

**INFLUENCE OF E-COMMERCE ON THE PERFORMANCE OF  
LARGE SUPERMARKETS IN NAIROBI, KENYA**

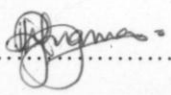
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**A MANAGEMENT RESEARCH PROJECT SUBMITTED IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF BUSINESS ADMINISTRATION (MBA), SCHOOL OF  
BUSINESS, UNIVERSITY OF NAIROBI**

**OCTOBER, 2012**

# DECLARATION

This research project is my original work and has not been presented for the award of degree in any other university or institution for any other purpose.

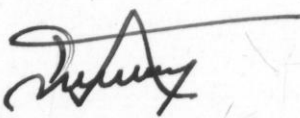
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## ACKNOWLEDGEMENT

### DEDICATION

I dedicate this work to my family, who has been my pillar of strength and encouragement during this journey.

Firstly, I say thank you to my supervisor Dr. Muryoki, who has guided me through this journey. I appreciate you for your leadership, encouragement and timely feedback.

Next, I would like to express my profound gratitude to my sister Margaret Njuguna, who gave me confidence and encouraged me not to give up. Thank you for the moral support.

Finally, I would also like to acknowledge the support I received from my dear friends King'ori and Wanjau, without whose unwavering support and shoulders to lean on I could never have made it.

But not least, I acknowledge my tutor and all the respondents who took part in this study. I say thank you.

## ACKNOWLEDGEMENT

I owe the successful completion of this thesis to the exceptional support of a number of people.

Firstly, my most profound gratitude goes to God, for providing me with good health and the finances to see me through to completion. May your name be glorified forever.

Secondly, I say thank you to my supervisor Dr, Munyoki, who has guided me through this journey. I appreciate you for your leadership, encouragement and timely feedback.

Thirdly, I would like to express my profound gratitude to my mom Margaret Njuguna, who gave me the morale and encouraged me not to give up. Thank you for the moral support.

Fourth, I would also like to acknowledge the support I received from my dear friends King'ori and Wacuka, without whose unwavering support and shoulders to lean on I could never have made it.

Last but not least, I acknowledge my tutor and all the respondents who took part in this study, I say thank you.

## ABSTRACT

The advancements in telecommunications, the flourishing of the Internet, and the emergence of e-commerce have helped foster an environment that promotes the globalization of markets throughout the world. E-commerce introduces incredible benefits, such as the diffusion of information, the development of new technologies, the promotion and sales of products and services, and the collaboration between those in a supply chain. Today, e-commerce decisions more and more often are treated not as a competitive advantage, but as a necessity, which helps to avoid the lagging behind competitors.

The objective of the study was to determine the influence of e-commerce on the performance of large supermarkets operating in Nairobi. The study adopted descriptive cross sectional survey research design. The study used primary data which was collected using a structured questionnaire. The data was presented using mean, percentages and frequency distribution tables and graphs.

The findings of the study was that the performance of the supermarkets was being influenced by access at any time, allowing for faster time to market a product, allowing price and service customization through on-line negotiation of prices, enhanced revenues by direct sales to customers, providing on-line product and other information across the supply chain, product portfolio and promotions, allowing information aggregation and price discrimination, improved flexibility and responsiveness and encouraged new and more efficient intermediaries, reduced handling costs due to fewer supply chain stages involved in the product flow to the customer, lower company cost due to positive impact on final prices of company goods or services, decreased processing cost, improved coordination, increased use of outsourcing, expanded market access, reduced peak load for order fulfillment, decreased site costs, centralized facilities, geographical centralization, lower unit transportation costs

and reduced inventories by postponing product differentiation. The challenges encountered were social and cultural diversity, lack of standards and laws relating to the sale and purchase of products between companies in different countries, lack of trusted certificate authorities and telecommunication systems that would provide the protection needed for e-commerce to grow, security attacks that lead to data theft and file corruption, access to personal and confidential information, and even e-business shut-down and lack of technical knowledge and understanding in order to implement e-commerce.

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The advancements in telecommunications, the flourishing of the Internet, and the emergence of e-commerce have helped foster an environment that promotes the globalization of markets throughout the world. E-commerce introduces incredible benefits, such as increased speed of business, lower production costs, competitive advantage, easy customer reach and market expansion (Eker and Ogus, 2008). However, as it has grown and become an important tool for all organizations throughout the world, E-commerce is yet to be fully appreciated, especially in the developing countries.

Though the e-commerce boom of 2000-2002 ended in bankruptcies of large companies who based their business solely on e-commerce, the impact of that boom on e-commerce spread was minimal. Today, e-commerce decisions more and more often are treated not as a competitive advantage, but as a necessity, which helps to avoid the lagging behind competitors. Since mid-1990s, e-commerce conception has evolved from separate electronic transactions in goods purchase or resource supply based on business-to-customer or business-to-business models, to dynamic business ecosystems based on the merger of separate markets and value chains, which are created in the network communication framework. Within the aspect of business processes, e-commerce can be defined as the use of electronic networks with the objective to simplify and fasten all phases of business processes - from the production of goods to their sale and delivery.

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the study

The advancements in telecommunications, the flourishing of the Internet, and the emergence of e-commerce have helped foster an environment that promotes the globalization of markets throughout the world. E-commerce introduces incredible benefits, such as increased speed of business, lower production costs, competitive advantage, easy customer reach and market expansion (Esen and Ogus, 2008). However, as it has grown and become an important tool for all organizations throughout the world, E-commerce is yet to be fully appreciated, especially in the developing countries.

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As global competition intensifies, an organization's effective operational performance and strategic positioning will become more dependent upon its ability to successfully exploit information technologies. Of particular importance, in this context, is the E-commerce, which through its high levels of connectivity, reach and adoption has already impacted upon most sectors of the economy, including defense, banking, retail, manufacturing, healthcare and education. Electronic business and electronic commerce present many opportunities for businesses to improve their performance (Tetteh and Burn, 2001).

(Sharma and Gupta, 2003). A vital benefit of e-commerce is access to global markets which

### 1.1.1 The Concept of E-Commerce

Advances in information and communication technologies and the emergence of the internet have revolutionized business activities enabling new ways of conducting business referred to as electronic commerce (Turban, *et al.*, 2004). The terms e-commerce and e-marketing might seem the same, but they are slightly different. The relationship that e-commerce and e-marketing (electronic marketing) has is that e-marketing is the moving of marketing strategies and activities to a computerized, networked environment such as the Internet. It is the strategic process of creating, distributing, promoting, and pricing goods and services to a target market over the Internet or through wireless digital tools e.g. mobile phones and pocket personal computers. Electronic commerce therefore describes the process of buying, selling, transferring, or exchanging these products, services, and/or information through computer networks, principally the Internet (Turban *et al.*, 2004).

Organizational performance comprises the actual output or results of an organization as

Electronic commerce activities include the inter-organizational processes of market-based sell-buy relationships and collaboration (known as business-to-business, or B2B, commerce) and consumer-oriented activities (business-to-consumer, i.e., B2C, and consumer-to-consumer, or C2C), as well as the intra-organizational processes that support them (Zwass,

2003). Electronic commerce as a way of doing business has significant advantages; organizations are embracing e-commerce as a means of exploiting new business, improving customer service, reducing costs, and enhancing productivity (Shaji, 2011). Efficiencies are experienced in marketing and advertising; ecommerce makes disintermediation possible, eliminating the middleman (Turban et al., 2004). Other efficiencies include reduced inventory and round the clock access at no additional cost. Ecommerce enables organizational change and helps organizations to conduct business with improved efficiencies and productivity (Sharma and Gupta, 2003). A vital benefit of ecommerce is access to global markets which enables businesses to expand their reach. The Internet allows for unconstrained awareness, visibility and opportunity for an organization to promote its products and services (Senn, 2000).

E-commerce is regarded as one of several marketing channels, including the use of the Internet, to support inter-organizational processes, such as marketing, ordering and related service activities" (Aldin and Stahre, 2003) within both business-to-business and business-to-customer. E-commerce impact on business is on output amount improvement and input reduction. The output amount improvement is mainly based on marketing decisions (new product creation, easier reach of consumers and new markets).

### **1.1.2 Organizational Performance**

Organizational performance comprises the actual output or results of an organization as measured against its intended outputs (or goals and objectives) in terms of its profits. Organizational performance includes multiple activities that help in establishing the goals of the organization, and monitor the progress towards the target (Johnson et al. 2006). It is used to make adjustments to accomplish goals more efficiently and effectively. Organization

Performance is what business executives and owners are usually frustrated about. This is so, because even though the employees of the company are hard-working and are busy doing their tasks, their companies are unable to achieve the planned results. Results are achieved more due to unexpected events and good fortune rather than the efforts made by the employees. However, for any business to be successful, functions must be defined and accomplished. It is important for an organization to develop strategies that are designed around the skills that would enhance the performance of the organization.

Highly competitive environments, globalization, ever growing amounts of performance data and increasing pressure to do more with less have made it imperative for firms to be demand driven. It is no wonder that measuring, reporting and overall business performances are hot topics. Firms in every industry are seeking ways to get a clear, accurate view of operational performance to financial results (Rod Clerke, 2007). The performance of firms in the modern business-operating environment can be judged using various parameters. The ultimate goal of a firm employing various competitive strategies is to gain an edge over its competitors hence improve performance. The process of determining the performance of an organization requires the selection and the measuring of a set of key variables that can allow the organization to detect as well as monitor its competitive position in the business in which it engages. The ability of an organization to survive and succeed is influenced by various factors, some of which can and some of which can't be controlled. Therefore the performance of an organization is a function of the controllable and uncontrollable variables.

### **1.1.3 Supermarkets in Kenya**

The growth of supermarkets in Kenya has been attributed to such factors as increased urbanization; a growing middle class and its changing lifestyles; and market liberalization

that has led to increased competition in the sector. The supermarket is not a new concept in Kenya, having had the first store of its kind in the 1960s (Neven & Reardon 2005). Some of the old players in the retail industry are Uchumi Supermarkets, founded in the mid-1970s and Nakumatt Supermarkets, founded in 1987. However much growth was not seen within the retail chains until the mid '90s when supermarkets grew from 5 to the current over 400 stores in Kenya (Kamau, 2008). These range from well-established retail chains to independent one store supermarkets.

The dominant players in the sector include Nakumatt, which is privately owned with a turnover of over 20 billion Kenya shillings per annum. It is the leading player in the sector with over 19 branches in Kenya as well as regional presence through a branch in Uganda and another in Rwanda. Nakumatt has been noted as a ground breaker in East and Central Africa as it is the first retailer to have its stores open twenty four hours. Tuskys Supermarkets is another major chain in Kenya, ranking second, by sales, in the retail industry. The oldest and once leading supermarket chain, Uchumi, is also a major player in the industry. Other key retail chains are Ukwala, Chandarana, Eastmatt and Naivas Supermarkets which is amongst the newest players.

The growth of supermarkets in Kenya has also taken on a regional character with outward Foreign Direct Investment (FDI) facilitated by regional investment regulations liberalization. Uchumi opened its first branch outside Kenya in Kampala (Uganda) in December 2002. From their regional expansion plans for the next five years, it appears this is just the first drop of an upcoming flood of outward FDI by Kenya supermarkets: Nakumatt plans to open branches in Uganda (2), Tanzania (2), Rwanda (1), Burundi (1), Zambia (1) and Zimbabwe (1); Uchumi's expansion plans include stores in Tanzania and Rwanda as well as more stores in Uganda. In

these regional markets Nakumatt and Uchumi will face the rapidly regionalizing supermarket chains from South Africa.

## 1.2 Research Problem

Ensuring that an organization can compete effectively in the marketplace is one of the principal tasks of management. In an era of transformational change, Huselid (1995) argued that as other sources of competitive advantage have become less important, what remains, as a critical differentiating factor in the organization is its employees and the technology being used. At present the pattern of the business relationships between industrial companies is typically tightly structured and there has been a growing emphasis on long-term business relationships and working with supply chain partners. In this more flexible environment it is possible to foresee a pattern of demand for and supply of transport capacity that changes rapidly and where the origins and destinations of products may also change at short notice. The development of supply chain communities may result in new group distribution strategies as companies apply their collective computer intelligence to develop an integrated response strategy that would juggle production capacity and inventory availability to meet fluctuating demand (Cooke, 2000).

Until recently, there were only a few supermarkets in Kenya, which were located largely in large towns and cities and targeted only the rich class of people. With liberalization, privatizations, and globalization however, many more supermarkets, some located even in small towns and targeting middle and low-income earners have emerged. This is an indication that supermarkets are fast expanding from high class-markets to middle class and even extending further from the town centre to estates, (Central Bureau of Statistics, 2009). Supermarkets in Kenya are no longer the niche players catering exclusively to the high-



income consumers in the capital they once were. They have moved into intermediate cities (Mombasa, Kisumu, Nakuru) and are now rapidly expanding to smaller towns and also regionally. As supermarkets grow, they build the market power, financial means and geographic presence to realize all these changes. Despite the global reach of e-commerce, not all countries have taken advantage of or benefited from e-commerce, Kenya included. Although huge investments have been made in the development of fibre optic cable which was hyped as the gateway between the country and the rest of the world, it has however failed to live to its expectations as most organizations, supermarkets included have not appreciated the use of information technology.

Some of the studies which have been undertaken regarding e-commerce include Musembi (2001), who did an investigation into the factors that have influenced the adoption of E-Commerce in retailing industry and found out that e-commerce adoption in business has a positive impact on business efficiency in several areas. On the other hand, Nyaanga (2007) researched on the effects of E-Commerce adoption on business process management in commercial banks in Kenya and found out that in order to remain competitive, computerization becomes a necessity rather than a luxury for commercial banks as it improves their performance in handling customers properly, and cutting operating costs without compromising service quality. Similarly, Njeru (2010) researched on the extent to which E-commerce enhances competitive advantage in Kenyan tourism marketing firms and found out that E-commerce promotes open communication and a virtual interactive environment in which suppliers and customers can exchange information and products. E-commerce improves communication among partners along a value chain and offers an integrated business model by which companies can be responsive and flexible to changing market and customer requirements.

While a lot has been done around the area of e-commerce, not much emphasis has been put on the relationship between e-commerce and supermarkets. This research will therefore seek to identify and establish the influence of e-commerce on the performance of supermarkets operating in Nairobi. This problem statement leads to the following question: what influence does e-commerce have on the performance of large supermarkets operating in Nairobi?

### **1.3 Research Objectives**

The objectives of the study will be:

- i. To establish the influence of e-commerce on the performance of large supermarkets in Nairobi.
- ii. To determine the challenges facing the adoption of e-commerce by large supermarkets in Nairobi.

### **1.4 Value of the study**

This study is of value to:

The management of supermarkets in Kenya as they will be able to understand the benefits which e-commerce has on their performance. The recommendations of this study will form part of the action plans that will help in enhancing the supermarkets sales. This is because management will be able to make informed decisions on issues of e-commerce. This study is justified since it will be of academic value to those interested in supply chain studies with an aim of establishing a business in the supply chain industry since they will be able to understand what to do right to succeed and what if done wrong will bring the business down. The study will create a monograph which could be replicated in other supermarkets in Kenya. Most important, this research is further aimed at offering some practical suggestions on how

to improve performance in the supermarkets. The study will help the practitioners to carefully consider their web site's attributes. They should make their sites easy-to-use and easy-to-navigate and place extra emphasis on providing fast, accurate, and uncluttered information through their web sites. Also they should direct marketing activities with the aim to enhance satisfaction from e-shopping, particularly regarding the service encounter incidents. This study is expected to increase body of knowledge to the scholars of supply chain and especially make them in touch with the benefits of the adoption of the information technology.

## 2.2 Theoretical perspective of the study.

Many studies have explored diverse aspects of firms' decision to engage in e-commerce. There are two theoretical foundations for the study. One is resource-based theory which is used to define specific firm resources that contribute to e-commerce engagement and lead to IT-enabled value creation. The other is institutional theory, which provides a rich understanding of firms' adoption behavior from an institutional perspective. The resource-based view (RBV) holds that firm resources that are valuable, rare, and hard to substitute are a basis for competitive advantage (Melville *et al.*, 2004). In the context of information technology, RBV can be used to understand the link between e-commerce practices and competitive advantage, that is, how e-commerce applications become one of a firm's resources and contribute to business value. The argument for IT-driven competitive advantage is probably enhanced in some countries because of the overall underdevelopment of IT usage in some firms, better IT-enabled applications, such as those that are necessary for e-commerce, are comparatively rare and tend to bring firms comparatively greater strategic advantages over competitors.

## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Introduction

This chapter is concerned with the review of literature related to the study. An overview of the concept of E-commerce, theoretical review, E-commerce and organizational Performance and challenges facing the adoption of e-commerce were reviewed.

#### 2.2 Theoretical perspective of the study

Many studies have explored diverse aspects of firms' decision to engage in e-commerce. There are two theoretical foundations for the study. One is resource-based theory which is used to define specific firm resources that contribute to e-commerce engagement and lead to IT-enabled value creation. The other is institutional theory, which provides a rich understanding of firms' adoption behavior from an institutional perspective. The resource-based view (RBV) holds that firm resources that are valuable, rare, and hard to substitute are a basis for competitive advantage (Melville *et al.*, 2004). In the context of information technology, RBV can be used to understand the link between e-commerce practices and competitive advantage, that is, how e-commerce applications become one of a firm's resources and contribute to business value. The argument for IT-driven competitive advantage is probably enhanced in some countries because of the overall underdevelopment of IT usage in some firms, better IT-enabled applications, such as those that are necessary for e-commerce, are comparatively rare and tend to bring firms comparatively greater strategic advantages over competitors.

The external environment, as defined and influenced by trading partners, government, and sociopolitical conditions, also plays an important role in business value generation (Melville *et al.*, 2004). (Melville *et al.*, 2004) consider industry characteristics, trading-partner resources, and business processes to be the key environmental components affecting firms' IT-enabled business value generation. Teo *et al.*, (2003) conduct an in-depth investigation into institutional factors and find that IT usage by suppliers, customers, and competitors significantly affects firms' inter-organizational system adoption decisions.

E-commerce involves the execution of business transactions over the Internet. Companies

Institutional theory provides a rich and complex view of organizational behavior. From an institutional perspective, organizations can be influenced by varied pressures arising from either the external environment or internal organizational factors. Under certain conditions, the pressures may lead organizations to be "legitimated" in order to survive in the market (Zucker, 2007). Three important legitimization processes are often discussed in innovation diffusion: coercive, imitative, and normative (DiMaggio and Powell, 2003). Coercive legitimization is organizations' reaction to both formal and informal pressures by other organizations or society. Imitative legitimization is when organizations imitate the success of others when facing uncertainty. Normative legitimization is a result from normative pressure, stemming primarily from professionalization and sharing norms among organizations (Zucker, 2007).

Institutional theory provides a useful research view for the study of firms' e-commerce adoption. The institutional environment where the organization is embedded exerts an influence on the e-commerce adoption process exhibited by individual organizations. Firms tend to be induced to adopt certain e-commerce practices by external isomorphic pressures from competitors, trading partners, customers and government. According to Gibbs and

Kraemer (2004) an institutional approach to E-commerce diffusion reveals the importance of coercive pressures, government promotion and legislation in e-commerce adoption and use. Imitative legitimization may also play a role, in that firms are likely to imitate their peers' successful e-commerce practices. Normative legitimization comes into the picture as firms accept normalized best practices for e-commerce adoption in a fast-changing environment.

## **2.3 E-commerce and organizational Performance**

E-commerce involves the execution of business transactions over the Internet. Companies conducting e-commerce perform some or all of the following activities over the Internet across the supply chain: providing product and other information, negotiating prices and contracts, placing and receiving orders, tracking orders, filling and delivering orders, paying and receiving payment (Colavita and Kaiser, 2003). All these activities have been conducted in the past using existing "channels" such as retail stores, sales people, and catalogs. The goal is to create fit between the desired strategic position of the firm and the capabilities of supply chain processes used to satisfy customer needs. The desired strategic position may be articulated in terms of a clear priority ranking on the needs of the customer segments that are targeted by the firm. Typical dimensions of customer needs that may be targeted by a supply chain include timeliness, accessibility, availability, customizability, quality of service, and price.

E-commerce has revolutionized and fundamentally reshaped business relationships and has caused dramatic shifts in channel power as information and communication imbalances disappear. Online exchanges are infiltrating distribution channels at an outstanding rate. As growth in the use of Internet accelerates, distributors have been warned repeatedly that they risk being cut out of the channel by aggressive Web-savvy, and purely virtual competitors.

Adelaar (2000) opined that in recent years, it has been widely accepted that e-commerce signifies the dawn of a friction-free market; structural changes in markets, such as dis-intermediation, would occur due to the impact of electronic trade and electronic information age, albeit, Sarkar *et al.*, (2005) disagrees, stating it is exaggeration because different outcomes are possible such as, cyber-mediation and re-intermediation. Moreover, the high fragmentation of the distribution industry, and the nature of the product sold which differs with respect to need for inspection, personal assistance needed from the expert, has been challenging the view traditional channel replacement by the Internet.

E-Commerce is also seen to play a significant role in bridging the digital gap between developed and developing worlds through improving developing countries' access to information, knowledge and expertise and enabling organizations around the world to extend their supply chain and to engage in global trading efficiently and effectively regardless of their geographical locations. Consequently, e-Commerce has the potential to enhance developing countries' competitiveness and reduce poverty (Qureshi and Davis 2007). The fact that developing countries have lagged behind developed countries in the adoption of e-Commerce technology and those e-Commerce-enabled applications to support Business-to-Business transactions (B2B e-Commerce) has created significant challenges to achieving global advanced supply chain management. B2B e-Commerce technologies are by nature inter-organizational systems and as such, they cannot be adopted in isolation from other trading partners.

The e-commerce impact on company performance may be expressed in various ways: in the context of cost, competitiveness and process automation and optimization (Verburg, 2004). But if there is a need to make thorough assessment of e-commerce impact, the optimal choice

for it is business efficiency measurement in the context of e-commerce decisions implementation. Setting up an e-business affects both revenues and costs for a firm.

E-commerce allows firms to enhance revenues by direct sales to customers. Manufacturers and other members of the supply chain that do not have direct contact with customers in traditional retail channels can use the Internet to shrink the supply chain by bypassing retailers and selling direct to customers (Stern, 2009). Clearly, retailers are in a weaker position to exploit this opportunity from e-commerce than other members of the supply chain. Providing on-line product and other information across the supply chain allows flexibility on price, product portfolio and promotions. The Internet makes information located at a central source (the seller's web server) available to anyone with Internet access, so that a change in price, product portfolio or promotions only requires one database entry (Neven and Reardon, 2005). A traditional mail order company would need to mail new catalogs to all customers to change prices or products. Using its e-commerce however, an organization only needs to update the price on its website. This allows dynamic "revenue management" where prices reflect actual demand and inventory positions, very much like airline yield management.

The Internet allows information aggregation and offering a wider product portfolio from many sources to enhance revenues. Shopping provides product information from a large number of retailers and enhances revenues for all by attracting customers because they are likely to find the product they are seeking. Physical retail store chains could aggregate product availability information across all stores on the Internet to satisfy customers by directing them to the appropriate location. In contrast to direct sales and 'eliminating the middle man,' it has become popular to create "hubs" or "portals" to link customers to other companies and their products. This improves shopping and fulfillment through "one-stop"



and the hosting firm can receive revenues through commission fees and advertising (Kuk, 2004). Global access at any time from any place in terms of order placement allows an e-commerce to enhance revenues by attracting customers who may not be able to place orders during regular business hours (Deeter-Schmelz *et al.*, 2001). For example, customers can place orders at industrial supplier even when the stores where they will pick up their orders are closed. The stores have observed a surge in online orders after their stores close. (Similar access convenience may be important, where many supermarkets are closed in the evenings, exactly the time when many customers that work could place their orders). E-commerce can enhance revenues by speeding up collection of funds.

The e-commerce impact on company performance may be expressed in various ways: in the context of cost, competitiveness, process automation and optimization. Electronic offers many potential benefits particularly in productivity gains and transaction cost reductions, mainly by enabling organizations to conduct business transactions electronically, facilitating efficient information sharing between organizations within and across industries and allowing automatic product identification. E-Commerce's ability to automate day-to-day document exchange and communications within and between organizations can significantly enhance operational efficiency as well as reduce administration costs. Operational efficiency will enable the industry to offer low costs to the consumers which in turn leads to increased revenue to the firm (Arvanitis and Loukis, 2009). With plenty of low cost labour working in the supermarket stores, it is apparent that computerized systems are not typically required for labour saving purposes. Sinclair *et al.* (1998) argue that many supermarkets install computerized applications systems under the assumption that these applications' full potential benefits will eventually be realized. Major supermarket players have taken the first step towards adopting e-Commerce technologies. In order to effectively coordinate a large number

of suppliers, Internet-based Business-to-Business portals were established as a means to communicate with the suppliers electronically without worrying about the system compatibility or the hardware and software investment at the supplier's end.

In designing and managing supply chain flows, it is argued that the impact of e-commerce on supply chain costs is better understood by considering the four drivers of supply chain performance. Electronic Commerce (e-Commerce) offers many potential benefits particularly in productivity gains and transaction cost reductions, mainly by enabling organizations to conduct business transactions electronically, facilitating efficient information sharing between organizations within and across industries and allowing automatic product identification. The rapid dissemination of information, the digitization of record keeping and the networking capability of the Internet has improved flexibility and responsiveness and encouraged new and more efficient intermediaries. It has increased the use of outsourcing, expanded market access, reduced time to market by linking orders to production and improved internal coordination. Because of its potential in this era of globalization, many countries have rapidly adopted e-Commerce (Bean 2006).

An e-commerce can decrease processing cost if they can increase the amount of customer participation as customers purchasing online do all the work of selecting the product, placing and order, and paying (Browne, 2000). This is in contrast to a call center where an employee is involved in the order process. In some instances, e-commerce may face higher processing costs because they have to perform tasks currently performed by the customer at a retail store. By separating fulfillment from order placement, an e-commerce can smooth the order fulfillment rate. This reduces the peak load for order fulfillment and thus resource requirements and costs while on the other hand a direct-sales manufacturer can reduce

handling costs because fewer supply chain stages are involved in the product flow to the customer. Many e-commerce can centralize inventories because they do not have to carry inventory close to the customer. According to Staff (2003) this geographical centralization reduces required inventory levels because of increased economies of scale in the supply and reduced aggregated variability in the demand. In some instances, given the time lag between when an online order is placed and filled, e-commerce can reduce inventories by postponing product differentiation until after the customer order has been placed. Postponing assembly or product differentiation allows a firm to "assemble to order" customized products from common components.

Conceptually, postponement decreases the supply processes that are operated in "push" mode (in anticipation of a customer order) while it increases the processes that operate in "pull" mode (after a particular customer order arrives) (Zott, et al., 2000). A major advantage of e-commerce is that, by separating ordering from fulfillment, increased flexibility in operations is gained to implement postponement. (It is somehow ironic that by "going on Internet time," supply chains may actually buy themselves time compared to traditional brick-and-mortar retailing where ordering and fulfillment tend to coincide). According to Zhang (2007) a firm incurs inbound transportation costs to bring a replenishment order in from a supplier while it incurs outbound transportation costs to deliver the product to the customer. Typically, replenishment orders enjoy lower unit transportation costs than customer orders because of scale economies. Physical centralization increases the distance traveled by a customer order, while decreasing the distance traveled by a replenishment order. Thus, compared to a business with several physical outlets, an e-commerce will tend to have higher transportation costs per unit. Clearly, transportation costs are eliminated for downloadable information goods.

The efficient frontier represents the lowest cost of delivering a given level of a customer need using the best available supply chain processes. Each point on the frontier corresponds to a particular supply chain structure, employing the best available technologies, managerial policies, and inputs to deliver the desired level of a customer need at lowest cost. As such, the efficient frontier constitutes the state of best practices at a given point in time (Andersen et al. 2003). It also shows the inherent trade-offs that a firm must consider when selecting its strategic position given limitations in process technology and policies. In the context of supply chain management cost reduction, it is clear that one of the most important factors is the use of modern technologies. It is significant to link this factor with the adoption of business-to-business e-commerce, but it is also meaningful to assess the fact that e-commerce is not only the adoption of modern technologies in a company.

## **2.4 Challenges facing the adoption of e-commerce**

There are a number of challenges that contribute to the adoption of e-commerce in Kenya as a developing country. This section presents a general discussion on related high-level trust issues. The following section discusses different types of business-level transactions, leading into the development of a framework that provides a possible solution facilitating a higher overall level of trust in the e-commerce system focused on developing countries and implemented at the business level.

Information security in e-commerce is and has been one of the hottest topics. Businesses and consumers are constantly sending confidential information to clients and vendors over the Internet. As the number of these transactions increases, so does the number of security attacks. These attacks can lead to data theft and file corruption, access to personal and confidential information, and even e-business shut-down. Cronin (1995) believed that privacy

issues such as security, censorship and eavesdropping would discourage communication. As a result, it is easy to see that security is fundamental to the integrity and growth of e-business. It has been singled out as the most important issue in the growth of e-business and e-commerce in developing countries and the rest of the world. A survey of companies in Malaysia interested in e-business found that 70 percent believed that security was the most important barrier to e-commerce (Abd.Mukti, 2001).

For developing countries (Rao, 2002), the information security issues have been compounded by the lack of trusted certificate authorities and telecommunication systems that would provide the protection needed for e-commerce to grow in that country. There has been growing mistrust with regard to sending information over the internet mostly because of the lack of security systems, such as trusted certificate authorities and encryption procedures, which would allow transactions to take place in a more secure manner. Global e-commerce, in its current embryonic state, cannot be overly regulated in order to promote innovation and growth. Yet measures need to be taken to implant trust between all parties in e-commerce. According to Atif (2002) stories of criminal behavior in the e-commerce arena have created a stereotype for e-commerce that portrays the Internet as an area of little governance and no true security. This stereotype has generated a lack of trust in electronic transactions and establishing trust highly depends on the users' perceptions. It is important that the mechanisms that are used to establish trust within the realm of e-commerce should be both trusted and trustworthy.

Infrastructure is the back-bone or supporting complexes that are in place to promote implementation, communication, and usage of networks. A resilient infrastructure is needed for e-commerce to flourish. Unfortunately, developing countries typically lack a good

communications infrastructure. People and businesses inside a developing country cannot participate without the presence of an adequate infrastructure in place. It is very expensive to build a reliable infrastructure; in addition, many times it falls on the shoulders of the governments of developing countries to finance the infrastructure needed (Nair, 2002). The high costs associated with technology will indeed prevent the growth of e-commerce.

Further, there is no protection against the theft and misuse of intellectual property.

E-commerce, being an area that requires a certain degree of technical knowledge and understanding in order to implement, it is no wonder that a lack of education becomes an important barrier. Developing countries tend to lack key pieces of education: Internet awareness, understanding of the implications of the Internet, and skilled workers in information technology. Even when people are aware of the Internet, many times the population does not understand how the Internet may affect their lives and therefore opposes it (Peet *et al.*, 2009).. In Kerala, there was a widespread misconception in the minds of the trade unions and ordinary people that the increased application of IT may replace manpower, resulting in loss of employment.

The political and legal climate of a country can significantly hinder the growth of e-commerce when there is not substantial cooperation from the government. A government may not have significant legal protection for those that wish to do business inside their borders, therefore serving as a deterrent (Mukti, 2001). A barrier that exists to companies in developing countries wishing to create an e-commerce business is the lack of a uniform payment system, which will allow the transfer of funds from a financial institution in one country to a financial institution in another. Because there is no actual internationally-based uniform commercial code governing e-commerce, there are no standards and laws relating to the sale and purchase of products between companies in different countries.

Since national governments vary in so many aspects, businesses are calling for the creation of a world-wide organization that would manage the creation of international laws and standards relating to e-commerce and e-business transactions. The lack of a common law that may be used by foreign companies to regulate e-commerce in those countries makes it very difficult for those companies to do business on the Internet without assuming a large amount of risk. Further, there is no protection against the theft and misuse of intellectual property, copyrights, patents, trademarks and domain names (Zucker, 2007).

The suppression of culture is a prominent issue when discussing the globalization of e-commerce. The prevalence of a certain language will continue to enable large overseas corporations to engage in e-commerce. However, companies that reside in countries where the popular language is not the predominant language may be excluded from participating in global e-commerce on a large international scale. Converting to the popular language would mean giving up part of the organization's culture. It is the responsibility of companies, customers and governments to foster the development of e-commerce in their region (Bonits and De Castro, 2000).

Different cultures influence how people may perceive certain things, what they value, and how they interpret the graphical images and lines of text they encounter on a Web site. While most languages are read from left to right, there are some, such as the Arabic language, that read from right to left. There is no sense in creating a Web site that will be viewed by Arabic-speaking nations if it is not presented in the format to which they have become accustomed (Kang, 2001). The anonymity provided by the Internet might actually make them less likely to participate in e-commerce. As a result, the cultural differences in each society represent a barrier in that each society may have different values and preferences. Currently, there is a

lack of guidelines from a cultural perspective in e-commerce to assist in the design of Web sites.

## RESEARCH METHODOLOGY

### 3.1 Introduction

E-commerce  
adoption and impact



Performance of large  
supermarkets in Nairobi as  
measured by net sales value  
and efficiency.

### 3.2 Research Design

The study adopted a descriptive cross sectional survey research design. This study used descriptive research, which as Zikmund (2007) explained, provides answers the "who, what, when, where, and how" questions. The design is deemed appropriate because the main interest is to explore the influence of the various factors on the supermarkets performance. The study was cross sectional in the sense that the data was collected from all the large supermarkets operating in Nairobi. Descriptive cross sectional research design is a scientific method which involves observing and describing the behavior of a subject without influencing it in any way. This design provided further insight into research problem by describing the variables of interest.

### 3.3 Target Population

The population of the study consisted of all large supermarkets operating in Nairobi. According to the City Council of Nairobi housing data (2011), a large supermarket is one defined to occupy 3,000 square feet and above or those supermarkets with 100 employees



### RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter presents the research methodology that was applied in carrying out the study. The study was guided by the research objective in chapter one. First, a presentation of the research design is provided. This is followed by an explanation on the target population, sample size, data collection procedures and instruments, data analysis procedures and reporting and ethical issues.

#### 3.2 Research Design

The study adopted a descriptive cross sectional survey research design. This study used descriptive research, which, as Zikmund (2003) explained, provides answers the “who, what, when, where, and how” questions. The design is deemed appropriate because the main interest is to explore the influence of the various factors on the supermarkets performance. The study was cross sectional in the sense that the data was collected from all the large supermarkets operating in Nairobi. Descriptive cross sectional research design is a scientific method which involves observing and describing the behavior of a subject without influencing it in any way. This design provided further insight into research problem by describing the variables of interest.

#### 3.3 Target Population

The population of the study consisted of all large supermarkets operating in Nairobi. According to the City Council of Nairobi licensing data (2011), a large supermarket is one defined to occupy 5,000 square feet and above or those supermarkets with 100 employees

and above. The study used the number of employees as an indicator of size. Based on the information, there are 67 large supermarkets that operate in Nairobi (Appendix II) hence the study was a census.

4.1 Introduction

The research objective was to establish the influence of e-commerce on the performance of large supermarkets operating in Nairobi. This chapter presents the analysis, findings and

**3.4 Data Collection**

The study used primary data which was collected using a structured questionnaire and distributed to the respondents. The questionnaire had both open and closed ended questions because standard and supplementary data was necessary. The researcher used a drop and pick later method where the questionnaires were left with the respondents, who are the operations managers, and picked after two days in order to enable the respondents have sufficient time to adequately respond to the questions.

The general information consisted of the respondents' gender, age bracket, length of continuous service with the supermarket, duration the supermarket has been at existence and

**3.5 Data Analysis**

The data was analyzed by the use of descriptive statistics to summarize and relate variables were attained from the administered questionnaires. The data was classified, tabulated and summarized using descriptive measures, mean, percentages and frequency distribution tables while tables and graphs were used for presentation of findings. However, before final analysis is performed, data was cleaned to eliminate discrepancies and thereafter, classified on the basis of similarity and then tabulated.

Table 4.1: Respondents' age bracket

Years	Frequency	Percent	Cumulative Percent
21-30	8	15.1	15.1
31-40	23	41.5	56.6
41-50	16	30.2	86.8
Over 50	7	13.2	100.0
Total	53	100.0	

## CHAPTER FOUR

### DATA ANALYSIS, RESULTS AND DISCUSSION

#### 4.1 Introduction

The research objective was to establish the influence of e-commerce on the performance of large supermarkets operating in Nairobi. This chapter presents the analysis, findings and discussion with regard to the objective. The findings are presented in percentages and frequency distributions, mean and standard deviations. A total of 67 questionnaires were issued out and only 53 were returned. This represented a response rate of 79%.

#### 4.2 General Information

The general information consisted of the respondents' gender, age bracket, length of continuous service with the supermarket, duration the supermarket has been in existence and the number of employees. The respondents were asked to indicate their gender and of the 53 respondents, 58.5 percent were male while 41.5% were female.

##### 4.2.1 Respondents demographic information

The respondents were asked to indicate their age brackets and the results are as shown in Table 4.1.

**Table 4.1: Respondents age bracket**

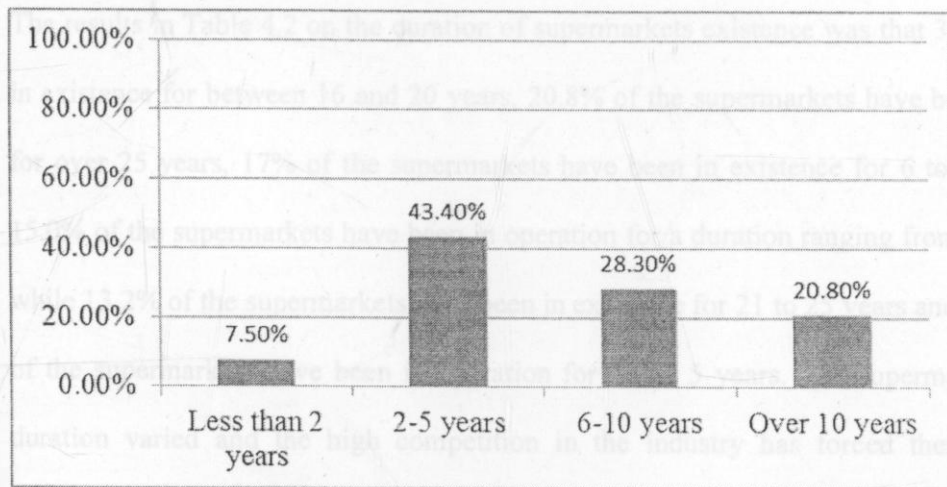
Years	Frequency	Percent	Cumulative Percent
21-30	8	15.1	15.1
31-40	22	41.5	56.6
41-50	16	30.2	86.8
Over 50	7	13.2	100.0
Total	53	100.0	

The findings on the respondents' age bracket in Table 4.1, was that 41.5% of the respondents were 31 to 40 years old, 30.2% of the respondents were 41 to 50 years old while 15.1% of the respondents were between 21 and 30 years old and 13.2% of the respondents were over 50 years old. The use of e-commerce in the supermarkets can be achieved through the input of all the respondents' age bracket.

Years	Frequency	Percent	Cumulative Percent
Under 7	1	3.8	3.8
11-15	1	3.8	7.6
21-25	5	19.0	26.6
Over 25	10	38.8	65.4
Total	26	100.0	100.0

The respondents were asked to indicate the duration they have continuously worked in the supermarket and the results are presented in figure 4.1.

**Figure 4.1: Length of continuous service**



The results presented in Figure 4.1 was that 43.4% of the respondents have worked in the current supermarket for 2 to 5 years, 28.3% of the respondents indicated that they have worked in the supermarkets for 6 to 10 years, 20.8% of the respondents had worked in the supermarkets for over 10 years while 7.5% of the respondents indicated that they have worked in the supermarkets for less than 2 years. Majority of the respondents have worked in the supermarkets for over 2 years, thus there is high level of understanding of the use of e-commerce by the supermarkets.

#### 4.2.2 Supermarkets general characteristics

The respondents were asked to indicate the duration in which the supermarket they work for has been in existence and the findings are indicated in Table 4.2.

**Table 4.2: Duration of supermarkets existence**

Years	Frequency	Percent	Cumulative Percent
Under 5	2	3.8	3.8
6-10	9	17.0	20.8
11-15	7	13.2	34.0
16-20	16	30.2	64.2
21-25	8	15.0	79.2
Over 25	11	20.8	100.0
Total	53	100.0	

The results in Table 4.2 on the duration of supermarkets existence was that 30.2% have been in existence for between 16 and 20 years, 20.8% of the supermarkets have been in existence for over 25 years, 17% of the supermarkets have been in existence for 6 to 10 years while 15.0% of the supermarkets have been in operation for a duration ranging from 21 to 25 years while 13.2% of the supermarkets have been in existence for 21 to 25 years and the other 3.8% of the supermarkets have been in operation for under 5 years. The supermarkets existence duration varied and the high competition in the industry has forced them to adopt the technology in order to expand markets, improving customer service, reducing costs, and enhancing productivity.

The respondents were asked to indicate the number of employees the supermarket they work for currently have. The results are presented in Table 4.3.

**Table 4.3: Number of employees in the supermarkets**

Number of employees	Frequency	Percent	Cumulative Percent
Less than 200	3	5.7	5.7
201 – 300	12	22.6	28.3
301 – 400	10	18.9	47.2
Over 400	28	52.8	100.0
Total	53	100.0	

The findings in table 4.3 indicate that 52.8% of the supermarkets had employees over 400, 22.6% of the supermarkets indicate that their employees were between 201 and 300, 18.9% of the supermarkets had between 301 and 400 employees while 5.7% of the supermarkets indicated that they have less than 200 employees. Majority of the supermarkets had over 400 employees and indication that they are large in size and operate various outlets.

### **4.3 Influence of e-commerce on the performance of large supermarkets**

E-commerce allows firms to enhance revenues by direct sales to customers. The Internet allows information aggregation and offering a wider product portfolio from many sources to enhance revenues. Shopping provides product information from a large number of retailers and enhances revenues for all by attracting customers because they are likely to find the product they are seeking.

E-Commerce is also seen to play a significant role in bridging the digital gap between developed and developing worlds through improving developing countries' access to information, knowledge and expertise and enabling organizations around the world to extend their supply chain and to engage in global trading efficiently and effectively regardless of their geographical locations.

### 4.3.1 Supermarket e-commerce activity

The respondents were to indicate the e-commerce activity which was being practiced by the supermarkets. The results are presented in Table 4.4.

**Table 4.4: Supermarkets e-commerce activity**

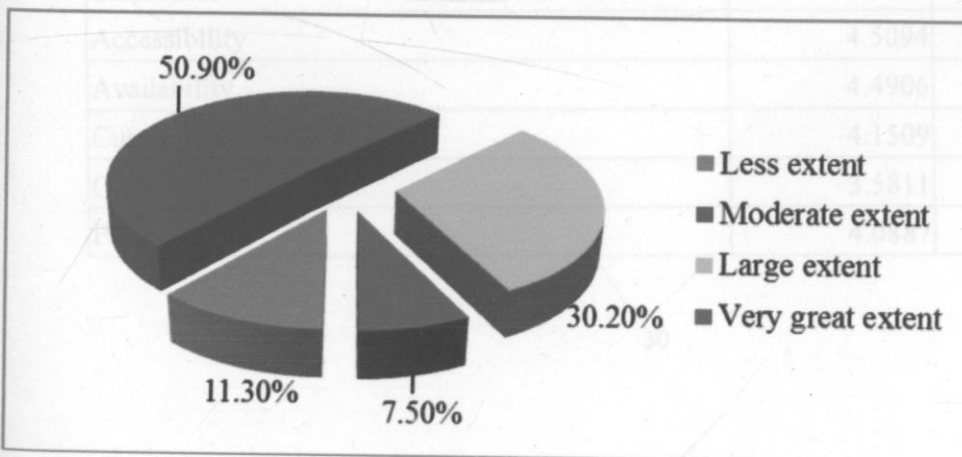
E-commerce activity	Frequency	Percent	Cumulative Percent
Inter organizational processes	7	13.2	13.2
Consumer oriented activities	33	62.3	75.5
Intra organizational processes	13	24.5	100.0
Total	53	100.0	

The results on Table 4.4 on the supermarkets e-commerce activity was that 62.3% of the supermarkets were consumer oriented activities, 24.5% indicated that they were pursuing intra organizational processes while 13.2% of the supermarkets indicated that their activity was inter organizational processes. The results indicate that the supermarkets were pursuing e-commerce with the intention of conducting business with its consumers.

### 4.3.2 E-commerce contribution

The respondents were asked to indicate the extent to which e-commerce has contributed to the efficiency of operations in the supermarkets. The results are indicated in Figure 4.2.

**Figure 4.2: E-commerce contribution**



The findings in Table 4.2 was that, 50.9% of the supermarkets indicated that the contribution of e-commerce to the efficiency of operations was to a moderate extent, 30.2% of the supermarkets considers the contribution of e-commerce to a large extent, 11.3% of the supermarkets indicated that the contribution was to a less extent while 7.5% indicated that the contribution was to a very great extent. The extent to which e-commerce has contributed to the efficiency of the supermarkets varied and these can be attributed to the extent of usage.

### 4.3.3 Customer needs targets

The question sought to establish the dimensions of customer needs the supermarkets targets mostly as they adopt e-commerce in a five point Likert scale. The range was 'Not at all (1)' to 'very great extent' (5). The scores of not at all and little extent have been taken to represent a variable which had a mean score of 0 to 2.5 on the continuous Likert scale; ( $0 \leq S.E. < 2.4$ ). The scores of 'moderate extent' have been taken to represent a variable with a mean score of 2.5 to 3.4 on the continuous Likert scale: ( $2.5 \leq M.E. < 3.4$ ) and the score of both great extent and very great extent have been taken to represent a variable which had a mean score of 3.5 to 5.0 on a continuous likert scale; ( $3.5 \leq L.E. < 5.0$ ). A standard deviation of  $>0.9$  implies a significant difference on the impact of the variable among respondents. The results are presented in Table 4.5.

**Table 4.5: Customer needs targets**

Customer needs targets	Mean	Std. Deviation
Timeliness	3.7736	.9535
Accessibility	4.5094	.7238
Availability	4.4906	.5414
Customizability	4.1509	.7941
Quality	3.5811	.8433
Price	4.0887	.7858



The results in Table 4.5 indicates that the adoption of e-commerce by the supermarkets aimed at ensuring that there is accessibility (mean 4.5094), availability (mean 4.4906), customizability (mean 4.1509), price (mean 4.0887), timeliness (3.5811) and timeliness (mean 3.7736). The low variation in standard deviation indicates that the supermarkets were in agreement on their target on e-commerce.

#### 4.3.4 Usage of e-commerce to enhance performance

The respondents were requested to indicate the usage of e-commerce to enhance the performance of supermarkets in a five point Likert scale. The range was 'strongly disagree (1)' to 'strongly agree' (5). The scores of strongly disagree have been taken to represent a variable which had mean score of 0 to 2.5 on the continuous Likert scale; ( $0 \leq S.D < 2.4$ ). The scores of 'moderate' have been taken to represent a variable with a mean score of 2.5 to 3.4 on the continuous Likert scale: ( $2.5 \leq M.E. < 3.4$ ) and the score of both agree and strongly agree have been taken to represent a variable which had a mean score of 3.5 to 5.0 on a continuous likert scale; ( $3.5 \leq S.A. < 5.0$ ). A standard deviation of  $> 0.8$  implies a significant difference on the impact of the variable among respondents. The results are presented in Table 4.6.

**Table 4.6: Usage of e-commerce to enhance performance**

Usage of e-commerce to enhance performance	Mean	Std. Deviation
Enhanced revenues by direct sales to customers	4.0377	.55339
Providing on-line product and other information across the supply chain allows flexibility on price, product portfolio and promotions	3.9962	.66041
Faster time to market a product as they are introduced as soon as a first unit is available	4.1566	.76999

Allows information aggregation and offering a wider product portfolio from many sources to enhance revenues	3.9245	.80501
Allows price and service customization through on-line negotiation of prices and contracts with customers and suppliers	4.0755	.80501
Price discriminate and alter prices based on the buying power of individual customers to enhance revenues	3.4906	.72384
Allows access at any time from any place in terms of order placement	4.2943	.71425

The findings in Table 4.6 was that the respondents were unanimous that e-commerce have an effect on the performance of the supermarkets as it affects cost, competitiveness and process automation and optimization of the supermarkets. E-commerce enhance the revenue of the supermarkets by allowing access at any time from any place in terms of order placement (mean 4.2943), allowing for faster time to market a product as they are introduced as soon as a first unit is available (mean 4.1566), allows price and service customization through on-line negotiation of prices and contracts with customers and suppliers (4.0755), enhance revenues by direct sales to customers (mean 4.0377), providing on-line product and other information across the supply chain allows flexibility on price, product portfolio and promotions (mean 3.9962), allows information aggregation and offering a wider product portfolio from many sources to enhance revenues (mean 3.9245) and price discriminate and alter prices based on the buying power of individual customers to enhance revenues (3.4906). The results indicate that the supermarkets performance has been enhanced by the adoption of e-commerce.

#### 4.3.5 Effects of costs on performance of supermarkets

The question sought to establish the effect of costs on the performance of large supermarkets and the results are presented in Table 4.7.

**Table 4.7: Effect of costs on performance**

Effect of costs on performance	Mean	Std. Deviation
Improved flexibility and responsiveness and encouraged new and more efficient intermediaries	4.2830	.5326
Increased the use of outsourcing, expanded market access, reduced time to market by linking orders to production and improved internal coordination	4.0566	.9489
Centralize facilities because online sales allow the separation of order placement and order fulfillment	3.7925	.8403
Decrease site costs as direct customer-manufacturer contact and geographical centralization eliminates or reduces retail sites	3.8679	.7081
Decreased processing cost due to increased amount of customer participation as customers purchasing online do all the work of selecting the product, placing and order, and paying	4.1321	.6804
Reduced peak load for order fulfillment and thus resource requirements and costs as it smooth the order fulfillment rate	3.9245	.6459
Reduced handling costs due to fewer supply chain stages involved in the product flow to the customer	4.2453	.6476
Geographical centralization which reduces required inventory levels because of increased economies of scale in the supply and reduced aggregated variability in the demand.	3.7736	.8910
Reduced inventories by postponing product differentiation until after the customer order has been placed	3.6038	.8844
Replenishment orders enjoying lower unit transportation costs than customer orders because of scale economies	3.6415	.9218
Results to sharing, planning and forecasting information which improves coordination and reduces overall supply chain costs while better matching demand with supply	4.0943	.7909
Lower company cost due to positive impact on final prices of company goods or services	4.1830	.6317

The findings on Table 4.7 indicate that costs affect the performance of the supermarkets as it improves flexibility and responsiveness and encouraged new and more efficient intermediaries (mean 4.2830), reduced handling costs due to fewer supply chain stages involved in the product flow to the customer (mean 4.2453), lower company cost due to positive impact on final prices of company goods or services (mean 4.1830), decrease processing cost due to increased amount of customer participation as customers purchasing online do all the work of selecting the product, placing and order, and paying (mean 4.1321), results to sharing, planning and forecasting information which improves coordination and reduces overall supply chain costs while better matching demand with supply (mean 4.0943) and increase the use of outsourcing, expanded market access, reduced time to market by linking orders to production and improved internal coordination (mean 4.0566).

The findings further revealed that the effect of costs leads to reduced peak load for order fulfillment and thus resource requirements and costs as it smooth the order fulfillment rate (mean 3.9245), decreased site costs as direct customer-manufacturer contact and geographical centralization eliminates or reduces retail sites (mean 3.8679), centralized facilities because online sales allow the separation of order placement and order fulfillment (mean 3.7925), geographical centralization which reduces required inventory levels because of increased economies of scale in the supply and reduced aggregated variability in the demand (mean 3.7736), replenishment orders enjoying lower unit transportation costs than customer orders because of scale economies (mean 3.6415) and reduced inventories by postponing product differentiation until after the customer order has been placed (mean 3.6038).

Lack of standards and laws relating to the sale and purchase of products between companies in different countries	3.9633	0.9190
Social and cultural diversity	4.1887	0.6809

#### 4.4 Challenges facing the adoption of e-commerce

There are a number of challenges that contribute to the adoption of e-commerce. Global e-commerce, in its current embryonic state, cannot be overly regulated in order to promote innovation and growth. Yet measures need to be taken to implant trust between all parties in e-commerce.

##### 4.4.1 Challenges affecting usage of e-commerce

The respondents were requested to indicate the challenges that affected the usage of e-commerce by the supermarkets and the results are presented in Table 4.8.

**Table 4.8: Challenges affecting usage of e-commerce**

Challenges	Mean	Std. Deviation
Security attacks that lead to data theft and file corruption, access to personal and confidential information, and even e-business shut-down	3.9057	.6868
Lack of trusted certificate authorities and telecommunication systems that would provide the protection needed for e-commerce to grow	3.9245	.8285
Lack of technical and industrial communications infrastructure	3.7698	.7268
Lack of technical knowledge and understanding in order to implement e-commerce	3.8491	.9883
The political and legal climate of a country hinder the growth of e-commerce when there is no substantial cooperation from the government	3.6170	.7690
Lack of a uniform payment system, which will allow the transfer of funds from a financial institution in one country to a financial institution in another	3.7925	.9478
Lack of standards and laws relating to the sale and purchase of products between companies in different countries	3.9623	.9190
Social and cultural diversity	4.1887	.6809

The results in Table 4.8 shows that the challenges which affected the use of e-commerce by the supermarkets were social and cultural diversity (mean 4.1887), lack of standards and laws relating to the sale and purchase of products between companies in different countries (mean 3.9623), lack of trusted certificate authorities and telecommunication systems that would provide the protection needed for e-commerce to grow (mean 3.9245), security attacks that lead to data theft and file corruption, access to personal and confidential information, and even e-business shut-down (mean 3.9057) and lack of technical knowledge and understanding in order to implement e-commerce (mean 3.8491).

The supermarkets were however moderate as to the challenges posed by lack of a uniform payment system, which will allow the transfer of funds from a financial institution in one country to a financial institution in another (mean 3.3925), lack of technical and industrial communications infrastructure (mean 2.9698), the political and legal climate of a country hinder the growth of e-commerce when there is no substantial cooperation from the government (mean 2.6170). The findings indicate that the supermarkets were faced by challenges in its quest to adopt e-commerce.

#### 4.5 Quantitative Analysis

For quantitative analysis the study used two methods. At first, correlation is used to measure the degree of association between different variables under consideration. As multiple variables are influencing the problem, the study identified the crucial factors associated with e-commerce. Pearson and Spearman correlations are calculated for all variables used in the study starting with the Pearson's correlation results. Secondly, a regression analysis is done on the data to establish the relationship between the variables under consideration.

#### 4.5.1 Pearson and Spearman's Correlations

Table 4.9 below shows the Pearson and Spearman's correlation coefficient generated from the data. The spearman's rank correlation coefficients are on the upper right triangle while the Pearson product moment correlation coefficients are on the lower left triangle. Pearson's Correlation analysis is used for data to see the relationship between variables such as those between independent variables and financial distress level of the firms.

**Table 4.9: Pearson and Spearman's Correlation Coefficient**

Correlations						
		Age	X1	X2	X3	X4
Age	Pearson Correlation	1	.186	-.579**	-.663**	-.906*
	Sig. (2-tailed)		.343	.001	.000	.032
X1	Pearson Correlation	.186	1	-.207	.184	-.096
	Sig. (2-tailed)	.343		.292	.349	.627
X2	Pearson Correlation	-.579**	-.207	1	.607**	.418*
	Sig. (2-tailed)	.001	.292		.001	.027
X3	Pearson Correlation	-.663**	.184	.607**	1	.515**
	Sig. (2-tailed)	.000	.349	.001		.005
X4	Pearson Correlation	-.906*	-.096	.418*	.515**	1
	Sig. (2-tailed)	.032	.627	.027	.005	
**. Correlation is significant at the 0.01 level (2-tailed).						
*. Correlation is significant at the 0.05 level (2-tailed).						

Age= Age of the supermarket (acts as a proxy of the adoption of e-commerce)

X<sub>1</sub>= Timelines

X<sub>2</sub>=Accessibility

X<sub>3</sub>=Availability

X<sub>4</sub>=Quality of service

The results of this regression indicate that the coefficient of timeliness is positive and is significant at  $\alpha = 5\%$ . It implies that the adoption of e-commerce on supermarkets increases the level of timely delivery of the company services. The positive relationship is also exhibited with the other variables in the model namely the firm's products accessibility, availability and quality of service. The quality of service has particularly a high coefficient (0.906) meaning that there is a strong association between the quality of service offered and the adoption of e-commerce on the supermarket performance. The product and service availability were also found to have a positive coefficient and also significant at the 95% confidence level.

#### 4.5.2 Regression Analysis

The determinants of performance are investigated for all 53 supermarkets researched on. From Table 4.10 below, the established multiple linear regression equation becomes:

$$\text{Age} = 4.839 + 0.288 X_1 + .130X_2 + 0.667X_2 + 0.815X_4$$

**Table 4.10: Results of General Least Square**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.839	.692		6.996	.000
1 X1	.288	.167	.273	1.720	.099
X2	.130	.176	-.143	-.738	.468
X3	.667	.255	-.629	-3.002	.006
X4	.815	.218	.004	.024	.981

Source: Researcher data



**Table 4.11: Model Summary for Age of supermarket with the predictor variables**

	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.741 <sup>a</sup>	.549	.471	.683

a. Predictors: (Constant), X4, X1, X2, X3

The adjusted  $R^2$ , also called the coefficient of multiple determinations, is the percentage of the variance in the dependent variable explained uniquely or jointly by the independent variables (timeliness, accessibility, availability and quality of service) and is 54.9 %. This means that 54.9 % of the changes in the performance will be explained by the changes in the independent variables. The remaining 45.1% of the changes in the performance will be explained by other factors not in the model.

## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

#### 5.1 Summary

The study found out that the performance of the supermarkets was being influenced by access at any time, allowing for faster time to market a product, allowing price and service customization through on-line negotiation of prices, enhanced revenues by direct sales to customers, providing on-line product and other information across the supply chain, product portfolio and promotions, allowing information aggregation and price discrimination, improved flexibility and responsiveness and encouraged new and more efficient intermediaries, reduced handling costs due to fewer supply chain stages involved in the product flow to the customer, lower company cost due to positive impact on final prices of company goods or services, decreased processing cost, improved coordination, increased use of outsourcing, expanded market access, reduced peak load for order fulfillment, decreased site costs, centralized facilities, geographical centralization, lower unit transportation costs and reduced inventories by postponing product differentiation. The availability of goods through the internet will offer supermarkets with an opportunity to achieve productivity gains, transaction costs by facilitating information sharing between organizations within and across industries and allowing automatic product identification. According to the respondents the supermarkets pursue e-commerce in order to ensure accessibility, availability, customizability, price, quality and timeliness of its goods to the customers.

The adoption of e-commerce by the supermarkets was indicated as having encountered various challenges that include social and cultural diversity, lack of standards and laws relating to the sale and purchase of products between companies in different countries, lack

of trusted certificate authorities and telecommunication systems that would provide the protection needed for e-commerce to grow, security attacks that lead to data theft and file corruption, access to personal and confidential information, and even e-business shut-down and lack of technical knowledge and understanding in order to implement e-commerce. All these challenges need well trained personnel and a dedicated workforce that works towards ensuring customers are satisfied at all times.

### 5.3 Recommendation

## 5.2 Conclusions

E-commerce is regarded as one of several marketing channels, including the use of the Internet, to support inter-organizational processes, such as marketing, ordering and related service activities within both business-to-business and business-to-customer. E-commerce impact on business is on output amount improvement and input reduction. Supermarkets need to incorporate information technology in their operations so that they can reach a wide range of customers and at the same time ensure that the customers do not have a reason to change where they shop which in turn improve its performance. The study established that the performance of the supermarkets was being influenced by both revenue and cost factors and therefore these two factors need to be harnessed by the supermarkets in order to achieve full benefits of e-commerce.

### 5.2 Recommendations for further research

The extent to which the supermarkets avails its goods to its customers will determine its performance in the long term as the world is moving towards e-commerce and thus customers will always look for ways that satisfy their needs. The study found out that the supermarkets were faced by challenges in the adoption of e-commerce. These challenges were social and cultural diversity, lack of standards and laws relating to the sale and purchase of products between companies in different countries, lack of trusted certificate authorities and

telecommunication systems that would provide the protection needed for e-commerce to grow, security attacks that lead to data theft and file corruption, access to personal and confidential information, and even e-business shut-down and lack of technical knowledge and understanding in order to implement e-commerce. These challenges need to be addressed if e-commerce is to be successfully implemented in supermarkets.

### **5.3 Recommendation**

This study makes recommendation for policy implication and also for further research.

#### **5.3.1 Recommendation with policy Implication**

The study established that the performance of the supermarkets was being influenced by both the revenue and the cost factors and it is recommended that the supermarkets put more emphasis on these factors in order to ensure maximum rewards are achieved by the supermarkets.

The study found out that the supermarkets were faced by various challenges in the implementation of its e-commerce and it is recommended that the supermarkets put effort in dealing with the challenges so that they can reap maximum benefits from the use of technology.

#### **5.3.2 Recommendations for further research**

This study focused on the impact that e-commerce has on the performance of large supermarkets in Nairobi and as such, the information gathered could not be relevant in all sectors of the economy. Therefore, it is recommended that the study be extended to other service institutions in Kenya to establish the effect of e-commerce use on their performance and establish whether there is consistency on the effect of e-commerce use.

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# APPENDICES

## APPENDIX I: QUESTIONNAIRE

Please give answers in the spaces provided and tick ( $\checkmark$ ) the box that matches your response to the questions where applicable.

### Section A: General information

- 1) Name of Supermarket: \_\_\_\_\_
- 2) Gender? (tick as appropriate)  
a) Female ( )                      b) Male ( )
- 3) What is your age bracket? (Tick as applicable)  
a) Under 20 years ( )  
b) 21 – 30 years ( )  
c) 31 – 40 years ( )  
d) 41 – 50 years ( )  
e) Over 50 years ( )
- 4) Length of continuous service with the supermarket? (Tick as applicable)  
a) Less than two years ( )  
b) 2-5 years ( )  
c) 6-10 years ( )  
d) Over 10 years ( )
- 5) For how long has your supermarket been in existence in Kenya?  
a) Under 5 years ( )  
b) 6 – 10 years ( )  
c) 11 – 15 years ( )  
d) 16 – 20 years ( )  
e) 21 - 25 years ( )  
f) Over 25 years ( )
- 6) How many employees does your organization have currently?  
a) 100 - 200 ( )  
b) 201 - 300 ( )  
c) 301 - 400 ( )  
d) Over 400 ( )

### Section B: E-commerce

1. Which e-commerce activity does your organization use?

Inter-organizational processes ( )

Consumer-oriented activities ( )

Intra-organizational processes ( )

2. To what extent has e-commerce contributed to the efficiency of operations in your organization?

Not at all ( )

Less extent ( )

Moderate extent ( )

Large extent ( )

Very great extent ( )

3. Which dimensions of customer needs does your organization targets mostly as they adopt e-commerce? Use the scale as follows:

1- Not at all, 2.-Less extent, 3- Moderate extent, 4-Large extent, 5-Very great extent

FACTORS	1	2	3	4	5
Timeliness					
Accessibility					
Availability					
Customizability					
Quality of service					
Price					

**Section C: Influence of e-commerce on the performance of large supermarkets**

1. Does the adoption of e-commerce have an effect on the performance of your supermarket?

Yes ( )                      No ( )

2. To what extent do you agree with the following revenue factors on the usage of e-commerce to enhance the performance of supermarkets? Use the scale as follows:

1- Strongly Disagree, 2.- Disagree, 3- Moderate extent, 4- Agree, 5- Strongly agree

FACTORS	1	2	3	4	5
E-commerce allows firms to enhance revenues by direct sales to customers					
Providing on-line product and other information across the supply chain allows flexibility on price, product portfolio and promotions					
It allows faster time to market a product as they are introduced as soon as a first unit is available					
It allows information aggregation and offering a wider product portfolio from many sources to enhance revenues					
It allows price and service customization through on-line negotiation of prices and contracts with customers and suppliers					
E-commerce can price discriminate and alter prices based on the buying power of individual customers to enhance revenues					
E-commerce allows access at any time from any place in terms of order placement allows an e-commerce to enhance revenues by attracting customers who may not be able to place orders during regular business hours					

3. To what extent do you agree with the following factors regarding the effect of costs on the performance of supermarkets? Use the scale as follows:

1- Strongly Disagree, 2.- Disagree, 3- Moderate extent, 4- Agree, 5- Strongly agree

FACTORS	1	2	3	4	5
It has improved flexibility and responsiveness and encouraged new and more efficient intermediaries					
It has increased the use of outsourcing, expanded market access, reduced time to market by linking orders to production and improved internal coordination					

E-commerce is able to centralize facilities because online sales allow the separation of order placement and order fulfillment.					
Site costs may decrease as direct customer-manufacturer contact and geographical centralization eliminates or reduces retail sites					
E-commerce decrease processing cost if they can increase the amount of customer participation as customers purchasing online do all the work of selecting the product, placing and order, and paying					
E-commerce reduces the peak load for order fulfillment and thus resource requirements and costs as it smooth the order fulfillment rate					
It results to reduced handling costs because fewer supply chain stages are involved in the product flow to the customer					
It leads to geographical centralization which reduces required inventory levels because of increased economies of scale in the supply and reduced aggregated variability in the demand.					
E-commerce reduce inventories by postponing product differentiation until after the customer order has been placed					
E-commerce results to replenishment orders enjoying lower unit transportation costs than customer orders because of scale economies					
It results to sharing, planning and forecasting information which improves coordination and reduces overall supply chain costs while better matching demand with supply					
e-commerce leads to lower company cost which has a positive impact on final prices of company goods or services					

### Section C: Challenges facing the adoption of e-commerce

- To what extent has the following challenges affected the usage of e-commerce in your organization? Use the scale as follows:

1- Not at all, 2.-Less extent, 3- Moderate extent, 4-Large extent, 5-Very great extent

Challenges	1	2	3	4	5
Security attacks that lead to data theft and file corruption, access to personal and confidential information, and even e-business shut-down					
Lack of trusted certificate authorities and telecommunication systems that would provide the protection needed for e-commerce to grow in that country					
Lack of technical and industrial communications infrastructure					
Lack of technical knowledge and understanding in order to implement e-commerce					
The political and legal climate of a country hinder the growth of e-commerce when there is no substantial cooperation from the government					

Lack of a uniform payment system, which will allow the transfer of funds from a financial institution in one country to a financial institution in another.						
Lack of standards and laws relating to the sale and purchase of products between companies in different countries.						
Social and cultural diversity						

2. What measures has your organization taken to counter these challenges?

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.....

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3. What are some of the recommendations you can make with regard to this study?

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THANK YOU.

**APPENDIX II: LIST OF LARGE SUPERMARKETS IN NAIROBI**

1. NAKUMATT HOLDINGS LTD
2. ANIL SUPERMARKET LTD
3. BESTLADY COSMETICS SHOP LTD ( SUPERMARKET )
4. CHANDARANA SUPERMARKET LTD
5. CHOICES SUPERMARKET
6. CITY MATTRESSES LIMITED
7. COUNTRY MATTRESSES LTD
8. DAVESTAR MATTRESSES LTD
9. DOUBLE TOUCH LTD
10. EASTLEIGH MART
11. EASTLEIGH MATTRESSES LIMITED
12. EBRAHIM AND COMPANY LTD
13. ELF OIL (KENYA) LIMITED
14. ENKARASHA DEPARTMENT STORES LTD
15. ESAJO SUPERMARKET
16. EUNIKA SUPERMARKET
17. FAIR POINT SUPERMARKET
18. FAIRLANE SUPERMARKET
19. FIFTY SIX SUPERMARKET
20. FOODIES SUPERMARKET LTD
21. HOME DEPO SUPERMARKET & WHOLESALERS
22. HORIZON IVATO SUPERMARKET K LTD
23. IMALASEKO ENTERPRISES LIMITED
24. J MART SUPERMARKETS
25. JACK AND JILL SUPERMARKET
26. JOSTER MINI MARKET
27. K AND A SELF SELECTION STORE LIMITED
28. KAREN PROVISION STORE LTD
29. KAREN SUPERMARKET LTD
30. KENYA NATIONAL SUPPERMARKET
31. KIKOMBA MATTRESSES LTD
32. KINYIMART LTD
33. LANGO SUPERMARKET
34. MARKETWAYS LTD
35. MAWAIHHA TRADING CO. LTD
36. MEGA MARKET LTD
37. MESORA SUPERMARKET LTD
38. MUTHAIGA MINI MARKET LTD
39. NAIROBI DIPLOMATIC DUTY FREE LTD
40. NAIVASHA SELF SERVICE STORES

41. NEIBAS SUPERMARKET
42. NEW WESTLANDS STORES LTD
43. NGARA SUPERMARKET
44. NINE TO NINE SUPERMARKET LTD
45. NOVA SUPERMARKETS LTD
46. ONE PRICE STORES LTD
47. ONGATA RONGAI SUPERMARKET
48. ORION SUPERMARKET
49. PEPONI GROCERS LIMITED
50. PILU SUPERMARKET
51. RIKANA SUPERMARKET
52. SAFEWAY HYPERMARKETS LTD
53. SAINSBURY SELF SERVICE STORES LTD
54. SAVANNAH SUPERMARKET
55. SELECT 'N' PAY SUPERMARKET LTD
56. SIX ELEVEN SUPERMARKET
57. SPRING VALLEY SUPERMARKET
58. STARGEN SUPERMARKET LIMITED
59. THE FEDHA SUPERMARKET
60. TROLLEY'S AND BASKETS
61. TUMAINI SELF SERVICE LTD
62. TUSKER MATTRESSES LTD
63. UCHUMI SUPERMARKET
64. UKWALA SUPERMARKET LTD
65. VANTAGE SUPERMARKET
66. WALL MART SUPERMARKET
67. WOOLMATT SUPERMARKET