AUTOMATED PROCUREMENT SYSTEMS AND PERFORMANCE OF SUPERMARKETS IN NAIROBI

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A RESEARCH PROJECT SUBMITTED TO THE UNIVERSITY OF NAIROBI IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF BUSINESS ADMINSTRATION

NOVEMBER 2015

DECLARATION

This research proposal is my original work and to the best of my knowledge, has not been submitted in this or any other institution for any academic award whatsoever.

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ACKNOWLEDGEMENT

I am grateful to the Almighty God for His unending love, blessings and guidance especially during the tough period of writing this research project.

I am also thankful to my supervisor, whose encouragement, guidance and support from the initial to the final level of the project writing enabled me to develop an understanding of the subject. Lastly, I offer my regards and blessings to all of those who supported me in any respect during the completion of this project.

DEDICATION

This research project is dedicated to my beloved parents for showing me the path to academic world.

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LIST OF ABBREVIATIONS AND ACRONYMS

AIS -Automatic Identification Systems

DPS-Desktop Purchasing System

EDI -Electronic Data Exchange

ERP-Enterprise Resource Planning

ICT-Information and Communication Technology

ITEs-Independent Trade Exchange

POS -Point of Sale

RFID -Radio Frequency Identification

SCM -Supply Chain Management

UPC -Universal Product Code

VAN-Value Added Network

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ABSTRACT

Automated procurement (e-procurement) is a growing aspect of supply chain management and is receiving a lot of attention from supermarkets globally. This is because there is stiff competition in the supermarket industry and customers are exerting pressure on retailers in terms of; demand variability, reduced lead-time, need for customized products and services. Therefore, supermarkets can longer compete on cost reduction alone, but also on how efficient they can procure their products and services. This study set to establish automated procurement systems and supermarkets performance.This research was carried out through a descriptive design. The target population of this study was the supermarkets in Nairobi Kenya which are about 52 supermarkets in Nairobi, Kenya. Given that this is a relatively small population, a census was used. The researcher mainly used descriptive statistics to analyze data. This included frequency distribution tables, mean and standard deviation. Performance of supermarkets was analyzed using correlation and regression analysis. In order to establish the effect of e-procurement on the performance of supermarkets, regression analysis was employed. The study revealed that majority of supermarkets relied on electronic mail and automated identification bar-coding systems to transact their procurement operations more than any other systems mentioned to them. For instance, most supermarkets communicated orders through sending emails to suppliers' sales agents via emails and this hastened the period of delivery and confirmation of products being available or not. This ensured that there was regularly and constant communication via email between supermarkets and their suppliers. It was also established that time was saved and this propelled the retail chains to gain competitive advantage in the supermarket industry. Moreover, accuracy of products ordered and delivered was maintained when those systems were used. Bivariate correlation results showed that there existed a significant positive effect of automated procurement systems and performance of selected supermarkets in Nairobi city.

Lastly, the results established that the degree of correlation of the independent predictor (automation of procurement systems) and performance of supermarkets was not strong due to various challenges stretching from; high cost of system implementation, slow user acceptance of new automated procurement systems, lack of management support in adoption of new systems, inadequate IT and networking infrastructure and inadequate employee training. These among other factors mentioned affected effective utilisation of automation systems on performance of supermarkets.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Companies from many different industries and geographic locations have seen strong results from implementing automated procurement system. For example, one home appliance manufacturer actually saved several million on the purchase of a single component for product by using a reverse auction Jacobs (2009). While these numbers seem impressive, many of these companies could further benefit by trying procurement into any of the other enterprise –wide procedures and processes within a company Jacobs (2009). Stevenson (2007) agrees with Heshmati (2003), that using this approach, businesses are able to avoid falling into a number of traps.

First, many times isolated automated procurement systems don't take into consideration the company-wide budget and/or spending limits. They are instead used by only one department as for only specific purchases, and they have no connection to other purchasing procedures. The bottom line is that isolated automated procurement systems will work for some companies, particularly those that effectively adapt their workforce and purchasing strategies Stevenson (2007). Regardless of the system that works best for the business, procurement-either in isolation or as part an Supplier Resource Management system-can save business money, can cut down administrative costs and time, and make purchasing more smoothly Crump (2003).

1.1.1 Automated Procurement Systems

To explore the meaning of the term automated procurement system, different authors have given their different perspectives. Waters (2002) noted that an automated procurement system is typically a computerized system designed to manage the procurement process. According to Jacobs (2009) there are two primary types of procurement systems: automated procurement and standard procurement. Both types of systems are widely available and are often included in an enterprise resource planning (ERP) or accounting software product. King (2010) observes that although the functionality provided varies by software, a typical procurement tool includes purchase requisitions, purchase orders, goods receipts, and invoice processing. In additional to these core requirements, most systems include an array of reporting tools King (2010).

Built-in approval processes, controls, and funds management tools are usually standard in the larger products. King (2010) explains that an automated procurement system is software that allows purchaser to access supplier's catalogs via the internet, as well as accepting electronic invoices. The purchasers select their materials, indicate the accounts to be charged for the purchase, and create a purchase order in the accounting system. All procurement-related activities are completed in the electronic system, reducing paperwork and increasing efficiency. Electronic invoice processing allows selected companies to further review and approval. The data is then retained through a series of online approvals before being processed for payment in the accounting system. Automated procurement systems are very popular in the large firms, where procurement contracts are in place to manage spending activity. For these firms, the reduction in staff time for invoice processing provides an excellent return on investment. Lyson and Farrington (2006) explain that the implementation of automated procurement systems is one of the easiest ways to improve operational efficiency.

1.1.2 Organizational Performance

Organizational performance at the operational or individual employee level usually involves processes such as statistical quality control. Automated solutions for procurement deliver big savings over manual systems - from reduced administrative costs to shortened procurement and fulfillment cycles. Eliminating manual processes, for example, increases staff productivity; and tracking data to secure vendor rebates can result in significant monetary savings Joshi (2009).An automated procurement solution increases operations accuracy. Because staff is no longer required to re-enter data from paper documents, clerical errors are dramatically reduced. Mistakes in ordering are also minimized Lyson and Farrington (2006). Moreover, automated solutions link usage to demand, enabling organizations to maintain up-to-the-minute inventory counts.

Modern automated information technology offers paperless means of doing business. Information can be conveyed and stored without paper documents or files Walker (2010).To conduct business, commercial firms and supermarkets are increasingly using such paperless techniques as EDI, electronic mail (E-mail), and digital imaging. Automated procurement systems saves valuable time-time to process, time to research, and time to correct the errors caused in manual requisition efforts. The result is effective

and significant cost savings for the company. Lyson and Farrington (2006) Several models have been developed to capture the richness of the organizational effectiveness construct.

The system model, while not neglecting the importance of the ends, emphasizes the means needed for the achievement of specific ends in terms of inputs, acquisition of resources and processes Yuchtman and Seashore (1967). The conception of the organization is grounded in the open system approach whereby the inputs, transformation process and outputs are considered part of a whole and not independent component. Goal traditional model relies on a vision of the organization as a rational set of arrangements oriented toward the achievement of goals Goodman et al. (1977). Effectiveness is measured in terms of accomplishment of outcomes Etzioni (1960). The focus is exclusively on the ends: achievement of goals, objectives, and targets.

1.1.3 Supermarkets in Nairobi Kenya

In East Africa, Kenya is the most advanced in terms of presence of supermarkets. The Kenyan supermarket sector is composed of different categories of domestic chains: Grocery, Electronics (GAIN, 2008). It was noted that the majority of supermarkets are in Nairobi. Over the years, Kenyan retail food sector has been dominated by two major supermarkets namely Uchumi and Nakumatt Neven & Reardon (2004). However, this has changed over time. The sector has experienced rapid growth both in sales volume and number of retail outlets opened countrywide. Supermarkets continue to grow their market share and penetration as they become the preferred shopping outlet for many middle and high-income consumers in towns.

According to the Kenya Economic Survey 2012 the retail and wholesale sector grew by 19 per cent in the past five years becoming the second largest driver of economic growth after transport and communication. According to Gain Report 2008, the competition, which is highest in the fresh produce and vegetables supplies, pits three major supermarket chains, several medium-sized supermarket chains and hundreds of independent outlets and convenience stores. According to the Gain report (2008), there are more than 300 supermarkets in Kenya with more to come. The larger-format supermarkets are located in main urban cities especially Nairobi. Nairobi City accounts

for about 50 and more supermarkets. Supermarkets and shopping malls not only cater for more than 30 per cent of the retail needs in Nairobi, but they are also redefining skylines in terms of creation of employment and alleviation of poverty. The study focuses on all the categories of supermarkets in Nairobi, given the small number.

1.2 The Research Problem

Automated procurement systems are very popular in the large firms, where procurement contracts are in place to manage spending activity. For these firms, the reduction in staff time for invoice processing provides an excellent return on investment. Lyson and Farrington, (2006) explain that the implementation of automated procurement systems is one of the easiest ways to improve operational efficiency. E-procurement simplifies the sourcing and purchasing process in an organization. A number of researches have been done on automated procurement systems. Batenburg (2007) conducted a study on e-procurement adoption by European firms. The study concluded that there exists country differences in e-procurement adoption, and that firms from countries with a low uncertainty avoidance such as Germany and the UK are the early adopters of e-procurement, while countries that are less reluctant to change such as Spain and France have lower adoption rates.

A study conducted by Joshi (2009) established that procurement has moved markedly from attending to a single function more efficiently, to reconfiguring a whole process in order to attain greater shareholder value across the enterprise. Price Waterhouse Coopers (2000) conducted a survey in the United States among America's fastest growing companies, the conclusion arrived at was that of the companies that implemented procurement systems, 70 percent claimed to save money and 25 percent had improved focus on core business. Many studies such as Weatherspoon and Reardon (2002), Neven et al., (2005) and Reardon et al., (2003) have also concluded that expansion of supermarkets has led to continuous and rapid change in procurement systems in the supermarket sector in developing countries.

Studies on e-procurement in Kenya include Kinya (2013) who found out that the methodologies adopted by large scale firms in implementing e-procurement benefits an organization in many ways including eliminating waste in all procurement cycles, reduce lead time, reduce inventory, reduce cost, improved customer satisfaction and improved demand management. The major focus of this study was on supply chain integration. A study by Mwongela (2014) to establish the effect of e-procurement adoption on supply chain performance among commercial banks in Nairobi revealed that majority of the commercial banks in Nairobi, Kenya have adopted e-procurement with the following e-procurement practices: online advertisement of tenders, receiving online submission of proposals for the tenders, and short listing suppliers online among others.

A study by Akoth M. (2014) to investigate the relationship between e-procurement and organizational performance on NGOs in Nairobi, Kenya established that the accountability and competitive bidding had been improved as a result of the adoption and implementation of e-procurement practices. Other studies conducted include Orori (2011); Njoroge (2010); Kipyego (2010); Mburu (2011); Ratanya (2013); Ngatia (2000) and Kambua (2013). All these studies have addressed the adoption and implementation of e-procurement in different sectors and how it affects.

In spite of the success in research in the field of automated procurement systems, little information exist on the effects of automated procurement systems on the performance of supermarkets in Nairobi. Aiming to fill this gap, the study set out to answer the following questions, what is the effect of automated procurement systems on the performance of supermarkets in Nairobi? What are the challenges of automated procurement systems in supermarkets in Nairobi? And what extent do supermarkets use the automated procurement systems in Nairobi?

1.3 Objectives of the Study

The key objectives were;

(i) To determine the extent to which supermarkets use the automated procurement systems in Nairobi.

(ii)To determine the effects of automated procurement systems on the performance of supermarkets in Nairobi.

(iii) To determine the challenges of implementing automated procurement systems in supermarkets in Nairobi.

1.4 Value of the Study

The information from the study will be crucial on the management of automated procurement systems and service delivery to customers in supermarkets.

Supermarket staff will benefit from this study as the findings would be used to cut procurement-related costs and optimize on resource use in order to serve their clients better (the staff includes all procurement officers, operation managers or their equivalents in the supermarkets).

Other researchers will use the study to further their study in this area by reviewing the empirical literature and establishing study gaps to fill.

The academicians will find the study useful as it will highlight areas for further research and also will contribute to new knowledge. The academicians being charged with dissemination of knowledge to various stakeholders will hence find this study useful when doing so.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

To better explore and understand the concept of procurement automation and its effect in supermarkets, this chapter addresses the following areas; theoretical framework on the adoption of automated procurement systems, empirical review, automated procurement systems and procurement performance, challenges of automated procurement systems, and the conceptual framework.

2.2 Automated Procurement Systems

It is a buyer-centric technology that enables large purchasers to negotiate favorable prices with vendors while streamlining the buying process. Lyson and Farrington (2006). Automated procurement systems don't automatically boost supply chain efficiency Bozarth (2008). Despite the differences in automated procurement applications, the bottom line is that a company must choose one that works for its industry and one that will help make its supply chain more efficient if the system implementation is truly to be successful Jacobs (2009).

Barcode data-collection technology is an effective way to improve the bottom line and meet the competitive challenges organizations face every day Darlington (2009). When combined with data-collection technology and other procurement systems, barcodes provide a rapid, accurate and efficient means to collect, process, transmit record and manage data in a variety of industries. Retail, package delivery, warehousing and distribution and point-of-service applications can all benefit from the use of automatic identification, such as bar coding King (2010).

Electronic catalogues give customers an alternative means of determining the products, services, and suppliers available, and provide comparative analysis of suppliers. The complexity of comparison shopping across vendors is alleviated by optimization technology, derived from applied mathematics and computer science that enables buyers to solve a challenging multidimensional problem-- how to determine the best trade-off between cost, quality, quantity, service, delivery horizon, shipping costs, product dimensions, and a multitude of other factors Lyson and Farrington (2006)

Companies also use Internet marketplaces, also called independent trading exchanges (ITEs), where indirect materials can be purchased at set prices or sellers can bid for buyers' business. Digital marketplaces enable small buyers to have the same access to many sellers that large buyers usually do, as well as equal opportunities for obtaining short-term discounts and liquidations Lyson and Farrington (2006). Marketplaces manage buy-side and sell-side participants' information and business process, in addition to the transaction Bozarth (2008).

Desktop Purchasing Systems (DPS) extend the support for the actual purchasing process which was provided by catalogue systems and virtual marketplaces to other internal processes—licensing, goods receiving, or accounting control Stevenson (2007). Such employee-facing suites enable employees to use the same interface used for purchasing for expense and forecasting reports, time and attendance sheets, personnel and benefit forms, and other administrative tasks.

Online auctioning, both forward and reverse, is also possible with automated procurement. In a forward auction, sellers post the goods or services they want to sell, and buyers submit their bids for the services or goods. In a reverse auction, buyers post a request for quotes for items they want to buy, and multiple sellers submit bids. Lyson and Farrington (2006).

Electronic data interchange is the computer-to-computer exchange of routine business documents using pre-established standards (or transaction sets) agreed upon by the company activity and its trading partners. EDI transactions do more than link computers. They also integrate applications. Lyson and Farrington (2006).

Submarian and Shaw (2004) define e-procurement system as a Web based client/ server application used to replace the manual procurement process. Simply put e-procurement refers to the purchasing of goods and services using the Internet. E-procurement solutions cover three major procurement areas: procurement transactions, procurement management and market-making. Subramanian & Shaw (2004)

2.3 Theoretical Framework on the Adoption of Automated Procurement Systems

There are several theories, which have contributed and have relevance to the development of business procurement function in relation to effective management and

financial performance. In an organization purchasing management concept (PMC) could be analyzed using several theories, which help in understanding how an organization's E-Procurement system and procedures enhances internal customer levels at different levels. The thinking of strategic procurement policies has been influenced by several theories some of which are discussed below. Chen, Paulraj and Lado (2004) in their optics states that strategic purchasing is a vital link in a working supply chain. They mean that strategic purchasing can give a firm a competitive advantage by enabling the firms to: Foster close working relationships with a limited number of suppliers; Promote open communication among suppliers chain partners and Develop long-term strategic relationship orientation to achieve mutual gains. Chen et al (2004) states that strategic purchasing will lead to communications with suppliers, a limited number of suppliers and a way term orientation. Chen at al (2004) proves all of those connections significant. The conclusion to be drawn from this theory is that strategic purchasing arrangement can be an important link in the supply chain and contributes towards enhancing internal user department satisfactory and the overall financial results of a company.

Axels son and league – Hellmann (1991) state that a suitable way to govern purchasing is through target settling and measuring their theory, this could be done through key performance indicates. The theory divides the KPTs: Into some categories price related, Quality related, Delivery related, Inventory related savings related, Activity related and other. Van Woole (2005) presents two areas in which purchasing performance can be measured, purchasing effectiveness and purchasing efficiency. The theory states that purchasing effectiveness is a measure of what has been accomplished and purchasing efficiency is a measure of what resources has been used to accomplish it. Based on Van Wools (2005) four dimensions, Cost/price, product/ quality, logistics & organization.

Amit and Zott (2001) suggest that "a transaction occurs when a good or service is transferred across a technologically separable interface. One stage of processing or assembly activity terminates, and another begins". Transaction costs include the costs of planning, adapting, executing, and monitoring task completion. Transaction cost economics identifies transaction efficiency as a major source of value, as enhanced efficiency reduces costs. It suggests that value creation can derive from the minimization of uncertainty, complexity, information asymmetry, and small-numbers bargaining

conditions. Moreover, reputation, trust, and transactional experience can lower the cost of peculiar exchanges between firms. One of the main effects of transacting over the Internet, or in any highly networked environment, is the reduction in transaction costs it brings. Transaction costs include the time spent by managers and employees searching for customers and suppliers, communicating with counterparts in other companies regarding transaction details, the costs of travel, physical space for meetings, and processing paper documents, as well as the costs of production and inventory management.

In conclusion, the most relevant theory to this study is that of Van Woole (2005). This theory explains critical determinants of successful procurement in the organization. This are effectiveness and efficiency. Enhancing performance through the E-procurement can be capitalized via this theory, the objective this study aims to fulfill.

2.4 Organizational Performance

Organizational performance comprises the actual output or results of an organization as measured against its intended outputs (or goals and objectives).According to Richard et al. (2009) organizational performance encompasses three specific areas of firm outcomes: Financial performance (profits, return on assets, return on investment.); Product market performance (sales, market share.); and Shareholder return (total shareholder return, economic value added.).Organizational performance is probably the most widely used dependent 5 variable in organizational research today yet at the same time it remains one of the most vague and loosely defined constructs. The biggest challenge to organizational performance is the external environment. All organizations operate within some external environment. The challenges that may arise from the external environment include political, economic, sociocultural, environmental and technological (Snider and Rendon, 2001).

The primary goals of organizational performance are to increase organizational effectiveness and efficiency to improve the ability of the organization to deliver goods and /or services. Another area in organizational performance that sometimes targets continuous improvement is organizational efficacy, which involves the process of setting organizational goals and objectives in a continuous cycle. Organizational performance at

the operational or individual employee level usually involves processes such as statistical quality control. At the organizational level, performance usually involves softer forms of measurement such as customer satisfaction surveys which are used to obtain qualitative information about performance from the viewpoint of customers (Kaplan & Norton, 2001).

2.5 Automated Procurement Systems and Organizational Performance

Modern, automated information technology offers paperless means of doing business. Information can be conveyed and stored without paper documents or files Walker, (2010).To conduct business, commercial firms and supermarkets are increasingly using such paperless techniques as EDI, electronic mail (E-mail), and digital imaging. Little is known about how these technological advances will affect procurement in supermarkets. They will not only change buyer performance, office organization, and market structure but most important, they will redefine procurement processes, procedures, and regulations Walker (2010). Today's systems take procurement to an entirely new level with automated e-mail bids, budget tracking, electronic invoicing, business intelligence functionality and the ability to route purchase requisitions for approval via e-mail.

Automated solutions for procurement deliver big savings over manual systems - from reduced administrative costs to shortened procurement and fulfillment cycles. Eliminating manual processes, for example, increases staff productivity; and tracking data to secure vendor rebates can result in significant monetary savings Joshi (2009). An automated bid system also drives down the cost of supplies by allowing supermarket procurement staff to increase its number of potential vendors and identify preferred suppliers. In large supermarkets, where purchasing responsibilities are often spread over several departments or even several locations, an automated inventory and procurement solution can maximize buying power by consolidating orders, which typically lowers the cost per transaction and results in deeper volume discounts Crump (2011).

An automated procurement solution saves time by streamlining purchasing control. Tasks that once took hours or even days can be performed with a few clicks of a mouse. Staff no longer wastes time matching receipts with deliveries, figuring out overly complex invoices and keying in redundant information Hum and Marciano (2010). Supermarkets

also will see a reduction in the administrative tasks involved with vendor management, such as creating contracts and soliciting bids. Instead, procurement staff can focus on the strategic elements of the job. Likewise, purchasing managers will spend less time overseeing administrative details and more time analyzing spend patterns and negotiating favorable terms with suppliers Joshi (2009). An automated procurement system creates a more efficient business model, eliminating unnecessary and time-wasting activities and increasing profitability Joshi (2009).

In an industry where margins are tight and multiple departments often requisition items several times a day, it makes sense to automate procurement. This goes for small boutique supermarkets as well as for large multi-property chains Atkinson (2010). An automated solution enables supermarkets to reduce costs, save time, improve accuracy, enhance supplier negotiations and ensure compliance. The result is more streamlined operations, smarter purchasing decisions and increased control over the supply chain. Although many supermarkets are delaying technology purchases until the economy improves, it is more important now than ever before to implement solutions that give them a competitive edge. An automated procurement system not only optimizes existing resources and prevents unnecessary costs, but also positions the supermarkets for success, in the short term and the future Joshi (2009).

2.6 Empirical Literature Review

Practitioners as well as researchers have advocated the advantages of e-procurement. Jau-Jeng et al., (2008) conducted a study on the impact of web-based e-procurement on organizational performance. This study investigates the impacts of Web-based e-procurement for direct procurement from organizational and inter-organizational level. A significant finding is that the implementation of Web-based e-procurement can lead to better partnership between buyers and suppliers. By adopting a completeness Web-based e-procurement solution, buyers can enhance their partnerships with suppliers with respect to information sharing and technology dependence. Partner relationship contributes to both supplier performance and buyer performance, indicating that good partnership paves the way for sounding SCM operating environment.

A study conducted by Nepelski (2006) sought to find out how electronic procurement influences the organization of economic transactions. It sought evidence for ICT-induced

changes in how companies organize their activities and whether ICT lead to more competitive and transparent markets. Testing the relationship between the effect of electronic procurement on procurement cost and sourcing strategy, it was revealed that electronic procurement leads to more market transactions. This led to the conclusion that electronic procurement increases market transparency, lowers search and supplier switching costs and improves the management of supply chain and contradicts the predictions that ICT will lead to a dominance of network-like organizational form and an increasing reliance on hybrid forms of organizing economic transactions. Two implications emerge from these results. The first one is relevant for companies engaging in ICT projects. The second implication is of great importance for companies whose customers implement ICT to intensify competition among suppliers.

A study by Akoth M. (2014) to investigate the relationship between e-procurement and organizational performance on NGOs in Nairobi, Kenya established that the accountability has been encouraged; there is a competitive bidding and sourcing and that there was improved flow of information. On the other hand, lack of management support; late supplier involvement; lack of proper staff training; failure to comply with best practices and poor information quality were the hindrances to the implementation of e-procurement. Further, the study concluded that online advertisement of tenders has improved effectiveness; online short listing of tenders has ensured transparency; online requisition by organization staff has improve accountability and online advertisement of tenders has ensured the NGO gets competitive suppliers. The findings of this study were only directly applicable to the NGOs in Nairobi. It only focused on e-procurement implementation and supply chain integration among NGOs in Nairobi.

From a sample size of 46 respondents selected from a list of 455 large manufacturing companies, Mose et al.,(2013) revealed that majority of the large scale manufacturers in Nairobi, Kenya has adopted e-procurement with the following e-procurement practices: online advertisement of tenders, receiving online submission of proposals for the tenders, and short listing suppliers online among others. The five critical success factors identified were: employees and management commitment to success of adoption; reliability of information technology and supplier performance; monitoring the performance of e-procurement systems; user acceptance of e-procurement systems and top management

support. The challenges established are: resistance to change from employees, lack of e-procurement approval by company board, existence of old IT equipment among the firms that need overhaul and lack of managerial support. The study recommends that large scale manufacturers in Nairobi need to incorporate all the e-procurement activities into the system; they need to find out ways of encouraging employees to make use of e-procurement systems as well as find ways of addressing the factors that are critical to the success of e-procurement.

Amin (2012) study on the electronic procurement and organizational performance among commercial state corporations revealed that commercial state corporations in Kenya have adopted e-procurement but there are several functions they still perform manually. These include, short listing of suppliers, call for proposals and tendering process. It was also established that e-procurement has led to cost reduction, improved transparency, and accountability among others. The findings also indicate that the e-procurement system has enabled commercial state corporations in Kenya to provide real time response of feedback to both customers and the market. It was also discovered that the e-procurement system has enabled some of the commercial state corporations to streamline their procurement processes

Other relevant studies in the area of e-procurement include; Njoroge (2010); Orori (2011); Ratanya (2013); Kipyego (2012); Kambua (2013); Kyalo (2001); Mburu (2011); Mwongela (2014). All these studies have addressed the adoption and implementation of e-procurement in different sectors and how it affects.

Very many other studies have been done which look at aspects of automated procurement systems and performance. However, most of them have a limited focus and narrow perspective. They do not adequately cover all aspects and facets of automated procurement systems especially in retail chain supermarkets. Another common weakness of these studies is the fact that almost all of them have not addressed the effect of automated procurements systems to the performance of local supermarkets thus the need for this study.

2.7 Challenges of Implementing Automated Procurement Systems

Even though the benefits of adopting e-procurement solutions can be significant, there are some internal and external challenges and risks related to the adoption of e-procurement. In a research by Smart (2010) the researcher came to a conclusion that there has been a long term problem with identifying value from IT investments and in creating a case for IT introduction in general. This is why companies need a clear plan for

implementing e-procurement technologies. A study by Angeles and Nath (2007) identified three important challenges to e-procurement implementation: lack of system integration and standardization issues, immaturity of e-procurement-based market services and end user resistance and lastly maverick buying and difficulty in integrating e-procurement with other systems

Lack of system integration and standardization issues relates to the fact that e-procurement is still relatively new business application and it is not unusual to find a lack of benchmarkable reference models. Another challenge is software immaturity and the lack of certain key features like invoicing, payment reconciliation or managing of different geographical jurisdictions, tax structures, currencies etc. Also, companies need to be aware of the possible hidden costs related to implementation of e-procurement solutions, such as system integration, content aggregation and rationalization, catalog and search engine maintenance, supplier enablement, end user training and procurement process re-engineering. These costs can easily exceed software licensing and maintenance cost by five to ten times Angeles and Nath (2007).

The other challenge relates to the immaturity of providers of e-procurement services and the lack of supplier preparation, and the resistance of solutions end-users. In some cases the immature service providers may not be able to provide a complete suite of services, especially for more complex or advanced e-procurement implementations projects. The immaturity of suppliers and the lack of preparation is also a challenge for many companies.

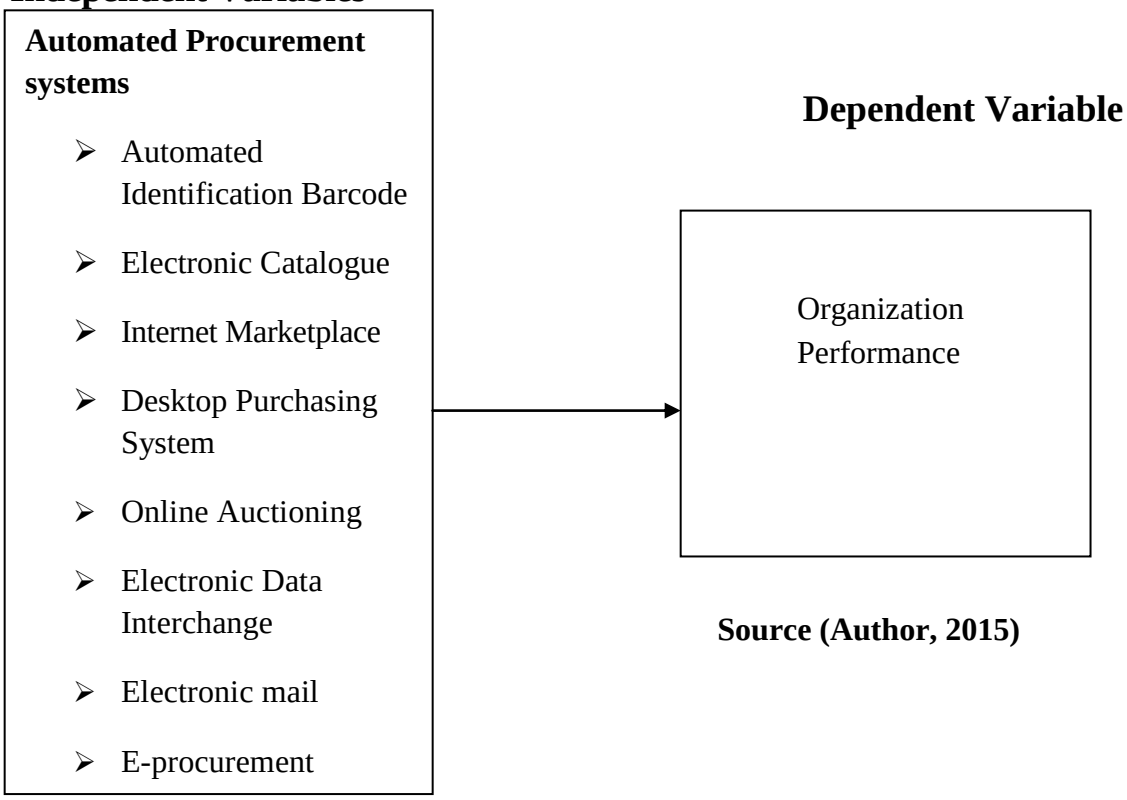
After all, suppliers need to learn how to generate catalogs, process electronic purchase orders, how to use invoicing mechanisms among other tasks Angeles & Nath (2007). Including companies preferred suppliers is very important as according to Davila et al. (2003) the success of e-procurement solutions relies on the network effect that will be more effective if enough players are adopting the same technology. The other challenge here relates to the resistance of end-users towards operating the e-procurement solution. To prevent this Angeles and Nath (2007) state companies should encourage using new e-procurement technologies through intensive training and educational sessions with end-users.

Table2.8 Summary from Previous Studies and Knowledge Gaps

Scholar(s)	Focus of the Study	Major Findings	Major Contributions	Knowledge Gap(s)
Nepelski (2006)	To find out how electronic procurement systems affect procurement cost and sourcing strategy.	The electronic procurement leads to more market transactions.	The study clearly points out the benefits of implementing and using new technologies to companies	The study focus only two elements of procurement. Need to assess the impact on the entire procurement process.
Jau-jeng et al., (2008)	To determine the impact of web-based e-procurement on organizational performance	The implementation of web-based e-procurement can lead to better partnerships between buyers and suppliers.	The study emphasizes the contribution of web-based procurement on both supplier and buyer performance	Need for a study to explore how collaborative behavior in procurement may be affected in a value trusted network.
Mose et al.,(2013)	To determine the e-procurement practices adopted by manufacturing firms.	Majority of large scale manufacturers in Nairobi, Kenya has adopted e-procurement with different e-procurement practices	The study explains the e-procurement practices adopted by firms.	The study focuses only on manufacturing companies in Nairobi. Need for a study to address the critical success factors for e-procurement.
Akoth M (2014)	To investigate the relationship between e-procurement and organizational performance on NGOs in Nairobi	E-procurement has brought about accountability, competitive bidding and sourcing and improved flow of information.	The study clearly states that e-procurement has positive effects on organizations.	This study should be extended to other industries and firms so as to draw similarities and differences.

Source (Author, 2015)

Fig 1. Conceptual Framework



Source (Author, 2015)

Explanations

Automated Identification Barcode- Leads to accuracy and compliance to set guidelines and procedures.

Electronic Catalogue-Enhances purchasing organizations negotiation and purchasing power.

Internet Marketplace- Leads to saving on money and time involved in sourcing for potential suppliers and products.

Desktop Purchasing System- Leads to increasing compliance to the procurement guidelines and procedures.

Online Auctioning- It helps save on bidding time and associated costs.

Electronic Data Interchange-Leads to increasing accuracy of transactions.

Electronic Mail- Helps to save on time.

E-procurement – Helps save money and time in conducting procurement.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter discusses methods that will be used to obtain the results and the following steps were discussed; research design, target population, data collection procedures and instruments and data analysis

3.2 Research Design

The study was carried out through a descriptive design assessing the effects of automated procurement systems on the performance of supermarket within Nairobi. This study design was considered appropriate as it deals with many members in a population where it is not possible to study all of them and hence calling for sampling in order to come up with generalizations and inferences about the whole population. Ratanya (2013) successfully used this method in his study E-procurement implementation and supply chain integration among large scale manufacturing firms in Nairobi, Kenya.

3.3 Population

The target population of this study was the supermarkets in Nairobi Kenya. There are about 52 supermarkets in Nairobi, official Kenya yellow pages (2015) (appendix II). Given that this is a relatively small population, a census was done.

3.4 Data Collection

Primary data was collected by means of semi-structured questionnaire using the 7 Likert as it provides a wide range of options to choose from. The questionnaire had four sections, section one; dealt with general information of the participant and the organization. Section two; sought information on the automated procurement systems adopted by supermarkets in Nairobi. Section three; sought information on the effects of automated procurement systems on performance of supermarket in Nairobi and Section four; related challenges. The respondents to the questionnaires was the Procurement Officers/Manager and ICT managers or their equivalents. The questionnaires was dropped and picked later. Piloting of the questionnaire was done to assist the researcher identify any ambiguous and unclear questions.

3.5 Data Analysis

Before processing the responses, the completed questionnaires were edited for completeness and consistency. The data was then coded to enable the responses to be grouped into various categories. The researcher mainly used descriptive statistics to analyze data. This included frequency distribution tables, mean and standard deviation. SPSS and Microsoft excel software was used to generate outputs.

Performance of supermarkets was analyzed using correlation and regression analysis. In order to establish the effect of e-procurement on the performance of supermarkets, regression analysis was employed. The following regression equation was used;

$$\mathbf{Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \beta 5X5 + \beta 6X6 + \beta 7X7 + \beta 8X8 + \varepsilon}$$

Whereby Y = Performance of supermarkets in Nairobi Kenya

X1 = Automated Identification barcode

X2 = Electronic catalogue

X3 = Internet marketplace

X4= Desktop Purchasing System

X5=Online Auctioning

X6=Electronic Data Interchange

X7=Electronic Mail

X8=E-procurement

ε = Error term $\beta 0$ is the intercept

The following table gives the procedure of analysis based on the research variables.

Table 3.1 Data analysis matrix

Objectives	**Questions**	**Data Analysis Method**
Background Information	Section A	Descriptive
Automated Procurement Systems Adopted by Supermarkets in Nairobi, Kenya	Section B	Descriptive
Effects of Automated Procurement Systems on The Performance of Supermarkets in Nairobi, Kenya	Section C	Correlation and regression
Challenges of Implementing Automated Procurement Systems	Section D	Descriptive

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the results of data analysis from questionnaires collected on the influence of information communications technology and performance of selected supermarkets in Nairobi, Kenya. A total of 100 questionnaires were issued. The researcher was able to collect a total of 83 questionnaires from the respondents in selected supermarkets who participated in answering research questions. This made a response rate of 83%, which was satisfactory and representative in making conclusions for the study. This is because according to Mugenda and Mugenda (1999), a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent. Therefore the study response rate was considered excellent.

The study presents the demographic information of respondents and thereafter presents the results according to the objectives of the study.

4.2 Demographic Characteristics of Respondents

The respondents were asked to indicate their gender profiles. The findings are illustrated in Table 4.1.

Table 4.1 Employees gender

Category	Frequency	Percent
Male	57	68.7
Female	26	31.3
Total	**83**	**100.0**

Research data (2015)

Result shows that 57 (68.7%) of respondents were male while 26 (31.3%) were female. The result shows that majority of supermarkets employees in charge of IT and procurement department are male. Furthermore, the respondents were asked how long they had worked in the organisation as; less than 5 years, 6-10 year, 11-15 years and 15 years and above. The results are given in Table 4.2.

Table 4.2 Employees working experience

Range	Frequency	Percent
Less than 5 years	13	15.7
5-10 years	26	31.3
10-15 years	32	38.6
15 years and above	12	14.5
Total	**83**	**100.0**

Research data (2015)

Result shows that 32 (38.6%) of respondents had worked for 11 – 15 years, 26 (31.3%) had worked for 6-10 years, 13 (15.7%) had worked for less than 5 years while 12 (14.5%) had worked for more than 15 years. The working experiences of majority of respondents reflect their understanding on the period before and after the adoption and utilisation of information communication technology in supermarkets operations.

4.3 Extent to which Supermarkets use the Automated Procurement Systems

The first objective of the study is to determine the extent to which supermarkets in Nairobi used automated procurement systems in their outlets. They were supposed to indicate their responses on a Likert scale of 7; 1-never and 7 every time. The descriptive statistics are given in Table 4.3.

Table 4.3 Extent to which supermarkets use the automated procurement systems

Automated systems	N	Mean	Std. Deviation	Extent of use
Electronic Mail	83	6.0482	1.30574	Usually
Automated Identification barcode	83	5.6024	1.88667	
Electronic Data Interchange	83	5.3855	1.37780	
E-procurement	83	5.2169	1.84158	Frequently
Electronic Catalogue	83	4.6867	1.89947	
Internet Marketplace	83	4.0361	2.03293	Sometimes
Desktop Purchasing system	83	3.2771	1.69873	Occasionally
Online Auctioning	83	2.1807	1.44107	Rarely
Valid N (Listwise)	**83**	**4.5542**	**1.68550**	**Frequently**

Research data (2015)

Key: 1.00-1.49= never, 1.49-2.49= rarely. 2.5-3.49=occasionally, 3.50-4.49=sometimes, 4.50-5.49=frequently, 5.50-6.49=usually and 6.50-.7.00=every time.

The results of the study shows that average utilisation rate of automated systems in supermarket procurement operations is frequently (M=4.55 and SD=1.68) used. Among the automated systems the following systems were found to be usually used in procurement activities; electronic mail (M=6.04 and SD=1.31) and automated identification bar code (M=5.60 and SD=1.88). It was also found that almost all supermarkets had adopted bar cording technology in warehouse operations. This helps in controlling and management of stocks within a supermarket. The study findings also showed that the following automation were frequently used; electronic data interchange (M=5.38 and SD=1.37), e-procurement (M=5.21 and SD=1.84) and electronic catalogue (M=4.68 and SD=1.89).

However, the standard deviation scores reveal that some supermarkets rarely used these systems in procurement activities. It was also evident that internet market place systems were sometimes used (M=4.03 and SD=2.03). The desktop purchasing system was also found to be occasionally used (M=3.27 and SD=1.69) and online auctioning of goods and

services was found to be rarely used (M=2.18 and SD=1.44) by supermarkets in Nairobi, Kenya. From the above responses, it is evident that automated procurement systems are frequently utilised by supermarkets in Nairobi Kenya. These findings are consistent with different studies Jacobs(2009); King(2010); Lyson and Farrington(2006) and Bozarth(2008) who identified email, automated identification barcode, electronic data interchange, e-procurement, electronic catalogue, internet marketplace, desktop purchasing and online auctioning as key automated procurement systems used in supermarkets.

4.4 The Effect of Automated Procurement Systems on the Performance of Supermarkets

After identifying the extent of usage of automated procurement systems, the second objective seeks to investigate the effects of automated procurement systems on performance of supermarkets in Nairobi Kenya. The respondents were asked to indicate their degree of agreement on various statements relating to the effect of automated procurement systems on performance of supermarkets. The scale used ranged from; strongly disagree (1) to strongly agree (7). The descriptive statistics results are presented in Table 4.4.

Table 4.4The Effect of automated procurement systems on the performance of supermarkets

Effects	**N**	**Mean**	**Std. Deviation**	**Decision**
Monetary Savings	83	6.5422	.75387	Strongly agree
Time Savings	83	6.1084	1.27845	Agree
Gain competitive advantage	83	6.0964	1.37588	
Increased Accuracy	83	5.9880	1.70719	
Increased compliance	83	5.4096	1.82153	Somewhat
Enhanced negotiation & purchasing power	83	4.4096	1.67504	agree
Valid N (listwise)	**83**	**5.7590**	**1.43533**	**Agree**

Research data (2015)

Key: 1.00-1.49= strongly disagree, 1.49-2.49= disagree, 2.5-3.49 =somewhat disagree, 3.50-4.49=neither agree nor disagree, 4.50-5.49=somewhat agree, 5.50-6.49=agree and 6.50-.7.00=strongly agree.

Results show that respondents strongly agreed (M=6.54 and SD=0.7) that automated procurement systems adoption and utilisation enhances monetary savings. This is because the manual process is tedious, requires a lot of travelling, communication and organisation. Therefore, supermarkets tend to save money when using ICT procurement systems. Secondly, the respondents also agreed that adoption and use of automated procurement systems results to saving of time (M=6.10 and SD=1.27), gaining of competitive advantage (M=6.09 and SD=1.37) and increased accuracy rate (M=5.98 and SD=1.71). Lastly, the respondents also appeared to somewhat agree with the statements that automation of purchasing activities by their supermarkets result to increased compliance (M=5.41 and SD=1.82) and enhanced negotiation and purchasing power.

Average statistics on the above results show that respondents tended to agree (M=5.75 and SD=1.43) that automated systems have positive effects on performance of supermarkets in Nairobi Kenya. These findings are consistent with different studies Joshi(2009); Crump(2011); Hum and Marciano(2010); Atkinson(2010); Akoth (2014) and Amin (2012) who identified monetary savings, increased accuracy, enhanced negotiation and purchasing power, increased compliance and lastly gain a competitive advantage as key benefits of automated procurement systems.

Table 4.5 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.312	.729		4.543	.000
	Automated Identification barcode	.032	.044	.078	.734	.465
	Electronic Catalogue	.143	.052	.348	2.745	.008
	Internet Marketplace	.115	.042	.299	2.711	.008
	Desktop Purchasing system	.076	.059	.166	1.287	.202
	Online Auctioning	-.058	.063	-.108	-.934	.353
	Electronic Data Interchange	.055	.059	.097	.939	.351
	Electronic Mail	.007	.071	.012	.098	.922
	E-procurement	.139	.050	.328	2.791	.007
a. Dependent Variable: Performance						

Research data (2015)

From the table above the multiple linear regression equation is presented as

Y=3.312+0.032X1+0.143X2+0.115X3+0.076X3-0.058X5+0.055X6+0.007X7+0.139X8

Where:

β0=3.312 shows that if the level of independent variables are held constant zero, supermarkets performance would be 3.312

β1=0.032, shows that one unit change in use of automated identification barcode would result in 0.032 increase in supermarkets performance.

β2=0.143, shows that one unit change in use electronic catalogue would result in 0.143 increase in supermarkets performance

β3=0.115, shows that one unit change in use of internet marketplace would result in 0.115 increase in supermarkets performance

β4=0.076, shows that one unit change in use of desktop purchasing system would result in 0.076 increase in supermarkets performance

β5=-0.058, shows that one unit change in use of online auctioning would result in 0.058 decrease in supermarkets performance

β6=0.055, shows that one unit change in use of electronic data interchange would result in 0.055 increase in supermarkets performance

β7=0.007, shows that one unit change in use of electronic mail would result in 0.007 increase in supermarkets performance

β8=0.139, shows that one unit change in use of e-procurement would result in 0.139 increase in supermarkets performance

Findings shows that at 5% level of significance, there exists enough evidence to conclude that the slope of the independent variable is not zero hence the independent variables are predictors of supermarket financial performance in Nairobi city.

The Standard Errors are the standard errors of the regression coefficients. They can be used for hypothesis testing and constructing confidence intervals. The Standardized coefficients (Beta) are what the regression coefficients would be if the model were fitted to standardized data, that is, if from each observation we subtracted the sample mean and then divided by the sample SD. The t statistic tests the hypothesis that a population regression coefficient is β is 0, that is, H_0: β= 0. It is the ratio of the sample regression coefficient B to its standard error.

The P value for the independent variable tells us whether the independent variable has statistically significant predictive capability. From the table above the significance values for electronic catalogue, internet marketplace and e-procurement are less than 0.05 hence they are significant predictors of supermarkets performance. The other independent variables Automated Identification Barcode, Desktop Purchasing Systems, Online Auctioning, Electronic Data Interchange and Electronic Mail whose significance levels are more than 5% respectively are not significant predictors of supermarket performance in Nairobi. These findings are consistent with Joshi (2009) observation that automated procurement solutions such e-procurement, internet marketplace, and electronic catalogue enables supermarkets to reduce costs, save time, improve accuracy, enhance supplier negotiations and ensure compliance. The result is more streamlined operations, smarter purchasing decisions and increased control over the supply chain. Although many supermarkets are delaying technology purchases until the economy improves, it is more

important now than ever before to implement solutions that give them a competitive edge. An automated procurement system not only optimizes existing resources and prevents unnecessary costs, but also positions the supermarkets for success, in the short term and the future.

Table 4.6 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.494[a]	.244	.162	.71697
a. Predictors: (Constant), E-procurement, Automated Identification barcode, Internet Marketplace, Electronic Data Interchange, Online Auctioning, Electronic Catalogue, Electronic Mail, Desktop Purchasing system				

Research data (2015)

The model had an R square value of 0.244 indicating that the percentage of the dependent variable variance that was explained by the independent variables was 24.4%. The P-value of 0.000 (Less than 0.05) implies that the model of operational performance is significant at the 5 per cent significance. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a positive average relationship between the study variables as shown by 0.494. The findings are in line with Joshi (2009) observation that automated procurement solutions such e-procurement, internet marketplace, and electronic catalogue enables supermarkets to reduce costs, save time, improve accuracy, enhance supplier negotiations and ensure compliance.

The coefficient of multiple determinations is 0.162 which shows that 16.2% of variation in supermarket performance is influenced by the variation in automated procurement systems used by supermarkets in Nairobi. The ANOVA model fit is presented below.

Table 4.7 ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.250	8	1.531	2.979	.006[a]
	Residual	38.039	74	.514		
	Total	50.289	82			
a. Predictors: (Constant), E-procurement, Automated Identification barcode, Internet Marketplace, Electronic Data Interchange, Online Auctioning, Electronic Catalogue, Electronic Mail, Desktop Purchasing system						
b. Dependent Variable: Performance						

Research data (2015)

The ANOVA goodness of fit model shows that at $\alpha=0.05$ level of significance, there exists enough evidence to conclude that automated procurement systems (predictors) is useful for predicting performance of supermarkets making the model to be useful. The ANOVA findings in the table above (P-value of 0.006) show there is correlation between the independent variables (automated procurement systems) and the dependent variable (Performance of supermarkets). This indicates that E-procurement, Automated Identification barcode, Internet Marketplace, Electronic Data Interchange, Online Auctioning, Electronic Catalogue, Electronic Mail, Desktop Purchasing system are significant predictors of supermarkets performance when they are combined together. At 95% confidence interval i.e P-value of 0.05 it implies that all the independent variables influence the performance of supermarkets. These findings are consistent with different studies Joshi(2009); Crump(2011); Hum and Marciano(2010); Atkinson(2010); Akoth (2014) and Amin (2012) who identified that automated procurement systems are significant predictors of supermarkets performance when they are combined together.

4.5 Challenges of Automated Procurement Systems

This is the last objective of the study that sought to determine the challenges that supermarkets in Nairobi city faced towards embracing automation technology in procurement operations. The previous results showed that despite automation having a positive effect on performance of supermarkets, the adoption rate was not similar across the supermarkets studied. To identify the causes for this, the respondents were asked to

indicate their level of agreement; 1-strongly disagree and 7-strongly agree on several statement presented to them as challenges. Their responses are illustrated in Table 4.8.

Table 4.8 Challenges of automated procurement systems

Challenges	N	Mean	Std. Deviation	Challenge level
High cost of system implementation	83	6.3614	.94454	Major
Slow user acceptance of new information systems	83	6.2892	.94392	
Lack of Management support	83	5.7711	1.37331	
Inadequate IT and networking Infrastructure	83	5.3133	1.72448	Moderate
Inadequate employee training	83	5.1928	1.70693	
Inadequate supplier involvement	83	4.9639	2.14956	
Lack of system Standardization	83	4.5301	1.94019	
Lack of System Integration	83	4.5060	1.57243	
Multi-departmental implementation	83	4.0843	1.84922	
Inadequate system software features	83	3.8072	2.26025	
Valid N (Listwise)	**83**			

Research data (2015)

Key: 1.00-2.49= low challenge, 2.5-5.49 =moderate challenge, 5.50-.7.00=strongly major challenge.

Results shows that the major challenges experienced were; high cost of systems implementation (M=6.36 and SD=0.94), slow user acceptance of new information systems (M=6.28 and SD=0.94) and lack of management support (M=5.77 and SD=1.37). The study findings also showed that the following were moderate challenges influencing adoption and use of automation systems in procurement operations in Nairobi supermarkets; inadequate networking infrastructure (M=5.31 and SD=1.72), inadequate employee training (M=5.19 and SD=1.70), inadequate supplier involvement (M=4.96 and SD=2.14) and lack of system standardisation (M=4.53 and SD=1.94). the respondents also appeared to agree that; lack of system integration (M=4.50 and SD=1.57), multi-departmental implementation (M=4.08 and SD=1.84) and inadequate system software features (M=3.80 and SD=2.26) were moderate challenges experienced by supermarkets

in automating procurement operations. From the findings, it is clear that the cost of purchase, installation and maintenance of procurement automation systems affects their adoption and utilisation by supermarkets in Nairobi. These findings are consistent with the study by Angeles and Nath (2007); Akoth(2014) and Amin (2012) that identified different challenges of e-procurement implementation amongst them: lack of system integration and standardization issues, immaturity of e-procurement-based market services and end user resistance and lastly maverick buying and difficulty in integrating e-procurement with other systems.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary of the findings of the research on the influence of adoption and use of automation in procurement operations and performance of supermarkets in Nairobi, Kenya. The chapter also gives the conclusions, recommendations and suggestions for further studies.

5.2 Summary of Findings

The study was conducted in light of shift in procurement activities from manual to technology processes and procedures. Operating in competitive environment, supermarkets have to device ways and means of sustaining their operations while providing various categories of products and services at the right time. This will help customers to always remain loyal in their preferred retail chain. With the trend in information technology, various systems have been developed to support purchase and procurement processes. This study sought to determine the degree to which automated procurement systems had been adopted by supermarkets in Nairobi Kenya.

A survey was made whereby researcher administered questionnaires to sampled outlets in the city. From their responses regarding the first objective, it was evident that majority of supermarkets relied on electronic mail and automated identification bar-coding systems to transact their procurement operations more than any other systems mentioned to them. For instance, most supermarkets communicated orders through sending emails to suppliers' sales agents via emails and this hastened the period of delivery and confirmation of products being available or not. This ensured that there was regularly and constant communication via email between supermarkets and their suppliers.

After delivery of products by suppliers to supermarkets, most of the supermarkets bar-coded the products using special technology that helps in their identification, stock control and sales operations. Other automated systems found to be frequently being used were electronic data interchange (EDI), e-procurement and electronic catalogue.

On the second objective, it was established that when supermarkets automate their procurement activities, they tend to save money by cutting down the operational costs involved in the traditional form of procurement. It was also clear that time was saved and this propelled the retail chains to gain competitive advantage in the supermarket industry. Moreover, accuracy of products ordered and delivered was maintained when those systems were used. Bivariate correlation results showed that there existed a significant ($p<0.01$) positive effect of automated procurement systems and performance of selected supermarkets in Nairobi city.

Lastly, the results established that the degree of correlation of the independent predictor (automation of procurement systems) and performance of supermarkets was not strong due to various challenges stretching from; high cost of system implementation, slow user acceptance of new automated procurement systems, lack of management support in adoption of new systems, inadequate IT and networking infrastructure and inadequate employee training. These among other factors mentioned affected effective utilisation of automation systems on performance of supermarkets.

5.3 Conclusions

From the study findings, it was established that there is a significant positive degree of association ($r=3.49$ and $p=0.01$) between supermarkets adoption of automated procurement systems on their performance. The beta values computed ($\beta=.412$) suggested that the correlation coefficient values for automation had significant influence on the performance of supermarkets in Nairobi, Kenya. Various automated systems that were found to be constantly being used by supermarkets were; electronic mail, automated identification barcode, electronic data interchange, e-procurement and electronic catalogue. Moreover, the statistics revealed that continuous management support, employee training, financing, and user acceptance of automated procurement systems could lead to monetary savings, time saving, increased accuracy, enhanced negotiation and purchasing power, increased compliance and gaining of competitive advantage.

5.4 Recommendations

The study findings showed promising effect of automation of procurement systems on performance of supermarkets in Nairobi Kenya. to improve its adoption and utilisation, the following recommendations should be considered by stakeholders involved;

There is need for government to lower taxes imposed on purchase of automated systems that are related to procurement operations. This will be cushioned further by government support to IT incubators whereby young men and women will have platform for developing country's customised systems rather than relying on foreign ones that are expensive to purchase, install and maintain.

Management of supermarkets need to undertake change management training to their employees to educate them on the benefits of migrating to automated procurement systems, this will help in reducing their resistance to innovations thereby drive up performance of their retail chains. Supermarket management also need to consider giving full support to innovations aimed at cutting costs and reducing time wasted when using traditional procurement processes.

This will make the supermarkets able to sustain their grip on the market and therefore be sustainable and competitive in future. Supermarkets should ensure that they provide adequate infrastructure needed for full automation of procurement systems.

5.5 Limitations of the Study

The supermarket industry in Kenya currently is characterized by a large number of competitors. This made it very difficult to collect data from some supermarkets. Some could hold back some information for fear that it might be used against them by their competitors.

The supermarket industry is a very busy industry and this made it challenging collecting data from some units across the day. It required that the data be collected very early in the morning before the day gets busy. Due to time limit this was not practical.

5.6 Suggestions for Further Research

The study looked at the effect of automation of procurement systems on performance of supermarkets in Nairobi City; the study was limited to selected supermarkets. Therefore, further research can be broadened to cover other cities in Kenya; Kisumu and Mombasa. Moreover, the study suggests that future scholars may consider conducting research on employee related factors influencing adoption and use of automated procurement systems in organisations.

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APPENDIX 1: QUESTIONNAIRE

The questionnaire is designed to establish the effect of using automated procurement systems by supermarkets in Nairobi, Kenya. The questionnaire is divided into three parts. The information given will be treated with utmost confidentiality.

SECTION A: BACKGROUND INFORMATION

1. What is the name of your supermarket……?

2. What is your position (job title) in the supermarket: Procurement Officer [ ] Procurement Manager [ ] Supply Chain Analyst [ ] Chief Procurement Officer [ ] Others [Specify]……

3. What is your gender Male [ ] Female [ ]

4. How long have you worked in your organization? Less than 5 years [ ] Between 5-10 years [ ] Between 10-15years [ ] over 15years [ ]

SECTION B: THE AUTOMATED PROCUREMENT SYSTEMS ADOPTED BY SUPERMARKETS IN NAIROBI, KENYA

5. Please indicate the extent to which you use with the following statements by indicating (√)

Where **1**.Not at all **7.** Extremely large extent

Automated Procurement Systems	1	2	3	4	5	6	7
Automated Identification barcode							
Electronic Catalogue							
Internet Marketplace							
Desktop Purchasing system							
Online Auctioning							

Electronic Data Interchange							
Electronic Mail							
E-procurement							

Others Specify…

……

SECTIONC: EFFECTS OF AUTOMATED PROCUREMENT SYSTEMS ON THE PERFORMANCE OF SUPERMARKETS IN NAIROBI, KENYA

Please indicate extent to which automated procurement systems relate to the performance effects in your supermarket whereby **1**.Not at all, **7.** Extremely large extent

Effects of Automated Procurement Systems	1	2	3	4	5	6	7
Monetary Savings							
Time Savings							
Increased Accuracy							
Enhanced Negotiation& Purchasing power							
Increased compliance							
Gain a Competitive Advantage							

Others Specify…

……

SECTION D: CHALLENGES OF IMPLEMENTING AUTOMATED PROCUREMENT SYSTEMS

Please indicate the extent to which you agree to the occurrence of the following statements

in your supermarket by ticking (√) whereby 1. Strongly Agree, 7. Strongly Disagree

Challenges	1	2	3	4	5	6	7
Inadequate employee training							
Slow user acceptance of new information systems							
Lack of Management support							
Inadequate supplier involvement							
Lack of System Integration							
Inadequate system software features							
High cost of system implementation							
Lack of system Standardization							
Inadequate Information Technology							
Multi-departmental implementation							

Others Specify

……

END

Appendix II: List of supermarkets in Nairobi Kenya

1. Chandarana Supermarkets
2. Cleanshelf Supermarkets
3. Daily Basket supermarket
4. Eastmatt Supermarkets
5. Eagles Supermarket
6. Easy Mart Supermarket Ltd
7. Ebrahim & Co Ltd Supermarket
8. Esajo Supermarket
9. Fair Price Supermarket
10. Fairdeal Shop & Save Ltd
11. Fairlane Supermarkets Ltd
12. Foodies Supermarket
13. Fourty Six Supermarket
14. Galmart Supermarket
15. G-Mart Supermarkets
16. Home Choice Supermarket Ltd
17. Home Depo Supermarket
18. Homecare Enterprises Ltd
19. Homechoice Supermarket
20. Janamu Supermarket
21. Jeska Supermarket Ltd
22. Jopampa Provision Store
23. Jokies Super Market
24. Jossics Suprmarket
25. Jaharis Supermarkets
26. Kassmart Supermarkets
27. Kawangware Royal Supermarket
28. Kibao Supermarket
29. Leestar Supermarket
30. Lumumba Drive Supermarket

31. Mesora Supermarket Ltd
32. Midas Supermarket Ltd
33. Mumtaz Supermarket
34. Naivas Limited
35. Nakumatt
36. PakMatt Supermarket
37. Panje Supermarket
38. Quickmart Supermarkets
39. Rikana Supermarkets
40. StageMatt Supermarket
41. Seraben Supermarket
42. Skymart
43. Stop & Shop Supermarket
44. Sundus Supermarket
45. Tumaini Supermarkets
46. Tuskys
47. Uchumi Supermarkets
48. Ukwala Supermarkets
49. Uthiru Fair Price Supermarket
50. Venture Mini Supermarket
51. Waiyaki Way Supermarket
52. Wateule Supermarket
53. White Candle Supermarket

Source (Yellow pages, 2015)