Chapter 86

The Dynamics of Electronic Supply Chains and Enterprise Resource Planning Systems:
The New Business Challenge

Jean C. Essila
Northern Michigan University, USA

ABSTRACT

Businesses around the world experience many challenges to acquire raw materials, parts, subassemblies, and the other necessary inputs to their production systems. As businesses are all moving into the e-commerce platform to gain market shares, they realize that electronic supply chain management (e-SCM) powered by enterprise resource planning systems (ERPs) are the new norms and no business organization can operate without both in the new world of e-commerce. Little attention has been devoted to e-SCM dynamic with ERP and the challenges they pose to organizations. In the e-commerce environment, e-SCM is among the most important factors to organizational success. Effective e-SCM can enhance competitiveness and increase market share leading a higher profitability. Nevertheless, the new e-SCM professionals and other actors must understand the factors that undergird e-SCM performance, their drivers, and the necessity of fully functional ERPs for an effective e-SCM.

INTRODUCTION

Businesses around the world experience many challenges to acquire raw materials, parts, subassemblies, and the other necessary inputs to their production systems. Organizations must work to ensure they excel or simply survive in this extremely competitive environment. As businesses move into the e-commerce platform to gain market shares, they realize that electronic supply chain management (e-SCM), powered by enterprise resource planning systems (ERPs), is the new norm and no business organization can operate without both e-SCM and ERPs in the new world of e-commerce. Because business via the internet requires different fulfillment approaches, traditional drivers of regular supply chains are no

longer adequate for explaining how e-SCM performance is driven. The task of e-SCM professionals is, therefore, more complicated than ever. This situation often leads to unsatisfied customers, which can force companies to close their doors. Therefore, understanding the dynamics of e-SCM performance drivers and their integration with ERPs, along with their accompanying challenges, becomes a necessity. Little attention has been devoted to e-SCM dynamics with ERPs and the challenges they pose to organizations. This article discusses the new e-SCM challenges facing organizations as they attempt to enter the e-commerce platform. In the e-commerce environment, e-SCM is one of the most important factors to organizational success. Effective e-SCM can enhance competitiveness and increase market share, leading to higher profitability. Nevertheless, the new e-SCM professionals and other key players must understand the factors that undergird e-SCM performance, their drivers, and the necessity of fully functional ERPs for an effective e-SCM.

Information technology (IT) has changed the way businesses conduct their operations (Hanafizadeh, Ghandchi, & Asgarimehr, 2017). Today's IT is at the heart of every business operation. An IT breakdown usually leads to work stoppage. Here are two examples: (1) IT breakdowns often paralyze airport operations, leading to flight cancellations and angry passengers, and (2) a dysfunctional check-in or checkout system creates infinite waiting lines and hinders the company's reputation. Consequently, e-commerce has forced businesses to redesign their operations dramatically (Sambasivan, Mohamed, & Nandan, 2009). E-commerce offers a new venue for revenue generation that sometimes surpasses that of the traditional brick-and-mortar business. E-commerce offers consumers more buying options than does traditional business. Buyers can instantly compare prices, product attributes, and delivery parameters. As a result, customers have become increasingly demanding as they raise their expectations when buying from the internet. On the other hand, e-commerce requires the use of the internet, creating a new SCM challenge. Therefore, e-SCM is becoming an integral part of traditional supply chain management (Gunasekaran, Patel, & Tirtiroglu, 2001; Sambasivan et al., 2009). Consequently, businesses are becoming supply chain-sensitive organizations. With business via the internet requiring different fulfillment approaches, traditional drivers of regular supply chains are no longer adequate for explaining how and to what extent e-SC performance is driven (Sambasivan et al., 2009). The task of supply chain professionals is more complicated than ever because e-SCs rely on ERPs. This situation often leads to unsatisfied customers, which can force companies to close their doors because of lost profit.

Effective SCM is customer-centered and ensures cost-effective resource allocations. However, to be cost-effective, supply chain managers must demonstrate full understanding of factors that drive SCM performance and how to gauge actual performance to take proper actions (Stock & Boyer, 2009). According to Caputo, Cucchiella, Fratocchi, Pelagagge, and Scacchia (2004), SC managers are often driven by their personal experiences and routine methodologies that do not usually lend themselves to the expected results.

Supply chains involve all processes that support demand planning, procurement, production, logistics, and distribution (Petrovic, 2016). E-SCs involve partners that are linked by internet technology in broad networks where customers, retailers, distributors, manufacturers, and suppliers are connected (Fliedner, 2003; Lightfoot, & Harris, 2003; Williams, Esper, & Ozment, 2002). Within and across the networks, key players collect, process, store, and disseminate information on materials, goods, funds, and services. e-SCs are composed of many-to-many connections, while relationships in traditional supply chains are characterized by one-to-one connections. Because of the widespread use of internet technology today, a dramatic revision of current SCM techniques is needed (Caputo et al., 2004). Therefore, understanding e-SCM performance drivers and their integration with ERP becomes a necessity for any

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