# INFORMATION TECHNOLOGY AND PROCUREMENT PROCESS IN KENYA

**BY:**

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# DECLARATION

This research project is my original work and has not been submitted for examination in any other university.

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**D61/61711/2010**

This research project has been submitted for examination with my approval as the university supervisor.

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# DEDICATION

I dedicate this work to the almighty God who has blessed me with life and good health and to the entire Kiragu's family for their love and support all these years and throughout my study period. God bless you all!

# ABSTRACT

The main objective of the study is to asses' the impact of information technology on procurement process in Kenya. Organizations today continue to face business related problems like collection of timely reliable and accurate information, processing, storing, and retrieval for decision making and control of the organization. The application of information technologies to procurement processes will change the way work is performed, the number and skills of contracting personnel, and the procurement organization's structure. Procurement plays a major role in organizations, which can significantly influence a company's success. As a core function it is, however, subjected to the mega trends of the market. Its day to day existence is very much defined by growing procurement volumes due to greater concentration of business on core competences, globalization of procurement markets, growing market dynamics as well as the ever shorter product lifecycle. For a procurement organization to operate both efficiently and effectively in such a complex environment useful structures need to be created and suitable instruments put to use. Information technology can have an important function in this regard. Used appropriately it can offer: smoother and faster process flow, efficient distribution of information, decentralization of tasks and decisions, increased transparency and better control. In addition, information technology helps not only to support internal processes, but also those involving business partners. The research design used descriptive survey method aimed at establishing the impact of information technology on procurement process in Kenya for companies listed in Nairobi Securities Exchange. The study used stratified random sampling technique to select a

sample of 37 employees from a population of 124. Questionnaires were distributed and 30 were fully completed and returned. This formed 81% of the population and it was found to be sufficient for the study. The study concludes that, the ability to use technology to improve the contracting process depends in part upon co-operation between the organizations that maintain data and organizations that use the data. Procurement systems promise to bring organizations one step closer to a scenario of integrated, yet modularized systems, which are flexible enough to handle all the different kinds of purchasing routines an organization usually has in place.

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| | |
|---|---|
| **NAPM** | National Association of Purchasing Management |
| **CRM** | Customer relationship management |
| **ERP** | Enterprise Resource Planning |
| **EDI** | Electronic Data Interchange |
| **IT** | Information Technology |
| **MRP** | Material Requirements Planning |
| **SCM** | Supply chain management |

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background of the Study

Procurement refers to the purchasing of goods and services by organizations and accounts for significant proportion of both public expenditure and the demand for goods and services in the economy (Dong et al. 2009). Procurement plays a major role in manufacturing and trade, which can significantly influence a company's performance (Blunt, 2010). Its day to day existence is very much defined by growing procurement volumes due to greater concentration of business on core competences, globalization of procurement markets, growing market dynamics as well as the ever shorter product lifecycle (Blunt, 2010).

Procurement process involves the purchase of goods or services at the best possible cost to meet the needs of the purchaser in terms of quality and quantity, time and location. Procurement as a supply chain function has developed significantly over the decades; initially it was a purely administrative function until Porter (1980), prompted firms to think of procurement as a strategic function rather than an administrative one in his five forces model where he show cases supplier and buyer power as two critical forces for competitiveness.

Technology adoption research shows in almost all cases, especially in network technologies such as ICT, that S-shaped adoption curves can be observed. The diffusion of an innovation starts slowly with a few early adopters. Information technology facilitates communication between individuals or groups who are not physically present

at the same location (Raymond, 2005). Systems such as telephones, telex, fax, radio, television, and video are included, as well as more recent computer-based technologies, including electronic data interchange and e-mail. In the early days of e-procurement, buying enterprises and solution providers under estimated the time, effort, and resources required to enable suppliers to transact business electronically. Leading enterprises typically use a combination of supplier enablement approaches. Various approaches with their benefits and trade-offs are reviewed (Lui, 2008).

Though tremendous progress has been made in supplier enablement, all involved parties end users, suppliers, and solution providers continue to work to make enablement as simple and cost effective as possible. Individual end users and entire business units will naturally resist any change in business processes that takes away buying power and buying flexibility (Lui, 2008). IT is transforming the way that business is conducted. Computers prepare invoices, issue checks, and keep track of the movement of stock, and store personnel and payroll records. The personal computers are changing the patterns of office work, and the spread of information technology is affecting the efficiency and competitiveness of business, the structure of the work force, and the overall growth of economic output (Chismar and Kriebel, 2007). Purchasing department has been radically changed by the development of the Information Technology (IT). Simply the communication channels widened enormously, and the information exchange has become significantly faster and broader, simplifying several steps with regards to purchasing, and also enhancing fast decision making. Also the quality has improved, costs have been reduced, and speed has increased. Many communication channels are

available like Internet, email, telephone, mobile communications, fax, video conference calls, and GPS (Raymond, 2005).

Over the past few years, user adoption has increased at essentially the same pace as the increase in suppliers enabled. With more products and suppliers on the e-procurement system, users have less reason to try to circumvent the system. Still, end users report that several factors continue to hold back user adoption, including inadequate representation of spending categories within the system, inconsistent purchase requirements, procedures, and supply bases by site or region, and a lack of executive mandates or policies to drive adoption and system compliance. Best Practice enterprises have worked on user adoption for years, and many supply executives at these enterprises have become leading “sellers” of the e-procurement system to end users.

## 1.2 Research Problem

Organizations today continue to face business related problems like collection of timely reliable and accurate information, processing, storing, and retrieval for decision making and control of the organization (Osmonbekov, Bello and Gilliland, 2002). As compared to modern ICT based procurement, traditional procurement was paper-based and conversation-based (Bartezzaghi and Ronchi, 2003). In recent years, this has changed somewhat to become a strategic function: procurement officers seek suppliers that fit with a company's overall strategy. According to Stratman, (2007) poor records management, documentation and filing system, lack of proper procurement planning and effective post award contract management, inconsistency in making mandatory reporting

to Public procurement oversight authority and lack of use of standard requisitions were a clear indication of a failed process.

The procurement organizations are not satisfied with what has been achieved, and wish to take advantage of further potential for optimization. The most important general procurement goal set by the companies examined is the reduction of the purchasing price and the total cost of procurement. Great importance is also attached to internal process optimization (Caldwell, Roehrich and Davies, 2009). Its day to day existence is very much defined by growing procurement volumes due to greater concentration of businesses on core competences, globalization of procurement markets, growing market dynamics as well as the ever shorter product lifecycle. Traditional procurement involves getting quotes and then approval, probably from finance, as well as a purchase order, which could take more than a week. With information technology, this process is simplified and speeded up considerably, thanks to real-time interaction with pre-approved suppliers and trading partners, who can be anywhere in the world. With online purchasing, the purchase can be approved online and the order completed within minutes; the required item often arrives within days (Lewis and Roehrich, 2009).

Local studies have been done on information technology and procurement process. For instance, Hamada (2012), did a study on effects of information technology on supply chain management a case of general motors east Africa where the study found a significant study effect of information technology on supply chain management. Kiburi (2008) did on factors influencing the implementation of e-procurement among firms listed on the Nairobi stock exchange. Katana (2011) did on electronic procurement

adoption: the case of Kenya ports authority. Study showed that firms' that acquire extensive IT resources are able to create competitive advantage. No known study has been done on the impact of information technology on procurement process in Kenya. Nevertheless, prior researches have difficulty providing evidence on positive relationship between information technology and procurement process. The interest in the study has been inspired by the existing knowledge in addition to the current literature, creating further a gap in emerging cost reduction and their unique needs. Mixed and inconclusive findings suggesting that a more in depth analysis is required; therefore the study seeks to answer the following research questions;

1. What are types of information systems used in the procurement process in companies listed in Nairobi Securities Exchange?
2. What is the impact of information technology on the procurement processes in companies listed in Nairobi Securities Exchange?
3. What are challenges in implementing Information Technology for procurement process in companies listed in Nairobi Securities Exchange?

## 1.3 Research Objectives

1. To determine the type of information systems used in the procurement process in companies listed in Nairobi Securities Exchange.
2. To establish the impact of information technology on the procurement processes in companies listed in Nairobi Securities Exchange.
3. To establish the challenges in implementing Information Technology for procurement process in companies listed in Nairobi Securities Exchange.

## 1.4 Value of the Study

The findings from the study will particularly be useful in providing additional knowledge to existing and future organizations on the impact of information technology on procurement process. This study will also be beneficial to all, private manufacturing, private service providing companies and public sector since they will enhance the realization on the impact of information technology on procurement process that are majorly employed. The findings will also provide a useful reference document to stake holders in the companies listed in Nairobi Securities Exchange and academic institutions in their endeavors to formulate work plan to meet the performance.

Scholars, students and other researchers may also find the study helpful to identify further areas of research built on the findings of this research. The study will be a source of reference material for future researchers on other related topics; it will also help other academicians who undertake the same topic in their studies. The study will also highlight other important relationships that require further research; this may be in the areas of impact of information technology on procurement process in Kenya for companies listed in Nairobi Securities Exchange.

Most importantly, it will help the policy makers within the companies listed on the Nairobi Securities Exchange to identify crucial areas in information technology and procurement process. Also, through this study, leaders and managers in public sector will learn and make responsible strategic plans and policy decisions that are meant to facilitate and sustain high organizational performance, and manage organizational and national resources so that corporations and societies can benefit from them in the future.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Introduction

Critical literature review was done to provide a guideline on how the research was to be carried. The review focuses on the procurement process, types of information technology, the impact of information technology on procurement process and challenges in implementing Information Technology for procurement process.

## 2.2 Procurement Process

When accessing the needs of procurement, departments and agencies are responsible for realistically determining the goods they need and the manner in which they will be procured. They devise a mechanism, for planning in detail all proposed procurements within its available resources, delivery time or completion date and benefits that are likely to accrue in future. Any unrealistic assessment of procurement would tend to minimize value for money or result in wastage of resources (Caldwell, Roehrich and Davies, 2009).

In risk assessment, risks associated with the procurement of goods are identified and strategy is developed to manage them contingent plans are also formulated. Sometimes risks are transferred to the contractor when he is considered most appropriate to manage them. However, sharing of risks between both the parties in all the stages of procurement process is considered to be the best possible approach in managing risks (Caldwell, Roehrich and Davies, 2009).

Proper and detailed specification is critical to procurement of goods of right quality and need. It identifies what is required from the contractor and he is expected to bid against the specifications given in the bid document. Specifications can be simple or complex depending on the nature of procurement (Caldwell, Roehrich and Davies, 2009). In order to ensure fair and impartial competition the specifications should be defined in such a manner that it allows widest possible competition and should not favor any single contractor or supplier nor put others at a disadvantage. Specifications should be generic and should not include references to brand names, model numbers, catalogue numbers or similar classifications (Caldwell, Roehrich and Davies, 2009).

In the approval mechanism, the Procurement Agency provides clear authorization and delegation of powers for different categories of procurement. Procurements are initiated once approval of the competent authorities, as per authorization and delegation of powers, is accorded (Lewis and Roehrich, 2009). When selecting the method of procurement, open competition is considered to be the best basis for efficient public procurement to ensure that value for money has been obtained. Various methods of procurement are provided in the relevant manuals, rules and regulations and policy guidelines issued by the Governments and international institutions (Caldwell, Roehrich and Davies, 2009).

During prequalification of bidders, in case of procurement of expensive and technically complex goods, the procurement agency ensures that only technically and financially capable firms/contractors having adequate managerial capability are invited to submit bids (Lewis and Roehrich, 2009). This is done prior to floating of tenders, invitation to

proposals or offers in procurement process. Such pre-qualification is solely based upon the ability of the interested parties to perform that particular work satisfactorily. The procurement agency while engaged in pre-qualification usually takes into consideration relevant experience, past performance, capabilities with respect to personnel, equipment, financial position, appropriate managerial capability of the contractors to ensure that contract will be performed successfully (Lewis and Roehrich, 2009). Pre-qualification process is notified and a set of pre-qualification documents is provided to all competitors. After pre-qualification process, the pre-qualified contractors are notified and they become entitled to participate further in the procurement process.

The bidding documents provide all the general and special conditions of contract and other necessary information to enable the potential bidder to clearly understand their requirements and submit his responsive bid in time. These documents define the risks and responsibilities of the buyer and the seller. The bidding documents should be carefully prepared by skilled professionals to ensure that all the terms and conditions of the procurement are incorporated in these documents and they are clear, precise and definite (lewis and Roehrich, 2009).

This is post-advertisement stage in which the Procurement Agency issues bid documents to the prospective contractors to enable them to submit bid for award of contract. Bid documents form the basis of award of contract to the successful bidder. Bid documents are very comprehensive and include invitation to bid, instructions to bidders, form of bid, form of contract, general or specialized conditions of contract, specifications and drawings or performance criteria (where applicable), delivery time or delivery schedule,

bill of quantities or list of goods, bid evaluation criteria, format of all securities, details of standards to assess quality of goods and any relevant information required by the Procurement Agency (Caldwell, Roehrich and Davies, 2009).

Evaluation of bids is the most important stage in the procurement process that leads to selection of the successful bidder. The bids are evaluated against the performance criteria (technical, commercial and financial) already laid in the bid documents. For the comparison of bids quoted in different currencies, the price is converted into a single currency specified in the bidding documents. After the bid is opened, no bidder is allowed to alter or modify his bid. The procurement agency will not introduce any condition which may discriminate between bidders. Award and signing of the contract is done on the basis of results of evaluation bid, the bidder with the lowest evaluated bid is awarded the procurement contract (Caldwell, Roehrich and Davies, 2009). The successful bidder furnishes the performance guarantee as per requirements specified in the bid documents. Usually no negotiation is allowed with the bidder having submitted the lowest evaluated bid or with any other bidder.

Contract administration is the implementation stage of the procurement process. A good contract administration is critical to the successful completion of a contract. A working mechanism is developed to ensure that it facilitates both parties to meet respective obligations as efficiently and effectively as possible (Caldwell, Roehrich and Davies, 2009).

## 2.3 Procurement Performance

The procurement function has not been given the recognition it deserves in developing countries, in most public entities, regardless of the effort by the partners like the World Bank, the International Trade Organisation, the United Nations Conference on Trade and Development, the World Trade Organization and, others. This could be deliberate or sheer ignorance on the value the procurement function could contribute to any organization (Telgen, Zomer, & de Boer, 1997).

For any organization to change its focus and become more competitive, Amaratunga & Baldry (2002) suggest that performance is a key driver to improving quality of services while its absence or use of inappropriate means can act as a barrier to change and may lead to deterioration of the purchasing function. Organizations which do not have performance means in their processes, procedures, and plans experience lower performance and higher customer dissatisfaction and employee turnover (Artley & Stroh, 2001, Amaratunga & Baldry, 2002 and CIPS Australia, 2005). Measuring the performance of the purchasing function yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage as was noted by Batenburg & Versendaal (2006). An important step towards reducing these risks is to make a realistic assessment of those that are most likely to occur in any procurement. There are some of most likely risks can be avoided or controlled by careful preparation and good information (Artley & Stroh, 2001).

## 2.4 Information system used in Procurement Process

Enterprise resource planning (ERP) integrates internal and external management information across an entire organization, embracing finance/accounting, manufacturing, sales and service and CRM. ERP systems automate this activity with an integrated software application. Its purpose is to facilitate the flow of information between all business functions inside the boundaries of the organization and manage the connections to outside stakeholders (Telgen, Zomer, & de Boer, 1997). Enterprise resource planning (ERP) as an extension of material requirements planning (MRP), later accounting resource planning and computer-integrated accounting. Without supplanting these terms, ERP came to represent a larger whole, reflecting the evolution of application integration beyond accounting (Raymond, 2005).

ERP is a business management system made up from a collection of applications or modules that integrates company functions such as marketing, finance, manufacturing and logistics (Helo and Szekely, 2005). ERP uses database technology to control and integrate information related to a company's business including data related to customers, suppliers, employees and finance. All business transactions, such as inventory management, production planning and distribution are entered, recorded, processed, monitored and reported (Helo et al., 2008).

An information technology (IT) specification is a description of a technology product or service a customer seeks to procure and is also a description of what a supplier must be prepared to offer to be considered for an award. International studies reveal that in spite of a growing proportion of purchased services, the management of these costs and

processes is not yet very advanced compared with cost management of direct and indirect goods(Caldwell, Roehrich and Davies, 2009)

## 2.5 IT Procurement Process

Business benefits achieved through successful e-procurement initiatives include cost reductions, closer relationships, improved information, increased efficiencies and the strategic use of purchasing staff. Cost reductions in companies can realize significant reductions in both the cost of purchased items and the actual cost of processing a purchase order. By aggregating total purchases, contract pricing can be based on volume thresholds. This results in lower costs for individual items where larger volumes are purchased. Supporting this theory, the National Association of Purchasing Management (NAPM) estimates that company's pay 15-25% more for goods and services when an employee makes a purchase that does not leverage an existing contract (Lui, 2008).

Through closer relationships with a smaller number of suppliers, better delivery terms can be negotiated with multiple orders consolidated into single deliveries. "Maverick purchasing" is reduced by limiting employee purchasing to a range of approved vendors, thereby controlling and reducing overall purchasing spend. Research by the Aberdeen Group estimates leakage (buying off contract) alone accounts for 30-40% of a company's OR spend (Robert, 2003). Costs are reduced as end users can prepare their own orders for approved vendors at approved pricing levels with no interaction with the purchasing department. Approvals, when required, are routed electronically, reducing internal lead times. This also has the benefit of reducing errors by electronically transmitting data.

Leveraging Information in electronic procurement enables visibility of organizational purchasing data, creating the opportunity to negotiate better terms with suppliers based on volumes, price & quality. Similarly, supplier performance metrics for on-time shipments, quality and invoicing can be considered when negotiating terms with suppliers and determining sourcing strategies for items/categories of items (Rai, Patnayakuni and Seth, 2006). By analyzing the purchasing history, organizations can calculate the total cost of ownership rather than just the purchase price. Information can also be leveraged by end users to track status, delivery and payment terms. This allows them to plan and manage order requirements. Storing and maintaining information in a central database of supplier catalogues and pricing information allows users to order against current pricing data and approved suppliers.

ICT increases efficiencies - that is workflow from producing a purchase request through to payment can be managed electronically by e-procurement processes, reducing errors and processing time. These efficiencies enable a reduced cycle time from requisition to payment. The Aberdeen Group estimates the time saved at 70%. These timesaving allowed reduced inventory levels, resulting in additional cost savings through better cash flow and lessened inventory carrying costs (Rai, Patnayakuni and Seth, 2006). Minimum order quantities and spending amounts can be set for users or departments enabling consolidation of multiple purchase requests. This has the benefit of reducing the total number of purchase orders, which in turn reduces processing costs (Lui, 2008).

Company’s employs technology in procurement, as it is primarily a business issue. Consequently, new initiatives require dedicated analysis and planning to minimize

associated risks. A risk area often overlooked and under-estimated in e-business initiatives is the impact on people within, and people external to, the organization (Lewis and Roehrich, 2009). When the role of purchasing takes on strategic rather than tactical importance, organizational change ensues. If procurement has always been a lengthy, centralized process in an organization, changing the process to enable desktop ordering by approved employees represents a significant change that needs to be managed (Telgen, Zomer, & de Boer, 1997).

According to Ray, Muhanna, and Barney, (2005) training and support for purchasing staff with new responsibilities and end users is an important component in managing this change. In addition, senior management must show leadership and support the implementation of change by insisting on compliance. Managing supplier perceptions is critical as trust and common understanding in supplier relationships are essential for project success. Communication with suppliers should include project goals that reinforce the message that e-procurement is also designed to strengthen existing supplier relations. This encourages suppliers to view initiatives as opportunities rather than threats (Lewis and Roehrich, 2009).

Changes to internal processes will extend outside organizational boundaries, impacting interactions with suppliers and customers (Wenyang, 2005). This presents an opportunity to strengthen relationships with suppliers to further drive efficiencies and increase the positive impact on organizations' bottom lines (Kohli and Grover, 2008). An e-procurement project should be undertaken as part of a total supply management strategy. The project is started by examining the current amount of suppliers and the

amount spent with each. This information can be difficult to determine because the data may not be available or in a format conducive to comparison. This analysis will form the basis for rationalizing the number of suppliers and determining with whom to negotiate pricing and terms (Robert, 2003).

It is also important to determine what organizations are trying to achieve and how success will be measured (Wenyang, 2005). Prior to purchasing a software package to automate the new process, organizations should determine their required functionality. They then can determine the best fit by knowing what questions to ask and testing several vendors. Organizations should then examine current processes, and take the opportunity to change and improve processes rather than just automate current ones. A thorough analysis will provide ample justification for taking the time to re-engineer processes. The final key to improving processes is ensuring proper controls are put in place to minimize risk and ensure compliance is monitored (Deming, 1986).

Deployment processes consist of activities that are performed (to a greater or lesser extent) each time an IT product or service is acquired (Robert, 2003). The specific procurement can be thought of in terms of a life cycle that begins with requirements determination, proceeds through activities involved in the actual acquisition of a product or service, and is completed as the terms specified in the contract are fulfilled. Each IT product or service that is acquired has its own individual iteration of this deployment life cycle (Carlsson, 2003).

Requirements determination is the process of determining the business justification, requirements, specifications and approvals to proceed with the procurement process (Deming, 1986). It includes sub-processes such as organizing project teams, using cost-benefit or other analytic techniques to justify investments, defining alternatives, assessing relative risks and benefits defining specifications, and obtaining necessary approvals to proceed with the procurement process.

Acquisition is the process of evaluating and selecting appropriate suppliers and completing procurement arrangements for the required products and services. It includes identification of sourcing alternatives, generating communications (such as RFPs and RFQ) to suppliers, evaluating supplier proposals, and negotiating contracts with suppliers.

Contract fulfillment is the process of managing and coordinating all activities involved in fulfilling contract requirements. It includes expediting of orders, acceptance of products or services, installation of systems, contract administration, and management of post-installation services such as warranty and maintenance, and disposal of obsolete assets (Robert, 2003).

Management Processes- consist of those activities involved in the overall governance of IT procurement. These activities are not specific to any particular procurement event, but rather are generalized across all such events. Three general classes of IT procurement management processes are supplier management, asset management, and quality management (Carlsson, 2003).

Supplier management is the process of optimizing customer-supplier relationships to add value to the business. It includes activities such as development of a supplier portfolio strategy, development of relationship strategies for key suppliers, assessing and influencing supplier performance, and managing communication with suppliers (Robert, 2003). Asset management is the process of optimizing the utilization of all IT assets throughout their entire life cycle to meet the needs of the business (Ray et al. 2005). It includes activities such as development of asset management strategies and policies, development and maintenance of asset management information systems, evaluation of the life cycle cost of IT asset ownership, and management of asset re-deployment and disposal policies. Quality management is the process of assuring continuous improvement in the IT procurement process and in all products and services acquired for IT purposes in an organization. It includes activities such as product testing, statistical process control, acceptance testing, quality reviews with suppliers, and facility audits.

## 2.5 Challenges of implementing IT for Procurement Processes

According to Lysons M. (2003), Globalization and international trade issues pose potential barriers to establishing procurement programs for both governments and private firms. Eco-labels have in the past, and likely in the future, will be discussed as a “barrier to trade” issue. There have been instances where Eco labeling has been designed to support certain products within specific markets (e.g., the overwhelming demand by consumers in the UK for labeling of GMO foods). As a result, eco labeling organizations tend to use clear, science based, environmental criteria when establishing their programs. For instance, the Municipality of Kolding, Denmark, cannot request that products have an Eco label (such as the Nordic Swan or the EU flowers) when designing

calls for tenders with environmental criteria. This is because such requests would not comply with the World Trade Organization's Government Procurement Agreement and European Union legislation on free market and equal opportunities. Instead, municipalities can specify environmental requirements similar or identical to those required by an Eco label. It is important to note a recent report by the CEC group on "Green Procurement in Trade Policy" which concludes that agreements such as the Uruguay Round Agreements, the North American Free Trade Agreement.

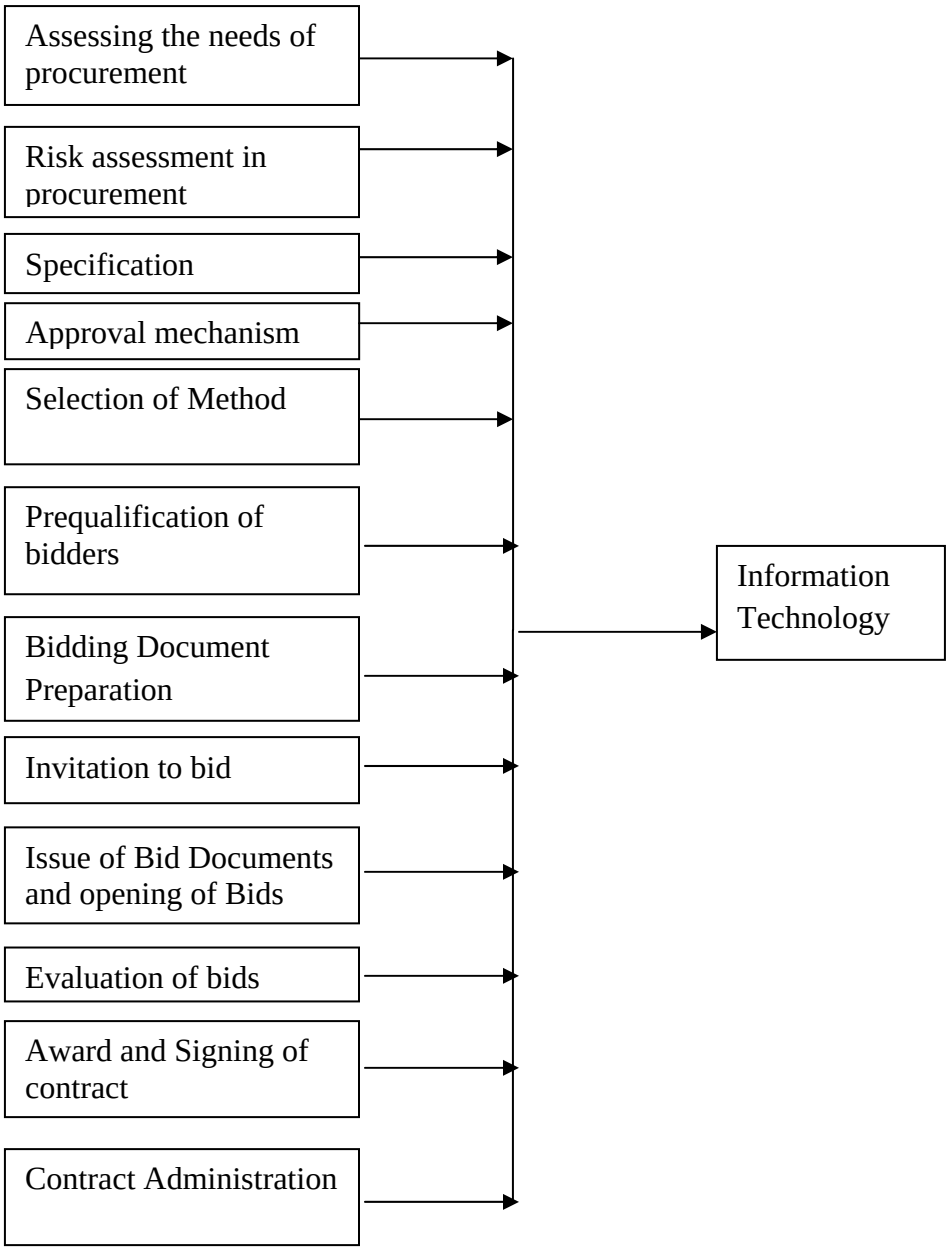
## 2.6 Summary of Literature Review

Electronic business is the process which uses Internet technology to simplify certain company processes, improve productivity and increase efficiency. Podlogar (2006) points some facts about process reengineering that are strongly connected to the process simplification, including: awareness of technology opportunities, ability to achieve process effectiveness, readiness for e-procurement collaboration, satisfaction and positive e-procurement experiences sharing and environment changing response. The groups of factors discussed above explore simplicity of business data processing with regard to processes that are necessary for the execution of the entire procurement process. At the first stage, it is important to identify findings associated with electronic commerce in procurement process that are important for its development and implementation. Distinguishing the significant electronic commerce variables in procurement process as well as the degree of their impact and significance on the procurement process will allow new business models to be developed. As mentioned re-engineering in simplifying the business process in e-Commerce will lead to capturing more opportunities and benefits in e-Commerce. Based on responses, we can conclude

that e-Commerce in the procurement process simplifies the separate sub-process of procurement. Enterprises, which endeavor to have a success in doing business electronically, should simplify sub-processes, namely: receiving of delivery data Announcement (shipment announcement), possible supplier's requisition request, transport ordering, and reclamation solving and bidding.

## 2.7 Conceptual Framework

**Figure 2.1: Conceptual framework**




Independent variables Dependent variable

Source; (Author) 2012

# CHAPTER THREE

# RESEARCH METHODOLOGY

## 3.1 Introduction

This chapter outlines the methods that were adopted by the study in obtaining impact of information technology on procurement process in Kenya for companies listed in Nairobi securities exchange. The chapter also describes and explains the research instruments that were used in the study. The chapter is thus structured into research design, target population, sample and sampling techniques, data collection and data analysis techniques.

## 3.2 Research Design

The research design was descriptive survey method aimed at establishing impact of information technology on procurement process in Kenya for companies listed in Nairobi Securities Exchange. Phil (1996) says that descriptive research studies are designed to obtain information concerning the current situation and other phenomena and wherever possible to draw valid conclusion from the facts discussed. According to Zinkmund (2000), “descriptive research studies are based on some previous understating of the nature of the research problem”. This is a survey research to explore the existing status of two or more variables at a given point in time. These methods were preferred because it allows for prudent comparison of the research findings. Descriptive survey attempts to describe or define a subject often by creating a profile of a group of problems, people or events through the collection of data and tabulation of the frequencies on research variables or their interaction as indicated.

## 3.3 Population of Study

According to Trochim (2006), Target population refers to the entire group of individuals or objects to which researchers are interested in generalizing the conclusions. The target population of this study consists of procurement and IT managers from all 62 companies listed in Nairobi Securities Exchange these including Agricultural, Telecommunication and technology, Banking, Insurance, Investment, Manufacturing and allied, Construction and allied and Energy and petroleum sectors (as shown in appendix II)

## 3.4 Sampling

The study used stratified random sampling technique to select a sample of 37 employees from a population of 124. The goal of stratified random sampling is to achieve the desired representation from various sub-groups in the population. Mugenda and Mugenda (2003), states that a sample of 30% is considered representative for a population less 500. So if the population is less or equal to 30% it is appropriate to carry out census study. The sample size is justified by 30% since it will minimize the duplicity and redundancy of the data to be obtained and the size is large enough to ensure collection of comprehensive data.

## 3.5 Data Collection

The study relied on primary data which was collected through administering a structured questionnaire comprising closed and open-ended questions, developed in line with the objectives of the study. The study sought responses from heads. The target population of this study consisted of procurement and IT managers from all 62 companies listed in Nairobi Securities Exchange these including Agricultural, Telecommunication and

technology, Banking, Insurance, Investment, and Manufacturing and allied, Construction and allied and Energy and petroleum sectors.

The questionnaire was divided into four parts. Section A covered general information, Section B focused on Procurement Process, Section C on Procurement Performance and Section D on IT Procurement process in Kenya for companies listed in Nairobi Securities Exchange. The questionnaire was administered through drop and pick method.

## 3.6 Data Analysis

The process of data analysis involved several stages: the completed questionnaires were edited for completeness and consistency, checked for errors and omissions and then coded. Data was analysed using descriptive analysis such as descriptive statistics mean scores and standard deviations frequencies distributions and percentages. The results were presented in table and charts.

# CHAPTER FOUR

# DATA ANALYSIS, RESULTS AND DISCUSSION

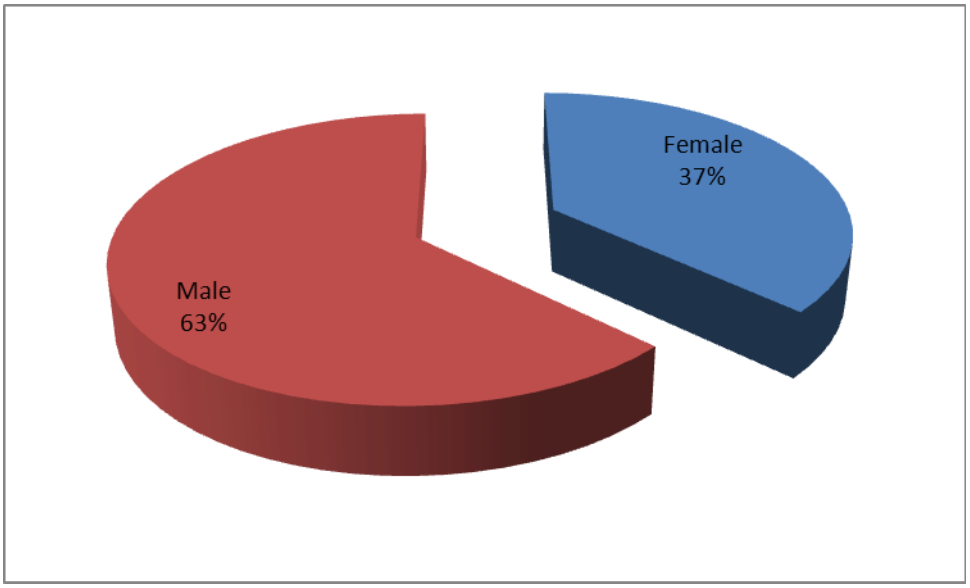
## 4.1 Introduction

This chapter provides an analysis of data collected from the field. The results are presented in tables and figures to highlight the major findings. They are also presented sequentially according to the research questions. Mean scores and standard deviations analysis was used to analyze the data collected. The raw data was coded, evaluated and tabulated to depict clearly the results of impact of information technology on procurement process in Kenya.

## 4.2 Demographic Characteristics

The study sought to establish the information on the respondents employed in the study with regards to the gender, duration of service, terms of employment and their level of education. These bio data points at the respondents' appropriateness in responding to the study questions required for the study to be complete.

**Figure 4.1: Distribution of Gender**



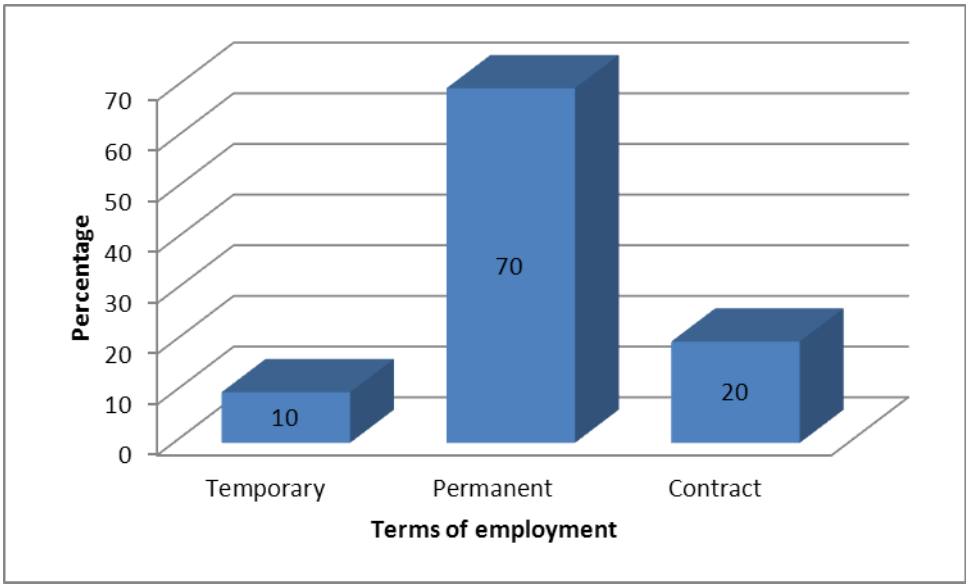

The respondents were asked to show their gender, this was expected to guide the researcher on the conclusions regarding the degree of congruence of responses with the gender characteristics on the impact of information technology on procurement process in Kenya. The results as shown in the figure 4.1 show that majority of the respondents were male at 63% while female were 37%. This indicates that majority of the staff working in areas of Procurement and as IT managers in the companies listed in Nairobi Security Exchange were male. More men have specialized in the field of procurement and information technology in most firms than woman. Since the public sector introduced the two third gender balance, listed firms are recognizing the importance of gender balance in its labor force.

## Table4.1: Length of Service in the Current Job

| Years | Frequency | Percentage |
|---|---|---|
| 3yrs and below | 6 | 20 |
| 3 to 5 years | 12 | 30 |
| 5 to 7 years | 9 | 40 |
| Over 7 years | 3 | 10 |
| **Total** | **30** | **100** |

Table 4.1 presents the findings on the duration of respondents work in the present capacity. From the figure, 40% indicated that they had been in the present company for 5-7 years, 30% indicated a period of 3-5 years, and 20% indicated a period of less than 3 years while 10% indicated a period of over 7 years. These findings indicated that majority of the staff working as procurement and IT managers in companies listed in Nairobi Securities Exchange have worked at their present company for a period of 5-7 years thus had rich experience in the field and therefore appropriate in giving information on our study and also they appreciated the need for the study. Most listed firms require experienced persons. Experienced employees are a source of competitive advantage for most listed firms in Nairobi Securities Exchange, this firm's work hard to retain these experienced employees.

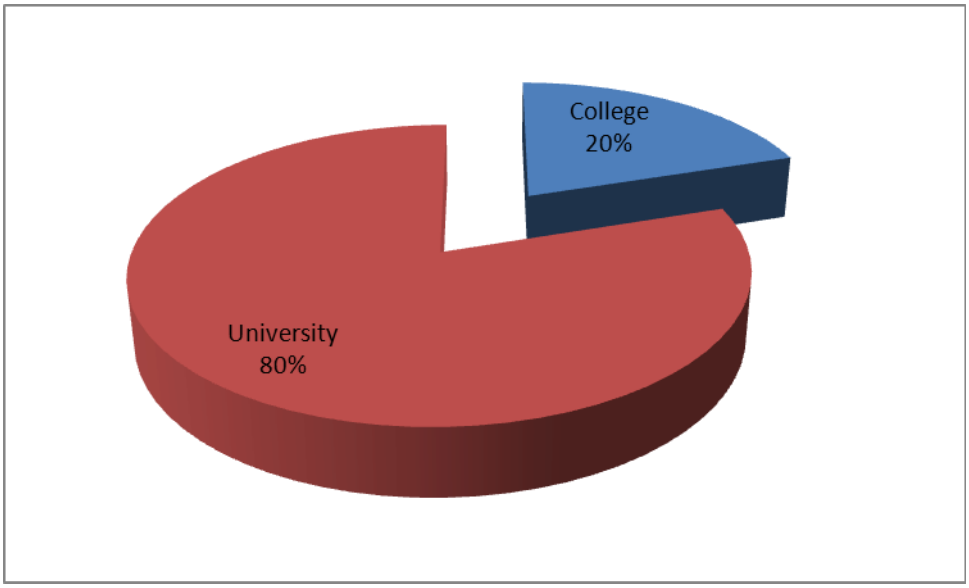
**Figure4.2: Terms of employment**




From figure 4.2 shown above, 70% of the respondents were in permanent employment, 20% had been employed in contract while 10% had been employed on temporary basis. These findings indicate that majority of the respondents had been employed on permanent basis in their firms therefore they were in the best position to understand the need of the study and were in a position to give appropriate information for the study.

In order to motivate and retain employees most listed firms in Nairobi Securities Exchange engage their staff on permanent terms hence giving them a sense of security.

**Figure4.3: Highest Attained Educational level**




The respondents were asked to show their highest attained education level. Figure 4.3 shows that majority of the respondents working in firms listed in the Nairobi Securities Exchange had attained their education up to university level while 20% had attained their education up to college level. This means that majority of those working in the Procurement field and IT had attained education up to university level and had gained rich information and they were conversant with the process, therefore they were appropriate for responding to our study questions.

Since this companies are in a very competitive environment where the best managed company attracts capital from financial institutions, this firms set high standards to the employees they recruit as shown in Figure 4.4; where 80% of respondents are university graduates.

## 4.3 Procurement Process

The respondents were asked to indicate the extent to which IT was employed in the procurement process in their organization. The table below shows the study results.

## Table4.2: Procurement Process

| **Description** | N | Min | Max | Mean | Variation | Standard deviation |
|---|---|---|---|---|---|---|
| Bidding Document Preparation | 30 | 1 | 4 | 3.8714 | 1.0718 | 0.3779 |
| Invitation to bid | 30 | 1 | 4 | 3.8001 | 1.0005 | 0.3124 |
| Approval mechanism | 30 | 1 | 4 | 3.5471 | 0.7475 | 0.8574 |
| Specification | 30 | 1 | 4 | 3.2658 | 0.4662 | 0.5685 |
| Selection of Method of procurement | 30 | 1 | 4 | 3.2158 | 0.4162 | 0.6985 |
| Assessing the needs of procurement | 30 | 1 | 4 | 3.0625 | 0.2629 | 0.9685 |
| Contract Administration | 30 | 1 | 4 | 2.9487 | 0.1491 | 0.527 |
| Prequalification of bidders | 30 | 1 | 4 | 2.6581 | -0.1415 | 0.6372 |
| Issue of Bid Documents and opening of Bids | 30 | 1 | 4 | 2.0235 | -0.7761 | 0.9961 |
| Evaluation of bids | 30 | 1 | 4 | 1.9658 | -0.8338 | 0.6875 |
| Award and Signing of contract | 30 | 1 | 4 | 1.6256 | -1.174 | 0.6208 |
| Risk assessment in procurement | 30 | 1 | 4 | 1.5624 | -1.2372 | 0.3265 |
| **Average score** | | | | **2.7996** | | **0.6315** |

From the descriptive statistics in the table shown above, the extent to which Information and technology is used in procurement process for companies listed in the Nairobi Securities Exchange. The results show that information and technology was mainly used

to a great extent in the following areas: Bidding Document Preparation, Invitation to bid and Approval mechanism. They were represented by means of 3.8714, 3.8001, and 3.5471 respectively. The processes indicated to have been used at a moderate extent include: Specification, Selection of Method of procurement, Assessing the needs of procurement, Contract Administration and Prequalification of bidders. The means are as follows: 3.2658, 3.2158, 3.0625, 2.9487 and 2.6581. Technology was used on Issue of Bid Documents and opening of Bids, Evaluation of bids and Risk assessment in procurement and awarding and signing of contracts at a low extent. The standard deviation show the spread of ideas of the respondents and from the table the standard deviation ranges from 0.3265 to 0.9685 indicating that it is a small value thus respondents were agreeing to the same idea. The process of Bidding Document Preparation, Invitation to bid and approval mechanism were rated highest because they enable the procurement process to unfold in a faster, more efficient and effective manner, with fewer errors and helps in cost saving. This cost reduction is associated with less paperwork, which translates into fewer mistakes and a more efficient purchasing process. The purchasing process is simplified and also has a favorable impact on the purchasing cycle time. Faster cycle time provides increased flexibility and more up-to-date information at the time of placing a purchasing order.

The use of IT in Bidding Document Preparation, Invitation to bid, Approval mechanism were represented by means of 3.8714, 3.8001, and 3.5471 respectively, most listed organizations highly rate this activities in order to maximize the use of IT, use of paperless process in procurement process, puts up strong control in purchases. Use of IT in Bidding Document Preparation, Invitation to bid, Approval mechanism introduce new

central controls to ensure greater consistency, improve procurement efficiency and creates integration with other departments.

## 4.4 Procurement Performance

The respondents were asked to indicate the extent to which they agreed with the procurement performance in relation to information system. The table below shows the study results.

### Table 4.3: Procurement Performance

| **Description** | N | Min | Max | Mean | Variation | Standard deviation |
|---|---|---|---|---|---|---|
| Improving quality of services while its absence or use of inappropriate means can act as a barrier to change and may lead to deterioration of the purchasing function | 30 | 1 | 4 | 2.3564 | -0.9304 | 0.3004 |
| Measuring the performance of the purchasing function yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage. | 30 | 1 | 4 | 3.7146 | 0.4278 | 1.2365 |
| An important step towards reducing these risks is to make a realistic assessment of those that are most likely to occur in any procurement | 30 | 1 | 4 | 3.7894 | 0.5026 | 0.9874 |
| **Average score** | | | | **3.2868** | | **0.8414** |

On the descriptive statistics on table 4.3 shows that 30 respondents were interviewed on procurement performance in relation to information system. Majority of the respondents agreed to a high extent that measuring the performance of the purchasing function yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage and an important step towards reducing these risks is to make a realistic assessment of those that are most likely to occur in any procurement with means of 3.7894 and 3.7146. Improving quality of services while its absence or use of inappropriate means can act as a barrier to change and may lead to deterioration of the purchasing function was indicated as to affect performance at a low extent m= 2.3564.

Measuring purchasing performance is important as the purchasing department plays an ever increasingly important role in the supply chain in an economic downturn. A reduction in the cost of raw material and services can allow companies to competitively market the price of their finished goods in order to win business. An obvious performance measure of the success of any purchasing department is the amount of money saved by the company. However, there are a number of performance measurements that businesses can use when they measure purchasing performance. Other benefits of measuring purchasing performance is that it yields benefits to organizational functions, where if its performance is well measured and managed, leads to long term supplier relations, procurement persons can regularly carry out market surveys in order firms source product or services at a reasonable cost while maintaining close supplier relationship.

## 4.5 IT Procurement Process

The respondents were asked to indicate the Information Systems used in the Procurement Process in their organization and to explain how they have eased the process. Some of the listed systems include:

## Table4.4: IT Procurement Process

| Description | Frequency |
|---|---|
| Electronic procurement system (E-procurement | 25 |
| Electronic Data Interchange systems (EDI | 10 |
| Electronic Mail | 30 |
| Data Bases | 30 |
| Networks | 30 |
| Expert Systems | 27 |

**Electronic procurement system (E-procurement):** This is software that allows purchasers 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 activity is completed in the electronic system, reducing paperwork and increasing efficiency. The systems were only used in few of the companies listed in Nairobi Securities Exchange and that means they have not become popular in most companies.

**Electronic Data Interchange systems (EDI)**: EDI deals more with the way information is communicated during procurement than it does with the act of linking buyers and suppliers. By definition, EDI is the electronic exchange of business information,

purchase orders, invoices, bills of lading, inventory data, and various types of confirmations between organizations or trading partners in standardized formats. EDI also is used within individual organizations to transfer data between different divisions or departments, such as finance, purchasing, and shipping. Two characteristics set EDI apart from other ways of exchanging information. First, EDI only involves business-to-business transactions; individual consumers do not directly use EDI to purchase goods or services. Secondly, EDI involves transactions between computers or databases, not individuals. Therefore, individuals sending e-mail messages or sharing files over a network does not constitute EDI.

**Electronic Mail:** E-mail messages can request input or advice or distribute documents by broadcasted messages for IT Procurement Process in the organization. In procurement, E-mail messages can disseminate draft procurement plans for comment or be used to obtain staff legal counsel or advice from small business specialists.

**Data Bases:** Procurement automation is the combination of these mass storage devices with relational data bases using fourth generation languages. Such combinations permit relatively easy access by users to almost unlimited amounts of information. Data bases available on computers situated at remote locations are easily accessible today.

**Networks:** Networks use electrical or optical connections to tie together computer workstations, terminals, small computers, and mainframe computers. Advanced technology is now revolutionizing data communications so that a buyer can electronically obtain volumes of information wherever it resides. The buyer can do so

because high-speed telecommunications circuits permit the transfer of great volumes of data.

**Expert Systems:** The purpose is to provide users with answers to problems based on the knowledge of experts in that field. The logic of an expert's rules for a given situation can be programmed into software to assist a buyer with a decision.

### 4.5.1 IT Procurement Process in the organizations

The respondents were asked to indicate their level of agreement with the following statements regarding IT Procurement Process. The table below shows the study results.

### Table 4.5: IT Procurement Process. In the organizations

| **Description** | N | Min | Max | Mean | Variance | Standard deviation |
|---|---|---|---|---|---|---|
| Your Business benefits through e-procurement initiatives include cost reductions, closer relationships, improved information, increased efficiencies and the strategic use of purchasing staff | 30 | 1 | 4 | 3.7968 | 0.0915 | 0.8745 |
| IT procurement process enhances cost reductions in companies can realize significant reductions in both the cost of purchased items and the actual cost of processing a purchase order | 30 | 1 | 4 | 3.6259 | -0.0794 | 0.8754 |

| | | | | | | |
|---|---|---|---|---|---|---|
| IT procurement process brings closer Relationships with suppliers | 30 | 1 | 4 | 3.8658 | 0.1605 | 0.3758 |
| Leveraging Information in electronic procurement enables visibility of organizational purchasing data, creating the opportunity to negotiate better terms with suppliers based on volumes, price & quality | 30 | 1 | 4 | 3.5326 | -0.1727 | 0.5647 |
| **Average score** | | | | 3.7053 | | 0.6726 |

From the findings all the means were above 3.5 indicating majority of the respondents agreed to the statements on IT procurement process in the organization. This indicates that IT in procurement is of great benefit to the organizations. Information technology makes a very significant or fairly significant contribution to carrying out the procurement function successfully. This seems to provide a good foundation for its use in assisting further developments in most procurement organizations. There is no uniform picture of either the sector or the procurement volume of companies whose contribution is estimated as rather low or very low. A properly implemented e-procurement system connects to a company's internal systems, such as accounts payable, as well as directly to their vendors and suppliers, allowing system-to-system integration and automation of much of the purchasing process.

### 4.5.2 Challenges faced in implementing IT for Procurement Processes

| **Description** | N | Min | Max | Mean | Variance | Standard deviation |
|---|---|---|---|---|---|---|
| High introduction costs for new solutions. | 30 | 1 | 4 | 3.2614 | 0.1366 | 0.8881 |
| Suppliers were slow to link up with the procurement system | 30 | 1 | 4 | 3.1547 | 0.0299 | 0.3010 |
| Difficulty in judging usefulness and potential of new IT solutions | 30 | 1 | 4 | 2.5214 | -0.6034 | 0.6221 |
| Lack of user-friendliness and user-acceptance of solutions | 30 | 1 | 4 | 3.3322 | 0.2074 | 0.9517 |
| Solutions only address some of the procurement processes and do not address the complexity of the processes | 30 | 1 | 4 | 3.5610 | 0.4362 | 0.8716 |
| Lack of qualified staff who can work with modern procurement system | 30 | 1 | 4 | 2.4215 | -0.7033 | 0.4625 |
| Consultant expertise is lacking in IT projects for procurement. | 30 | 1 | 4 | 3.6211 | 0.4963 | 0.8854 |
| **Average score** | | | | 3.1248 | | 0.7118 |

The respondents indicated the challenges as follows: High introduction costs for new solutions (3.2614), Suppliers were slow to link up with the procurement system (3.1547), Difficulty in judging usefulness and potential of new IT solutions (2.5214), Lack of user-friendliness and user-acceptance of solutions (3.3322), Solutions only

address some of the procurement processes and do not address the complexity of the processes (3.5610), Lack of qualified staff who can work with modern procurement system (2.4215), Consultant expertise is lacking in IT projects for procurement (3.6211).

The technology is available to permit technology procurement at all phases of the procurement transaction but the technological solutions may be costly and some are not so good at dealing with certain phases of the procurement. Where use of e-procurement is not mandated, and then take up by contracting authorities appears to have been slow. This can be attributed to the costs of re-organizing internal systems and low awareness of the advantages. There are concerns about the perceived risks of investing in e-procurement including technology risks and integration with existing information systems as well as security and control mechanisms. Suppliers are faced with different e-procurement platforms, arrangements and problems with the functionality of the systems.

### 4.5.3 Possible solutions to challenges faced in implementing IT for Procurement Processes

Providers of procurement solutions should have a vital interest in having well founded arguments with which to defend the difficult-to-appreciate benefits of their solutions. The insufficient user-friendliness and user acceptance should also be addressed. The main objection of procurement organizations, i.e., the high installation costs of new solutions should also be taken seriously. The cause of high costs lies to a decisive extent in the organization of the buyer and supplier.

The procurement organizations must improve the quality of their master data themselves and test whether their procurement process really needs to be so multifaceted and complex. They must also build bridges for their suppliers. In many cases, their own particular idea cannot be carried through on purchasing power alone, balanced integration scenarios can help keeps a lot of spanners out of the works.

There is the need for increased standardization and alignment of e-procurement systems. This also links in with problems arising from the lack of mutual recognition of national electronic solutions. Risks concerning technology application and integration of investing in the e-procurement with existing information systems as well as security and control mechanisms should be analyzed and recommendations given when a company needs to install the systems.

There is need to strengthen market signals, it will take considerable effort and skill to carry out the role of intermediary between prospective suppliers and buyers of a new technology. The basic idea of technology procurement is to condense into a much shorter period the complicated exchange of market signals, intervening in a way that accelerates and strengthens.

# CHAPTER FIVE

# SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

This chapter presents summary of findings as discussed in chapter four and interpretations of the data analysis, conclusions and recommendations based on the findings.

## 5.2 Summary of findings

Information technology now enables procurement activities to rethink how they conduct business. The work process is not merely streamlined to eliminate paper handling costs, but also to eliminate inventory, storage, and spoilage costs. Customer support is improved. New technologies not only process, store, and communicate information better but also stimulate thinking on how work processes can be improved. Instead of first automating the paper process, the most advanced systems automate redesigned, upgraded work processes, enabling information to be shared among all interested parties simultaneously and responses to be solicited and obtained concurrently.

More important, information technology fosters changes in business practice. Supplies are no longer bought in large quantities each fiscal quarter and stored in a depot awaiting requisition. Using the new processes, the electronic requisition is in effect an electronic order that goes directly to the manufacturer or distributor who ships the item to the requisitioning activity, bypassing the depot.

The procurement office establishes the overall contract vehicle. Electronic networks connect the requisitioned to the supplier. Commercial firms are re-engineering work processes with advanced information technologies to achieve significant savings in time and in costs. Technology processes such as paperless processes eliminate paper handling and much of the redundant data-entry requirements, thereby reducing the need for some clerical support. Paperless processes also reduce the number of personnel requirements. No longer must large staffs review and control cumbersome work processes. Automated systems will provide control, through system specifications managed by a smaller staff.

"Expert" systems will analyze many routine actions and provide recommendations to the contracting officer, thereby reducing the number of buyers required. Exceptions will still have to be referred to specialists for advice or opinion, but the routine actions can be handled by the system. The result will be "flattened" organizations with fewer managers and supporting staff members.

The ability of telecommunications technologies and networks to link remote offices to a central office creates organizations that are decentralized for local customer support purposes but are centralized for inventory management, long-term purchasing decision making, or policy setting purposes. Information technologies allow organizations to enjoy the benefits of both centralized and decentralized processing simultaneously.

## 5.3 Conclusion

Although Information and Technology based procurement systems have not yet been adopted on a broad scale, the general attitude of buying organizations is positive and

inquisitive. They are beginning to realize the potential of emerging technologies to change corporate procurement. Procurement systems promise to bring organizations one step closer to a scenario of integrated, yet modularized systems, which are flexible enough to handle all the different kinds of purchasing routines an organization usually has in place. Built upon open standards, emerging technologies also promise flexibility when it comes to adding or changing new functions and partners in order to keep up with changing business requirements.

Finally, the ability to use technology to improve the contracting process depends in part upon co-operation between the organizations that maintain data and organizations that use the data. Because technology can link organizations electronically, organizations need to communicate with their "customers" and "suppliers" before taking unilateral actions that could adversely affect others.

## 5.4 Recommendations

Procurement regulations that refer to paper documents and processes need to be modernized. Established procedures and procurement regulations must recognize information and technology techniques if system developers are not to be constrained when re-engineering work processes. Procurement management and executive courses and seminars should be held to address the effect of automation on the procurement function. Basic procurement courses should be revised to present automated contracting processes and techniques.

Business and political representatives need to be educated on the dynamic changes that information technology will bring to procurement and markets. Communities near military installations are going to see their geographic advantage in local procurement reduced as electronic commerce permits solicitation information to be shared with any interested party including parties at remote locations. The message should be that their contracting opportunities exist not only at the local base, but, taking their regional or national competitors' view, also at any base to which they can economically ship material.

For commodities, electronic ordering directly to the manufacturer may reduce business prime contract opportunities, but might simultaneously increase business subcontract opportunities (taken as the manufacturer uses local distributors to deliver priority items). The procurement action reporting system should more accurately reflect these changes in distribution channel arrangements between manufacturers and local distribution. Business statistics will be distorted.

## 5.5 Suggestion for Further Studies

Further studies need to focus on the role of Information and Technology in procurement. The study will address decision makers in organizations who are affected in some way by IT solutions in procurement and will aim to offer them orientation for the conception and further development of solutions

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# APPENDICES

## Appendix I: QUESTIONNAIRE

I'm a student at the University of Nairobi (School of Business). I'm carrying out an academic research study for the partial fulfillment of the requirement for the Award of the degree of Master of business administration. I kindly request you to accurately fill in the information requested as per instructions given. The information provided will be held in confidence and will be used for academic purposes only.

**SECTION A: PERSONAL INFORMATION (Please tick where appropriate)**

1. Gender:

   Female ( )  Male ( )

2. Years of service …….

3. Terms of employment:

   Temporary ( )  Permanent ( )  Contract ( )

4. Highest Attained Educational level:

   Secondary ( )  College ( )  University ( )

**SECTION B: PROCUREMENT PROCESS (Please tick where appropriate)**

1. Rate the extent to which IT is employed in the following procurement process in your organization? Rank by placing a tick in the appropriate place.

   1= No extent, 2= Low extent, 3= Moderate extent and 4= Great extent

| **Description** | **1** | **2** | **3** | **4** |
|---|---|---|---|---|
| Assessing the needs of procurement | | | | |
| Risk assessment in procurement | | | | |
| Specification | | | | |
| Approval mechanism | | | | |
| Selection of Method of procurement | | | | |
| Prequalification of bidders | | | | |
| Bidding Document Preparation | | | | |
| Invitation to bid | | | | |
| Issue of Bid Documents and opening of Bids | | | | |
| Evaluation of bids | | | | |
| Award and Signing of contract | | | | |
| Contract Administration | | | | |

**SECTION C: PROCUREMENT PERFORMANCE**

2. To what extent do you agree with the procurement performance in relation to information system? Rank by placing a tick in the appropriate place.

   1= No extent, 2= Low extent, 3= Moderate extent and 4= Great extent

| **Description** | **1** | **2** | **3** | **4** |
|---|---|---|---|---|
| Improving quality of services while its absence or use of inappropriate means can act as a barrier to change and may lead to deterioration of the purchasing function | | | | |
| Measuring the performance of the purchasing function yields benefits to organizations such as cost reduction, enhanced profitability, assured supplies, quality improvements and competitive advantage | | | | |
| An important step towards reducing these risks is to make a realistic assessment of those that are most likely to occur in any procurement | | | | |

**SECTION D: IT PROCUREMENT PROCESS**

3. What are the Information Systems used in the Procurement Process in your organization? Explain how they have eased the process.

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4. To what extent do you agree with the following IT Procurement Process in your organization? Rank by placing a tick in the appropriate place.

   1= No extent, 2= Low extent, 3= Moderate extent and 4= Great extent

| **Description** | **1** | **2** | **3** | **4** |
|---|---|---|---|---|
| Your Business benefits through e-procurement initiatives include cost reductions, closer relationships, improved information, increased | | | | |

| | | | | |
|---|---|---|---|---|
| efficiencies and the strategic use of purchasing staff | | | | |
| IT procurement process enhances cost reductions in companies can realize significant reductions in both the cost of purchased items and the actual cost of processing a purchase order | | | | |
| IT procurement process brings closer Relationships with suppliers | | | | |
| Leveraging Information in electronic procurement enables visibility of organizational purchasing data, creating the opportunity to negotiate better terms with suppliers based on volumes, price & quality | | | | |

5. What challenges does your company face in implementing IT for Procurement Processes?

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6. What are the possible solutions to challenges faced by your company in implementing IT for Procurement Processes

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## Appendix II: List of listed companies in NSE

**AGRICULTURAL**

1. Eaagads Ltd
2. Kapchorua Tea Co. Ltd
3. Kakuzi Ltd
4. Limuru Tea Co. Ltd
5. Rea Vipingo Plantations Ltd
6. Sasini Ltd
7. Williamson Tea Kenya Ltd

**COMMERCIAL AND SERVICES**

8. Express Ltd
9. Kenya Airways Ltd
10. Nation Media Group
11. Standard Group Ltd
12. TPS Eastern Africa (Serena) Ltd
13. Scan group Ltd
14. Uchumi Supermarket Ltd
15. Hutchings Biemer Ltd
16. Longhorn Kenya Ltd

**TELECOMMUNICATION AND TECHNOLOGY**

17. Access Kenya Group Ltd
18. Safaricom Ltd
19. Automobiles and Accessories
20. Car and General (K) Ltd
21. CMC Holdings Ltd
22. Sameer Africa Ltd
23. Marshalls (E.A.) Ltd

**BANKING**

24. Barclays Bank Ltd
25. CFC Stanbic Holdings Ltd
26. Diamond Trust Bank Kenya Ltd
27. Housing Finance Co Ltd
28. Kenya Commercial Bank Ltd
29. National Bank of Kenya Ltd
30. NIC Bank Ltd
31. Standard Chartered Bank Ltd
32. Equity Bank Ltd
33. The Co-operative Bank of Kenya Ltd

**INSURANCE**

34. Jubilee Holdings Ltd

35. Pan Africa Insurance Holdings Ltd

36. Kenya Re-Insurance Corporation Ltd

37. CFC Insurance Holdings

38. British-American Investments Company ( Kenya) Ltd

39. CIC Insurance Group Ltd

**INVESTMENT**

40. City Trust Ltd

41. Olympia Capital Holdings ltd

42. Centum Investment Co Ltd

43. Trans-Century

**MANUFACTURING AND ALLIED**

44. B.O.C Kenya Ltd

45. British American Tobacco Kenya Ltd

46. Carbacid Investments Ltd

47. East African Breweries Ltd

48. Mumias Sugar Co. Ltd

49. Unga Group Ltd

50. Eveready East Africa Ltd

51. Kenya Orchards Ltd

52. A.Baumann CO Ltd

**CONSTRUCTION AND ALLIED**

53. Athi River Mining
54. Bamburi Cement Ltd
55. Crown Berger Ltd
56. E.A.Cables Ltd
57. E.A.Portland Cement Ltd

**ENERGY AND PETROLEUM**

58. KenolKobil Ltd
59. Total Kenya Ltd
60. KenGen Ltd
61. Kenya Power & Lighting Co Ltd