Analysis of the Effect of e – Supply Chain Management (E-SCM) on Retail Industry

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ABSTRACT
The e-tailing industry development directs e-retailers and e-suppliers to investigate new methods in business, because they should manage effectively all activities from preparation to delivery in the supply chain of e-retailers. Nowadays, E-SCM (that is also called web-based E-SCM) is an important tool by which customers' needs are linked to raw material and/or spare parts, supplier, producer or assembly, logistics, product delivery and support services to make possible access to market share and higher profit. In this article, we analyze the role of E-SCM and the effects of E-SCM on e-tailing industry from suppliers’ and e-retailers point of view. We analyze the impact of E-SCM on the structure of e-tailing industry with five forces including intensity of competition, power of supplier, power of buyer, threat for substitute goods and potential threat for newly arrived, which is called the analysis of Porter five forces. In the conclusion, the positive and negative impacts of E-SCM on the e-tailing industry is analyzed and represented, and some recommendations are given to E-SCM partners.

Key words: e- supply chain management

INTRODUCTION
Internet, IT technology, and electronic communication, not only provides a competitive business environment, but also has made significant changes in business activities. Thus, in scientific texts, the letter E can be used in case of concept vocabulary if it requires using internet or it is electronic. In this study, abbreviation "E" is used for concepts related to internet to refer to e-commerce, e-tailers, e-customers etc. instead of using electronic commerce, electronic retailers, and electronic customers. Nowadays, B2B, B2C and C2C electronic commerce and marketing have provided direct channel and new sale opportunities not only for customers but also for customers. E-tailers such as: dell.com, ebay.com, amazon.com, etc. have provided large markets to sell their products to customers directly that is done by double crossing traditional mediators throughout the world. However, one of the most important challenges for e-retailers is to integrate the supply chain and the supply technology in the business. As the number of e-retailers entered into C2C or B2C ecommerce increases, the significance of supply chain activities also increases. Internet, IT form of most of business activities from suppliers to customers and allow the suppliers, providers, logistics, service providers and customers in the electronic market to search, order and sell products and services or effectively communicate between members of supply chain. Therefore, the performance of each member (suppliers, producers, storekeepers, sellers and customers etc.) influence the performance of supply chain, one of the key points is that all steps and supply chain should be considered as a system. Thus, companies participating in the supply chain need a system to control the entire supply chain. Internet is one of the most effective tools to communicate between people, and
ESCM is one of the systems to supervise and control all activities of the supply chain. Thus, internet has changed all business activities.

**WHY WILL E-COMMERCE HAVE AN IMPACT?**

E-commerce can be defined as the conduct of business communication and transactions over networks and through computers or as the buying and selling of goods and services, and the transfer of funds, through digital communications. It can include all inter-company and intercompany functions (such as marketing, finance, manufacturing, selling and negotiation) that enable commerce. E-commerce uses communications such as electronic mail, EDI, file transfer; facsimile, video conferencing, workflow, or interaction with a remote computer e-commerce has also become associated with solutions and tools such as portals, e-marketplaces, e-auctions or virtual inventory.

The last few years have seen a dramatic increase in the capabilities of ecommerce as hundreds of millions of dollars were invested in building new solutions and in fighting a marketing war for apparent first mover advantages. So why should all this investment in technology and communication have an impact on the supply chains of companies? At a simplistic level, supply chains are typically made up of three major flows –

E-commerce has the capacity to affect all three:

1. **Physical flows** can be affected by using information to avoid physical movements and to make product information available through virtual ways. In essence, e-commerce can give companies access to more markets and customers without the physical need to move the levels of product and inventory that were required in the past.

2. **Information flows** can be affected by the capacity of e-commerce solutions to provide ‘24 x 7 x 365’ access to information and to eliminate traditional paper-based approaches to working and company interactions. E-commerce is also particularly well suited to providing information such as product tracking and tracing.

3. **Financial flows** can be affected by the capacity for e-commerce solutions to offer faster payment and settlement solutions at all stages of the supply chain. At a more sophisticated level, e-commerce will have an impact on supply chains for **five main Reasons:**
   - **THE PERFORMANCE GAP CAN NO LONGER BE HIDDEN.**
     An undoubted impact of the last few years has been the way that dot.com companies have helped to highlight the gap between the level at which companies’ supply chain could and are performing. It is now clear that major companies can no longer afford to be complacent about underperformance. Given that companies now know they need to change, e-commerce-related solutions are the logical enablers of new levels of performance.

   - **COMPANIES HAVE NEW CAPABILITIES THAT ARE NOT YET FULLY EXPLOITED.**
     Most major companies have implemented new capabilities as a result of concerns over Y2K and the e-commerce revolution. For instance, many companies now have major ERP systems that integrate data between functions, locations and countries. They have the capacity to manage operations at a different level not only internally but also with customers and suppliers. In addition, many companies have bolted on best-of-breed software applications, such as e-procurement, demand and supply planning and e-logistics, to these ERP systems. Most companies are still at an early stage of exploiting these capabilities but will
increasingly use e-commerce to deliver the benefits from these existing investments.

- **TECHNOLOGY COMPANIES HAVE INVESTED HEAVILY IN NEW E-COMMERCE SOLUTIONS.**

The last few years have seen an unprecedented investment by technology companies and their financial backers into new supply chain technology. There has been an acceleration of the development of new software technology to support supply chain management. This has been particularly evident around procurement, marketplace, planning, and event management and fulfillment software. The casualty rate among software companies has been high. However, supply chain software now exists that software companies need to sell to get a return on their investments. We can expect them to remain aggressive in continuing to develop and sell new e-commerce solutions.

- **THE SUPPLY CHAIN IS ONE OF THE LAST MAJOR AREAS OF BUSINESS BENEFIT.**

Supply chain change is hard work. Many companies have avoided addressing some areas of the supply chain because they have been too difficult physically or politically. E-commerce will help to break down this reluctance to address supply chain opportunities in two ways: by providing new solutions to old problems and by helping to reduce the political barriers to cross-functional cross company and cross-country changes.

- **THE FUTURE COMPETITIVENESS OF COMPANIES WILL BE FOUGHT OUT BETWEEN VALUE CHAINS OF PARTNERS ON A GLOBAL BASIS.**

The world is shrinking and the supply chains of companies have to become more integrated between customers and suppliers and across geographies. E-commerce will be a key enabler of this integration and collaboration. The ability to use e-commerce to work with business partners quickly and effectively will also be a key differentiator between value chains of multiple companies. Business partners will become increasingly demanding of their supply chain partners and particularly their e-commerce capabilities.

**THE ROLE OF ELECTRONIC SUPPLY CHAIN AND LOGISTIC MANAGEMENT IN E-TAILING INDUSTRY**

E-commerce will have an impact on all major areas of supply chain work in companies from design, through buying to fulfillment and service support. The major areas of work inside companies can be illustrated using a simple process map of a supply chain, as shown in Figure 1. The process map shows the high-level flows and interactions between suppliers’ suppliers and customers’ customers. It can also be used to show where e-commerce will have its greatest impact:

- **INDIRECT PROCUREMENT.**

E-commerce will have a direct impact on both indirect and direct procurement of goods and services. E-procurement applications, such as Commerce One, Ariba and Right works, are being used to bring greater efficiency and effectiveness to the buying of indirect goods such as travel and stationery. The major benefits from such programs, which are typically in the 5–15 per cent range, will always come from effective strategic sourcing. Eprocurement will have its greatest effect on change management and compliance. In some cases, indirect procurement will be shifted to e-marketplaces or outsourced procurement services using E-procurement solutions.

- **DIRECT PROCUREMENT.**

Direct procurement represents a bigger prize for most companies than indirect spend simply because of the size of direct spends. In this area, the combination of ecommerce procurement solutions with existing ERP and MRP systems has the capacity to provide large efficiency savings. The level of these
savings will clearly depend on how well direct procurement is currently managed. In some cases, the major benefits will come from the integration of ERP, MRP and demand and supply planning systems. Procurement is, at the end of the day, a matter of visibility and business intelligence. E-commerce has the capacity to make buyers smarter and cost saving opportunities more visible.

- **PRODUCT AND SERVICE DESIGN**

  E-commerce has the capacity to improve the quality of product design, reduce design time-scales and fundamentally improve the interaction between designers, engineers, suppliers and manufacturing. Collaborative product commerce (CPC) is a term that is often used to describe the potential of e-commerce in this area. Great deals of the thinking and capabilities required for CPC have already been developed in the automotive, aerospace and electronics industries. We can expect these capabilities to be rolled out across many other industries as e-commerce solutions become more widely accepted.

- **MANUFACTURING.**

  E-commerce solutions will also have an impact on manufacturing as companies are required to be more flexible and responsive in what they make and in the levels of mass customization that manufacturing systems can deliver. E-commerce can, in some ways, be seen as a mechanism for customers to become more demanding of their suppliers. However, it can also be seen as a highly effective mechanism for ensuring that manufacturing is ultra responsive to the reality of actual customers rather than intermediary demand.

- **DEMAND AND SUPPLY PLANNING**

  Most people find it difficult to cope with planning when it involves more than a few variables. This is an area where computers, statistics and e-commerce will always be more capable – if they are used in the right way. Demand and supply planning systems, such as Manugistics, Aspen Tech and i2Technologies, are increasingly using e-commerce alongside their traditional software applications to improve the effectiveness of planning solutions. E-commerce is also expected to allow much greater interaction between the planning systems of multiple companies in areas such as collaborative forecasting and replenishment (CPFR) and e-marketplaces.

- **FULFILLMENT AND E-FULFILLMENT**

  Fulfillment remains an area of great promise for e-commerce solutions, but one that has largely underperformed its potential. E-commerce has the capacity through information, such as tracking and tracing, to revolutionize the way that goods and services are delivered. It has the capacity to virtualized inventory and to change fundamentally the relationship between end customers, retailers, wholesalers and manufacturers. As yet, this has not happened for several reasons. First, it is not clear that customers are ready but it is only a matter of time before these changes. Second, most logistics suppliers are under intense margin pressure, making investments in fulfillment technology difficult. Third, retailers and wholesalers are unclear about how their role will change if e-commerce allows greater interaction between customers and manufacturers. The potential for e-fulfillment is huge – it is just a matter of time before e-commerce revolutionizes this area.

- **SERVICE AND SUPPORT**

  Service and support is another area where e-commerce has made some impact but there is still potential for greater change. E-commerce has the capacity to transform the effectiveness of field service forces and to change the way that returns and repairs are
managed. Like fulfillment, this is an area where the value proposition will drive radical change, but it will take time.

- **E-WORKING**

E-working is an area that will have a more immediate impact on the supply chain. Most companies have already given thousands of their workers access to intranets and the Internet. They have given them e-working tools such as employee portals, knowledge management systems and computer-based training. Through e-mail they have revolutionized the way in which people work across boundaries of time and space. E-working capabilities are already having a significant impact on the working of supply chains and on the ability of employees to manage complex events and issues in the supply chain.

![Figure 1: The Relationship between Supply Chains of E-Tailing Industry](image)

**ANALYSIS OF PORTERS' FIVE FORCES AND EFFECTS OF INTERNET ON E-TAILING SUPPLY CHAIN**

Porter (201) studied how the internet influences the structure of industry. With regard to his study, internet has positive and negative effects on most industries. For example, on one hand, internet can increase profitability of an industry in different ways and expand the size of the entire market by improving the firm situation compared to its traditional alternatives. On the other hand, internal technology for buyers provides easy access to information about the product and the suppliers, consequently, it promotes the bargaining power of the buyer and leads to gaining less profit. In this step, the articles about analysis of "how ESCM impacts the structure of e-Tailing industry" by analyzing "Porter's five forces" are studied.

- **Porter's Five Force Analysis**

Porter (1980) analyzed the dynamic and concentrated structure of an industry in an article titled "the analysis of Porter five forces analysis". This analysis is a simple but powerful model to determine the level of competition in an industry. From the viewpoint of Porter five forces analysis, the power of a company is determined by its competitive situation under the five forces. Managers and academics can use Porter's five forces analysis to determine the level of competition and attraction of the analyzed industry, to evaluate the situation of industry and necessary strategies to obtain a competitive advantage.
The industry competition is under the influence of five forces and the collective power of these forces determines the total profit of an industry. If each force has a higher power, firms do not specify the price of products and easily receive more profit. In contrast, if each force has lower power, firms can determine the price of products and easily gain more profit (Thomson et al, 1995). In this sense, less power of each force is good for firms and their high power for the target customers and or final users is desirable. Five forces covered by this are: intensity of competition, the power of supplier, the buyer affordability, the alternative goods threat and the danger of new comers' potential.

The power of suppliers refers to suppliers' power in determining and leading the price of raw material, equipment, tools, and or your input. If suppliers could change the price of products and raise the price easily, they are capable. Suppliers control competition through their bargaining power. Some suppliers have no alternative for the above products and control the costs from the source of increase in the bargaining power of the suppliers.

Threat of new comers refers to new competitive firms which can easily enter into the market. New comers to the industry can threat the present competitors because they enter the extra capacity into the market. The key concept in the analysis of new comers is the barriers to enter. If a company has a problem or competitive weak point in entering into a new industry, there are barriers to enter. Each industry has its specific features that may confine the new entries or prevent their entrance. Some common problems in raising the barriers to enter include: long-term relationship with customers, the required capital, scale-derived economy, difference in the switching cost, and Government policy. If new competitors can quickly enter the industry, and the industry's growth rate is low, the companies' power will be weakened. In contrast, the high growth rate of industry and obstacles to enter the industry is in favor of the companies in the industry.

The threat of substitute goods refers to the extent to which different products are used instead of your products and are represented by other industries. The number of alternative products and their replacement cost influences the replacement behavior. If the cost of switching to alternative products is low for the customer or the company, the risk of replacement will be very high. In contrast, if a replacement is not easy, it boosts the power of the company in this industry.

The threat of new entries, supplier's power, the intensity of competition, the strength of the buyer, the threat of substitute products. The power of the buyer refers to customers' power in lowering your prices. The easiness to lower prices for shoppers shows the bargaining power of buyers. This power is handled by the number of individual buyers, the individual importance of each of the buyers in an industry, the cost of switching from one source to other suppliers, navigation etc. If a company is linked with a small number of powerful buyers, these powerful buyers will be able to impose their demands and control this company.

The power of the buyer increases with the purchasing power of buyers from the same source in large quantities, standard or non-differentiated products, low switching costs, declining integration risk and insignificance of the purchases for buyers.

The intensity of competition refers to competition Power in an industry. Of the main factors that cause increased competition in the industry can be referred to the number of competitors, the number of...
equivalent competitors, the high fixed costs of production, low distinction, low switch cost, diverse cultural competitors, slow growth in industry, concentration, brand identity, the complexity of information, the variety in competitors, the company’s stock, and exit barriers. Therefore, these factors affect competition among existing companies in the industry.

- **RESULTS OF THE ANALYSIS**

How E-SCM affects structure of E-Tailing industry can be analyzed in the five dimensions and is summarized as follows:

**Bargaining power of suppliers:** the power of the suppliers gets higher when the e-tailers (electronic retailers) have less alternatives for the preparation of them. However, many E-SCM have numerous options of suppliers. E-SCM, on the one hand, can give e-tailers (electronic retailers) the access to different suppliers and on the other hand, E-SCM tends to provide equal access to e-tailers (electronic retailers) for all suppliers, and creates a different channel for suppliers to achieve e-tailers (electronic retailers). Therefore, E-SCM reduces dependency on channels available for distribution, reduces the bargaining power of suppliers, and the desire to enhance the bargaining power of the e-tailers (electronic retailers) more than suppliers.

The threat of substitute products: the threat of alternative products or services in the electronic market is high, because there are a large number of alternatives suppliers and E-tailers (electronic retailers). The larger number and alternative of closer products increase the e-tailers trends (electronic retailers) to switch between suppliers. Therefore, E-SCM reduces the cost of switching resources. The progress of E-SCM creates new threats for alternative suppliers. This issue leads to boost of power of e-tailers (electronic retailers) in the industry of E-Tailing, but on the other hand weakens the power of electronic suppliers.

The risk of the e-tailers (electronic retailers) and a new e-suppliers entry: E-SCM reduces the entry barriers and makes market entry easier. Increase in suppliers makes the transmission of power to e-tailers (electronic retailers). There is no obstacle for entrance of providers to supply chain e-tailing. So, because of the convenience of the increasing number of e-tailers suppliers (electronic retailers), the level of competition between them increases at any time. E-SCM lowers the costs of suppliers’ switching. E-SCM lowers difference among competitors. Keeping dedicated E-SCM applications for the newcomers is difficult. Therefore, the threat of esuppliers’ entry and new E-tailers (electronic retailers) will be high at all times.

**Bargaining power of e-tailers (electronic retailers):** the power of E-tailers (electronic retailers) is more than suppliers once that the e-tailers (electronic retailers) have more choices than the suppliers. In addition, E-tailers (electronic retailers) may lower themselves to work easily with suppliers. From the perspective of supply chain E-Tailing, E-SCM transfers bargaining power to e-tailers (electronic retailers). ESCM improves the bargaining power of E-tailers (electronic retailers) compared to traditional suppliers.

**Intensity of competition’s intensity:** the intensity of competition’s intensity is one of the major factors for the competitiveness of the E-Tailing industry. There are many electronic stores about the same size and with a small distinction between products and services. Due to the lack of any obstacle to market entry and the presence of a large number of suppliers and E-tailers (electronic retailers), there is a higher level of competition among them as well as with each other. E-SCM generally makes the industry more efficient.
In short, E-SCM makes market wider geographically, the attractiveness of E-Tailing industry increases, and the number of suppliers and E-tailers (electronic retailers) increases. In a large number of national and global levels, there are hundreds of suppliers and E-tailers (electronic retailers). In the international arena, especially in the United States and European countries competition has also increased with respect to entering into E-Tailing industry. As a result, there are many competitors in the ETailing industry, and, of course, the market is highly competitive, because all suppliers must fight to achieve etailers (electronic retailers), and all e-tailers (electronic retailers) must fight to achieve joint customers. However, e-tailers (electronic retailers), at any time and with little or zero cost, can freely change their supplier, and it is a big challenge for suppliers to take e-tailers (electronic retailers). After analyzing the current state and future potential of the five competitive forces, suppliers’ executives and E-tailers (electronic retailers) can search for the available options, in order to impress these forces for the benefit in their business.

**SUPPLY CHAIN MANAGEMENT ISSUES AND CHALLENGES IN INDIA**

- **HIGH COST OF LOGISTICS.**

Logistic cost is 13% of India’s GDP in comparison to 11% in Europe and 9% in the U.S. of the total logistic cost, transportation represents 39%, while warehousing, packing and inventory accounts 24% of the total costs (365businessdays.com). Higher logistic costs are mainly due to poor infrastructure facilities in the country.

- **1. PHYSICAL INFRASTRUCTURE – A BOTTLENECK**

Insufficient distribution channels and infrastructure bottlenecks restrict the scope to reach consumer of products nationwide. Though the country has developed the largest road networks in the world, yet the regional concentration of manufacturing in Indian but geographically diversified distribution activities as well as infrastructure bottlenecks, e – infrastructural facility is not comparable to developed countries. Less than half of the roads were paved in India and less than 2000Km were express highways in 2007, which was significantly lower than china’s 30,000Km (365businessdays.com). The scarcity of tracking technologies like global positioning systems (GPS), (www.scmr.com) the inability of ports to handle goods quickly, and the lack of modern technology in warehouse. Though there are considerable investment underway to address these issue, such as projects take large amount of time in India by comparison, emerging economic countries like China and Brazil have been able to complete infrastructural projects on a considerably shorter timeline.

**2. THE LOW ACCEPTANCE OF INTEGRATED THIRD PARTY LOGISTICS (3PL) :**

Apart from the infrastructural challenges, business in India doesn’t have the access to the best supply chain services for a variety of reasons. The low acceptance of integrated third party logistics (3PL) firms in India is one part of the problem. The cost differential between the integrated 3PL an existing transport firms is wide. So shippers find it difficult to justify the additional cost of a 3PL, even though they would be receiving high technology support and generally superior service from such provider. Further, the infrastructural challenge mentioned above constrains the internationally known 3PLs from operating with the same speed and efficiency as they do in developed economies.
3. COST OF QUALITY SERVICE
According to industry analysts, logistic costs in India are among the worlds highest. Outside of the metros and few cities the delivery time is very uncertain.

4. TECHNOLOGY USAGE AND INADEQUATE INVESTMENTS IN IT
Technology usage is very low in India, which restricts the scope of increasing productivity and efficiency (365businessdays.com). Though India is a leading exporter of IT products, Indian companies are unfortunately least inclined to use them. Hence, the IT penetration in India is low. This is not surprising that Indian companies are 1.3% of the gross sales. For companies that use IT systems, there seem to be a clear bias towards using stand-alone IT systems. Using these systems would mean that collaboration would be low as these stand-alone systems are not friendly when it comes to implementing recent supply chain models like CPFR, VMI etc. in the present scenario the supply chain around the world is On Demand, using technology such as internet, mobile, wireless, RFID etc., whereas Indian supply chain is still to come out of this slumber.

CONCLUSION
Porter five forces is a model that its function is to analyze an industry in which the producer, firm and or system makes competitive advantage and is used to study the impact of competition and analysis of firm’s attraction. With a perfect understanding of the impact of internet on SCM (E-SCM) and E-Tailing industry, the model of Porter 5 forces creates insight into E-Tailing industry that shows how the forces of power source, the power of the buyer, the threat of succession, the threat of e-tailers (electronic retailers) and new e-suppliers and the internal competitiveness on the surface of the complete E-tailing supply chain.

Compatible with Porter five forces Analysis Services, with a change in the competitive conditions in all industries, the internet in retail industry has also changed. These changes in traditional retailers have changed suppliers and their supply chain operations and in the E-SCM philosophy managing e-tailers purchase activities is necessary. However, E-SCM has a lot of positive and negative impacts on E-Tailing industry. Compatible with Porter five forces’ analysis, by changing the competitive conditions of all industries, internet has changed retailing industry. These changes in traditional tailors have also changed suppliers and their supply chain operations and are necessary in the E-SCM philosophy of managing activities of E-tailors purchase. However, ESCM has many negative and positive impacts on E-tailing industry.

E-SCM SYSTEMS ARE USEFUL FOR:
1) Easier start of new business
2) Increase in the number of suppliers and E-trailers
3) Easier management of supply chain activities
4) Providing the possibility of effective relationship between e-suppliers, e-tailors, logistic service providers,
5) Enabling supply chain partners to continuously trace goods and sharing information through internet in the supply chain
6) Increase in the amount of suppliers’ and E-trailers’ accountability
8) Coordinating information among suppliers, logistic service providers, e-trailers, customers and other partners,
9) Automating all activities of supply chain to reduce purchase costs and profit increase and
10) Enhancing E-trailers’ power in e-tailing supply chain.
NEGATIVE IMPACT OF E-SCM

However, E-SCM system may be influenced by e-suppliers. The negative impact of E-SCM in E-Tailing industry include:

1) Reducing competitive advantages of e-suppliers
2) Providing the possibility of changing competition zone towards price
3) Increasing pressure to lower the cost among suppliers and E-tailers
4) Reducing costs of suppliers' and obstacles' switching and finally
5) Reducing the power of bargaining of suppliers.

As a result, on the one hand, E-SCM expands the capacity of suppliers' business and promotes their business by opening e-shops. On the other hand, E-SCM cause increase at the competition level among e-suppliers, and reduction of power of their e-suppliers. In future researches 1) the way internet impacts the functions of supply chain from providing material, turning this material into medium products then final products and distributing these final products to customers can be separately analyzed and 2) how these e-suppliers recover their competitive advantage and their higher capability of bargaining can be analyzed compared to e-tailers.

REFERENCES


Man is not made for defeat. A man can be destroyed, but not defeated.

~ Ernest Hemingway