

Chapter 76

E-Commerce in Logistics and Supply Chain Management

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ABSTRACT

As the electronic communication and digital information continue to grow with extensive popularization and application of internet technology, social economy is experiencing a fundamental change. The new economy of e-commerce solutions and global trade have forced companies to redefine their corporate strategies and to redesign their business models. E-commerce is bringing extensive growth and a landscape of continuing change in managing logistics and supply chain operations. This chapter describes the e-commerce and the evolution of logistics and supply chain and trends of e-commerce in logistics and supply chains. It gives a discussion on the integrated e-commerce and e-commerce logistics, and it ends with future research directions and a conclusion.

INTRODUCTION

The rapid development of computing services and information and communication technologies (ICT) in the 1990s has dramatically transformed the way how organizations use logistics and supply chain operations for achieving competitive advantage. This has led to the emergence of the e-commerce context (Turban, et al., 2007; Harris et al., 2015). Gaining a competitive advantage in e-commerce means finding a balance of the right item price, customer service and delivery time, therefore e-commerce includes innovative and highly scalable e-commerce platforms (Chen et al., 2012). The impact of e-commerce covers both business-to-business (B2B) and business-to-consumer (B2C) transactions. Simply to point out, e-commerce is conducted through the Internet computer network products, trading, payment and services and other economic activities, and also it integrates all inter-company and intra-company functions, meaning that the three flows namely, physical flow, financial flow and information flow of the supply chain are affected by e-commerce.

The digital revolution has driven the development of e-commerce. Early applications can be traced back to the 1960s, but e-commerce only became popular in the 1990s due to the widespread use of the

DOI: 10.4018/978-1-5225-7362-3.ch076

Internet. E-commerce uses communications such as EDI, POS, electronic ordering system, electronic mail, file transfer, video conferencing, workflow or interaction with a remote computer to improve efficiency of logistics and supply chain activities, and to enhance the entire supply chain management decision capacity. E-commerce has also become associated with solutions and tools such as portals, e-marketplaces, e-auctions or virtual inventory. Logistics and supply chain operations have been affected irrevocably by e-commerce solutions. But the possible major changes could take a lot longer to happen. For companies, the overall goal of e-commerce includes (Yang, 2012): to help companies develop global sales network and logistics infrastructure which support efficient online order fulfillment; to provide enterprises with information and data of various business activities (i.e. online order documentation), production and sales information to solve the difficult problem of collection; to reduce market entry link that help companies open up the market to minimize the circulation of goods; to reduce business cost of sales and minimize the transaction costs of goods; both for trading and online commodity trading to facilitate negotiations; supports online purchasing including secure online payment system; to provide the most reliable quality assurance; to provide customers the most convenient means for retrieval. Supply Chain Management (SCM) is based on customer demand, providing a common focus on the related products or services, enterprise information resources, software products based on Internet technology as a tool to manage, the entire channel which all relevant processes to maximize net value added, and improve the efficiency and effectiveness of a platform. In this chapter, the evolution of logistics and supply chain and trends of e-commerce in logistics and supply chains are described. Then the discussion on the integrated e-commerce and e-commerce logistics are given and finally, it ends with future research directions and conclusion.

BACKGROUND

The rapid growth of e-commerce is being related to economic development and often been cited as a driver of economic growth. E-commerce is also touted as a powerful medium through which developing economies can exploit the potential of global markets. Today, e-commerce in developed economies represents the latest leader of change in physical distribution network and SCM, whereas in developing economies, e-commerce market is still in its infancy but it is expanding and becoming integral part of commercial life. This field evolved substantially over the past four decades and continues to grow today. In the early days, low prices and convenience were the driving forces for e-commerce, but today, e-commerce retailers (also known as e-tailers) are catering to every kind of shopping experience, service and product. Presently, it remains the case that as the gross revenue earned from e-commerce is increasing year on year from nascence to critical mass, most transport service providers (TSP) or retailers, particularly multi- and omni-channel retailers, are only starting to realize what this will bring to their retail logistics and physical distribution network infrastructures and what role they can have within. So much as, today e-commerce has become a complementary retail touch point for the traditional brick-and-mortar retail.

The new e-commerce technologies have the potential to offer greater efficiencies and transparency and have led to significant changes within supply chains, with alternative ways of doing business, improved visibility and changes to distribution channels, including new intermediaries. From a distribution property perspective, the evolution of logistics and supply chain has passed through various phases and very broadly in the timeline as follows (JLL, 2013) (see Figure 1): most retail stores were replenished by direct deliveries from wholesalers and suppliers in the 1970s. The distribution centers (DC) emerged and

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