

**SMALL AND MEDIUM BUSINESSES (SMES) ADOPTED
ELECTRONIC SUPPLY CHAIN MANAGEMENT**

Ranjit Sandilya**Research Scholar, Kalinga University, Naya Raipur, Chhattisgarh****Dr Byju John****Professor, Kalinga University, Naya Raipur, Chhattisgarh**

ABSTRACT

Small and medium businesses (SMEs) who have adopted Electronic Supply Chain Management (E-SCM) have seen great improvements in their business processes. SMEs in India are attempting to expand their capabilities by using new technologies in order to compete in the global market. The purpose of the study was to look at the existing state and future direction of small and medium business adoption and advantages of E-Commerce and E-SCM in India. To collect data from 210 SMEs as samples, a postal questionnaire survey was done. The findings reveal that E-Commerce and E-SCM adoption has a large, beneficial impact on SMEs, with adopters seeing much greater average sales growth, on-time order handling, and delivery process than non-adopters. The conclusions of this study might be valuable for SMEs in general in understanding how E-Commerce and E-SCM adoption improves the success of the company.

Keywords: Small and Medium Enterprises; Internet; electronic; management

I. INTRODUCTION

The Internet and recent technological advancements have unquestionably transformed the way people live and work, as well as offered up new opportunities and ways for businesses to gain competitive advantages. In this aspect, the advancement of the Internet and information technology has given supply chain management new dimensions. The capacity of the Internet to be an effective medium for enabling integration and synchronization of all the information and activities associated to the supply chain and its management has been referred to as a "tsunami transformation" by Poirier and Bauer. As a result, the new concept of electronic supply chain management (e-SCM) represents the opportunities derived from the integration and synchronization of activities, functions, and applications between partners in order to fully exploit the benefits of this concept, suggesting that the Internet be combined with SCM as an indispensable asset of successful organizations.

The issue of e-SCM is a major concern that has been the subject of several recent studies and publications in important academic journals. As a result of the literature study, e-SCM has been recognized as an excellent issue in supply chain literature in the most prominent Operations Management and Logistics publications, particularly since the year 2000.

E-SCM is a new dimension derived from the previous SCM idea and evolved as a result of the expansion of information technology as well as the reengineering of enterprises' business processes to enable partner collaboration provided by the Internet. Digital companies, according to Laudon and Laudon, are those in which all critical business contacts with customers, suppliers, and internal staff are digitally enabled and coordinated through digital networks that link all parties. By leveraging the benefits that agile and adaptable information systems and technology bring to the notion, these links and networks between partners provide a chance to generate value.

II. ELECTRONIC SUPPLY CHAIN MANAGEMENT

Many definitions exist to explain the e-SCM idea; however, before describing e-SCM, it is necessary to understand the traditional supply chain management concept. SCM was defined by Mentzer et al. as the systemic, strategic coordination of traditional business functions and tactics across these business functions within a particular organization and across businesses within the supply chain in order to improve the individual organization's and the supply chain's long-term performance. A supply chain management network, according to another definition, is a network of businesses that are involved in the many processes and activities that generate value in the form of products and services provided to the end customer through links. Figure 1 shows an example of a basic supply chain created by Chopra and Meindl.

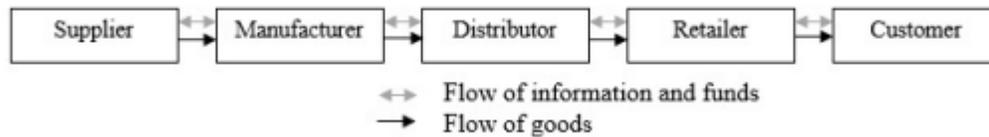


Figure 1: The Basic Supply Chain

As shown in the diagram, items and information pass across supply chain partners in order to deliver the final product to the end client. Regardless of the number of partners in a supply chain, the flow of information is both ways, implying that information between partners is crucial and should be mutual to enable effective and efficient movement of goods from the supplier to the end consumer. The Internet has transformed the notion of supply chain management and brought new dimensions to the operation, changing SCM into e-SCM. Beginning in the year 2000, this transition signaled the start of a new phase, e-SCM. Figure 2 depicts Ross's phase-by-phase development of e-SCM.

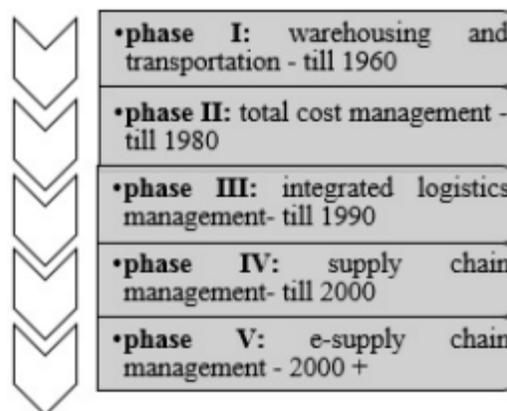


Figure 2: Evolution of E-SCM

Each phase added to the previous advancements and improvements. Through the architecture of external collaborative partnerships enabled by the Internet and information systems and technologies, the fifth phase, the e-SCM phase, has brought new dimensions for global opportunities on information transfer and transaction executions all around, in any time, at any place to anyone.

III. ADOPTION OF E-SCM PRACTICES

In the new economy, good supply chain management is a critical component of gaining a competitive edge, as it directly determines how quickly and effectively companies respond to changes in demand. For many companies, it has become

clear that the Internet's integration has enhanced the benefits of supply chain management by enabling real-time information visibility and sharing, as well as a significant opportunity to improve cooperation among supply chain partners as a significant competitive differentiator. Due to forward-thinking enterprises and early adopters who have adopted such a strategy, e-SCM has gotten a lot of attention in this respect.

Some of the world's most powerful corporate executives were among the first to adopt the e-SCM and integrate their supply chain management systems. Their e-SCM adoption experiences and lessons learned serve as a standard for other businesses. Dell has achieved remarkable success as a result of its management concepts and vision of a Zero-time company established on the principles of build-to-order leveraging the benefits of the Internet, the integrated, virtual organization, and online sales, which Dell deployed by the autumn of 1996. Since then, Dell has had extraordinary development, including a 58 percent gain in revenue and an 82 percent increase in profit in 1997, as well as an increase in sales to \$12.3 billion in 1997, earnings to \$944 million in 1997, and a sixth stock split in 1998. The capacity that this method provided Dell to swap goods for information was at the heart of its success. Dell preserved information regarding client orders, requirements, and forecasts since information is more easily moved, discarded, stored, and less expensive to have than goods. As a result, Dell employs the virtual integration model depicted in Figure 3, in which conventional value chain responsibilities and boundaries are blurred. Dell's performance is still among the highest ranked corporations today. Indeed, for business flash installations, Dell remains the top choice among IT executives.

IV. Research Methodology

4.1. Sample

The sample in this study is made up of SMEs based in India. The information about the SMEs was gathered from membership lists at the chambers of commerce in these locations. Because of the researcher's ease of access to the whole sample population, the quota sampling approach was used. The SMEs manager or individuals responsible for the SMEs operations in the firm were included in the study as respondents because they are more likely to use such technologies and it was expected that interesting findings would be produced. 425 small and medium businesses from the service and manufacturing sectors were chosen.

4.2. Data Collection

A mailed questionnaire survey was sent to chosen SMEs and cities in India in February 2016. We included a questionnaire with a cover letter explaining the study's objective and assuring them of the confidentiality of their company's information. To make it easier to submit the completed surveys, stamped envelopes were included. In the end, 210 legitimate replies out of 425 were received, giving SMEs a response rate of 49.5 percent.

V. RESULTS

The Cronbach's coefficient was used to assess the reliability, as shown in Table 1. Cronbach's coefficients vary from 0.75 to 0.917, which is greater than the suggested limit of 0.70, suggesting satisfactory reliability. As a result, we might conclude that the constructs we intend to measure from surveys are suitable for measuring devices. This demonstrated that the instrument was sufficiently trustworthy and capable of capturing genuine score variability among respondents on a consistent basis.

Table 1. Reliability analysis for SMEs.

Construct	Variables	No. of Items	Cronbach Alpha
E-Commerce	Level of E-Commerce Adoption	5	0.751
	E-Commerce Benefits	5	0.91
E-SCM	Level of E-SCM Adoption	3	0.835
	Benefits of E-SCM Adoption	4	0.917
	Duration of E-SCM Adoption	5	0.872
SMEs Operation	Productivity Improvement	5	0.915
	improve in on-time Order Management	4	0.867
	Improve in on-time delivery	4	0.798
	Stock/inventory reduction	5	0.845

The mean and SD scores, as well as all the items evaluating the extent of electronic supply chain adoption across SMEs, are shown in Table 2. For the degree of SCM implementation in SMEs, it is worth noting that improving on-time order management (3.05) is ranked first, followed by Stock/Inventory reduction (2.85). This shows that SMEs have taken E-SCM seriously in terms of supply chain activities and on-time order management.

Table 2. Level of E-SCM Adoption.

SMEs Operation	SMEs Mean \pm SD	Level
Productivity Improvement	2.45 \pm 1.299	26% - 45%
Improve in on-time Order Management	3.05 \pm 0.586	46% - 65%
Improve in on-time delivery	2.55 \pm 1.060	66% - 85%
Stock/inventory reduction	2.85 \pm 1.132	86% - 100%

The mean and SD scores for each of the items indicating the length of E-SCM adoption by SMEs are shown in Table 3. With a mean score of 3.96 and a standard deviation of 1.101, the majority of SME businesses have consistently stated that they have been using E-SCM for more than a year, with transportation accounting for the biggest percentage.

Table 3. Duration of E-SCM Adoption

SMEs Operation	SMEs Mean \pm SD	Duration
Productivity Improvement	3.45 \pm 0.930	Still not Implemented
Improve in on-time Order Management	3.63 \pm 1.090	1 - 2 years ago
Improve in on-time delivery	3.96 \pm 1.101	3 - 5 years ago
Stock/inventory reduction	3.80 \pm 1.007	More than 5 years

SMEs were asked to assess the benefits they have achieved from using E-SCM. Table 4 shows that SMEs saw a high advantage from E-SCM adoption, with a mean value of (1.82 and 1.92) respectively. Among the benefits of E-SCM adoption, respondents noted lower order processing costs, faster delivery times, better customer service, and lower stock/inventory levels. SMEs are recognizing the value of electronic supply chain management in their operations.

Table 4. Benefits of E-SCM Adoption.

SMEs Operation	SMEs Mean \pm SD	Decision
Reduced in cost for order processing	1.82 \pm 0.616	Strongly Agree
Reduced time in delivery	1.84 \pm 0.603	Agree
Improved customer service	1.90 \pm 0.588	Neutral
Stock/inventory reduction	1.92 \pm 0.577	Disagree

VI. CONCLUSION

The major goal of the survey was to look at the present state of E-SCM adoption among SMEs in India, as well as their performance. This study also discovered that encouraging SMEs in India to use E-Commerce has resulted in greater sales income, prompt order and delivery to consumers, lower website development and maintenance costs, and increased client numbers. According to the findings of this survey, SMEs used E-SCM the most to support all of their logistical procedures. Furthermore, E-SCM adoption and use may serve as a strategic instrument to assist them in competing in a bigger market. The study's findings show that SMEs in India are not adopting E-SCM and E-Commerce technologies at a high rate, and SMEDA should take steps to encourage more SMEs to deploy E-Commerce and E-SCM in their businesses. It is proposed that the government expand the infrastructure to other smaller towns so that more SMEs may profit from the internet connection. To get the most out of E-Commerce, SMEs that have already adopted it should teach their employees to use it.

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