CHAPTER 1

INTRODUCTION

1.1 IMPORTANCE OF THE STUDY

Globalized economic, competitive and consumer focused environment, made many industrial enterprises both large (LE) and micro, small and medium (MSMEs) around the world to employ information and communication technology (ICT) tools especially in the area of Supply Chain Management (SCM) to remain competitive and for their sustenance. SCM enables integration of the key business processes from end user through original suppliers in order to add value and to ensure quality of services to the customers. With the advancement and pervasiveness of internet technology and other electronic media, the role of e-business in SCM is gaining greater significance. The present research study is a descriptive one and it explores the influence of e-business on SCM in MSMEs.

The Supply Chain Management (SCM) concept consists of five distinct management stages. The first can be described as an era of internal logistics departmentalism. In the second stage, logistics start migrating from organizational decentralization to centralization of core functions associated with cost optimization and customer service. Stage three witnessed the dramatic expansion of logistics beyond a narrow concern with internal warehousing and transportation to embrace new concepts calling for the linkage of internal operations with channel trading partners. As the concept of channel relationships grew, the old logistics concept gave way leading to
stage-four, a full SCM. Now, with the application of Internet technology to the SCM concept, it is entering into stage five called as e-business enabled SCM.

Today, the application of internet technology has propelled the SCM concept to a new dimension, originating as a management method to optimize internal costs and productivity. SCM has evolved through the application of e-business technologies into a powerful strategic function, which is capable of architecting e-business enabled collaborative channel partnerships.

David (2003) described e-SCM as a three-step process. Companies begin first with the integration of supply channel functions within the enterprise. The next step is to integrate across trading partners channel operations functions, such as transportation, channel inventories, and forecasting. Finally, the highest level would be achieved by utilizing the power of the e-business to synchronize the channel functions of the entire supply network into a single virtual enterprise capable of optimizing core competencies and resources from anywhere, at any time in the supply chain (SC) to meet market opportunities.

While the power of e-business systems is utilized by the Large Enterprises (LE) initially, the modified modules of e-business systems, fitting to the requirements of small firms, are available for their usage and at a lesser cost.

The small and medium enterprises (SME) make significant contributions for the economic development of both developed and developing countries. In India, the share of contribution of micro, small, medium enterprises (MSMEs) sector account for 45% of the manufacturing output and around 40% of the total exports (MSME Dept. note 2013). The Federation of Indian Chamber of Commerce and Industries (FICCI) in their
study report on MSMEs, stressed that the need of the hour for SMEs is to have access to ICT tools for facilitating production process, market access, supply chain integration and customer feedback in order to gain better outreach so as to reduce business costs and reap higher profit margins (FICCI report 2012).

Today, the SC and e-business become an integral aspect of many business undertakings. Review of Literature indicates that benefits of e-business systems are fully utilized by large enterprises (LEs) because of their resources and global visibility. Micro, small, medium enterprises (MSMEs) mostly deal with customized products and services for local customers with the support of comparatively inexpensive infrastructure and technology. Nevertheless many MSMEs are exposed to the developments of e-business system which influences SC components, thereby providing opportunities for growth. The present research examines the implications of the influence of e-business application systems, which are creating drastic changes in the industry integration process resulting in major cost cutting measure for the LE and MSMEs.

Research studies so far made indicate that the effect of e-business on SC of SMEs cover one or two aspects of SC. Not many studies covering all aspects in a comprehensive manner have been made. In the above background, this descriptive research study explores the influence of e-business on SC in MSMEs through a comprehensive questionnaire survey and analysis of data. Besides, employing statistical techniques to confirm the findings, an Interpretive Structural Model (ISM) was developed to establish the relationship among the e-business influencing factors.
1.2 SCM, e-BUSINESS: A BRIEF INTRODUCTION

1.2.1 Supply Chain Management

A Supply Chain (SC) consist of set of entities involved in the design of new products and services, procuring raw materials, transforming them into semi finished and finished products, and delivering them to the end customer. (Lee and Billington 1993, Swaminathan 2001a, Keskinocak and Tayur 2001).

During 1990s, many manufacturers and service providers sought to collaborate with their suppliers to upgrade their purchasing and supply management functions. This aspect of SCM primarily focuses on purchasing and supply management functions of industrial buyers (Tan et al 1998). Correspondingly, many wholesalers and retailers have also integrated their physical distribution and logistics functions into the transportation and logistics perspective of SCM to enhance competitive advantage. Over the last few years, these two traditional supporting functions of corporate strategy, which evolved along separate paths merged into a strategic approach dealing with operations, materials and logistics management, commonly referred to as SCM (Vakharia 2002).

Swaminathan and Tayur (2003) are of the view that SCM is the efficient management of end-to-end process, which starts with design of the product or service and ends with the time when it is sold, used and finally discarded by the consumer. This complete process includes product design, procurement, planning and forecasting, production, distribution, fulfillment, after-sales support and disposal of end-of-life.

According to Harland (1996) SCM, comprise managing business activities and relationships (i) internally within an organization, (ii) with immediate suppliers, (iii) with first and second-tier suppliers and customers
along the supply chain, and (iv) with the entire supply. It also focuses on how firms utilize their suppliers’ processes, technology and capability to enhance competitive advantage and the coordination of manufacturing, logistics, and materials management functions within an organization. (Farley 1997).

According to Yin and Khoo (2007) Information and Communication Technology (ICT) from which the e-business evolved, has created much impact on almost every sector of the society in recent years. The emergence of e-business has exerted some influence on SCM in the form of e-manufacturing that led to global manufacturing. Thus, e-business enabled organizations move from centralized, vertically integrated and single-site manufacturing facilities to geographically dispersed networks of resources that collectively create value for customers.

1.2.2 e-Business and its Application

E-business is a business process that uses the Internet or other electronic medium as a channel to complete business transactions. As classified by Geoffrion and Krishnan (2001) e-business consists of three areas: (i) consumer-oriented activity, (ii) business-oriented activity, and (iii) the e-business technology infrastructure. Consumer-oriented activities comprise business-to-consumer (B2C), consumer-to-consumer (C2C), and government-to-consumer (G2C) activities. Business-oriented activities include business-to-business (B2B), business-to-government (B2G), and government-to-business (G2B) activities. The technology infrastructure relates to net-work infrastructure, network applications, decision technologies, and software tools and applications.

E-business activities conducted over the internet continue to penetrate the enterprise value chains. A firm benefits from the Internet when they embed e-business capability into their organizational structure in such a
way to utilize the resources efficiently (Zhu 2004). E-business is particularly important for the SC to increase the need to integrate activities and information flows and to optimize the processes not only at the single company level, but also at the level of inter-company processes (Stevens 1989). The efficiency of information transfer, the timeliness of information availability, the openness and transparency of relevant business information are only a few of the benefits provided by the e-business to support SC integration (Hakansson and Snehota 1995).

Application of e-business in SCM leads to the management of different processes such as customer relationship management, customer service, demand management, order management, production and material flows and purchasing (Lambert et al 1998). EDI was the first e-business enabled tool that was widely diffused and enabled this kind of communication, while more recently internet based applications tool seem to overcome most of its original limitations (Evans and Wurster 1999; Skjoett-Larsen 2000).

In the light of e-business application, Frohlich and Westbrook (2002) classified web-based SC integration strategies according to two dimensions, viz., (i) internet-based demand, and (ii) supply integration. The resulting categories are low integration, demand integration, supply integration and demand chain management integration. Thus, in any organization the e-business has major application on SCM. It is evident tat the e-business has more application potential at all the levels of SC of LE. But, however, in the case of small firms, application is minimal and limited due to so many resource constraints, the firms are facing.
1.3 SIGNIFICANCE OF MICRO, SMALL AND MEDIUM ENTERPRISES

Enterprises are classified as micro, small and medium, based on investment made or on the basis of number of employees or both in different countries. As far as India is concerned, the micro, small and medium enterprises (MSMEs) are classified as per MSMED Act, 2006 on the basis of their investment in plant and machinery (for manufacturing enterprise) and on equipment for enterprises providing or rendering services. The defined limit on investment for enterprises to be classified as micro, small and medium enterprises is shown in Table 1.1.

Table 1.1 Classification micro, small and medium enterprises

<table>
<thead>
<tr>
<th>Classification</th>
<th>Manufacturing Enterprises* (Rs. in millions)</th>
<th>Service Enterprises** (Rs. in millions)</th>
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<tbody>
<tr>
<td>Micro</td>
<td>2.5</td>
<td>1</td>
</tr>
<tr>
<td>Small</td>
<td>50</td>
<td>20</td>
</tr>
<tr>
<td>Medium</td>
<td>100</td>
<td>50</td>
</tr>
</tbody>
</table>

* Investment limit in Plant & Machinery ** Investment limit in equipment

MSMEs including khadi and village/rural enterprises have the credit of generating the highest rates of employment growth and also account for a major share of industrial production and exports. They also play a key role in the development of economy with their effective, efficient, flexible and innovative entrepreneurial spirit. The socio-economic policies adopted by India since the Industries (Development and Regulation) Act 1951 have laid stress on MSMEs as a means to improve the country’s economic conditions. MSMED Act was notified in 2006 to address policy issues affecting MSMEs as well as the coverage and investment ceiling of the sector.
The salient features of the act include: setting up of a National Board for MSMEs, classification of enterprises, advisory committees to support MSMEs, measures for promotion, development and enhancement of MSMEs, schemes to control delayed payments to MSMEs, enactment of rules by State Governments to implement the MSMED Act, 2006 in their respective States.

The primary responsibility of promotion and development of MSMEs vests with the State Governments. However, the Government of India, supplements the efforts of State Governments through different initiatives. The Ministry of Micro, Small and Medium Enterprises, Government of India and organizations under its control render assistance to States in their efforts to encourage entrepreneurship, employment and livelihood opportunities and enhance the competitiveness of MSMEs in the changed economic scenario.

The schemes / programmes undertaken by the Ministry and its organizations seek to facilitate/provide: i) adequate flow of credit from financial institutions / banks; ii) support for technology upgradation and modernization; iii) integrated infrastructural facilities; v) modern testing facilities and quality certification; v) access to modern management practices; vi) entrepreneurship development and skill upgradation through appropriate training facilities; vii) support for product development, design intervention and packaging; viii) welfare of artisans and workers; ix) assistance for better access to domestic and export markets and x) cluster-wise measures to promote capacity-building and empowerment of the units and their collectives. (MSMEs Annual Report 2011-12).

Trade associations like Federation of Indian Chamber of Commerce and Industry (FICCI) based on studies also emphasize the need for SMEs to access ICT tools to improve their performance. Thus, it is necessary for the MSMEs to go in for technology adoption, particularly adaptation of e-
business due to its vast application and concomitant benefits. Since, MSMEs exercise more caution and are conservative in adoption of new technology, its benefit are not realized fully by the MSMEs and also sub-optimal utilization of resources. Hence, it is felt necessary that a research study to explore the implication of adopting e-business technology in SCM of MSMEs will be of benefit to the MSMEs.

1.4 STUDY BACKGROUND

The internet has propelled SCM to an entirely different dimension for all types of organizations, by enabling a global ability to pass information and transact business friction-free anywhere, anytime, to customers, suppliers, and trading partners (David 2003). Application of Internet technologies require transformation of traditional business focus on the development of end-to-end infrastructures that facilitate real-time interaction and fuse together the synchronized passage and convergence of SC network information. This is one of the compulsions of today’s economic environment.

David (2003) emphasized that the focus on SC of an enterprise has arisen mainly in response to several critical business requirements. Companies have begun to extend the tools of modern enterprise management to their supplier and customer channels to identify additional sources of cost reduction and process improvement. Over the past decade, businesses have been consistent in the use of computerized techniques and management methods such as Enterprise Resource Planning (ERP), total quality management (TQM), and business process reengineering (BRP) to optimize organizations and achieve highly agile, lean manufacturing and distribution functions of superior quality and service. This move towards internal cost reduction and process optimization has led to eventual conclusion that today’s best companies have sought to apply the same management and technology pattern outward to their SC. The aim is to
remove all forms of waste in the components, such as logistics, inventory, procurement, customer management, and manufacturing activities.

Lin (2008) observed that there is a need to focus on inter-organizational relationship between the partners and see if the relationships will improve the adoption of e-business in their supply chain. He added that e-business technologies differed from adoption of traditional information systems as e-business is “complex, emerging technologies that can provide a wide range of functionality ranging from developing online business processes to facilitating cooperation with customers and business partners”

As per Koh and Maguire (2004), larger enterprises have greater capability to make use of e-business and knowledge management due to their access to the required skills and resources. However, many MSMEs are not equipped with and supported by appropriate guidelines and models to allow them to take advantage of the developing knowledge economy and move towards the e-business era.

This problem is further amplified by the fact that many of their business customers and suppliers are moving towards the e-business and knowledge management era, within which their partners applied a variety of information system packages for B2B and B2C transactions. Some have even reached advanced level to adopt the knowledge management approach to capture experiences, expertise and information flow in an enterprise.

The MSME Annual Report (2011-12), the MSMEs has well established role in the economic and social development of the country. MSME sector is a nursery of entrepreneurship, often driven by individual creativity and innovation. As per the report, this sector contributes eight percent of the country’s GDP, 45 per cent of the manufactured output and 40 per cent of its exports. The MSMEs provide employment to about 60 million
persons through over 26 million enterprises producing over six thousand products.

From the above report, it is evident, that the labour to capital ratio in SMEs and the overall growth in the MSME sector is much higher than the large industries. The geographic distribution of the MSMEs is also more even. Thus, MSMEs are important for the national objectives of growth with equity and inclusion. It would be an understatement to say that MSME sector in India is highly heterogeneous in terms of the size of the enterprises, variety of products and services produced and the levels of technology employed. Cutting across all sections of production and services, MSME sector is truly a strategic asset for the economy of the country. It adds wealth to the local economy and at the same time provides major employment and in the long run acts, as a bulwark against rural to urban migration.

The report also suggest that the challenge here is to provide grass-root and affordable technologies and ensure, at least primary processing at the village/cluster level to add value and reduce the costs of logistics. Non-level playing field odds like reluctance of banks/financial institutions in providing credit, lack of access to technology, inadequate marketing capabilities, etc., have pushed the MSME sector towards the edge.

With the application of e-business to SCM, micro, small and medium enterprises (MSMEs) can become agile and scalable organizations capable of delivering to their customers. Moreover evolutionary levels of convenience, delivery reliability, speed to market, and product/service customization are impossible without the e-business. The Indian Government on its part has taken several measures to improve the e-business application in various forms to the MSMEs. In the light of the above, it is necessary to measure the application of e-business systems in MSMEs SC components and also in SC performance.
1.5 RESEARCH OBJECTIVES

Taking into account of the above background the primary objective of the research study is to explore the influence of e-business systems on micro, small and medium enterprises (MSMEs) supply chain components and performance factors. The secondary objective of the study include,

- To assess the status of the available e-business application system and e-business enablers that supports the SCM in micro, small and medium scale enterprises.
- To identify the level of e-business influence on factors of supply chain performance in MSMEs.
- To measure the influence of e-business on MSMEs’ SC components.
- To develop a model to identify the key driving SC performance factors.