

Supply Chain Management

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Abstract- In ongoing scenario, production and administration of a product or services and focus on core activities have lead to a perception that companies or firms are connected together in a network of supply chain. This created a challenge to coordinate the entire supply chain management in a fruitful manner. SCM has its roots since the business originated to provide product and services to the customers.

SCM keeps on eye on the flow of information of goods and services in order to service maximum value to the customer. No research have been done till now which focuses on core initiative and constructs of SCM. The purpose of this study is to provide a criteria that flourishes knowledge of supply chain management and provide clear view to the researchers to understand the importance of theoretical investigation in different fields of supply chain management and explore the importance of its performance..

Keyword: Strategic purchasing in supply chain management; supply management; logistics integration; supply network coordination

I. INTRODUCTION

The concept of supply chain management has evolved over more than 100 years with the initial focus on improving relatively simple but very labour intensive and manual processes as compared to today's engineering and managing of extra ordinarily complex network. We will discuss here the last 60 years and tried to get some amazing info graphic. Fredrick Taylor considered the father of industrial engineering after he wrote "Principal of scientific management" in 1911. In which he focused on the improvement of manual loading process. In 1940, during world war 2, when military is suffering from logistical problems, scientists demonstrated the value of analysis in this regard. This is where operation research begin. Although industrial engineering and operation research have tried to maintain their identities separately, but their biggest success took place when both are used in an integrated frame work to address supply chain and logistics issues which is referred by industry as supply chain engineering. In 1940s and 1950s, logistics researchers focuses on how to use pallets and pallet lifts (mechanization) to improve the labour intensive processes of material handling and how to modify warehouse design and layout. "Unit load" concept became popular and use of pallets became widespread. In mid 1980s, with the development of intermodal containers together with ships and trucks to handle these containers, concept of transportation management extended and gain popularity. Though the terms "warehousing" and "material handling" used to describe many of these efforts this work could be viewed as fundamental research of industrial engineering instead of discipline of its own. By 1960s trend of shifting more time dependent bulk transportation to trade rather than rail had developed. This led to the need for join consideration of warehousing material handling and freight transportation that emerges under "physical

distribution". To focus industrial attention to this area, national council of physical distribution management was come into existence in 1963 and quickly become the pre dominant organization in this area. With regard to computers, during 1960s and 70s, this area gained much wider acceptance and acknowledgement in both the fields due to the large part to the fundamental paradigm change. Prior to 1960s all transactions and record keeping were done manually but computerization of this data create a huge opportunity to innovate logistical planning and to optimization of inventory and truck routing. In late 1970s and early 1980s, Georgia take off the production and distribution research centre, material handling research centre and computation optimization centre has been created to resolve the issues in the transition from theory to practice.

In early 1980s the emergence of pc provided better computer access to planners and a new graphical environment for planning. Map interfaces an optimization model for supply chain design and distribution planning are combined by production and distribution research center. Similarly, material handling research center and computer optimization center contribute their best for development of this area.

In 1990s, enterprise resource planning (ERP) emerged to integrate then multiple data base that existed in almost all companies and seldom talked to each other and in part by concerns that existing systems might have catastrophic failures as a result of not being able to handle year 2000. By 2000 almost all large companies had installed enterprise resource planning system because of which data availability and accuracy has improved tremendously.

By 2000 it became a trend to denote all the strategic and logistical, tactical and operational issues as supply chain management council of logistics management changing its name to the council of supply chain management professionals. In 2005 reflects the growth of supply

chain management and strategies

Supply chain and logistics planning is still primarily based on distributed models that came as the result of pc. The technology advances can provide tremendous value in addressing tremendous supply chain and logistics area. Finally then are extensively valuable insights that is to be gained by systematically studying the supply chain and logistics performance of companies across multiple industries and companies.

II. CRITICAL ELEMENTS OF SCM

An overview of our research which facilitates the prehension of the scope of SCM research and the critical supply chain elements and activities examined in this paper. There are 3 forces that helps in leading the development of the notion of SCM companies have taken number of initiatives, approaches and addressed medley of issue related to their supply chains which are classified into 4 streams of research:-

- Strategic purchasing
- Supply management
- Logistics integration
- supply network coordination

Strategic purchasing

Historically, purchasing has played an apathetic or docile role in the business organization (Ammer 1989). In 1980s, Corporate strategic planning process involved purchasing (Spekman and Hill 1980). By 1990s, strategic purchasing has been given more attention by both academics & managers. (Pearson and Gritzmacher 1990, Ellram and Carr 1994) Due to the rapidly changing competitive environment, there has been a great increment in the ability of purchasing to influence the strategic planning. (Spekman et. al. 1994)

Description of purchasing as the alliance of internal and external exchange functions is affiliated by many Atticism (or neo-classical) tasks of industrial purchasing like customers perception of service quality of purchasing. (young and varble 1997) risk-taking (Mornis and calantone 1991) cooperative supplier relationship. There are evidences which reveal that purchasing is increasingly assuming its strategic role. For example, many purchasing professional are trained in different areas and strategic elements of competitive strategic it also choose the right kind of supplier's relationship that are strategically managed and it is measured by its contribution in SCM. Imperative role of strategic purchasing and merits of strategic supplier relationships has been addressed by number of studies study of strategic purchasing relationship, buyer-supplier relationship, etc. has done cars and person.

Supply management

SCM and supply management are two different managements as former deals with the facets of delivering products and services to customers and latter focused on buyer supplier relationship.

Apart from this some researches proclaimed that abstraction or conceit of SCM should be much wider

then defining it in firm's involvement in managing supplier relationship (HO et al 2002)

Ubiquity of this approach appears to have benefited from the increasing globalization of markets and the trendy ongoing practices of planning.

An unique feature of contemporary buyer supplier relationship is reduction of the supplier base as the transaction costs associated with managing a large number of vendors after override the benefits. Most of the firms are trying to reduce the number of primary suppliers and allocate a majority of purchased material requirements.

Supply Selection

As supply performance has a direct impact on financial and operations, so it is a very crucial decision for all organization to select a supplier for goods and services. Dickson (1966) argued that most critical determinants while choosing the suppliers are the abilities to meet quality standards, deliver products on time and performance history. Many literatures emphasize that supply management must focus on quality factor. (Manoocheri 1984) Choi and Hartley (1996) also found that companies focuses more on consistency of quality & delivery and the least importance given to price all in all quality delivery on time and uninterrupted supply is an analytical selection criteria because if supplier fails to fulfill any of these dimension, then buyer's operation has to suffer serious adverse effect, integrity, commitment and characteristics are also important aspects while selecting supplier.

Supplier involvement

Involvement may range from giving minor design suggestion to being responsible for complete development design and engineering of a specific pout of assembly. Kamath and Liker (1994) tested Japanese product development practices and as a result identified a variety of roles that can be played by a supplier. Further more research has concluded that effective unification of suppliers in development a new product of can yield such benefits as reduced cost and improved access to and application of technology (Primo and Amundsen, 2002)

Cross-functional teams:-

In 1990s, many organizational changes is the result of efforts done by the team. Transformation achieved by organizations by increased customers focus anticipates quite dramatic energetic in team based effort. Changing value chain and supplier relations of firms anticipate major contributions through team efforts. Cross-functional teams have been recognized as major contributions to the success of such efforts as supplier selection. Product design just in time manufacturing, cost reduction, total quality initiatives and communicating (Ellram and pearson 1993) managers are required to be expert in many functions as there is a wide range of supplier's problems.

Trust and commitment

Trust and commitment is the foundation of SCM (Kumar 1996) faith, belief or confidence in supply partners can convey trust and trust is viewed as willingness to forfeit adept behaviors commitment defines as the devotion and dedications shown by trading partners that they invest energy to sustain this relationship i.e. dedicate the resources to sustaining and furthering the goal of the supply chain. To a greater extent commitment makes it more difficult act partners in a way that may affect overall supply chain performance to fulfill tie up together for their major customers processes and their goals.

Trust comes in various forms like “cognitive trust” and calculative trust calculated trust have a significant impact on buyer supplier relationship and on supply chain performance. Trust is related to enhanced supplier performance and cost of negotiation is reduced and reduced conflicts.

Communication

Adequate and persuasive communication between organizations could be featured as frequent, genuine and involving personal contacts between buyer and supplier to resolve the material problems and design issues. When buyer and supplier firms communicate on design, engineering, quality whole purchase-sale interface and other functions, quality performance of supplier is superior to that experienced when only the purchasing department of buying firm and sales departments of supplier’s firm act as the inter firm in formation conduit.

Logistic Integration

It is defined as a process of planning, implementing and controlling the efficient flow and storage of goods, services & related information as they moved from point of origin to the destination point of consumption. It includes transportation, warehousing, purchasing and distribution.

Intensive information exchange and close coordination between supply chain partners is needed to reduce organizational slack. This is explained under two head i.e. internal & external integration.

Internal integration is meditational approach of logistic integration across functional boundaries in a firm and external integration is recent approach across the firm boundaries. Latter has been the subject of good deal of research in logistics. This is also known as supply chain integration, enterprise logistics and inhegreted logistics. Logistics integration reflects the increasing importance of logistics as a coordinating mechanism.

Internal integration

It is the degree to which firms are able to integrate and collaborate across traditional functional boundaries to provide better customer services (Kahn and Mentzer 1996), it involves all managing logistical activities like marketing, finance, purchasing and production. To realize the designed benefits of the firm, coordination between the internal supply chain departments of the

firm is required. In simple terms, output of more than one worker or one functional area reflects the customer satisfaction. Many studies suggested that collaborative cross-functional integration and performance is positively associated. Collaborating departments is usually needed to ensure that high quality services are delivered to customers and ability to work seamlessly. Internal integration is featured as increased Coordination of logistics activities with various departments in the firm’s increases importance of logistics in the overall business strategy and a blurring of formal destination between logistics and other areas (McGinnis and Kohn 1990)

External Integration

External integration is referred to as the identification of all logistics activities in a firm. It reflects the enlargement or amplification of manufacturing enterprise to the best of the entire supply chain as a competitive unit. Managed are going beyond their limitation and personal relations to coordinate with companies, searching for new ways to lower costs or improve services through mechanism like inventory management just in time scheduling etc. (balloon et al.2000) . Alliance is required across the boundaries of enterprise amalgamating with external supplier’s carrier partners and customers. As such logistics is in a boundary spanning role which includes all these external customers recognize customer service quality channel distribution and minimizing the total cost. Many external logistics interactions has been checked and examined in a broader sense in prior research (Walton and Maruchek 1992) increased communication about logistics supplier - customer and firms logistics activities are in greater coordination and more blurred organizational differentiation between the firm's logistical activities and supplier domain(stock et.al.2000

Supply Network Coordination

Many literature articles focus on the SCMs mathematical modeling approach. Scope of problems, decision variable and methodologies are some of the features of modeling approach which are briefly discussed here. Under this modeling the major focus is on optimizing the planning & coordination of three fundamental supply chain stages: procurement, production & distribution. Each stage may further consist of multiple facilities in many locations in different countries. Most of the researchers have chosen to frame the problems of supply chain in a much narrower scope as these three stages may compass number of functional departments within and across a firms & the complexity has made the formulation of supply chain models challenging& optimal solution problematic - If not impossible wide studies has been done on various forms of production - inventory - distribution - coordination which are facing may problems, formulates dynamic programming, integer or non linear program, that in order to understand what kind of initiative and activity that constitutes the SCMs new management philosophy researchers are

developing algorithms and analytical procedures. most of these researchers are the extension of the problems like production planning and inventory control and distribution and logistics depending upon the scope of supply chain issues , researchers choose to address , decision and demand variables , inventory levels etc. if the decision variables are known with certainty , then supply chain problems are formulated as deterministic analytical models otherwise when at least one of the decision variables is unknown and is assumed to follow a definite probability distribution then it is show caustic analytical model. When there is large number of decision variables with no optimal solution, then the simulation method is used.

Apart from above mentioned models "Bullwhip affect" is a noticeable contribution in this regard study to supply chain's natural tendency to amplify, delay oscillate demand information increased order lead time and many more studies explored the cause of bullwhip effect. Most of the principals behind the mathematical models are formulated by empirical studies of

1. Strategic purchasing
 2. Supply management
 3. Logistics integration
- As elaborated above

III. SUPPLY CHAIN PERFORMANCE

Measurement of effective performance is needed for SCM as it -

1. Provides basis to understand the system
2. Accesses the behavior of the whole system
3. Provides information about the results of efforts done by system on supply chain members and outside stakeholders

Further, researchers found that measurement of supply chain performance results into improvements in overall performance (Bello and Gilliland, 1997)

Financial Performance:

A general measurement of business performance is referred to as the financial performance as it focused on the usage of simple outcome based a financial indicator which reflects the fulfillment of firm's economic goals. This approach typically examines sale growth, profitability earnings per share and so on. There are many limitations in relying exclusively on financial measures which are known to every manager. These traditional measures best to use at worst, they provide a very limited and often misleading picture of organizations performance. Analyzing business performance is referred to as financial performance. Major aim of this approach is to examine and analyze the indicators like growth, profitability, earning etc. Every manager must know about important snap in relying exclusively on this aspect Kaplan (1920) argued that firm had relied on financial measures and ignore the power opportunities for regular improvement.

Measuring supply chain performance

The key dimensions of time based performance include delivery reliability new product introduction and manufacturing lead time.

3.3) OPERATIONAL INFORMATION

For better performance and efficiency of a business operational performance is studied with financial performance because non financial measures can overcome the boundaries of financial performance. The benefits of financial; measures like-

1. More regular with time
2. More measurable
3. Goal and strategies
4. Meaning and changing need of market

There are two dimension of supply chain performance

1. Efficiency
2. Max service in minimum cost

Fawlet and Clinton 1996 operational performance reflects the efforts of various supply chain constructs.

IV. THEORITICAL RESEARCH

The supply chain management is developed a strategic management theory it focus on gaining collaborative advantage. Supply chain management is comprised of interconnected independent relationship with aim to achieve mutual benefit.

Theoretical research is a managerial practice which leads to understanding relationship among supplier helps in decision making and looking initiative step to reduce bill of material cost to reduce lead time and to maintain pipeline for production unit.

1. Trust factor is the key rule in supply chain management the buyer supplier relationship enforce by strategic purchasing , are based on trust and commitment of sharing information ranging from research and development to product design and product plan.
2. Strategic purchasing and unitiaque: Supply chain management becomes very strategic in nature when it comes to purchasing strategic purchasing outcome of cooperative relationship, communication, business intelligence and responsiveness of supplier.

Strategic purchasing is proactive and it focuses on long term too. Before purchasing organizations keep many thing in account such as selection of supplier decision which involves audit of supplier so as to insure that supplier is capable enough to cope up with demands of buyer, total material cost . Vendor feasibility ware housing feasibility and selection of supplier is most important and the supplier selection decision has a great effect in various activities such as -

1. PPC (Production planning control)
 - a. Inventory management
 - b. Product quality

Supplier is bounded to meet criteria of buyer such ads quality, uninterrupted supply on delivery time. At same time if supplier failure can leads to adverse effect on buyer operation that's why strategic purchasing is considered as more strategic.

Cross functionality team are assigned with a task of meeting the challenge of successful vendor supply integration for product development life cycle.

Initiative And Performance

Supplier- buyer relationship leads to good performance of both the parties. For example, supplier looks for supply based reduction to get cost and time advantage which directly leads to reduce bill of material cost, reduced lead time and it will directly increase performance of buyer party.

A high level of trust is needed in buyer-supplier relationship a good understanding between buyer and supplier decreases probability of error, avoid wastage reduce product arise development lifecycle therefore there is no doubt that supplier performance is one of the key element for buyer operational performance.

V. CONCLUSION

In this paper we have tried to fusion the vast world of knowledge into 3 approaches i.e.

1. Strategic purchasing
2. Logistic integration
3. Supply network coordination

During the process we have found that most of the supply chain literature has aim attention at one or a limited number of elements supply chain process. It should be kept in mind that depth of scm is much more than these studies have shown.

SCM is a field full to over activity and innovation, where ideas can be turn into practices though it is not so easy. The web of interconnected activities in scm makes it complicated for managers to explain its relativity and working our analysis have cleared the thought that this field is barrier of clear theory. This study of scm can be treated as root knowledge for the theoretical explanation of the various models. Which facilitates the researcher to check the validity and connectivity of various initiative of scm. It is expected that in future new research efforts will find success in exploring new innovation in the field of scm.

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