

Strategizing SCM-M Interface Using DeLone and McLean Model of IS Success and Fuzzy Cognitive Maps: Perspectives on E-Commerce Success

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ABSTRACT

The article presents a unique approach to explore and evaluate the critical factors of supply chain management-marketing (SCM-M) interfaces in e-commerce. This article systematically identifies the critical factors of SCM-M interface in e-commerce using DeLone and McLean (D&M) Model of IS Success. The critical factors identified are used to form the dynamic scenarios based on Fuzzy Cognitive Maps (FCM) for strategizing the e-commerce success. To understand and evaluate the proposed research methodology, some scenarios were developed based on the critical factors of SCM-M interface in e-commerce. The analysis of these scenarios aid in identifying the improvement areas as well as strategizing and improving those areas of SCM-M interface in e-commerce for enhanced customer satisfaction and leveraging organizational success.

KEYWORDS

DeLone and McLean Model of IS Success, E-Commerce, Fuzzy Cognitive Maps, Scenario Analysis, Strategic Planning, Supply Chain Management-Marketing Interface

INTRODUCTION

According to Forbes (Forbes, 2014), Walmart stands at the top in terms of its sales and as the 18th most valuable brand. This success of Walmart is often attributed to its highly efficient Supply Chain Management (SCM) and marketing integration (Kozlenkova, Hult, Lund, Mena, & Kekec, 2015). However, its prime competitor K-mart has struggled financially over the last few decades which is mostly attributed to its weak congruence of SCM and marketing practices (Bogenrief, 2012). In this paper, we focus on understanding the synergetic aspects of SCM and Marketing in e-commerce that act as a source of leveraging strategic and competitive benefits for firms.

An important imperative of Marketing is to deliver values like customer satisfaction, customer support etc. to the end users. Efficient supply chains allow firms to pass along benefits like optimized costs, timely delivery etc. to the end users; thus, generating an increased value for these customers

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(Kozlenkova et al., 2015). This makes the role of SCM very important and at the very core of Marketing Success.

On the other hand, success of SCM relies on both intra and inter organizational relationships. Logistics, Purchase, Operations and Marketing Channels broadly form the functional domains of SCM. Marketing Channels form the last fragment of SCM but are very important in determining the needs of the end customer for whom the entire supply chain is co-ordinated and adjusted as required. Thus, using Market Research for collecting valuable information of environment, competitors, customers, suppliers etc. can help in better implementation of SCM (Min & Mentzer, 2000). This makes Marketing very impactful in determining the success of SCM.

SCM-Marketing (SCM-M) are very closely linked processes and concepts intertwined with each other. Thus, it has become immensely important to harness the benefits of SCM-M interface. This synergetic value of SCM-M interface has also been identified and applauded in several research works (Ellinger, 2000; Martin & Grbac, 2003; Min & Mentzer, 2000; Svensson, 2002). Esper (Esper, Ellinger, Stank, Flint, & Moon, 2010) highlight the fact that a focus on individualistic SCM or Marketing domain and negligence of SCM-M interface often leads to suboptimal benefits for the firms. Noci (Noci, 2019) in his work provides a deep insight to how business processes and organizational changes be directed to harness the utility of SCM-M interface. Copley (Copley, 2018) demonstrates the experiential learning in an entrepreneurial setting for practical benefits of SCM-M interface. SCM-M coordination (Samatli-Pac, Shen, & Hu, 2018) has also been studied from the point of view of loss aversion, customer utility and reverse logistics. Some other research works (Flint, 2004; Piercy, 2008) identify the potential of synergies of SCM-M interface in providing competitive advantage.

However, in the changing dynamics of global business environment (from traditional to digital); customers no longer simply plan for and shop at the nearest retailer; rather they pick up the nearest digital device. Neilson (Neilson, 2012) cited in its report that online retail sales through e-commerce would double between 2015 and 2019. E-commerce has created a revolution in global businesses by increased customer base, streamlined Supply Chains, enhanced customer value, increased profits, reduced costs and entry in the new markets (Karavdic & Gregory, 2005).

Thus, it is important to study the impact of strategizing SCM-M interface for E-commerce success which is one of the important and transformational means of business. Lee and Wang (Lee & Whang, 2001) in their work identified, that e-businesses/e-commerce have a humungous potential to reap benefits of SCM-M interface. They mention that e-businesses can integrate SCM empowered with the factors of Information Integration, Planning Synchronization, Workflow Coordination and Alternate Business Models. This will drive better marketing intelligence in terms of utilizing data sources captured through online transactions and interactions to make marketing decisions like Assortment, Pricing, Promotional Offers, and Demand Estimation etc. The scientific methods based on statistical analysis, optimization, business intelligence etc. can help for the cause. Avlonitis and Karayanni (Avlonitis & Karayanni, 2000) also mention the scope that e-commerce has in utilizing synergies of SCM and Marketing for added customer services and enhanced customer relationship. Ardito et al. (Ardito, Petruzzelli, Panniello, & Garavelli, 2018) highlighted the role of advanced technologies to support SCM-M integration from the view point of information processing. IoT based technological innovation (Chkoniya & Mateus, 2019) are also explored to understand a better demand and supply side collaboration and automation.

The humungous investments and revenue of firms from e-commerce has attracted researchers and practitioners to increase the efficacy of these systems and evaluate their Information System (IS) success (DeLone & Mclean, 2004). Keen (Keen, 1980) highlighted in his noted work Management Information System Research that it is important to measure the “effectiveness” or “success” of IS to encourage firms for investments in technology. Information System success evaluates the ease of creation, distribution and usage of information enabled with technology. However, there is an uncertainty on which factors to be considered best for measuring the IS success of systems (Rai, Lang, & Welker, 2002).

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