

Supply Chain Management Required Elements and Recent Trends-Review

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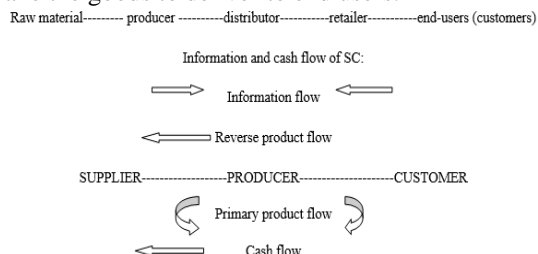
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Abstract - Supply Chain Management (SCM) plays a vital role for a long run success of business. Establishing effective and efficient supply chain system in a characteristic distribution by various possible trends in future business globally. SCM system directs to run the business with client's satisfaction by providing effective services to various manufacturers as per prerequisite. Here the observations are made on earlier researchers and supply chain system recognized globally with different designations and it focuses on the characteristics and theories which enclosed with various influenced components. It mentioned as many views of different researchers and publishers in the period of 1980-2013 and recent scenario. The paper consolidates historical definitions, strategic ideas, alters the nature and preliminary truth serves of SCM which carries an opportunity to view the significant components and it exhibits the influence on the supply chain.

Index Terms - supply chain, logistics, globalization, E-commerce, recent trends-green SC, AI and ML, technology, competition.

1.INTRODUCTION

Supply Chain Management is describing how products and services converts from resources (i.e. raw material) into finished or semi-finished products to reach customer ultimately. It includes the processes of moving and storing the materials used to produce goods, storing the finished products until they sell to the consumers and tracking where sold products move. So, that they can be use that collection of data regarding products to drive future demand. SC itself includes everything from procure of raw material to make the goods to deliver to end users.



Process flow of supply chain

From the above supply chain in manufacturing, the data collected by executives about the product i.e., what type of raw material need to purchase, where it can be buy considering the raw material. What type of methods is needed to consider by producer during the process after consideration are adopted and develop a physical product by the producer. According order quantity physical distribution takes place to whole seller or retailer's market and by means of above markets product is distributed to consumers. After distributing of physical products are collect cash from consumer to supplier .Cash flow shows from left to right direction. Primary product flow will describes about material, components, suppliers, services, end-products. Reverse product flow describes about return for repair of products. Information flow basically describes invoices, sales literature, specifications, receipts, orders, and rules and regulations. Primary cash flow discusses payments of product, suppliers.

The process of SCM evolves every activity of industrial operations including logistics; procurement and information technology and enables inter disciplines of materials, finance, suppliers, manufacturing facilities, whole sellers, retailers and consumers in to seem less system.

According to paul pounder, Gavin Bovell, Shannelle-worrell-2013, the nature and principle of scm and how they have evolved based on a series of external influential factors and they have observed the drastic focus on the various definitions that have been existed during the period of 1980-89,1990-99,2000-2011and their focus on historical perspective and strategic to the changing the nature and principle of scm and he has observed that exist components of earlier and he concluded with some other various components like material handling, resource management, technology adoption, customer satisfaction along with effective communication.

Oliver and webber -1980, the supply chain management is only entity and it is a strategic principle making of decision at the top level management was considered the chain in it's true formulation.

Kransdorf -1982, earlier consultant's view SCM as a process of planning, implementing, and controlling. Various activities in an organization of the SC are used to satisfy the customer effectively and efficiently as far as possible. SCM evolves all aspects in industry ie. All movements and stages of raw materials, inventory during the process of work and finished the products from point of initial to point of end users.

Houlihan-1987, SC defines agree with oliver. SCM involves that the integration of different functional areas within an organization to improve the movements of products from the stage of strategic suppliers of raw materials through manufacturing and the distribution chain of end users.

Oliver and webber-1992, earlier statement of Houlihan-1987 the operation is involving the raw materials from stage of initial, its concomitant acquisition by strategic suppliers of the raw materials. This was included in 1992 by Oliver and webber, and which was neglected by Houlihan-1987.

Stevens-1989, provided that SC is the synchronization of consumers requirements with the flow of materials from suppliers in order to positively balance in between customer services, low inventory and low cost of unit, this perspective stressed the need to effectively assume the consumers demand so, as to militate against the risks of stocking out and improve the industry's ability to create value of customers.

When considering 1990's being supply chain management developed and hence, the literature was not mentioned as any drastic changes as new.

Thereafter five years is a consideration was taken by Coper.et al.-1997, followed by Steven statement -1989 focuses on the customer. Coper.et.al-1997 suggest that SC is an organization having a strong desire to win by best satisfying the needs of consumer through their effective and efficient end product delivery to end users.

Lambert.et.al-1998, supply chain management as the integration of key business processes from end user through original suppliers avails to product services and information that add on values for customer and other stake holders of business.

Monczka et.al -1998, supports Lambert et.al -1998 that supply chain requires on activity implement to

coordinate the total materials process. In approaching the around 1990-1995's a phenomenon that plays a vital role in the enhancement of SC. And its strategic definitions were the development of facts through technology.

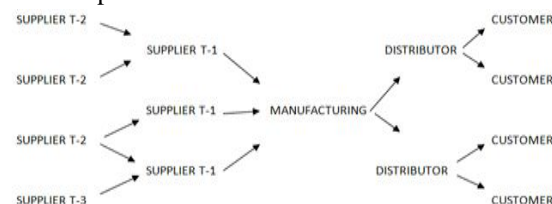
Ross-2002, E-SCM as tactical and strategic management philosophy focus on productive capacity of network details and the applications of internet technology resource intersecting of supply channel. Which is helps for innovative solutions and synchronize capability of source of customer value.

Gimenezand Lourence-2008, E-supply chain management refers to impact that internet has on the integration of key business process from end users by original supplier are makes to provide the products for end users. As well as which make to provide the information from end user to suppliers too.

Stocker and boyer -2009, states that supply chain management is a network of relationship with in a firm between interrelationships in an organization or business units. Which consist with supply of material, purchasing, production logistics, marketing and other related systems that make a forward flow and reverse flow of supply chain management of information flow from supplier to consumer and vice versa to achieve the effective product to consumer it implies effective implement of supply chain management.

Supply chain management has increased the awareness significantly from it was first introduced in 1982,Lambert et.al-2005 represented that clear consensus and absorbed definition is yet to be reached as result supply chain management is now being looked in to describe logistics, optimization techniques in operations, and purchasing or a combination of above things.

CSCMP (council of supply chain management professional) by law 2013,supply chain is emphasizing the planning and management of activities involved of sourcing and procurement, conversion and all logistics management operations supply chain also includes the co-ordination and incorporation with channel partners which can be suppliers tier1 and tier2, third party services provider and end-users



Supply chain in manufacturing (source: AIMS education, UK-2016 from YOUTU

EFFECTED COMPONENTS OF SCM

Role of first computer: Personal computer was introduced in 1979 and it is new innovation for industries with in the business world and had a highest impact on physical distribution, logistics operation and in turns supply chain management from stock 2013consensus of U.S and China (bi lateral). It is most significant revaluation of supply chain management which dealing with bilateral trade agreement between the countries U.S and china –Morrison-2012.

The consensus between states that to developing the relationship of countries and reducing the barrier by evaluation of supply chain. There are huge opportunities to make an advantage of the resource across borders, moreover china being largest hubs in different stages of supply chain.

GROWING UP WORLD COMPETITION SCENARIO

Fisher-1997, Helper-1991, Hitachi-2009, Molahusseini-2013, and Spekman et.al,1998, Considering the year 1980's supply chain management states growth and significance and delivers about the necessities for longer international supply chain was encouraged due to in view of enhancing of global market competitiveness –jones-1981.By huge competition is caused to focus on their company's inefficiencies in an effort to supply organization with more reliable products ie. Consistency in maximum quality with minimum cost of product and more appropriate design and thus creating a competitive advantage

E-COMMERCE EMERGENCE IN MARKET

Hirshfeld and schmid-2005, E-commerce plays an important role for the national and international economy in during years 1980's.the technology was experienced fully in the year 1990's. During this period new technology adopted which was incorporated with internet and wireless telephony which reflects information evaluation and there are applicable with supply chain.

Turban et.al-2010,kotha et.al-2004, by speed of usage of computer network technology carries with E-commerce has recorded increased utilization rates with the world and ecommerce buying ,selling or exchange the product services information too through computer network as referred to e-commerce strictly enables the buying and selling in transaction of goods and services.

Porter-2001, E-commerce provides the shortest path in between buyer and seller to transaction with lowest cost for consumer and e-commerce in one of the fastest growing area in the integral economy.

Turban et.al-2010, e-commerce has been made significant impact on the supply chain of organization and experiences with the efficient flow of information through their supply chain is one of the source competitive advantages.

Yang-2012, E-commerce engages with cost setup of firms and fact of costs and plat form of e-commerce collaborated with international supply chain.

Christopher-2011, according to international business management trendy, the electronic component plays a main role of SCM which is used to adoptability, competitiveness growth information revaluation has evolved the firms to develop supply chain globally which is helps to improve and plays a vital role to development of international market(globalization)

MONDIALISATION OR INTERNALIZATION OF BUSINESS

International monetary fund-1997, it is influences on the economic growth of countries interdependences in worldwide increasing volume of products and variety of trading in goods and services, in which reflects to international flow of investment and also widely speeded diffusion technology. Multinational companies expanding and integrate their operations beyond their own bordered to other geo-market refers internalization of business.

Johenson and mattson-1988, the firms whereby highly internationalized to increase the size of firms with their operations performance and utilization of resource among various geo-market.

Effect of globalization has four ways:

First way: Vida et.al-2000, Supply chain has enhanced and its significance to international retailers in part because of the impact of the internet and nature

of the customer demand. Supply chain also enables the retailers to use the information on consumer expenditure to enhance their retail marketing efforts, which helps to maximize the profit and satisfaction of customer.

According to first way influences retailer and whole seller to expand their operation to different geo-markets. the utilization of supply chain management is more pronounced in the retailer market expansion.

Second way: A Mondialisation of manufacturing firms relies on effective supply chain to coordinate between international distribution and manufacturing operations.

International monetary fund-1997, the globalization is not only consisting with international manufacturing and sales but also which involves with the procurement process in terms of raw material, capital equipment and required inputs to the manufacturing systems. Hence, the distribution considerations of supply chain include both downstream and upstream (Upstream implies to the material inputs needed for production whereas downstream implies the opposite end, where products get produced and distributed) drag the process through appropriate channel to acquire desire quality to satisfy the consumer.

Sampson Quain -2019, when considering the petroleum industry, according to the industry, locating underground or underwater oil reserves characterizes the upstream process. Moreover, the upstream process in petroleum involves bringing oil and gas to the surface. Extraction wells represent an example of a structure operating in this stage in the process. In contrast, the downstream production process involves processing the materials collected during the upstream stage into a finished product. The downstream stage further includes the actual sale of that product to other businesses, governments or private individuals. The type of end user will vary depending on the finished product. Regardless of the industry involved, the downstream process has direct contact with customers through the finished product. The downstream process often includes elements such as distribution, wholesaling and retailing, all of which are involved in ensuring timely delivery to clients. Customer service is also part of the downstream process because it is the final bridge between the product and the end user. Inefficient customer service can negatively impact the sale of the final product.

Third way: Ruiz-2000, Retailers expanded and enter in to new markets. The supplying manufacturer take necessary action to establish the operations with strategically close proximity to market and supply chain could helps to coordinate the raw material throughout the new extended or now established supply chain due to the globalization.

Fourth way: Hertz-1993, Ludvigsen-2000, supports the industry with globalization manufacturer operations. Which have the capacity is able to develop an effective service as on increasing demand for global distribution goods.

Ludqigsen-2000 suggests that increasing of capacity has been experienced lower per unit to transportation cost and level of service which is enhanced collaboration among manufacturers, other competent stake holders and distribution service providers.

Gadde-2001, increasing the collaboration speed and flexibility in distribution of both sides of the supply chain. These are explains contribution of globalization made with the evaluation in supply chain. In which supply chain move forward globally.

RECENT TRENDS

In end of the year 2019, it reaches the end of the decade, and it is beginning with 2020. According to last decade main focused trends are digitization and globalization. Supply chain have extended and increased across borders bringing a total new host of opportunities and challenges.

In 2020 supply chain trends will shifts further as recent trends like Greening supply chain, Artificial intelligence, Machine learning, Globalization, Automation, and Cloud based technology, Emphasis on security etc.

GREENING THE SUPPLY CHAIN

Linn hoff-1993, In greening sc management is practices can be involved in entirely link of the SC from material sourcing and selection of product design, manufacturing processes, delivery of good and even product disposal after the products useful life period. Few Companies have been seen customer interest in the environment as a plus and have been able to converts the public's interest in all things green in to enhance the profits.

Industries are practices that there is a proof of the link between improved environmental performances and financial gains. Companies are having looking for their supply chain and observed areas where improvements in the way they operate can produce profits. Many industries are unaware of potential cost benefits. Industries can find out cost savings by reducing the environmental impact things of their business practices. By reevaluating the company's SC from purchasing planning and managing the utilization of materials to shipping and distribute the final goods, savings are often identified as an advantage of adopting green policies.

Despite the public focus on the environmental benefits attributed to reducing an industry's environmental impact is not a reducing a forefront of sc executive's mind. It appears that many executives are still unaware on improve of environmental performance means lower waste disposal and training cost, fewer environmental permitting feel and often reduced material cost.

Optimizing supply chain means that getting the consumers what they want, when they want and spending as little money as possible while accomplishing that many of supply chain globally assume that fast delivery with low cost (reducing in shipping typically means less fossil fuel is consumed) supply chain options are incompatible with green supply chain.

Samir.k.srivastava-review-2007 and Gotzel c weidling j, heisig-1999 -.by consolidating and optimizing material and packaging usage fewer packing products are consumed. When hazardous material are taken out of the sc lower cost are associated with handling and disposing of the material. When waste is minimized so, that are costs are associated with purchasing and disposal too.

Fiskel-1996, one green practice expected to grow in recent approaches in the around supply chain. Supply chain in typically linear with a product designed and created then distributed to the end user-only to be disposed to the consumer with around sc the product is eventually recycled back to the starting of sc to re-use for manufacturing. Green practices are great ways to incorporate with environmental sustainability into SC. This green sc is key for recent practices are used to reduce unnecessary waste consumption of resources and global government seeks to add environmental

legislation, this leads to overall savings for industries once they are adopted and implemented.

Anil.S.Dube, Dr.R.R.Gawande-2011, green supply chain management can be reduces ecological impact of industrial activities without sacrificing quality, cost and reliability of goods, efficiently energy utilization and focused on inherent complexity of environmental issues.

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

AI is an algorithm that enables computers to act more like human that is to solve more complex problems, machine learning takes AI one step further and allows the computer to improve its algorithms based on further collected data for greatest positive result.

Blake morgan - Sr. Contributor - forbes - 2018, enterprises corporations have already adopt on AI one of the example is Amazon who uses AI to track consumers purchasing habits and to use that information to make recommendations for other products. It is an obvious place of AI and machine learning on the E-commerce business to customer end of the SC. But an opportunity for AI can be found throughout Supply chain.

AI can be used in SC planning to analyze huge data sets and provide trends for better procurement. AI can be used in conjunction with hardware and while self-driving cars still need some improvement.

Here, one example is using machine learning in after market, industry where the help of sensors of machines, it can detect patterns and determine in advance when a part will break with machine learning monitoring hardware and sending signals that is spare is needed before the part breaks. Machine will be able to continue woks without unnecessary interruption

Hannah wenzel, Daniel smit, saskia saredesai-2019, describes about machine learning applications within the different supply chain tasks supply chain management task model may be a single area could have different ML methods applied for a common goal. It speaks about interdisciplinary areas such SRM and CRM for supply chain management after observations of 38papers by his views.

CONCLUSION

Observations and designations of authors from 1980 to 2013 and present scenario, the supply chain management is said to be the product is developed from the resources, in which raw material converted in to finished goods and how it is reaches to end users as per prerequisite of reliably. During the above period authors stated that, not only conversion of product from material to end user simply and it includes with logistics system in supply chain. It notes that, the globalization of the market enhanced by e-commerce. Here the considerable components of their individual operations to geographical locations and significantly enabled to manufacturing out comes for the more cost effective and it concludes that transfers of the data being adopted and implemented in the description after the year 2001. The present paper describes the gaps of supply chain management from desertion of earlier. Supply chain is not a field of consistent; the system is changes day to day based on technology adoption, competitors and challenges in the business. To client satisfaction the components of supply chain system converts resources into products with minimum cost and maximum quality as per requirement through material handling, logistics, strategic partnership between countries, understand the technology importance and adoption and recent trends like AI & ML, greening supply chain .

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