Chapter 14
Information Technology Paraphernalia for Supply Chain Management Decisions

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ABSTRACT

Technology and world around have always been advancing time to time. One can speak of diverse areas to show how important IT is in daily business life, and of much Supply chain is one such area with more scope for Information Technology (IT) and has become a determinant of competitive advantage across the organizations. In order to survive in today's competitive environment the firms need to manage the future supply chain. In order to deliver quality information to the decision-maker at the right time and in order to automate the process of data collection, collation and refinement, the companies have to make IT an ally, harness its full potential and use it in the best possible means. IT is beneficial for cooperation and integration within the stakeholders of the supply chain. The chapter throw a light upon the stature of various technology based Tools in Supply Chain Management (SCM). The study also highlights the contribution of technology in helping to restructure the entire supply chain process to achieve higher service levels, lower inventory and the supply chain costs.

INTRODUCTION

Supply Chain Management (SCM) is managing the network of interconnected businesses involved in the ultimate provision of product and service packages required by end customers (Harland, 1996). Supply Chain Management spans all movement and storage of raw materials, work-in-process inventory, and finished goods from point-of-origin to point-of consumption. Supply Chain encompasses the planning and management of all activities involved in sourcing, procurement, conversion, and logistics management activities. Supply chain management is defined as the integration of key business processes from

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end user through original suppliers that provides products, services, and information and hence, adds value for customers and other stakeholders (Lambert, Cooper, and Pagh, 1998). Supply chain management is increasingly applied operations paradigm for enhancing overall organizational competitiveness. Supply chain management is a set of approaches utilized to effectively integrate suppliers, manufacturers, warehouses, and stores, so that merchandise is produced and distributed at the right quantities, to the right locations, and at the right time, in order to minimize system wide cost while satisfying service level requirements (Simchi-Levi, Kaminsky, & Simchi-Levi, 2000).

Information Technology is revolutionizing the way in which the individuals live and work. This is changing all the aspects of peoples' life style. The digital revolution has given mankind the ability to treat information with mathematical precision, to transmit it with high accuracy and to manipulate it. These capabilities are bringing into being, a whole world within and around the physical world. The Internet increases the richness of communications through greater interactivity between the firm and the customer (Watson, Akelsen, and Pitt, 1998). Internet is playing an essential role in building commercially viable supply chains in order to meet the challenges of virtual enterprises Graham and Hardaker (2000). Armstrong and Hagel (1996) argue that there is beginning of an evolution in supply chain towards online business communities. Supply chain management emphasizes the overall and long-term benefit of all parties on the chain through co-operation and information sharing. This signifies the importance of communication and the application of information technology in Supply chain management (Yu, Yan, & Cheng, 2001).

Today, Information and Technology must be conceived of broadly to encompass the information that businesses create and use as well as a wide spectrum of increasingly convergent and linked technologies that process the information with the emergence of the personal computer, optical fiber networks, the explosion of the Internet and the World Wide Web. The cost and availability of information resources allow easy linkages and eliminate information-related time delays in any supply chain network. This means that organizations are moving toward a concept known as Electronic Commerce, where transactions are completed via a variety of electronic media, including electronic data interchange (EDI), electronic funds transfer (EFT), bar codes, fax, automated voice mail, CD-ROM catalogs, and a variety of others as the old paper type transactions are becoming increasingly obsolete (Patro & Raghunath, 2015).

The complexity of Supply chain management has also forced companies to go for online communication systems. Companies need to invest large amount of money for redesigning internal organizational and technical processes, changing traditional and fundamental product distribution channels and customer service procedure and training staff to achieve IT-enabled supply chain (Motwani, Madan, & Gunasekaran, 2000). In order to meet the demands organizations are trying to make their supply chains more agile and form virtual enterprises (Gunasekaran and Ngai, 2004). In the supply chain management field it therefore becomes ever more important to collaborate and integrate with business partners in order to deliver the best possible end product to the customer (Cooper, Lambert, & Pagh, 1997; Pereira, 2009; Subramani, 2004). Li, Yang, Sun, & Sohal (2009) considering the high demands for integration and collaboration it is logical that IT has become increasingly important in the various positions in the supply chain. Interest in research has therefore also shifted towards the role of IT in SCM and by implication also some focus on the conditions that make it possible for IT to support SCM. Jharkharia & Shankar (2004) use in this regard the term enablers since the question focuses on things that make it possible for IT to support SCM. The companies need to put emphasis on developing a framework that would help in implementing a successful and cost effective IT system for achieving an effective Supply chain management.