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Nottingham University Business School

MBA Programmes

MANAGEMENT PROJECT

Module N14M72

Supply Chain Management Strategy and Issues

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<u>Content</u>	2
<u>Introduction</u>	5
<u>Problem area or the issue</u>	7
<u>Literature review</u>	8
<u>Types of manufacturing supply chains</u>	12
<u>Lean supply chain</u>	13
<u>Agile supply chain</u>	14
<u>What is Agility?</u>	14
<u>How ‘Leanness’ differs from ‘Agility’?</u>	15
<u>Characteristics of Agile supply chain</u>	16
<u>The agile supply chain</u>	16
<u>Hybrid supply chain</u>	17
<u>Decoupling point</u>	19
<u>Supplier relations</u>	20

Shwetang Garg, (2011), "a study of supply chain strategy and issues", Nottingham university Business School.

<i>Reducing complexibility to enhance Agility.....</i>	21
<i>Supply chain management V/S Logistics.....</i>	22
<i>Supply chain network structure.....</i>	22
<i>Identifying supply chain members.....</i>	23
<i>The structural dimension of network.....</i>	23
<i>Types of Business process links.....</i>	23
<i>Business process chain.....</i>	24
<i>The management component of supply chain management.....</i>	24
<i>Application of Literature to the problem.....</i>	25
<i>Development Stages in Supply Chain Integration.....</i>	26
<i>Conclusion.....</i>	30
<i>References</i>	31

Shwetang Garg, (2011), "a study of supply chain strategy and issues", Nottingham university Business School.

List of figures

Figure 1: classification of supply chain research.....11

Figure 2: The Agile supply chain.....17

Figure 3: Decoupling point as strategic inventory.....20

Figure 4: Building stronger partnership through multiple links.....21

Introduction

As the new world is growing at a rapid rate so are the technology advancements and the consumption of the technology and other related goods is also growing all over the world. Man has over the ages used various techniques and methodologies to fulfil the need of the human race and make money, this eventually developed into various industry types and thus came along logistics and supply chain. This paper would throw light on the different stages of development in the field of supply chain and the issues that surfaced as the development of the human race continued, what new techniques and strategies were developed in order to mitigate the issues at hand. It also talks about the application of various techniques and their short comings the gaps in implementation due to the current business scenario and some suggestions as what can be done to overcome the same. Following throws some light on the literature and some facts on how the supply chain management has evolved.

In early 1990's most of the manufacturers and service providers got together and joined hands with their important suppliers to raise the supply and material management incorporating them as a corporate strategy. In the same way wholesalers and retailers incorporated their logistic functions with functional areas to corporate in current scenario (Tan, 2001).

Scott and Westbrook (1991) & New and Payne (1995), Tan (2002, Pg 42) described Supply chain management as “ *The chain of linking each element of manufacturing and supply process from raw materials through to the end users, and treating all firms within the supply chain as a unified virtual business entity*”

To minimize unit production cost or primary operation cost in 1950's and 1960's the major part of manufacturers stressed on mass production with less products and process tractability. New

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products growth was slow and was only dependant on in-house technology and capacity. Surplus inventory was being used to balance up operations and thus maintain a flow but all this was leading a huge expenditure on Work in Process (WIP) inventory. It was not considered a very great idea to share technology and skills with customers and suppliers and thus cooperative and strategy buyer's supplier partnerships came to light (Tan, 2001).

In the year 1970's Material Requirement Planning (MRP) was introduced making emphasis on the impact of WIP inventories on manufacturing cost, quality. Product growth and delivery time lines. With the increase in competition in the year 1980, World Class Organization was bound to deliver low cost, high quality and trust worthy products with better designs tractability. Just in time (JIT) and other various other useful management programs were used to improve quality of work. This was the time when managers realized the importance of supply chain management. This concept of supply chain management was carried forward by experimentation with strategic partners and immediate suppliers. To include strategic suppliers and logistic function, the organizations in the year 1990's put their level best efforts in managing corporate resources. Trust Factor was maintained with supplier's quality as there were limited certified suppliers and the deliver was taken without inspection. Supply chain management was made to practice by the need of manufacturers for better inputs and outputs. The short term goal for supply chain management was to increase production and decrease inventory whereas the long term important objective was to satisfy customer needs and satisfying them with increasing the market share and making profits for the virtual organization and its members. In retailing Industry the major importance was given to different aspects of supply chain management and transportation and logistics functions. The major objective here is to substitute inventory with information to give visibility, keeping in mind that the merchandise should reach Just in Time where and when it is required. Later it was realized

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incorporating supply chain management has become relevant and important for business planning process. It was also realized that few organizations were yielding gains and profits from supply chain management while few were not gaining any profits by making supply chain management into practice. The issue now comes to play that not all products are driven by the same supply chain strategy and the classification of supply chain management strategy came to light namely Lean, Agile and Hybrid. These strategies are driven by various functions and are industry sensitive. It was that the concept of strategic supplier became popular. The idea of decoupling and mass customisation was developed as the market evolved constantly and the international trade was opened to various new markets (Tan, 2001)..

China has become world favourite destination for offshore production supplying cheap labour and favourable business conditions. However, many obstacles still stand in the way for a smooth supply chain functioning. The logistics regulation and other restrictions in the nation has opened opportunities to few and at the same time made things difficult for others who have to rely on the poor resources available to them.

Problem area or the issues

The supply chain today is the centre piece of any business concern. The companies with the best supply chain are best performing and leaders in their industry e.g. Zara, Dell, Wal-Mart to name a few. There are a few broad supply chain issues in the supply chain which I would like to highlight in this paper which are as follows:

1. The organisational structure required for a health supply chain as in many conventional companies the importance, capabilities and scope of work in a supply chain is in dilemma.

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2. The growing need of being agile in various industry segments. The strategic relationship with the various Supply chain partners and their selection.
3. This issue is peculiar to the business plan that I have written. The shortage of components for the new 3000rpm engine due to market saturation and stagnation with 1500 rpm engine. Inability to develop suppliers in the region who would supply at competitive prices.

The first two issues are vital to the various industries which are either involved in evolving technological environments or operating in the consumer goods market. It is of great importance that the various organisations learn what type of organisational structure they require to function in their environments, subjected to their supply chain strategy type. It is also becoming important in this era to switch to the agile supply chain strategy in order to survive, but it is at the same time very challenging to find a strategic partner in the Indian subcontinent where not all the organisations are open to change. The lack of support of the government in the development of the resources, infrastructure and promotional policies also is an important issue hampering the growth of the industry and its related industries.

Literature review

The fact that Logistic Management is a subpart of Supply chain Management and hence should not be misinterpreted that two of them are substitutable. Since the distinction between the two has been identified by the premier logistics professional organization, the task is how to make use of supply chain management in its best way possible. One of the most important changes in epitome of new business management is that independent business does not set competition as exclusively independent entity. This modern era business is more hooked on networking and management's calibre to maintain and sustain business relationships then working as a self supportive organization

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and hence maintaining these multiple chain of networking relationships is termed as Supply Chain Management (SCM) (Lambert, Cooper and Pagh, 1998).

Supply chain management is just not a chain of supply or chain-chain business relationships. It is basically networking of multiple businesses and sustaining long term relationships. Supply chain management helps to implement new effective ways of managing and maintaining business relationships with other members of organization and supply chains which helps in growth of business. The top management not only recognizes the importance of supply chain but also the executives keep on finding ways to succeed in dealing with the complexity of tasks (Lambert, Cooper and Pagh, 1998).

In (1997), Lambert, Cooper & Pagh offered structure for better understanding supply chain management and introduced number of research questions. These researches, reports and efforts have helped to develop successful supply chain management literature from which executives could benefit and focus on the most essential variables in managing supply chains.

The definition of supply chain management was modified in the year **1998 by The Global Supply Chain Forum** : “ *Supply Chain management is the integration of key business processes from end user through original suppliers that provides products, services and information that add value for customers and other stakeholders*” (Lambert, Cooper and Pagh, 1998, Pg 1).

The last few decades have been critically important to the subject Supply chain management in which it gained popularity in both industry and academia. As commonly know supply chain is an activity which is made up of an array of operations or facilities that produce raw material, drive it through the value chain, convert these raw materials in to finished products and finally distribute them to the end customers through an organised distribution setup. However, it is not just this it is

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much more, in today's world it is the total integration of all business activities. It has all the information from the finance, marketing, development, product flow and distribution from the supplier's supplier to the customer's customer. Thus it is viewed as a fully integrated system in order to find the perfect balance between activities within and outside the firm such that it creates greater value for both the customer and the firm. It is a constant check on the performance of the various activities (Huang et al, 2002).

The supply chain concept came into being as a result of various activities in the manufacturing environment. This included the constant rise in the cost of manufacturing, the depletion of the manufacturing facilities, shorter product life cycles, boom of the information technology, globalization and the opening of the free trade between nations added to the fierce competition and thus the focus on the supply chain management and the research in this area (Benita M. Beamon, 1998). The US companies were losing their share in the international market in the late 1970's, which they analysed to be a result of the lower price and poor quality they offered. They adopted the Japanese methods of Total Quality Management through which they could produce the good at reduced lead time and at competitive prices, thus price and lead time became the benchmark for qualifying in the market. The customers now expected a cheaper product with very high quality at reduced lead time. This was the time when the concept of the cost of quality, reduced inventory and other overheads came to light overtaking the conventional costing system. The concept of mass producing low cost items was now fading. The organisations realized they could make money by producing custom-made, high quality items to suit the individuals in mass production (Huang et al, 2002).

The realisation of the various organisations forced research to find new ways through supply chain management to reduce lead time and integrates suppliers, manufacturers, distribution channels and

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customers in an effort to primarily reduce the costs and secondly to enable the smooth flow of information about the customer’s needs and expectations. The ripple effect was that the concept of reverse logistics also came to light, where in the product is recovered at the end of life cycle for recycling, re-manufacturing or re-use (Benita M. Beamon, 1998).

The supply chain is naturally multi-discipline where in the engineers design the operations and frameworks to the various problems and the business managers design the strategy and implement the operations and frameworks to obtain desired results. Figure 1 shows the various research efforts in the field of supply chain management.

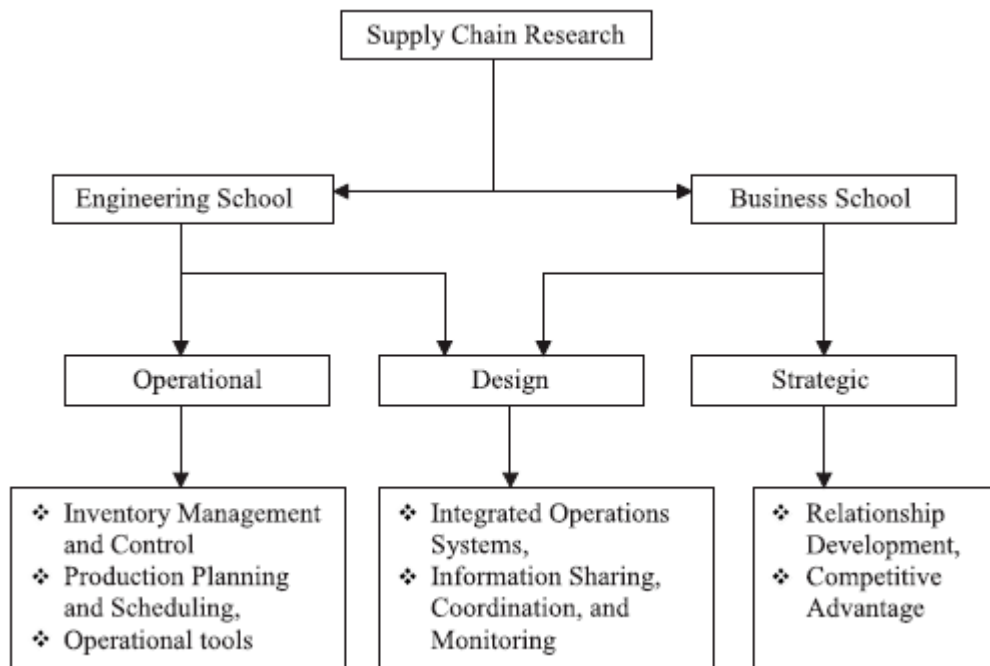


Figure 1: classification of supply chain research. (Huang et el, 2002).

As we can see in the figure three areas of research have been outlined namely operational, design and strategic. The operations research focus on the efficiency and performance of the supply chain and its control. The operational research mainly targets the plant and the various activities that are Shwetang Garg, (2011), "a study of supply chain strategy and issues", Nottingham university Business School.

done regularly to complete the customer requirement. This can be clearly divided into the three major categories inventory management, production planning and scheduling and operational tools as shown in the figure 1 (Huang et al, 2002).

The implementation of the policies for the supply chain requires great motivation, dedication and personal involvement of the top management. Strategic issues require understanding of the intricacy of the supply chain and hence formulating goals and objectives for the entire supply chain which are then pursued by the managers in different capacities. A strong focus is on the strategic relationship between organisation and its suppliers for the smooth and quick functioning of the business activities.

The design component targets the objective and does not focus on a specific area or a group of activities but it takes a holistic approach towards the supply chain. Lot of research has been done in this area and the factors which influence the design of the supply chain it comes to light that the product characteristic defines which type of supply chain strategy should be adopted namely postponement or product customisation.

Types of manufacturing supply chains

The early days of supply chain has various inherent issues such as the flow of information was not rapid across the supply chain to the managers and top management. So there was a gap between the market requirement and the actual supplies such as the desired quality, changing trends and quantity required leading to disparity popularly known as the bullwhip effect. The manufacturing companies didn't form a strategic alliance with the important suppliers which could have benefited both the buyer and supplier firms. However, today substantial work has been done in this field and the strategic relationship is given grave importance for the successful functioning of the business.

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The distribution system was taken lightly and its potential to reduce the costs, reduce lead time and facilitate higher availability of finished goods was not recognised. Today it is used to delay product differentiation and facilitate customisation and at the same time overstocking and stock outs can be abolished. Paramount study on these issues led to the formulation of the following three types of supply chains (Huang et al, 2002):

- Lean supply chain
- Agile supply chain
- Hybrid supply chain

Lean supply chain:

Lean supply chain system employs continuous improvement methodology which targets on the eradication of the waste or non value adding points or activities across the value chain. It is facilitated by the reduction in setup time to enable the economic production of small batches/quantities through with the organisation achieves cost reduction, flexibility and aims for customer focus by being responsive. Using lean supply chain strategy an organisation and earn higher profits, greater internal manufacturing efficiency and flexibility however, it lacks external responsiveness to the customer requirements. As far as the internal responsiveness is concerned the organisation adopts the time based competition paradigm, which ensures reduced product development and production time, justifying higher prices for customer service and leading to rapid innovation along with lower cost of quality.

The lean supply chain strategy employs lean production along with time compression in order to be economical, flexible and at the same time be responsive. But now the market started evolving continuously with the product batch getting shorter and shorter to even a single product but had the Shwetang Garg, (2011), "a study of supply chain strategy and issues", Nottingham university Business School.

capacity to satisfy a variety of market niches. This was the evolution of mass customisation. The organisations realised the potential of the market that was before them and understood that along with lean they have to be responsive to the customer to remain competitive i.e. lead time between concept and product becomes shorter. This gave birth to what is known as agile supply chain strategy (Huang et al, 2002).

Agile supply chain:

Fast and fickle markets are setting a trend in this competitive scenario where life cycles have shortened and global economic factors have influenced ambiguity.

The risk of elongated and slow moving logistics is controvertible; therefore organizations are compelled to re-design their supply chain strategies of managing and structuring them as per current trends. The survival and existence in these changing scenarios is by adopting “Agility”. We also learn the distinction between “Agility” and “Leanness” in a bit detail.

Time Management has become the key factor in the competitive market & its importance is realized by meeting demands of customers in shorter delivery spans. Apart from being quick and speedy, it also requires to be mobile, versatile, fast moving and responsive (Huang et al, 2002) & (Martin Christopher, 2000).

What is 'Agility'?

Supply Chain Agility is a functional strategy mainly focused on introducing velocity or speed and flexibility in the supply chain. In a supply chain the goods are moved from the customer demand by the mediums of raw materials stage, supply, production, and distribution of products to the customer. The distinction between supply chain management and supply chain agility is the scale of

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capability that the organization possesses. The speed and flexibility are the key factors of agile supply chain but at the same time customer satisfaction has to be accomplished to keep the network strong and long term. Customer satisfaction is a paramount.

Hence to achieve all these traits it requires consistency with accuracy and effectiveness. Agility is more market driven with more product research and short development and introduction cycles. The focus is on quickly satisfying the supply chain. The keys are flow and time. Agility requires the organization to be prompt and quick in its response of changing demands and needs of the markets. There is a very short span to market it hence the service is highly reactive and open to new challenges to modify from one product type to the other as per the demand (Huang et al, 2002) & (Martin Christopher, 2000)

How 'Leanness' differs from 'Agility'?

Agility should not be misinterpreted with Leanness.

Lean focuses on producing high level of throughput with a minimum inventory. One of the primary focuses of lean is to eliminate waste with a bias towards "pulling" goods through the system based on demand and the second focus is to empower workers, and make production decisions at the lowest level possible. Lean came into picture from Toyota Production System (TPS). Lessons from TPS principles have left a deep impact on the manufacturing practices of industries all across the world. There have been self contradictory situations where vehicle manufacturing is extremely important with less of time with inventory being high and still demands not met by the customer leading to dissatisfaction.

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We also cannot deny that leanness may be an element of agility in various situations, but alone by itself it will not enable the organization to meet the needs of customer quickly. There are situations when lean model is useful, it could come into picture when demand is predictable and low variety with high volume. The problem in this strategy arises when the demand is unpredictable, variety is high and volume at the individual stock keeping unit (SKU) is low.

Thus, Agility is a rapid approach and is used in less predictable environment where demand is volatile and requirement for variety is high (Martin Christopher, 2000).

Characteristics of Agile Supply Chain:

- Market Sensitive: The Supply chain should understand the demand and satisfy them by a positive response.
- Forecast driven then demand driven: Based on past sales, forecast is converted into inventories.
- The Efficient Consumer Response (ECR) and database of information based on captured data are transformed to the voice of market and respond directly to it (Martin Christopher, 2000).

The Agile Supply Chain:

- Virtual
- Sensitive Market
- Process Integration
- Network Based

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Information technology is used to share data between supplier and buyer, hence *Virtual chain* supply is based on more real information than forecasting. Electronic Interchange (EDI) and Internet has enabled partners to act on real demands than the forecasting demand hence the supply chains able to satisfy the needs and demands of the consumer by understanding its *Market Sensitivity*. *Process Integration* helps in a better way to supply chain partners as it is collaborative working between supplier and buyer, joint product development, common systems and shared information. It also helps to maintain transparency of information between supplier and buyer. *Networking* is also one of the major ingredients of agility, sustaining long term relationships with partners, commitment and customer satisfaction are key factors in this competitive and challenging global markets (Martin Christopher, 2000).

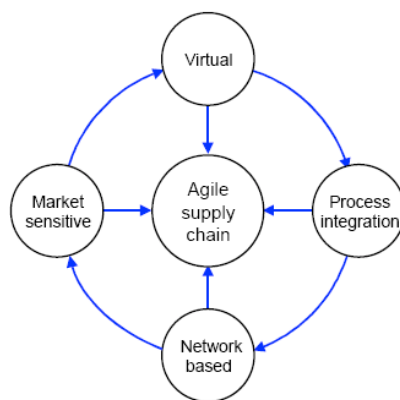


Figure 2: The Agile supply chain (Martin Christopher, 2000)

Hybrid supply chain:

Hybrid Strategy is the combination of both Agile and Lean chain supply. In various situation, application of both the strategies yields fruitful results. Occasions where demand is stable and predictable and some where the converse is true. Both lean and agile characteristics come into picture. However, it is not necessary that a supply chain should be either of the two; it can be lean at a particular time while agile at the rest.

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- Using make-to-stock/lean strategies for high volume, stable demand products, and make-to-order/agile for everything else
- Have flexible production capacity to meet surges in demand or unexpected requirements
- Use of postponement strategies, where “platform” products are made to forecast, and then final assembly and configuration done upon final customer order.

For Example: Zara, a Spanish fashion company is a very good example of hybrid chain strategy. The target group for Zara is 18 to 35 years and in International market its giant competitors are Benetton, Gap and The Limited. But Zara has established itself in a very effective way in the industry by its quick response. Zara delivers products from concept to the stores in less than three weeks which is phenomenal. It involves cross functional teams-comprising fashion, commercial and retail specialist working for Zara. The team is guided with regular inflow of EPOS data and other gathered information from company stores all across the world. Zara’s manufacturing systems are similar to many ways of Benetton but ideas are developed in conjunction with Toyota. The system is flexible enough to act to the sudden changes in the market. Zara does not hesitate to keep its shelves empty at times making a notion that if you don’t buy the product now someone else will. The production is always kept below expected sales to keep the stock moving. The stocks are replenished once a week and the report of the stock’s performance is given by the store manager to the manufacturing team and the design team directly so that if some product is underperforming it could be either tweaked a bit or stopped completely. This has completely took the industry by surprise and enabled the Spanish giant to be number one in the trade earning massive profits and having less than 10% unsold goods (Martin Christopher, 2000).

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Decoupling Point:

The major issue faced in most of the supply chain is bounded visibility towards real demands as the inventory between the point of product and the final market place differs, they end up being forecast driven as compared to demand driven.

Thus, "*The Decoupling Point*" can be said to be the as the point at which the real demand penetrates upstream in the supply chain. Earlier, this was known as the order penetration point. However, the real issue is not how far the order penetrates the supply chain but how much visibility is gained. The orders are generally distorted due to the uneven demand and are subjected to the bullwhip effect. However, demand reflects the ongoing requirement in the market place on almost real time basis. The decoupling point dictates the form in which the inventory is stored/held. In the figure 3 below shows the demand coming into the play at various points. The top most shows that the demand comes in directly at the manufacturing stage and the inventory may be held in the form of components materials etc. In the second one from the top it comes at the end of the manufacturing activity so the inventor must be in the form of finished good which may be required to be assembled. The whole idea of decoupling point is to hold inventory in generic form for the ease of customisation and distribution. Holistically this idea is called 'postponement' a grave part of the agile supply chain management strategy. The postponement idea works on the concept of designing the products and the various components on common platform where in the final product is only made upon the realisation of the actual demand.

There are quite a few advantages of postponement activity like the inventory can be kept at a generic level which results in reduced inventory levels. As the inventory is generic there is less shortage and the same components and platform can be used to produce different or a variety of

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end products. Forecasting activity is made quite simpler as it involves generic items and not the finished goods. This particular point is of grave importance when it comes to the forecasting as it is relatively simpler to have a forecast of the worldwide volumes than the local requirements and this practically mitigates the issue of shortage or excess inventory. This also facilitates the ability of a company to supply a range of products at an overall lower cost i.e. mass customisation strategy implementation (Martin Christopher, 2000).

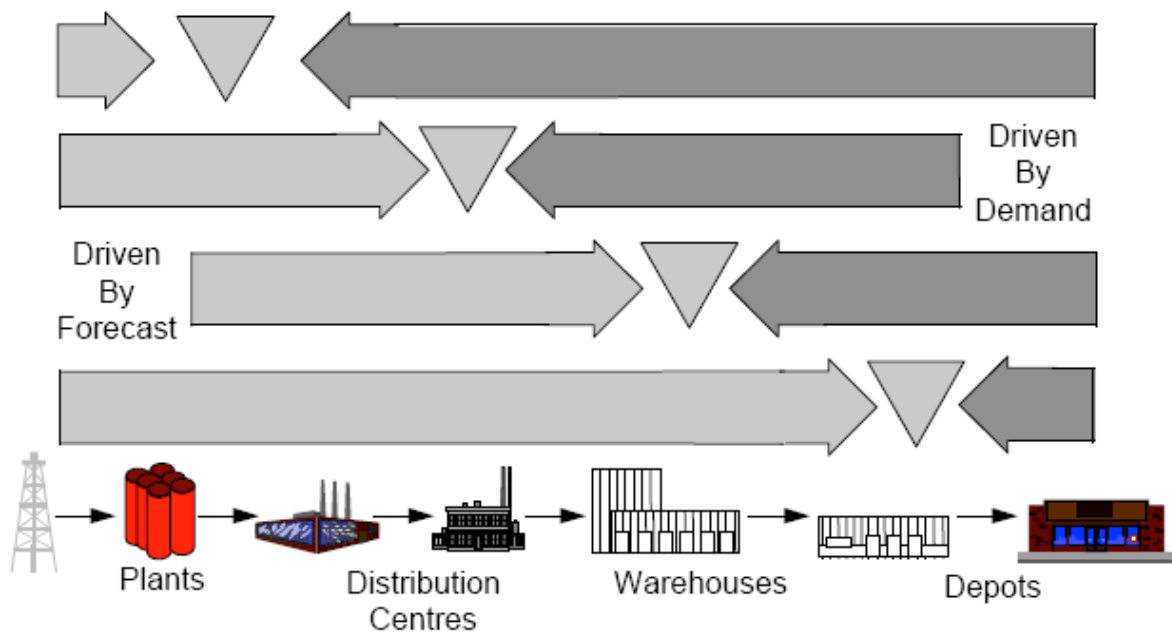


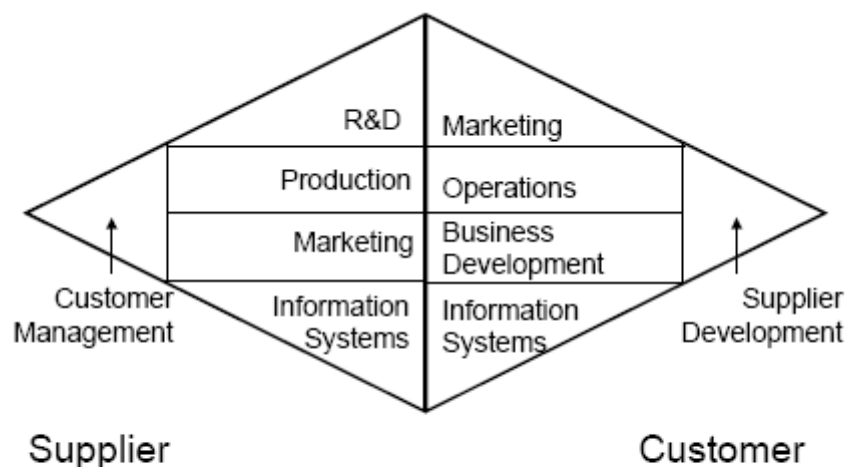
Figure 3: Decoupling point as strategic inventory (Martin Christopher, 2000)

Supplier Relations:

One of the most important key to succeed for agile response is the quality of supplier relationships maintained by an organization. The supplier base should be rational i.e. it is not possible to maintain relations with multiple suppliers thus it's necessary to identify the limited good 'Strategic Suppliers', with whom long term relations could be established and maintained. This partnership could yield

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quick and best results for the organization fulfilling all the consumer demands and at the same time very actively engaging in innovation and new product development cutting down the lead time tremendously. On the contrary we cannot deny the disadvantage of using single source of vendor however, if the buyer supplier relations are well maintained this problem can be mitigated. The key to success is the need of high level 'connectivity' between the firm and strategic suppliers.



Reducing complexity to enhance agility

Figure 4: Building stronger partnership through multiple links (Martin Christopher, 2000)

Reducing complexibility to enhance agility:

Complexity is the biggest barriers to Agility when companies grow and widen their marketing reach. The reduction of product complexity should be on the major priority list for the organizations. Complexity not only involves designing but also excessive variety that does not contribute to customer satisfaction or consumer value. Complexibility is also caused due to organizational

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structure and poor management process which tends to tackle every problem differently rather than finding a decoupling point such that greater productivity can be achieved with reduced inventory.

Business Process Reengineering (BPR) movement has been there to reduce complexity or eliminate unnecessary activity (Martin Christopher, 2000).

Supply chain management V/S Logistics:

Logistic is basically subset of supply chain process which involves planning, execution, controlling the efficiency and effective flow, also maintaining the storage of goods, services offered, information gathered from origin point to consumption point and meet customer requirements and satisfying their needs.

Both managing and implementing logistics in supply chain is a crucial task and full of challenges. It is quiet easier to write the distinction between the two but very difficult to implement them. There are much complexity involved for executives to manage all segment suppliers and customers from origin points to consumption point. The essence of supply chain management lies in 3 elements which are the Structure, Business Processes and Management Components (Lambert, Cooper & Pagh, 1998).

Supply Chain Network Structure:

One of the major constituent of managing supply chain is to have impressive vital information and apprehension of the different processes of supply chain and its implementation and configuration.

The three prime frameworks of company's networks are(Lambert, Cooper & Pagh, 1998):

- Member of Supply Chain
- The Structural dimensions of network
- Different types of process links across the supply chain

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Identifying Supply Chain Members:

It is very important to identify the members of supply chain as it would be very difficult to categorize all segment members, as the number will go vast, hence it is necessary to identify the most beneficial member to the supply chain and give the managerial attention and resources. The members include all organizations supplier or customers with whom they have direct or indirect communication point or consumption point. To further make it more manageable members are segmented or categorized between primary and supporting members (Lambert, Cooper & Pagh, 1998).

The Structural Dimensions of Network:

There are three structural dimensions and they are as follows:

- Horizontal Structure
- Vertical Structure
- Horizontal Position

The horizontal structures illustrate numerous tiers across supply chain, as it could be long or short with few or more tier structures. The vertical structure represents the number of members both supplier/customers within each tier of supply chain likewise the company can have more customer/supplier or less customer/supplier. The third is structural dimension and it is present on the company's horizontal position with the supply chain (Lambert, Cooper & Pagh, 1998).

Types of Business Process Links:

Business Process links are categorized in four types and they are as follows:

- Managed Process Links

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- Monitored Process Links
- Not managed processed Link
- Non Member process Link

Business Process Chains:

When number of activities are performed and organized at the same point of time within an organization and every organization in some or the other way is a part of supply chain relationship with other companies and when the relationship is built between companies, then few internal activities would be linked and managed by them. For Example: The internal activity of manufacturing can be linked with the distributor which in turn can affect the internal activity of a retailer and finally retailers linking can affect the end customer. Hence it is all internal activity chain. It is believed profitability could increase if internal keys and processes are linked and managed across various companies (*Lambert, Cooper & Pagh, 1998*).

The Management Component of Supply Chain Management:

Management Component can be divided into two groups to illustrate the difference between them.

The first group would be categorized as Physical and Technical group which can be categorized into:

- Planning and Control Methods
- Work Flow/Activity structure
- Organization Structure
- Communication and Information flow facility structure
- Product Flow facility structure

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The second group is based on Managerial and Behavioural Components and it could be sub categorized as (*Lambert, Cooper & Pagh, 1998*):

- Management Method
- Power and Leadership Structure
- Risk and Reward Structure
- Culture and Attribute

Application of the literature to the problem

It is rightly believed that the biggest challenges faced by an organization is to manage, control and work towards the coordinated approach in between the supply chains by maintaining long term customer relationships and customer services. Operation Management being a key factor along with high quality standards of products, flexibility, quick speedy delivery, maintaining trust and a solution to reduce product complexity are all required in this approach. In the current business era advanced technology like information and transportation are leaving a deep impact on global economy. Communication technology has made it easier and approachable. We cannot deny the fact that supply chain management is incorporated approach of operation management and nowadays it has become one of the most important precedence of the Industrial Companies. There are still few factors to run effective supply chain and maintain relations, customer satisfaction, better performance in the field of inventory management, supply chain cost, a lot learning has to be done on casual relationships and to maintain them with proper reasoning. We need to know and learn why it is difficult to achieve effective supply chain management (*Akkermans, 1999*).

The major attribute of most of the industries are double functions of production and distribution.

The common major problem faced repeatedly is to match production rate with the consumption

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rate of the consumer. It is most observed that there are fluctuations in the company's production and actual sales rates. According to the law of Industrial Dynamics, if the consumer demand could be enlarged or increased, it certainly will, hence if surplus usage occupy in same relative position at the same time of market slow down, problems are faced. The problems could not be sorted out if the distribution chain hinders the system, thus it becomes very important to work on the proper system approach of distribution chain. There have been various studies to overcome the problems faced by supply chain and make them more useful and effective (Wikner et el, 1991)

Development Stages in Supply Chain Integration:

The importance of effective supply chains has been clearly identified by the companies in terms of operation and design. It is required to lay emphasis on long term perspective and not take hasty moves as integration cannot happen in a short span of time.

Wikner et el, (1991) have summarized few stages and approaches for the improvement in Supply Chain Dynamics. The first stage is when company's short term and precise planning is quite responsive and is based on rapid fix for crisis. This leads to ineffectiveness and inefficiencies in the operation of supply chain resulting in exposure to the effects of changes in demand pattern. The second stage comprises of factory Functional Integration which deals in internal flow of goods. It stresses on reduction of cost than improvement in performances. Stage 2 companies planning and control system emphasizes on time phrased planning to material and manufacturing management and they use Material Requirement Planning (MRP) techniques. It results in poor visibility of customer demands and finally leads to poor performance and planning. In stage 3, until the flow of goods is very well managed by the customers it becomes very irrelevant. This stage comprises of local integration of those prospects where the supply chain of the company directly controls the outward goods management cooperating with the demand and supply with company's own chain.

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The company utilizes Just in Time (JIT) approach in manufacturing and executing material plan. In stage 3 the main focus is on efficiency than effectiveness and reacting on customer demand rather managing the customer. Extended use of electronic data is utilized to make process faster in response. In stage 4 , the supply chain integrations is achieved by managing it outside suppliers and customers, its significance come to light when product orientation focuses to customer orientation and understands products, culture, market and organization. It ensures all the companies falling in this supply chain fulfill customer needs and satisfaction. It involves full management at all levels including shared product, process and specifications change, interchange of information technology and support of designing and the most important is to maintain long term commitment and elimination of multiple supply sources.

Supply Chain Management involves various processes from suppliers to purchasing to manufacturing to distribution to marketing and sales. It also focuses on customer relationship, coordination and cooperation. The major goal is to achieve customer service and profitability. In last decades it is observed goods and products are transferred across borders and countries thus bringing in the “International Factor”. But International supply chain increases the complexity and complicates the task of managing and executing it. Barriers which came into light in International Supply Chain were Managerial Concerns and Technical Problems. As there was lack of Global vision and manufacturing strategy making a managerial concern on the other hand technical problems like Global Logistics, networking of foreign plants, cultural and language differences were the major cause of concern. It was realized that both managerial and technical barriers have to be sorted for efficiency in management on international front. Technical barriers could be sorted out by laying emphasis on logistic challenges, to have regular follow up with supply chains, by searching qualified suppliers, dealing with cultural and language problems. Managerial concerns could be solved by leveraging the

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support of the top management, maintaining good long term relationship and realizing the right opportunities at the right time in the global business environment (Akkermans, 1999).

Today the implementation of supply chain strategy is through the channel of the intelligent software systems which are fully integrated with the business activities namely procurement of raw materials and components to the logistics function, planning forecasting, requirement generation, online manufacturing systems, receipt of orders and appropriate distribution, sales etc, finally all strings are pulled together to the finance function as well which regulate the various activities. Such software systems are becoming the state of the art technology provided by organisations such as SAP labs, IBM, Oracle etc. the software's are custom made according to the industry type in general however, as the requirement of the customers become more and more complex and specific it is then hand crafted and some components are specifically developed for then e.g. all major manufacturing firms have their custom made software's such as GM, Ford, Toyota, ArcelorMittal etc, and these companies take routine training to run the packages and also timely upgrades to keep ahead of the competition. All these things are quite feasible in the context of the larger corporation, MNC's, conglomerates but not when it comes to the SME's these can't cope up with the huge costs of setting up an ERP system and its infrastructure which are normally in terms of multiples of 10's to 100's of million pounds, then training and annual maintenance also costs a fortune. This is not the solution for them who are wide spread in nature and want to have a smooth supply chain (Hokey Min and Gengui Zhou, 2002).

This problem has widened the gap between the two and until and unless the SME's transform themselves in larger corporations through new products and innovation etc it is virtually impossible to grow to that level. This is the gap between the academic literature and the practicality which does not tell which rout the SME's should take to become larger organisations. However, other academic

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departments such as entrepreneurship and innovation have made a substantial effort in this area and suggest that the organisation should be run on a flatter structure such that the information flows easily and flawlessly. This along with the innovation component shall be instrumental in delivering results. These SME's have to implement various supply chain strategies in their business environment using the human capital.

Now coming to the second issue which has changed the face of business today in the past two to three decades mankind has witnessed the greatest innovations and the fastest growth in technology. Inventions like the internet and mobile phone have brought revolution to the business environment. Information about everything is readily available and is open to all. The days in which the customer relied on the trade journals and market information are long over and now we have entered the era of cloud computing where the customer is ultra smart and is flooded with information. New products are launched every day and the product lifecycles are becoming shorter and shorter. The need for being agile has been dominating the market space and it has become must for a company to be very flexible and have fewer inventories as the new products are becoming obsolete rapidly (Swaminathan et al, 1997). The companies are now switching to the concept of mass customisation through redesigning the products and modules on common platform such that they can be transformed in the product when the final demand is conceived. This facilitates the lower overall cost of production and even reduces the inventory. This also facilitates visibility and improves confidence amongst the manufacturer, supplier and the distribution channels. Decoupling points as defined earlier can be put at various places in the supply chain according to the industry type. The major requirement for such an activity is to have strong relationship across the supply chain. This is also an area of concern in the new world where there are less number of such partners available and to develop such a resource is not only difficult but sometimes dangerous because the

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tendency of the people in this region is to quickly move out of agreement and start on their own. The long term strategic relationship for mutual growth is difficult to establish and sustain Martin (Christopher and Hau Lee, 2004) and (Martin Christopher, 2000).

Conclusion

An essential feature of Supply Chain Management is cooperation from all the members of the chains, the buying organizations should help in engineering and designing of the product. Since the purchasing firm can become captive to its suppliers, one must understand, the cost of changing supply partners can be really large. Passing on trade secrets to competitors that is venturing on its own and poor supplier performance are also the risk involved. Other defects could be conflicting objectives, in adequate definition of customer service and the supply chain design being different from the operational design; therefore it is necessary to channelize the purchasing and logistic process with manufacturing and distribution process. To conclude Supply Chain Management was designed for a common goal of waste elimination and to increase the efficiency throughout the value chain by integrating all the business activities and building strong links with the suppliers and other strategic partners. However, not all the strategies and modern developments are applicable in various industry types which face different difficulties such as lack of resources, funds, etc. in the growing markets the supply chain is hampered by the government restrictions and lack of infrastructure as in the case of China and India.

A study of the supply chain issues in the SME's should be undertaken and government support and funding should be provider for the upliftment and development of the same.

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