carrying people on permanent rolls of the hiring organisations and so on. In the point of view of service provider, there is also the real advantage of scale economies, specialization and learning that
comes from a specific business focus. The following are the various facts related to outsourcing:

1. A product is not outsourced in the early stages of life cycle.

2. A product, which is "Proprietary", will be kept in house in order to keep the technology secret.

3. Suppliers should be viewed as a valuable source of knowledge and not only a source of cheap parts.

4. Outsourcing is done to reduce costs and improve return on investment.

5. Many firms are too vertically integrated & can achieve a higher return on capital by more outsourcing.

6. Outsourcing is getting a function done from outside resulting in heavy cost reduction.

7. Outsourcing should be done for strategic reasons. Outsourcing gives a competitive advantage whenever a portion of the value chain can be located outside the host country to get cost advantage.
8. Outsourcing turns over the entire activity to an independent firm specialized in that kind of activity:

- Housekeeping & maintenance of hospitals
- Supply of typist, receptionist, checkers
- Data processing & business management
- Purchasing & Maintenance of Diagnostic equipments in hospital
- Retainers, part timers, contractors, temporary workers

9. All outsourcing should be for “Support Work” rather than “Revenue Producing” where no scope of career growth

10. New trend in outsourcing is based not on ownership but on partnership, joint venture in R & D.

11. JIT is linked with outsourcing

**Process of Outsourcing**

1. Decide on the strategic reasons for outsourcing. Operation strategy state a policy on outsourcing:
- How much outsourcing is desired
- Reasons of outsourcing
- Type of outsourcing (products / services)
- Potential countries
- Criteria to be applied in specific cases

2. Establish a team to make outsourcing decision as purchase, production, engineering, technology, marketing, accounts, services etc.

3. Set up a technical office overseas to collect information on potential sources of supply. Feed this information back to the outsourcing team for evaluation & decision

4. Establish an ongoing relationship with suppliers, not only a purchase contract. This should include certification for quality & discussion regarding future business: for other parts & components

5. Consider strategic alliance with your suppliers, joint venture, and acquisition of supplier, equity participation in supplier’s organisation.
m. Research & Development in the Supply Chain

The highly turbulent and uncertain business environment of the future justifies the importance of innovation and effective new product development elaborating with immediate customers, suppliers. R & D team will improve the new product development process. The R & D in a supply chain management context is beyond the boundaries of the firm, it incorporates the focal firm’s supplier’s supplier and customer’s customers input early into the new product team. Integration of the capability between upstream and downstream firms is an important determinant of product development success.\(^{18}\)

Globalisation

Organisations operating as multinationals are facing pressures for global integration and local responsiveness. Multinational companies should strike a balance between global integration and the capacity for local response. As the competition is raising on global level the organisations operations on global basis are forced to disperse their R & D operations in different countries. They are also forced to manage the infrastructure
globally as to attain a qualitative innovation. Managing in a global context suggests the relevance of an international innovation network, global management of technology and the capability to leverage the best elements of each location to global benefit.

Postponement

Postponement as a strategy requires R & D to coordinate along the supply chain to develop new product architecture that allows delayed differentiation to be accomplished inexpensively. R & D must design product so that it can be customized at the most efficient point in the supply chain.¹⁹

Speed to market

The cycle time must be reduced either by reducing development time or increasing the speed of delivery. To be successful at new product development, a firm must meet two critical objectives: Maximizing the fit with customer needs and minimizing time to market.
n. Purchasing & Supply Chain Management

The success of Supply Chain Management can be achieved by properly understanding the purchasing requirement in the context of the overall strategy of the organisation. The selection of the chain partners must be done to meet the strategic requirement. In order to achieve the objectives of improved quality and reliability reduced inventories and lower total system costs associated with supply chain management; an emphasis on the integration of purchasing and logistics is required. Purchasing can enhance the effectiveness of product and process design by ensuring reliability and quality of supply of materials, components and services, managing the supplier involvement in the process and providing insights about the competitive supply environment. In order to facilitate the effectiveness of purchasing function it is advisable that, the organisational structure and communication process, Information Technology facilities must be in accordance to the supply chain management objectives. The role of purchasing have changed starting from traditional approach to partnership / relational approach to operational approach to supply chain management and lastly strategic approach to supply chain management.
0. Financial Issues in the Supply Chain

Firms have begun to appreciate how improved supply chain performance increase in sales, productivity and profits. There are three areas of financial focus in which the supply chain executive must demonstrate competency: expense control, capital budgeting and cash flow generation. The expense control requires a deliberate and continuous search for more efficient ways of getting value added activities. Decision makers must consider the amount and timing of cash inflows and cash outflows as well as the cost of capital or some internal hurdle rate of return. Companies are evaluating managers on their ability to turn products into cash faster. An effective cash flow strategy reduces the level of inventory and frees up the cash committed to those assets throughout the supply chain.

The following are the Supply Chain cost measures:

1. Total Cost
2. Cost per unit
3. Cost as a percentage of sales
4. Inbound freight
5. Outbound freight
6. Administrative

7. Warehouse order cost

8. Direct Labour

9. Comparison of actual versus budget

10. Cost trend analysis

11. Direct product profitability

12. Customer or customer segment profitability

13. Inventory carrying

14. Cost of returned goods

15. Cost of damage

16. Cost of service failures end

17. Cost of backorders

Besides supply and demand uncertainty, several financial factors also effect the decisions of supply chain. Managers must consider financial uncertainties when making supply chain decisions. Financial analysis can be used to compare supply chain decisions in terms of supply chain performance. The competency of the supply chain managers is in utilizing
financial tools and techniques to plan, evaluate, decide, implement and control activities within and between companies in the value chain.

p. Coordination in the Supply Chain

The implementation of supply chain requires coordination across the various business functions within the firm as well as coordination among the various partners in the supply chain. In some cases the lack of coordination may optimize the local objective and would affect the whole supply chain. The result may be that the total supply chain profit can be less than what could be achieved through coordination. Coordination have effect on the following measures of performance of the supply chain:

1. Manufacturing cost
2. Inventory cost
3. Replenishment lead time
4. Transportation cost
5. Labour cost for shipping and receiving
6. Level of product availability
7. Relationships across the supply chain
The coordination in the supply chain is to be viewed from two perspectives:

1. Inter-functional coordination
2. Inter-firm coordination

**Inter-functional Coordination**

Inter-functional coordination is highly responsible to a rapidly changing market environment. This form of response is concurrent management, in which different functions are interdependent yet systematically and strategically coordinated toward successful implementation of supply chain management within a firm. Fig. No. 1.10 gives a look of the inter-functional coordination:

![Diagram of Inter-functional Coordination](image)

*Fig. No. 1.10 – Inter-functional Coordination*
Inter-functional coordination within a particular firm can be viewed as the coordinated efforts across functions to accomplish common goals, such as creating customer value and responsiveness to market changes, under close relationships among the functions. It requires cooperative arrangements and control without which some workers may willingly or unwillingly engage in activities which either acts as hindrance or do not add value to the chain.

Mintzberg proposed six basic coordinating mechanisms: 21

1. Mutual adjustment: The process of informal communication in which people interact with one another to coordinate.

2. Direct Supervision: One person coordinates by giving orders to others.

3. Standardization of work process: Direct specification of the content of work and the procedures to be followed in order to tightly control different people.

4. Standardization of outputs: Specification of what is to be done (i.e. the results of the coordination) so that interfaces between jobs are predetermined.
5. Standardization of skills: Coordination of people through education as a common body of knowledge and a set of skills that are subsequently applied to the work.

6. Standardization of norms: Coordination of people through a common set of beliefs.

Besides the above supply chain management requires a structure beyond a functional set of structure in which people are not able to go between the functions. Thus an appropriate organisational structure must be formulated.

Inter-firm Cooperation

The demand for flexibility in today's turbulent business environment requires supply chain management rather than the vertical integration or arm-length relationship of the past. Supply chain management extends the concept of functional integration beyond a firm to all the firms in the supply chain and therefore, each member of a supply chain needs to help each other to improve the competitiveness of the supply chain. Implementing supply chain management inherently requires coordination,
which is a set of joint action of firms in a close relationship to accomplish a common set of goals that bring mutual benefits. The strategic partnership between two firms, whether it is between buyer and seller or manufacturer or carrier, could be a segment of an extended supply chain. This is so because each partnership is in a strategic alliance, which is a primary cooperative strategy, brings knowledge and/or resources to the partnership. Reward sharing, joint improvement efforts, working together to adapt to market changes and quality control by suppliers rather than quality inspection by buyers as attributes of cooperation. The characteristics of cooperative inter firm relationship can be started as:

- Few partners for each major items
- Reward sharing
- Joint improvement driven by mutual interdependence
- Existence of conflict-resolution mechanism
- Open and complete exchange of information
- Working together of firms to adapt to a changing marketplace
- Active involvement of the firms in supply chain activities
The antecedents of inter firm cooperation

1. **Trust and commitment**: Commitment and trust are “key” because they encourage marketers to:
   
   (a) Work at preserving relationship investments by cooperating with exchange partners.
   
   (b) Resists attractive short term alternative in favour of the expected long term benefits of staying with existing partners
   
   (c) View potentially high-risk actions as being prudent because of the belief that their partners will not act opportunistically.

2. **Cooperative Norms**: Cooperative norms must be developed on the following grounds:
   
   (a) Problems are joint responsibility
   
   (b) Concern about each other profitability
   
   (c) Do not mind owing each other
   
   (d) Are ready to make cooperative changes

3. **Interdependence**: Whenever there is high degree of interdependence both the parties will have a higher degree shake in ensuring the relationship. This dependence is what motivates willingness to
negotiate functional transfer, sharing key information and participating in joint operational planning.\textsuperscript{22}

4. **Compatibility**: Organisational compatibility is defined as having complementary goals and objectives as well as similarity in operating philosophies and corporate cultures.

5. **Extendedness of a relationship**: Extendedness in a relationship, or open-ended interaction, has a positive effect on the level of cooperation between two interacting firms.

**Consequences**

The various benefits of inter firm cooperation may be as:

1. **Risk reduction**: Inter firm cooperation reduces the risk as the members of the chain shares the risk and cost.

2. **Obtaining resources**: It is all about getting resources that a particular firm does not already posses but are critical for improving its competitiveness.

The resources may be: Financial, Technological, Physical, Managerial. The emphasis is in time, adequate amount, qualitative and cost effective and this is achieved by inter firm cooperation.
q. Vendor Management

In the present situation the role of vendor is very critical. Every customer gives less time to serve him and every supplier needs to minimize the blockage of capital. In such a situation the managing of vendor becomes important. The most important is the selection and analysis of the vendor. Some of the criteria of selection of a vendor are:

1. Quality
2. Price
3. Delivery time
4. After sales service
5. Technical expertise
6. Cost saving initiatives
7. Supplier’s ability to avoid complaints
8. Supplier’s track record in bringing new ideas
9. Efficiency of supplier’s sales office

All the above factors must be evaluated before selecting a vendor.
References


5. Ibid, p-12


