

E-Commerce: A Study On Web Based Supply Chain Management

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Abstract

The internet or World Wide Web is having a significant impact on how firms interact with each other and their customers. Various problems faced by supply chain management such as high transaction costs between partners, poor information availability and managing complex interfaces are all being resolved on web. The company can reduce huge cost and can increase their profit margins by achieving efficiency in supply chain management function. Various companies have achieved huge success with the help of information technology during recent years. Earlier customer faced lot of hesitation and lack of trust on these online companies. But with the changing time, market scenario has changed. Now both companies and customers transact freely and confidently through internet and also with the help of technology integrity, authenticity and security of online transactions have been achieved. In this paper, we examine how the web is changing supply chain management function in present era of globalization.

(Key words: E-Commerce, Electronic Data Interchange, E-Business models, Supply chain management)

Introduction

The internet and information technology has revolutionized the way entrepreneurs performs their functions and manage their business activities. With the advent of World Wide Web and networking technology it has significant impact on how firms interact with each other and their customers. Supply –Chain management through the internet is still in its infancy stage. An efficient supply chain management function can be beneficial for both suppliers and purchasers. Company can achieve considerable success by integrating SCM with internet. Problems faced by SCM earlier such as high transaction costs between partners, poor information availability and the challenges of managing complex interfaces between functional organizations are all diminishing on the web. Ultimately it can result in high and study volume which allows supplier to offer their product at lower cost and purchasers will also benefit from low cost source and reliable supply. In this paper, we examine how the web is changing supply chain management function in the business world and how with the changing business world various aspects of supply chain have also changed.

Objectives Of The Study

1. To study the concept of supply chain management
2. To study e-commerce and integrated supply chain management
3. To study the concept of Electronic Data Interchange
4. To study role of web based supply chain management function in various e-business models.

Research Methodology

Supply chain management is one of the most important functions of production management. Our main objective is to study role of supply chain in this modern era of information technology. For the purpose of our study secondary data was collected from internet journals and articles. It

was further analyzed to find out results and objectives of our study.

Supply Chain Management

Supply chain management (SCM) is “the systematic, strategic coordination of the traditional business functions and the tactics across these business functions within a particular company and across businesses within the supply chain, for the purposes of improving the long-term performance of the individual companies and the supply chain as a whole.¹ Supply chain management is one of the most important functions of business management. It aims at acquiring raw materials of right quality and quantity at right time so that production process can be completed without any hindrance. It also aims at ensuring delivery of finished products to customer at right time and at right place. The internet has emerged as a most cost effective means of driving supply chain integration. E-Business applications for supply management are categorized into three parts which are as follows:-

E-Procurement: helps in handling value added services like transportation, warehousing, customs clearing, payment, quality validation and documentation with the aid of internet. Due to increasing competition, fast changing customer preferences and short product life cycle production function requires flexibility. Internet offers a platform to facilitate efficient procurement as various buyers and sellers find each other and transact according to some pre-specified protocols. Companies like SciQuest, E-connect and Pass act focused on linking buyers and sellers together without ever touching the product using information intermediary. They successfully achieved the power balance between customers, distributors and suppliers. They have all reoriented their business models which are specifically focused on individual industry.

E-Collaboration

E-Collaboration promises to provide far better efficiency than e-Commerce and e-Procurement. It can be defined as business to business transactions facilitated by the Internet. E-Collaboration facilitates various activities which are beyond transactions which includes decision sharing, process sharing, resource sharing, information sharing and integration. It is beneficial for both suppliers and customers. For e.g. Coordination of engineering changes in the bills-of-materials for a product that is manufactured by an outsourced partner.

E-Commerce

E-Commerce has considerable impact on supply chain management of various organizations. Manufactures of both tangible and non tangible products have also turned to the internet as a direct channel of distribution. With the advancement of technology quality of supply chain management function has also improved. It helps in meeting distinct customer demands and demands are also met from a common inventory system that server replenishes at a finite speed. The manufacturer can provide direct services to their customers as per their needs and demands. It provides them flexibility in inventory management and shipment facility. A person can order a book at Amazon website, but the delivery may come from the warehouse of its distributor Ingram books. E-commerce has become an important tool for small and large businesses worldwide, not only to sell to customers, but also to engage them. In the year 2012, e-commerce sales topped \$1 trillion for the first time in history.

Electronic Commerce And Integrated Supply Chain Management

Supply Chain Management is concerned with management of all types of functions which are necessary for successful production of goods and services. It includes procurement of raw

materials, production function, stock holding and distribution process etc. Supply chain management starts from acquisition of raw materials and finishes till successful delivery of products to customers. With the help of e-commerce supply chain management can be made more efficient and speedy. There has been integration of logistics of upstream and downstream activities over the years. But now this function is extended which means integrating the internal and external partners on the supply and process chains to get raw materials to manufacturers and finished products to the customers. Most companies fail to integrate their supply chain due to number of reasons the most important being lack of system integration and fragmented supply chain responsibilities. These days SCM not only focus on acquisition, production and distribution of goods but also they have started focusing on individual demands made by customers. SCM also includes providing value adding services and information for the end customers with the help of technology.

Due to ever increasing competition companies need to adapt themselves to better ways of doing national and international business which includes moving towards computerized “paperless operations”, reduced operating costs and easy adoption of new processes. A firm can reduce significant amount of costs by using electronic networks for searching appropriate goods and services. **NASDAQ** system and **Easy Sabre** airline reservation system are very good examples of inter organizational electronic networks while former creates the electronic market for over the counter stocks and latter allows customer to search for and compare ticket prices and availability before ordering. **Commerce Net** allows firms in Silicon Valley to order computer supplies on World Wide Web. These services provide tools for searching the data and connect different buyers and sellers through information network.

An E-commerce based Supply chain management, in general, includes the following functions:

- **Supplier Management.** Here main objective is to reduce number of suppliers and results can be seen in the form of The benefits are seen in reduced purchase order processing costs; increased numbers of purchase orders processed by fewer employees, and reduced order processing cycle times.
- **Inventory Management.** The main objective is to shorten the order-ship-bill cycle. When persons involved here are electronically linked information can be transferred easily. Documents can be recorded and tracked easily. It will also helps in reduction of inventory levels and eliminates out-of-stock events.
- **Distribution Management.** The goal is to move documents related to shipping (bills of lading, purchase orders, advanced ship notices etc) in Earlier it too several days to complete paper work but now this can be completed in moments thus saving time, energy and cost. It will also help in resource planning.
- **Payment Management.** Technology has made payment process simple and efficient. The goal is to link suppliers and distributors so that payment can be sent and received electronically. It increases the speed at which companies can compute invoices and bills. It has managed to reduce clerical errors, transaction costs, fees and makes billing process fast. Integrity, authenticity and security of all transactions are maintained in proficient way.

- **Financial Management.** The goal is to enable global companies to manage their money in various foreign exchange accounts. All financial statements and records can be maintained, compared and analysis which can help companies in taking important financial decisions.
- **Sales Force Productivity.** The goal is to improve the communication and flow of information among the sales, customer, and production functions. Linking the sales force with regional and corporate offices establishes greater access to market intelligence and competitor information that can be funneled into better customer service and service quality.

The new and improved SCM helps in reducing transaction costs, shorten product life cycle, improves production process and companies can produce variety of customizable products. Technology has made this function far more superior and efficient. An electronic commerce based supply chain management has the following characteristics:

- Raw materials or finished goods can be outsourced or distributed anytime from anywhere in the world.
- A centralized, global business and management strategy with flawless local implementation.
- Information can be transferred not only within a company but across other industries and enterprises.
- The flawless integration of all supply chain processes and measurements, including third-party suppliers, information systems, cost accounting standards, and measurements systems.
- The development and implementation of accounting models such as activity-based costing that link cost to performance are used as tools for cost reduction.
- A reconfiguration of the supply chain organization into high-performance teams going from the shop floor to senior management.

Recent surveys on supply chain in Europe showed that there has been substantial change in customer service and it will influence logistics management of firms in coming days and information technology will be the key element for development of European logistics to take place.

Electronic Data Interchange (EDI)

EDI is software through which business data can be exchanged between two originations. It is standard format which is used to transfer electronic documents or business data from one computer to another. These electronic documents are considered as equivalent for paper based orders, data transfer and confirmation between trading partners. Various benefits of EDI are as follows:-

- There is option of storing and manipulating data electronically
- Shipping and billing errors can be reduced to great extent.
- Increased speed and accuracy in the system reduces cycle time and whole procedure can be made more efficient.

- Fast flow of information is beneficial for trading partners as they can expand their business in more competent way.
- EDI saves superfluous recapture of data. It leads to faster transfer of data, less errors, time saving and hence more smooth business processes.

Role Of EDI In Supply Chain Management

EDI stands for Electronic Data Interchange. In this world of business there are large number of systems, each company uses its own system to manage the business. This standard has been developed to integrate disconnected systems. These systems require some common protocol which can help these systems to interact with each other. This task is done through Electronic Data Interchange.

Trading partners needs to communicate continuously with each other in supply chain management. From the time when raw materials are ordered from suppliers till finished products are sent to customers, it's a never ending process for trading partners. For e.g. when suppliers receive order from customers, reply is given in the form of confirmation or modification and sent to customer's system. Receipt of order and confirmation is done within few minutes with the help of EDI. Earlier this whole procedure was very time consuming and cumbersome when done manually through phone or e-mail. If a company implements EDI in its communication system, immediately all trading partners such as suppliers, logistics providers, customers get linked electronically. An EDI system consists of following processes:

- 1. Data Conversion** where data is converted into standard EDI format.
- 2. Transmission** where EDI message is transmitted to other parties.
- 3. Receiving** where message is received by respective system.

So EDI has made online transactions between trading partners more time saving, cost effective and easy. It has made supply chain management function more efficient as compare to earlier done by business organizations.

Case Study: Dell Inc

Dell Inc. is one of the first to establish a customer driven PC configuration capability. It is first company which is delivering products to customers directly having no intermediaries. Dell's efficient make-to-order assembly models receives order from its own direct-to-customer retail channels using call centers, fax and phone orders but no retail stores. A unique application is available on Dell's website where customers can experiment with different computer configurations using a "Choice board" capability that shows price differences for components and calculates the total prize before finalizing the order. Here customer submits their order through web site, then that order is translated into design, the components are ordered and then the right resources are electronically scheduled to fulfill the order "Direct from Dell". With the help of new model, Dell was able to reduce inventories, cut costs and reduce production cycles. Dell also provides e-procurement applications and consulting services. Dell also informs customers about its new technologies and offers suggestions on how to use them. Dell's success story shows a real case of effective integration and implementation of e-commerce in its SCM.

Internet based Supply-Chain Management in various e-business models.

1. B2B

B2B (business-to-business) firms deals directly with other business firms or Government also rather than individual customers. For e.g. Automobile companies manufactures their products at one place but there parts such as batteries, electric components, seats are purchased from different companies who produce these parts. B2B supply chains have partially migrated to the Internet, as online marketplaces reduce the cost of both supply-chain management and the carrying out of supply-chain functions. With the help of web based technology firms can reduce significant amount of transaction cost, increase speed of transaction and transparency of information. Some of the important business activities and the impact of internet on these business activities have been discussed as follows:-

Types Of B2B models:

Many (B2B) e-business models have been established based upon who controls the market place. The market is controlled and decided by the buyers, the suppliers and the intermediaries. Following are the e-business models to be considered for B2B e commerce.

Buyer Oriented B2B. In this model buyer purchases thousands of products and uses the internet to open a market-place and a website for suppliers to do bidding. In the buyer oriented B2B model, a buyer like General Motors uses such type of platform which allows suppliers to do their bidding. The buyer loads the products via a catalogue or a directory, with specific requests regarding make, model, size, price and so on.

Supplier Oriented B2B: In this model a supplier invites individual customers and business customers to order products through electronic market store. Dell and CISCO are supplier oriented B2B market.

Intermediary Oriented B2B: This is a type of electronic intermediary company that establishes an exchange market where buyers and sellers can make deals. www.Grainger.com and Procure.net is globally acclaimed largest distributor of maintenance, repair and operations supplies.

Wal Mmart

Wal-mart operates the largest supply chain in the world. The company established a retail link in the year 1991 which connected large suppliers to Wal-mart's own inventory management system, requiring them to track sales by store and replenishing items by rules of Wal-Mart's devising. In 1997, Company moved retail link to an extranet and then upgraded its system to make more efficient forecasting, planning and replenishment system. As of July 31, 2016, Walmart has 11,539 stores and clubs in 28 countries, under a total of 63 banners.

B2C Model

In Business to Consumer model transactions are conducted between company and consumers who are end users of their products or services. In this model companies deals directly with customers thus removing wholesalers and retailers from supply chain. Business is done through various e-commerce websites. Companies can focus on direct marketing and selling and they can earn huge profits through this platform. Customers too can get products or services at lower

costs thus saving time and money. Companies like Myntra.com, Amazon.com, Flipkart.com, Voonik.com etc have earned huge success in online business. One can find there apps on smart phones also thus making shopping more easy and comfortable for customers.

B2C companies divide into five major categories: direct sellers, online intermediaries, advertising-based models, community-based models and fee-based models. Each type is so different from the others that they are not directly comparable. In fact, some B2C businesses utilize more than one type to reach different audiences.

Direct Sellers

Direct sellers, such as online retailers, sell a product or service directly to the customer via a website. You can further divide direct sellers into e-tailers and manufacturers. E-tailers are online retail stores that sell wide variety of products on their websites. Some e-tailer has physical stores along with virtual online presence. These stores are popularly known as “clicks and mortar” or “clicks and bricks”. Barnes & Nobel, Wal-Mart and JCPenny have physical stores as well as online stores whereas Amazon.com and ebay.com is completely a virtual store. E-tailers are growing at faster pace as it has advantage of vast customer base especially working class who cannot spend much time on going to physical stores and find online shopping more comfortable and time saving.

Online Intermediaries

Online intermediaries perform the same function as any other broker. They are called transaction brokers. These websites perform online transactions on behalf of customers for range of activities like financial services, job placements, travel services etc. Online transaction brokers provide customized services according to needs of customers. For e.g. online stock brokers not only provide information regarding stocks and prices but also make suggestions and help investors make a profitable investment charging considerably less commission.

Advertising-Based Models

Popular websites rely on advertising-based models. These websites offer a free service to consumers and use advertising revenue to cover costs. Service providers offer range of services in different areas such as arranging for computer repairs, business consultancy, education consultancy, online tutorials and information access. They draw a large number of visitors, making them ideal advertising streams for other companies. Advertisers will pay a premium to sites that deliver high traffic numbers.

Community-Based Models

Community-based models combine the advertising method that relies on traffic at sites that focus on specialized groups to create communities. Community sales and advertising take advantage of social and network marketing by focusing on specific groups that want specific products. For example, sites used by computer programmers are perfectly placed to advertise computer hardware and software products. At least one social media website uses member information to target advertisements to interests and locations.

Fee-Based Models

Pay-as-you-buy or paid subscription services fall under fee-based models. The most common of these are online subscriptions to journals or movie sites such as NetFlix. These companies rely on the quality of their content to convince consumers to pay a usually nominal fee.

Case e.g. Amazon Business Model

Amazon.com started business in the year 1995 and within a span of 8 yrs after its incorporation Amazon reached the \$ billion sales level. Amazon also follows direct model for shipments which makes delivery faster by reducing time gap. By investing in warehousing and material handling company ensures to achieve its aim of shipping 95% of orders on the day of purchase. Company's excellent logistics capabilities are clearly shown in latest inventory availability information, delivery date estimates as well as delivery date estimates as well as delivery shipment notifications and update facilities.

3. C2C Model

Customer to customer (C2C) is a business model that creates type of marketplace where customers can trade with each other. With the emergence of internet C2C market has also achieved immense popularity. The main function of C2C markets are online auctions and classifieds. Online companies such as eBay, craigslist, OLX and other sites have fostered greater interactions between customers. Here products sold are often used as second hand and C2C sites make their money from fees charged to sellers for listing items for sale, adding on promotional features and completing transactions. C2C is expected to grow in the future because of its cost effectiveness as it minimizes the cost of using third parties. E Bay is a good example of e-commerce business individuals and businesses are able to post their items and sell them around the Globe.

There are various other e-business models which are emerging at rapid rate such as mobile commerce, Peer to Peer commerce, e-Governance etc. No doubt with the advancement of technology ways of doing business and marketing has improved. Mobile devices are playing an increasing role in mix of ecommerce. Some estimates show that purchases made on mobile devices will make up 25% of the market by 2017. With rapidly increasing competition companies need to adapt themselves to better ways of doing global business which includes moving towards computerized, "Paperless" operations to reduce operating costs and facilitate the adoption of new processes. With success of various online companies like Myntra, Flipkart, Snapdeal, Amazon etc we can see that there is great scope for emerging online companies in future also in the area of marketing. There efficiency and timeliness in performing various transactions has achieved customer trust and loyalty which is the main reason for their huge success and profitability.

Conclusion

The rapid growth of web based information transfer between companies, their suppliers and their customers has decidedly increased the importance of information management in creating effective supply chains. With the help of internet transactions are done in real time and all parties can be kept updated without human intermediaries. E-Commerce helps companies to identify

and respond quickly to changing customer demand captured over the internet. The use of technology results in reduced cycle time, efficient customer service and reduced inventories. This has definitely paved the way for success of business organizations around the world.

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