

“SUPPLY CHAIN RETAIL DEVELOPMENTS THROUGH THE INTEGRATION OF ICT” A CONCEPTUAL ELABORATION

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Abstract: *This study examines the technological investments that retail managers must effectively manage in conjunction with supplier partners to reap superior gains. Today, retailers are warming up to the benefits of implementing partnering technologies that provide them with much needed informational and relational resource linkages. Supply chain efficiency is highly important as today's competition is no longer between companies, but between supply chains. Information sharing can increase supply chain efficiency by reducing inventories and smoothing the flow. A number of studies related to the topic of this paper were sourced and studied, through a process of comparison and contrast. All the studies supported the assertion of this current study that effective management of supply chain technologies is crucial towards the retail development perspectives. The implications of this study may provide directions to the retail industry on the importance of ICT integration in supply chain retail developments to enhance efficiency and productivity.*

Keywords: supply chain, retailer, information technology, ICT integration, supply chain performance

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1. INTRODUCTION

Intense competitions at the global level require retailers to embrace technology to enhance informational and relational linkages across the entire supply chain to improve supply chain efficiency. Supply chain efficiency is crucial as, currently competitions are no longer between firms but between supply chains. Hence it is imperative for firms to integrate ICT across their entire supply chain to achieve a competitive advantage, thus, profitability and sustainability. At the current pace, continuously emerging technologies, global competitions and challenging demands have forced firms to adopt information technology capabilities to

manage and enhance their supply chains (Marinagi, Trivellas and Sakas, 2014). Hence the conventional perception of supply chain has shifted greatly as the modern perspective is focused on strategic supply chain management to improve performance and achieve competitive advantage (Ketchen, Rebarick, Hult and Meyer, 2008). Therefore, ICT integration needs to encompass both the external and internal business functions to enable efficient information sharing across the entire supply chain (Marinagi *et al.*).

A growing number of firms are becoming increasingly aware of the potential of supply chain management as a main strategy to gain competitive advantage, and accept the potency of ICT integration to enhance flexibility and responsiveness towards achieving this (Gunasekaran and Ngai, 2004). Therefore, achieving supply chain retail development through the integration of ICT has proven to be a pre-condition for competitiveness and sustainability. Specifically, the supply chain retail development through ICT integration improves essential elements in retail business; reduced transaction cost, improved customer relationship management, efficient outsourcing capabilities, improved inventory management and enhanced competitive advantage. Improvements achieved with regard to these elements would enhance not only customer relation management, but the overall inter and intra-organizational communications. These developments are often achieved through improved efficiency and flexibility which is facilitated by comprehensive ICT integration in supply chain operations (Marinagi *et al.*).

2. PURPOSE

The purpose of this current study is to examine the effect of ICT integration in supply chain retail development with regard to the five essential elements in retail business that has been previously stated (i.e., reduced transaction cost, improved customer relationship management, efficient outsourcing capabilities, improved inventory management and enhanced competitive advantage). It is expected that this study would contribute to the literature in the field as the relationship of ICT integration in supply chain retail development is examined with specific focus on these five elements.

3. OBJECTIVE

The objective of this study is to examine whether ICT integration in the retail industry supply chain operations could cause a positive effect to a number of important elements in the industry's supply chain; transaction cost, customer relationship management, outsourcing capabilities, inventory management and competitive advantage in the industry.

4. VARIABLES

To achieve the objective of this study, ICT integration has been assigned as the independent variable, while the dependent variables are; transaction cost, customer relationship management, outsourcing capabilities, inventory management and competitive advantage.

5. LITERATURE REVIEW

The retail industry has been relatively slow to adopt technology to support its supply chain operations compared to a number of other industries. However, the increased levels of demands and competition in the retail industry has necessitated the integration of ICT in the retail industry supply chain operations as firms struggle to efficiently manage their supply chains. Hence the realization has transformed the global retail industry although not at the level

it probably should. Admittedly, a number of giant retailers have experienced relative failure in enhancing performance despite integrating ICT across their supply chains. Nevertheless, the fault lies not in the integration of technology per se, but in the selection and implementation of specific technological measures. Hence Tanriverdi (2006) asserts that ICT integration effectiveness is dependent on organizational strategy, structure and environment. The overwhelming evidence points to increased levels of profitability and performance parameters when ICT integration is comprehensively embraced.

ICT integration in the retail industry supply chain operations reduces transaction cost as more efficient communication, and the adoption of EDI (electronic data interchange) and EFT (electronic fund transfer) eliminates unnecessary and wasteful conventional processes (Demmissie, 2016), besides enhancing supplier-customer relationship (Jurado and Fuentes, 2014). Conventional approach to supply chain management involves substantial costs as there is often a severe lack of real-time coordination and alignment with supply chain partners and customers. As communication, being a critical factor in supply chain management is enhanced through ICT integration, efficient transactions can be achieved, hence reduction in cost. Furthermore, lean supply chain management which reduces transaction cost is supported through ICT integration (Qrunfleh and Tarafdar, 2012). Jurado and Fuentes (2014), state that there is a significant relationship between lean management and supply chain management, and sustainability. Therefore, it can be ascertained that ICT integration in the retail industry supply chain has a positive effect on transaction cost.



Customer relationship management is perhaps the most important element in the retail industry scenario. Hence to improve customer relationship management is of prime concern to retail firms, and this is often achieved to a great level with the integration of ICT in the retail industry supply chain. To remain sustainable in the 21st century retail industry, firms need to manage their customer relationships well, and this can be achieved through the integration of ICT across the supply chain as relationship management can be made more efficient (Gunasekaran and Ngai, 2004). Furthermore, ICT integration in the retail industry supply chain has been proven to moderate the supplier-customer relationship (Gallego, Castillo, Acosta and Trigo, 2014). Besides that, Vanpoucke, Vereecke and Muylle (2017) argue that for information exchange to be effective, comprehensive ICT integration is necessary. As ICT improves the overall supply chain management, by extension it positively influences customer relationship management (Aiello, Dulaskaia and Menshikova, 2016). Hence ICT integration in the retail supply chain greatly improves customer relationship management.



Outsourcing capabilities are extremely crucial in the performance and sustainability of retail businesses. Most firms prioritise to remain profitable by focusing on their core businesses and often seek the outsourcing alternative. Therefore, the ability to efficiently manage the outsourcing process is critical. Outsourcing can potentially enhance customer relationship and satisfaction through providing constant coverage, especially to those customers who are in need of round-the clock support (Siems and Rather, 2003). Business process outsourcing has proven to enhance competence and response time and at the same time reduce cost (Halvey, 2007). ICT integration in the retail industry could enhance the outsourcing process through the adoption of various state-of-art technologies (Ekanayake and Fox, 2010). Therefore, ICT integration is crucial to improve retail supply chain outsourcing processes.



At the current globalized environment, the retail supply chain needs to integrate ICT across its entire supply chain as efficient inventory management would be impossible to achieve without technological integration. ICT integration in the retail industry supply chain would affect positive change in inventory management, where higher inventory turnover coupled with reduced inventory cost would be the outcomes (Qrunfleh and Tarafdar, 2014). These parameters are achieved through improved supply chain strategy and supply chain performance which in turn positively impacts supply chain performance (firm performance). ICT integration supports the efficient management of important operational and performance parameters; material management, lead time and delivery (Qrunfleh and Tarafdar, 2014). For ICT integration in the supply chain to be really successful with regard to production planning and flexibility in the manufacturing systems, it needs to be embedded in the supply chain processes (Ye and Wang, 2013). Therefore, ICT integration in the retail supply chain positively impacts inventory management.



One of the main elements in organizational sustainability is gaining a competitive advantage, and ICT integration is crucial to achieve this objective. Comprehensive integration of ICT across the entire retail supply chain effects changes in the market competitiveness of organizations (Demmissie, 2016). Zhang, van Donk and Van der Vaart (2011) argue that there is a positive direct and indirect effect of ICT integration in the supply chain on the performance and supply chain management, therefore, on enhancing competitive advantage. The competitive advantage affected through the integration of ICT positively influences logistics, procurement, vendor relationship management and customer relationship management, hence improves capability and performance across a broad spectrum (Aiello, Dulaskaia and Menshikova, 2016). Furthermore, ICT integration is not limited to directly affecting organizational performance, but often plays an important moderating role, especially in supplier-customer relationship (Gallego, Castillo, Acosta and Trigo, 2014). Hence ICT integration in the retail supply chain promotes positive competitive advantage.



6. METHODOLOGY

This study has adopted a secondary research approach whereby, a number of research articles related to the topic of the study were purposively selected from online sources. The articles on previous research on the topic provided the data for this study, and the articles were analysed through a process of comparison and contrast, to examine the data and to determine whether there were any emergent ideas that were common among the articles, to support the assertions of this current study. Articles that were derived were not limited to the retail industry per se, but where relevant, previous studies conducted with regard to other industries were also scrutinized. However, the key words were ICT integration in supply chain operations. Nevertheless, most of the articles selected were focused on the retail industry supply chain domain.

7. ANALYSIS AND RESULTS

Analysis of data retrieved from online sources supports the assertions of this study, whereby, there is strong research evidence that ICT integration in the retail supply chain operations effects positive improvements in a number of crucial performance parameters. Data analysis reveals that comprehensive ICT integration in the retail industry supply chain operations substantially lowers transaction costs, improves customer relationship management, enhances firms' outsourcing capabilities, improves the overall inventory management process, and provides retail industry firms with the potential to achieve competitive advantage.

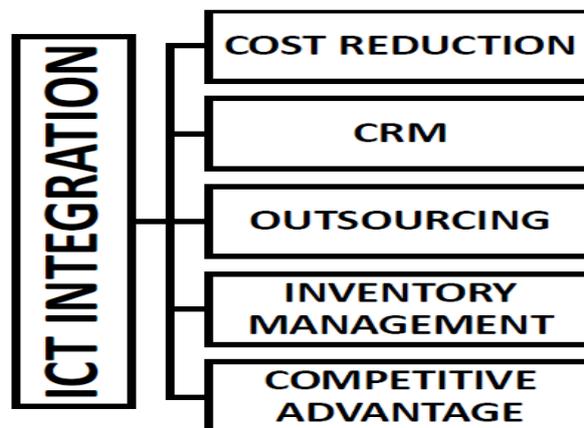


Figure 1: Conceptual Framework

8. DISCUSSION AND CONCLUSION

The retail industry may be slightly late in adopting ICT in its supply chain operations but many retail firms are becoming increasingly aware of the importance of technology to support and enhance their performances across crucial parameters, thus, improve competitive advantages. At the current information technology era, it is undeniable that ICT integration plays an important role in organizational survival and sustainability. The retail industry experiences common trade-offs; global sourcing strategy, product proliferation and product life-cycle-speed, and these elements are also competitive drivers which can potentially impact sustainability (Scarsi and Cepolina, 2016). However, innovations in the manner technology is integrated with the retail supply chain operations could potentially break trade-offs, improve efficiency, sustainability and flexibility (Scarsi and Cepolina, 2016).

However, the integration of ICT needs to be comprehensive to effect significant operational benefits as it improves supply chain delivery efficiency, and also helps in the determination of when and how investment in ICT should be done with regard to the supply chain operations. Therefore, Aiello *et al.*'s (2016) assertion that as e-tools powerfully stimulate and transform the supply chain, hence is pervasive is well supported. The data analysed to achieve the objective of this study strongly support the assertions that ICT integration across the retail industry supply chain operations improves crucial business elements. However, technology accessibility alone does not suffice as the crucial element is application of technology, hence the rationale for integration (Lockstrom, Schadel, Harrison, Moser and Malhotra, 2010). Hence firms that embrace technology experience lower transaction cost, enjoy a robust and comprehensive customer relationship management, improved outsourcing capabilities and a more efficient inventory management, hence enjoy a greater competitive advantage.

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