THE EFFECT OF E-PROCUREMENT ON SUPPLY CHAIN MANAGEMENT AT TEACHERS' SERVICE COMMISSION

BY

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DECLARATION

I declare that this is my original work and has not been presented for a degree in any other university or institution.

Signature …….. Date …….

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This project has been recommended for examination with my approval as the University Supervisor:

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DEDICATION

To my dear husband Dan, children Brian, Lynnet and Teddy and my brother Davie for their encouragement and moral support during this period of study**.**

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I would like to acknowledge the Almighty God for the strength and sound mind during the period of study.

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OPERATIONAL DEFINITION OF TERMS

E-Procurement	-	Purchase of goods, service and works through the internet
Procurement	-	Acquisition of goods, service or works
Directorate	-	Structural segments in the organization for the purpose of smooth work flow
Integration	-	Combining different systems to work as one
Merger	-	Combine
Model	-	Simulation
Adversarial	-	Negative Relationship
Collaborative	-	Co-Operative in a relationship
Partnership	-	Coming negative/synergy
Target Population	-	All elements of study from where the sample would be obtained
Sample	-	A representative of the target population

LIST OF ABBREVIATIONS/ACRONYMS

TSC	-	Teachers Service Commission
PPOA	-	Public Procurement Oversight Authority
ICT	-	Information Communication Technology
IT	-	Information Technology
SCM	-	Supply Chain Management
SC	-	Supply Chain
D (ICT)	-	Director (Information Communication and Technology)
D (I.A)	-	Director Internal Audit
D (T.M)	-	Director Teacher Management
D (HR &D)	-	Director Human Resource & Development
D (ADM)	-	Director Administration
D (F)	-	Director Finance
D (ACCTS)	-	Director Accounts
IT1	-	One to One
ITM	-	One to Many
ERP	-	Enterprise Resource Planning
SCP	-	Supply Chain Planning
APS	-	Advanced Planning & Scheduling
MPC	-	Manufacturing Production Control
WMS	-	Warehouse Management Systems

TMS	-	Transports Management Systems
EDI	-	Electronic Data Interchange
CAD	-	Computer Aided Estimate
CIM	-	Computer Integrated Management
IBM	-	International Business Machine
EFT	-	Electronic Fund Transfer
CSPS	-	Certification Service Providers
LAC	-	Lower Acquisition Cost

ABSTRACT

The purpose of the study was to explore the effects of e-Procurement on Supply Chain Management in Teachers Service Commission (TSC). This study was guided by 3 objectives namely: to determine the procurement practices in TSC; to establish the level of e-Procurement application in TSC and to determine the challenges encountered when implementing e-Procurement system in TSC.

To satisfy the objectives, the study population was the Teachers Service Commission which has eight directorates. The sample was purposively selected using stratified sampling. Four directorates were selected to participate in the study which included: Human Resource, Administration, Finance and Supply Chain Management all with a total population of 1000 employees. These are the major users of the e-Procurement applications. One hundred employees (10% of the target population) were selected as the sample size. According to Mugenda (2003) 10%-30%) of a target population is a good representative sample that allows for a generalization.

The data was collected using structured questionnaire which had open and close ended questions. The data collected was analyzed using descriptive statistics and presented in frequency tables. Regression analysis was also performed in establishing the relationship between e-Procurement and the level of ICT expertise, level of e-Procurement application and requisitions online.

The study revealed that there was a strong relationship between e-Procurement, the levels of ICT expertise and the levels of e-Procurement application. This indicates that the Supply Chain Management is highly correlated with Supply Chain practices and e-Procurement applications. However, the level of management support on e-Procurement application is low. Therefore the management should increase the level of e-Procurement applications as well as the practices since they seem to have a positive impact on Supply Chain Management .

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

In today's dynamic global competitive business environment, technology-based service is no longer an afterthought; rather it is a must for public and private organizations. It has become necessary for companies to provide their customers with cost-effective total solution and better customer satisfaction with innovative ideas and methods. With the emergence of Information and Communication Technology (ICT), companies have been forced to shift their operation from the traditional style to e-Business, e-Procurement and e-Supply Chain philosophy in order to sustain themselves (Lee et al, 2007). Over the past decade, both private and public sector organizations have been utilizing Information Technology (IT) to streamline and automate their purchasing and other processes (Koorn et al, 2001).

In the automation of the Supply Chain process, e-Procurement provides several advantages which every organization should consider adopting. Internet, with an added feature of multimedia advance processing capability in the 2000s, widely enabled and provided an essential resource for the automation of procurement. Supply Chain (SC) practices cannot on their own improve efficiencies individually since the efficiency can only be achieved through the interaction of various Supply Chain practices. Dawe (2004) points out that for effective Supply Chain Management (SCM), there should be a comprehensive effort to improvement all of Supply Chain functions within a firm, then focus on Supply Chain practices by shifting from functional and independent system to general and integrative system. This implies that the performance of each Supply Chain practice should be evaluated depending on how the practice has a significant effect on the efficient integration of entire Supply Chain processes. Thus, the successful achievement of SC integration can be possible by the systematic utilization of various Supply Chain practice and centralized organizational structure.

When automating the supply chain, various business transactions are used which includes e-Commerce, e-Business and e-SCM (e-Supply Chain Management). E-commerce

relates primarily to transactions or buying and selling of products and services on the internet. It also refers to a website that has an online storefront or catalogue and the facilities for electronic order processing. E-business is a system that incorporates a wide range of production, customer and internal processes that are only indirectly related to commercial transactions. It provides 24/7 days a week for information access, aggregation of information from several sources, accurate audit trails of transactions, enabling businesses to identify areas offering the greatest potential efficiency, improvements and cost reduction. It also allows for personalization and customization of information. E- Scm is concerned with streamlining and optimizing the whole Supply Chain by means of internal applications, with the aim of ensuring maximum sales growth at the lowest possible cost. It includes setting up an internal online purchasing system, joining an industry wide electronic market place and implementing e-SCM across the entire value chain (Day, 2002). Issues that relate to e-Procurement (EP); Supply Chain Management (SCM); e-Procurement in Supply Chain Management ; e-Procurement in Supply Chain Management at TSC and the profile of TSC will be discussed next.

1.1.1 E-Procurement

According to Lysons (2006) the Chartered Institute of purchasing and supplies (CIPS) defines e-Procurement as the combined use of information and communication technology through electronic means to enhance external and internal purchasing and supply management processes. An e-Procurement system is an information technology-based purchase system which is at the input end of the Supply Chain (Presutti, 2008). Lee et al (2006) asserts that e-Procurement is the purchase and sale of goods and services through the internet as well as other information and networking systems, such as Electronic Data Interchange (EDI) and Enterprise Resource Planning (ERP). E-Procurement can therefore be defined as the value adding application of internet and e-Commerce solution to facilitate, integrate and streamline the entire procurement process from buyer to supplier and back.

It is commonly accepted that information infrastructures such as e-Procurement systems have become increasingly connected and embedded with other infrastructures to initiate

the growth of enterprises (Vaast and Walsham, 2009). In line with this notion, the usage of information technology in e-Procurement systems is considered to be an innovation strategy action. E-Procurement enables purchasers to buy goods and services through the use of internet facilities in a variety of forms. For instance, through online tendering (e-tendering), tenders for contracts are made online. This enhances participation among suppliers. Tools and solutions are used to deliver a range of options that will facilitate improved purchasing and supply management.

The characteristics of an e-Procurement system are buyer and supplier with presence of a medium which is a web based application software. Benefits that accrue to an organization that adopts e-Procurement are transparency, process efficiency, cost reduction, paperless environment, new supplier discovery and streamlining procurement process-Procurement is not a local phenomenon but a global one which has been used in the business world for global sourcing of goods and services. It enables the participants to reduce cost, break trade barriers and reduce the number of agents who cause profit reduction in the supply chain.

1.1.2 Supply Chain Management

Today the new sources of business completion lie outside the walls of the organization. It is determined by how effective companies link their operations with their Supply Chain partners such as suppliers, distributors, wholesalers and end customers. Supply Chain Management (SCM) offers a management philosophy to manage activities and integrate with downstream and upstream partners as well as the firm's internal supply chains. The objective of SCM is not only related to improving the performance of an individual company, but also the performance of the whole Supply Chain (Mentzer et al, 2001).

Cooper et al (1997) defines SCM as a network of supplier, manufacturing, assembly, distribution and logistics facilities that perform the functions of procurement of materials, transformation of these materials into intermediate finished products and the distribution of these products to customers. Neely (1999) defines Supply Chain Management as a process of co-coordinating all the activities in supply chain. The objectives in Supply

Chain Management includes: improving customer service, increasing agility, achieving the highest efficiency and maximizing value in the supply chain.

Therefore, Supply Chain Management can be defined as a global network of organizations that cooperate to improve the flows of material and information between suppliers and customers at the lowest cost and the highest speed. The basic components of Supply Chain Management includes: a Plan (Develop a strategy for identifying customers needs, Develop (Sourcing for reliable suppliers), Make (Manufacture products), Deliver (delivery of finished goods to customers) and Reverse logistics (Return of defective goods to the company or customers complaints).

1.1.3 E-Procurement and Supply Chain Management

A procurement system is a vital component of a company's Supply Chain system. Typically, a company's procurement function is subdivided into strategic and operational processes since activities and priorities in these two areas are entirely different (Kaufmann, 2009). Further, e-Procurement can be used in conjunction with the varied technologies of electronic commerce such as document imaging, workflow management, bulletin boards and e-mail to enable business process reengineering. With these combinations, e-Procurement can give rise to a number of benefits to an organization and to the strategic position of a firm. It will help to consolidate purchasing practices that will lead to greater discounts and better service from suppliers. It also accelerates the flow of important information between the buyer and supplier, reduce administrative hours, thus freeing the workers to do other work and respond quickly to highly competitive new market entrants (Dong et al, 2009)

The operational benefits of e-Procurement to the firm includes: improving financial control by making it easier to match orders, improve auditing and better security by enabling staff and auditors to verify and track the movement of orders through the system. It also helps to eliminate time zone obstacles Therefore; e-Procurement can be used any time of the day (Ordanini and Rubera, 2008).

1.1.4 E-Procurement and Supply Chain Management at Teachers Service Commission

The mandate of Teachers' Service Commission has been entrenched in the Constitution of Kenya (2010) under Article 23 (1). The mandate includes: To register trained teachers, recruit and employ trained teachers, assign duties to the teachers employed by the Commission, exercise disciplinary control over registered teachers, terminate employment of teachers, review standards of education and training of persons entering the teaching service, review demand for and supply of teachers and advise the national government on matters relating to the teaching profession.

As organizations go digital, TSC has not been left behind. This dates as early as the year 2006 when the procurement division was restructured. The division was restructured by filling the vacancies with professionals. The use of Public Procurement and Disposal Act (2005) was put into use. More and more suppliers were required since the Commission was growing at a very high rate. The division is currently known as Supply Chain Management and Services which is directly under the Chief Executive Officer (C.E.O). The Officers in the division are either professionals or undergoing training in the profession. In the earlier years, most of the Supply Chain processes were manual which was labor intensive and thus consumed the highest proportion of the budget in the Commission. This prompted the commission to benchmark its processes with those of high profile companies in the private sector. The Public Procurement Regulations (2006) gave the Commission the confidence to implement e-Procurement system. This has been implemented partially with processes like store requisitions and purchase requisition being processed online.

Currently, there are plans to implement e-Procurement applications in all procurement activities like tendering, tender evaluations, supplier rating and supplier payments processed online. This calls for efficient and effective processes which will result to a cost saving system for the Commission. The employees who work in the division have been equipped with the required skills and tools in readiness for the full implementation of e-Procurement. When implemented, the Commission is expected to reduce its cost by

30% and save by 10% of its resources. The realized savings would be allocated to other deserving areas like teacher management which deals with improving the standards of education in the country. Stakeholders in the Supply Chain would also be incorporated which would lead to purchase of goods of the right quality, quantity and at the right cost from a pool of competent suppliers.

1.2 Statement of the Problem

Procurement function has been one of the vital departments in any organization. It contributes tremendously to the organizational efficiency and effectiveness. The government of Kenya continues to lose millions of shillings through fraud in procurement activities in the government mainstream. Any head of department is expected to purchase goods/services or works at the right time, price, place quantity and quality for the use of all the departments in the organization so that the organization would derive great benefits from this and would thus be able to serve their customers (both internal and external) in a better way (Snider and Rendon, 2001).When a procurement department is inefficient in its procurement activities it affects all the other departments and thus has an impact on the organization's Supply Chain as a whole.

E-Procurement has simplified the purchasing, sourcing and disposal of items in an organization. However, most of the government parastatals/agents are reluctant in embracing the e-Procurement concept. Studies have been conducted on e-Procurement both locally and internationally. Batenburg (2007) conducted a study on e-Procurement adoption by the European firms. The study concluded that there exists country differences in e-Procurement adoption and that firms from those countries with low uncertainty avoidance, such as Germany and UK are early adopters of e-Procurement, while countries that are less reluctant to change such as Spain and France have lower adoption rates.

Another study conducted by Greunen et al (2010) on the adoption of regulation based e-Procurement in Eastern Cape provincial administration. The study found that measurable benefits of Supply Chain Management concept work within government environment.

Orori (2011) studied on factors that influence the introduction of e-Procurement on retail industry a survey of retail chain supermarkets in Kenya and found out there is a lot of resistance to change. Mburu (2011) carried out a study on the role of e-Procurement in enhancing efficiency in telecommunication industry (A case study of Safaricom Limited Company – Kenya) and found out that information technology plays a big role in adoption of e-Procurement.

Other local studies include: Gitahi (2011) where he carried a research on Nation media Group on its digital platform known as N-Soko that enables its clients to purchase products on-line. Awino (2011) conducted an investigation of selected strategy variables on firm's performances. The study focused on Supply Chain Management in large private manufacturing firms in Kenya. It was established that most of the Supply Chain Management strategies of large manufacturing firms in Kenyan are not owned by individual but also other organizations within the Supply Chain that provide the required linkages towards the overall corporate performance of the manufacturing industry. Omai (2013) carried out a research in seven tea factories in Kisii on the determinants of e-Procurement on Supply Chain Management among the Kisii tea factories. He found out that information sharing, partners relationship and supported Supply Chain integration contributed to management on supply chain. His analysis showed that e-Procurement could promote information sharing and Supply Chain integration. These affected the price and quality of the product at the factories. He recommended for improvement of ERP software that would enhance trust between tea factories and its suppliers.

It is however not clear that the past studies on e-Procurement have focused on the effects of e-Procurement on Supply Chain Management particularly in a service rendering government organization. To address this gap, the study focused on the e-Procurement on Supply Chain Management with a specific reference to Teachers Service Commission. The study sought to answer to the procurement practices used in TSC, the level of e-Procurement application and the challenges that are encountered in the implementation of e-Procurement system in TSC.

1.3 Objectives of the Study

The general objective of the study is to determine the effects of e-Procurement on Supply Chain Management at TSC. The specific objectives are;

(i) To establish the Supply Chain practices at TSC.

(ii) To establish the level of e-Procurement application on Supply Chain at TSC

(iii) To determine the challenges that is encountered in the implementation of e-Procurement in TSC.

1.4 Importance of the Study

The understanding of the Supply Chain practices adopted by Teachers Service Commission would help the Government of Kenya in policy making in various ministries. They would help to design targeted policies and programs that would actively stimulate the growth and sustainability of the government institutions as well as helping those policy makers to support, encourage, and promote the establishment of appropriate policies to guide the firms.

The study findings would benefit the Management and the staff of Teachers' Service Commission who will gain insight into how their institutions can effectively manage e-Procurement to improve the management of the Supply Chain. This study will offer an understanding on the importance of adopting efficient procurement practices in order to utilize the resources effectively.

This study will also create a monograph which could be replicated in other sectors of the economy. Most importantly, this research will contribute to the literature on the e-Procurement practices in firms especially in developing countries like Kenya. It is hoped that the findings would be valuable to the academicians, who may find useful research gaps that may stimulate interest in further research in future.

The findings of the study may also serve as a benchmark to other organizations who intend to adopt e-Procurement. It would enable them to understand the effects of e-Procurement on Supply Chain Management .

CHAPTER TWO: LITERATURE REVIEW

The chapter provides information from publications on topics related to the research problem. It examines what various scholars and authors have said about the concept of e-Procurement in Supply Chain Management. The chapter covers published works on e-Procurement, enablers of e-Procurement, e-Procurement applications, Supply Chain Management practices, e-Procurement application on Supply Chain Management and e-Procurement and Supply Chain Management in Teachers' Service Commission. The chapter ends with the summary and the conceptual framework.

2.1 E-Procurement

E-Procurement refers to the use of internet-based system used to carry out individual or all stages of procurement process, including search, sourcing, negotiation, ordering, receipt, and post-purchase review (Croom and Brandon, 2004). Koorn et al (2001) describes three types of e-Procurement systems which are buyer e-Procurement systems; seller e-Procurement systems; and online intermediaries. There are various forms of e-Procurement that concentrate on one or many stages of the procurement process, such as e-tendering, e-marketplace, e-auction/reverse auction, and e-catalogue. The e-Procurement application can be viewed more broadly as an end-to-end solution that integrates and streamlines many procurement processes throughout the organization.

Introduction of any system must have its objectives that the firm wishes to achieve. The main objectives of e-Procurement are: to reduce the time and cost of doing business for both vendors and the purchasers; to realize better value for money spent through increased competition; to standardize the procurement processes across departments/agencies and to allow equal opportunity all vendors and to bring transparency in the supply chain.

2.2 Enablers of e-Procurement.

E-Procurement cannot just happen without enablers. Baily (2008) has highlighted the enablers of e-Procurement. The advancement of information technology has led to

globalization where many businesses have websites. The websites allow various firms to participate in different activities in various supply chains. Security mechanism plays a major role in adoption of e-Procurement. Firms that wish to adopt e-Procurement consider security of the systems as a necessary requirement before embarking on the system implementation. The integration of e-Procurement with other organizational systems is necessary. Such systems include: Payment gateways, Supplier's systems, Material Resource Planning (MRP) and Enterprise Resource Planning (ERP). The e-Procurement should enable audit trial mechanism to be conducted. This will enable a third party to audit the Supply Chain activities and this gives the participants a reason to participate trusting that the activities would be carried out effectively. E-Procurement system should have notification mechanisms that enable any form of notification between the participants in a supply chain. Such notifications include receipt notification, tender award and payment among others (Bailey, 2008).

A good reliable and authenticated website is necessary so as to reach many customers worldwide. This information system should be in a position to empower customers and entrepreneurs. This will allow availability of reliable, accurate and authentic information on products and services. The most successful e-Procurement projects are those where e-Procurement function becomes totally embedded in the business process and where the system is sufficiently flexible to accommodate the rapid changes in technology which are inevitable (Professor Subramanian, 2006).

Koorn et al (2001) describes three types of e-Procurement systems which are buyer e-Procurement systems; seller e-Procurement systems; and online intermediaries. Baily et al (2008) have described three main processes in e-Procurement which include e-sourcing which is used for contractual processes and whose tools are like e-Tendering-RFQs (request for quotations) and e-Procurement processes which is used for transactional processes with tools that include market places, which use techniques such as e-catalogue. The last process is e-Payment whose tools include virtual or embedded PC (procurement cards). E-sourcing has been defined as the process of using internet to make decisions and form strategies regarding how and where services or products are obtained.

Berger and Gattorna (2001) have provided another e-Procurement model. This model breaks e-Procurement into three distinctive processes, namely: e-sourcing, e-requisitioning and e-intelligence. This approach enables the procurement model to be redesigned, taking out the slow, costly transactional work, thus resulting to faster cycle times. This provides companies with enormous efficiency improvements. The improvements in information flow, especially improved sharing of sensitive information, allows for improved commercial relationships with suppliers. In the past, traditional methods of procurement offered little transparency and lesser satisfaction of negotiation with suppliers. E-Procurement offers the benefits of greater transparency, wider geographical reach and lesser time of transaction and better pricing. It involves the use of electronic technologies to automate and streamline the procurement processes of an organization, improving efficiency and transparency, and thereby reducing the cost (Puschmann Alt, 2005). E-Procurement can result in a significant change and improvement in the number of areas, including internal and external communications, business transactions, management of supply chains and alliances, as well as contract management.

Information sharing is inherent in private or public exchange which can either be a buy-side or a sell-side. A buy-side exchange is built to interact with supplier while a sell-side is built to interact with customers. Market Place is defined as a website that enables purchasers to select from many suppliers. In e-Market, the buyer is in control since there is possibility of evaluating all potential suppliers for a particular product or service thus the buyer makes informed decisions regarding what and where to buy. This provides the buyer with information regarding variety of products in the market and the current update on product specifications. There is access to information on same product but with added value thus acquiring the right cost of products as the buyer makes various comparisons (Eng, 2004).

E-catalogues on the other hand is defined as a web page that provides information on products and services offered and sold by a vendor and thus supports online ordering and payments capabilities. They facilitate real time two way communications between buyer

and seller thus informing a buyer on products that he/she could be unaware. There is elimination of time lag between the generation of a requisition by catalogue user and the issue of the purchase order since authorization can be done online. Notifications and confirmations can be done via e-mail. It is also a means of responding quickly to market conditions and requirements by adjusting prices and repackaging. The globalization has opened up the world literally for hardware and software vendors. This helps in management of supply chains (Wentworth, 2013).

Partner relationship in Supply Chain Management reflects both the way customers treat their suppliers and their expectations from suppliers. The continued contact between buyer and supplier in organizations in a long term relationship creates an enabling mechanism. This mechanism enables them to work together and develop arrangements for the supply of requirements tailored to the needs of the purchaser. The relationship should involve joint planning activities that cover different time horizons. A long term strategic perspective is needed as a framework for medium term, tactical and short term operational planning processes. This is only possible if there exist a partnership between all the shareholders in a supply chain. Communication in the relationships takes place between a variety of representatives from both buyer and seller organizations. Each person brings to the relationship different personal characteristics, experiences and knowledge (Christopher, 2005).

The dynamics of the interactions will also involve forces of both common and conflicting interests and power-dependence relationships. The inter-personal nature of relationships places a premium on the need for people to develop appropriate skills in working with and interacting models in a relationship. The models include adversarial relationship which is characterized by adversarial altitudes, lack of trust and aggressive win-lose approach in negotiations. It is short-term and reluctant to share information. The partnership model is characterized by frequent communications both formal and informal, co-operative altitudes, trust, win-win style of negotiation, long term business altitudes and sharing of information (Croom et al, 2004).

Partnership Sourcing Ltd (1992) defined partnership sourcing as a commitment of customers and suppliers regardless of size. The long-term relationship is based on clear mutually agreed objectives to strive for world-class capability and competitiveness. Commitment to a partnership transcends any single agreement for the supply of a particular product and contains the will to develop a variety of business arrangements in the future. The goods/services to be exchanged, as well as the logistics arrangements, will be specifically tailored to meet the needs of the immediate customer and of the Supply Chain as a whole. The collaborations have resulted to supplier associations whereby the suppliers share information regarding markets and solve problems together.

Supplier integration allows a supplier to be involved in early stages of product development or consultancy. Partnering marks a shift from traditional pressures exerted by larger customers on small/medium suppliers in which the latter were regarded as subordinates. Partnering aims to transform short-term adversarial customer/supplier relationship focused on the use of purchasing, power to source, lower prices and improved delivery into long term cooperation. The cooperation is based on mutual trust in which quality innovation and shared values complement price-competitiveness (Partnership sourcing, 1992).

Grifiths (1992) states that the reasons for seeking partnerships can include improvements in design quality, delivery and completion times, reduction of productions and operating costs, improve stock levels and cash flow. Chartered Institute of Purchasing and Supplies (CIPS) identified the key drivers for establishing partnership relationships as reduced Lower Acquisition Cost (LAC), reduced supplier base, shorter product life cycles, concentration on core business and pressures towards lean supply. For any new product launch to be successful, suppliers need to be taken aboard. This signifies integration for a better performance in Supply Chain Management.

2.3 E-Procurement applications

Steinberg (2003) claims that while various governments are encouraging public sector agencies to adopt e-Procurement; its implementation does not appear to have been

smooth. The rates of e-Procurement implementation success have been less than spectacular. He also claims that government e-Procurement projects have been notoriously unsuccessful.

As technology alone does not ensure successful adoption, the success of a public sector e-Procurement initiative depends on users and buyers making use of the new process and system. The solution must attract end users to view e-Procurement as the preferred means by which to purchase goods and services (KPMG, 2001).The success of the implementation project also depends on communication to the users. Most of the public institutions have not fully adopted the e-Procurement due to the obstacles encountered during the implementation (Birks et al, 2001).

The implementation of e-Procurement is closely related to early supplier involvement. This includes discussing any necessary changes, issues and concerns such as various options in developing and maintaining suppliers catalogues (Birks et at, 2001). This involvement provides opportunities for suppliers to offer their feedback and this allows the public procurement department to monitor areas for improvement and adjust practices accordingly. Many suppliers are unwilling to conduct business electronically with public sector agencies because they are unclear about the benefits that accrue. They might see e-Procurement as a means by which public sector agencies will simply attempt to force down prices. It is therefore necessary for suppliers to be educated on the e-Procurement benefits. The information can be provided to them through a process of consultation as early as possible in the implementation of the project.

The employees of the organization must be ready to change from the traditional way of doing business. Birks et al (2001) suggests that e-Procurement initiatives only deliver the planned benefits if the users and buyers make changes to the way they work, which requires championing the project and senior management sponsorship. He suggests that the business case processes for e-Procurement should include identifying drivers, understanding the starting point, benefits, approaches, affordability, risks and benefit realization. The e-Procurement objectives should be aligned to the business goal failure to which e-Procurement benefits will not be realized. The Teachers Service Commission

Management should therefore communicate the organizational goal in alignment to that of the users and suppliers. This would facilitate the implementation of the e-Procurement system.

Due to the sensitivity of the government data and the legal nature of orders and payments, security of data is critical in the e-Procurement systems. The system must have mechanism for identifying and authenticating the user who places an order so that the suppliers know that it is safe to fulfill the order. Birks et al (2001) argues that e-Purchasing systems and processes need protection because they involve a financial transaction which may be vulnerable to fraud. Therefore for achievement of e-Procurement implementation, the TSC management needs to convince the suppliers that the systems and processes are secure from fraud.

The level of integration required between the e-Procurement solution and existing information systems need to be determined (KPMG, 2001). It is therefore necessary for the purchase transactions carried out through an electronic ordering transaction support system to be reflected in an agency's financial management system and communicated to suppliers for fulfillment. Low levels of system integration would lead to low levels of e-Procurement applications.

The significant proportion of the benefits to be gained from implementing e-Procurement initiative is related to the changes made through process re-engineering. Birks et al (2001) suggests that the process of re-engineering should not only address process but also supplier relationship and all the internal groups affected by procurement.

Lack of performance measurement tools limits any management in assessing organization processes. It is very important to define key performance indicators (KPIs) early in the process to enable successful benefits tracking and distil the business case into measurable KPIs. If performance is not measurable, it becomes difficult to monitor the progress. Therefore, the Commission needs to determine the KPIs in e-Procurement in order to know if the process is advancing or stagnant. Culture is important in any organization. In order to resist change in an organization, the management needs to communicate the

change to the employees. This will lead to simulation of change in the organization. This requires learning and effort on the part of the users (Lysons, 2003)

Senior management leadership is critical to the success of an e-Procurement implementation. Considerable attention and support need to be provided by the Senior Management to ensure that the procurement reforms have been well understood. The Management is responsible for setting the vision, mission and goals bringing about collective commitment for change in processes, organizational structures and formulating the policies and strategies necessary to put e-Procurement initiative in place (WB, 2003)

E-Procurement requires various buyers and suppliers systems to exchange information and electronic documents (KPMG 2001). Common standards are required like XML (Extensible Make up Language). XML defines the content in communication and in selection of general data format. The World Bank (2003) suggests that developing an e-Procurement system in an open environment allows it to link to other systems for inter-operation ability and simplifies upgrading the system. The Management of Teachers Service Commission needs to establish communication standards so that the implementation of e-Procurement is fully realized. The software tools should be already integrated with existing systems like (ERP) or systems that are configurable. They should also be quick to implement XML based interfaces to enable linkage to demand and inventory management.

2.4 Supply Chain Management Practices.

Presutti (2003) has defined Supply Chain performance as an evaluation of Supply Chain Management that includes both tangible and intangible factors. Wiengarten et al (2010) suggests that e-Procurement system is more pivotal than other e-business applications when studying Supply Chain performance since in the current economic environment, a value creation perspective is important for improving Supply Chain performance.

A procurement system is a vital component of a company's Supply Chain system. Typically, a company's procurement function is subdivided into strategic and operational processes since activities and priorities in these two areas are entirely different (Turban et al, 2000). Supplier management, the pooling of purchase requisitions and procurement-

oriented product development are tasks that are typically assigned to strategic procurement. E-Procurement enables companies to decentralize operational procurement processes and centralize strategic procurement processes. This results to higher Supply Chain transparency provided by e-Procurement systems. Strategically, e-Procurement will help to consolidate purchasing practices that will lead to greater discounts and better service from suppliers. It also accelerates the flow of important information between the buyer and supplier, reduces administrative hours thus freeing the workers to do other work. This allows the organization to respond quickly to highly competitive new market entrants and improve the chances of winning new business (Eng, 2004).

2.5 E-Procurement application on Supply Chain Management

E-Procurement also has numerous opportunities that include enhancing image, improves corporate trading relationships and improves buyer-supplier relationships. The mutual cooperation is required so that an order is less likely to be delayed or the wrong goods delivered. This eliminates transaction errors (Amit and Zott, 2001). Operationally, e-Procurement helps in improving auditing and better security by enabling staff and auditors to verify and track the movement of orders through the system. It shortens the delivery time by reducing time in waiting for documents in the mail, eliminates time zone obstacles since e-Procurement can be used at any time of the day and reduces inventory levels. This finally reduces the costs associated with inventory. In addition, e-Procurement helps to maximize labor by empowering the employees who want to make the product transactions that are right for their work (Johnson and Klassen, 2005).

2.6 E-Procurement and Supply Chain Management in Teachers' Service Commission

E-Procurement has not been fully embraced at the Commission. Processes like tendering, quotations, supplier rating and issuance of local purchase order have not been automated. This delays decision making and lengthens the lead time. The internal processes have been integrated to some extent. This includes purchase requisition, stock requisition, issue requisition and stock re-orders. Payments to suppliers are made through the

electronic fund transfer. This allows credit to be paid on time without delays thus creating a long term relationship between buyers and suppliers.

E-Procurement platforms can provide greater transparency in public spending thus boosting efficiency and providing commodity savings. These advantages are attractive given tighter budgets and pressures on government procurement resources where more is done with fewer resources (MacManus, 2002). However, several challenges are faced by government institutions in adopting e-Procurement. Many government institutions are yet to take the plunge into e-Procurement. Most institutions have e-Procurement in form of an ERP (Enterprise Resource Planning) platform that manages key internal processes such as human resources (HR) and finance (Rasheed, 2004). ERP systems that are designed to manage intra-enterprise business processes and transactions do not typically address key requirements for e-Procurement. However, unlike functions such as HR and Finance, the key to successfully enabling e-Procurement involves inter enterprise process flows with third-party suppliers (Evans and Wruster, 2000). These factors contribute significantly to the management in the supply chain.

2.7 Summary and Conceptual Framework

The literature review has clearly shown that e-Procurement in Supply Chain plays a major role in improving the Supply Chain Management. E-Procurement refers to the use of internet based (integrated) information and communication technologies to carry out individual or all stages of the procurement process. This includes search, sourcing, negotiation, ordering, receipt and post purchase review (Croom and Brandon, 2004).The popularity of the internet has significantly influenced internal organizational systems (IOS). Some of the commonly used e-Procurement tools in the public sector are e-Tendering, e-RFQ, e-Auction, e-Catalogue and e-Invoicing. The tools are used together with complete marketplace that has been developed by key players in the e-Procurement. Regardless of the various shapes and sizes of e-Procurement systems in the market, it has been argued that the basic procurement process is the same across the public sectors and can be addressed with straightforward technology to automate standard processes (NePP, 2005).

According to Baily (2008) the drivers of e-Procurement includes improved process efficiency, reduced costs, improved compliance, reduced off –contract spend and reduced inventory. The e-Procurement applications include Intranets, Extranets, Websites and Portals among others. A Company that uses e-Procurement applications exhibits indicators like reduced requisition time, short requisition process, improvement of data through via contract compliance, decrease in off-contract spend and reduction in inventory cost (Lysons, 2003).The benefits that accrue due to the use of e-Procurement applications includes: accelerated time for sourcing and procurement activities, improved governance, elimination of administrative errors and costs, increased buyer productivity, lowering of prices through product standardization and consolidation of purchasing power, better information management, improved commercial relationships with suppliers, enhanced budgetary control and reduced maverick purchases.

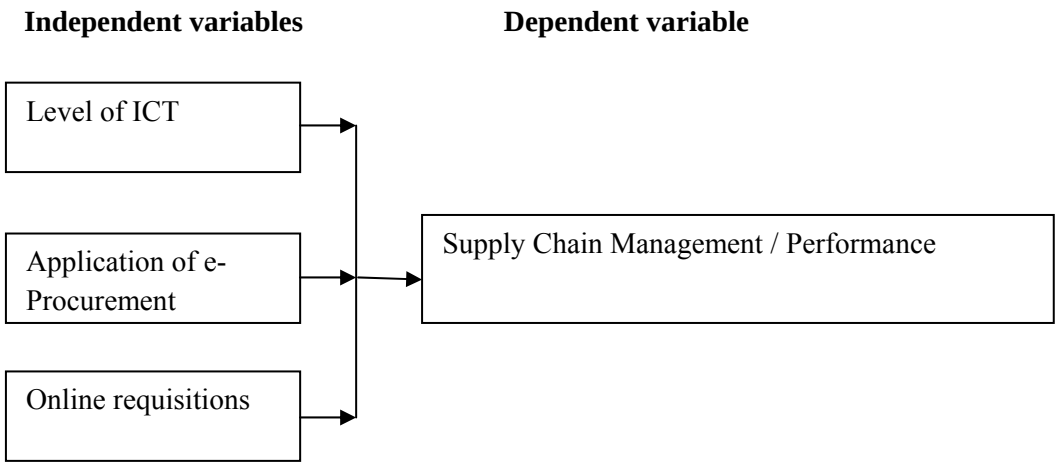
The performance measures in Supply Chain includes metrics like quality which measures the percentages of goods received and raw materials rejected, quantity that measures the percentage of stock which has not moved over a specified period, stock outs and the number of emergency orders. Timing is used to measure the suppliers' actual delivery performance against the promised, time taken to requisition and time taken up with remedial actions. Prices are also metrics used in measuring performance in Supply Chain Management. These are prices paid against standards, prices paid for key the items and prices paid against budgets. Finally the operational costs are used to measure the cost of processing an order and other operational costs.

No system is introduced without hitches. The obstacles encountered in the implementation of e-Procurement includes; high set up cost, lack of technical expertise, poor supplier relationship, perceived lack of real comprehensive legal framework, lack of standard data format and lack of e-Procurement competency. From the foregoing it is clear that e-Procurement in Supply Chain Management in TSC plays a major role in facilitating the achievement of the Commission's Vision and Mission. Therefore this research will fill the gap by establishing the procurement practices in TSC, level of e-Procurement application and the challenges encountered in implementation of e-

Procurement. This will enable the management to appreciate the benefits that accrue from automation of procurement activities and thus take an initiative to fully automate the procurement activities in the supply chain.

Figure 2.1 shows a conceptual frame work of inter-relationship between the factors that contribute to success in Supply Chain Management at TSC.

Figure 2.1 Conceptual framework



Source: Researcher (2013)

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that the researcher used to conduct the study. It has outlined the research design, target population, sampling technique, data collection and data analysis.

3.2 Research Design

Research design is the conceptual structure within which research is conducted. It constitutes a blue print for the collection, measurement and analysis of data (Kothari, 2003). This study used a descriptive research design to determine effects of e-Procurement on Supply Chain Management in Teachers Service Commission. The design sought to describe the perception of employees on the applicability of e-Procurement and challenges encountered in its implementation in TSC. Therefore, case study techniques were used. The data collected was measured, classified, analyzed, compared and then interpreted.

3.3 Target Population

The study used only one organization which is TSC; hence it is a case study. The TSC is structured into seven directorates. This study collected data from 4 directorates which are Human Resource; Finance; Administration and Supply Chain Management and services. There are 1000 employees in these directorates from whom a sample was selected.

3.3 Sampling Technique

The sample was selected using quota system. Stratified random sampling method was then applied where the strata were the 4 directorates. One hundred employees (10% of the target population) from the four directorates were selected as the sample. These employees were conversant with e-Procurement procedures and they had an access to the system. They were therefore competent in using the e-Procurement applications and possess the much needed knowledge on e-Procurement. The sample size was appropriate since each employee in the strata had a chance of being selected and ensured that the core departments were well represented. According to Mugenda (2003) a sample size of 10%-

30%of a target population is adequate enough to make a generalization. Therefore, the sample was large enough to make a generalization about the population. The respondents selected were also willing to fill the questionnaire. Table 3.1 indicates the sample size.

Table 3.1 Sample Size

Directorate	**No. of employees**	**Sample Size**
Administration	150	15
Finance	300	30
Human Resource	500	50
Supply Chain Mgt	50	5
Total	**1000**	**10**0

Source: Survey Data

3.4 Data Collection

Primary data was collected for the study. This was raw data which was collected from employees who make use of e-Procurement applications on their day to day activities. This type of data is more relevant and reliable than secondary data since it is from the source. Primary data also provides first hand information.

The data was collected using a questionnaire. It consisted of both open and close ended questions. According to Mugenda and Mugenda (2003), the open ended or unstructured questions permit greater depth of response from the respondents while the closed or structure questions are usually easier to analyze. The questionnaire was chosen because it was easier for the researcher to collect a lot of information over a short period of time. A questionnaire allows greater uniformity in the way questions are asked, ensuring greater compatibility in the response. Section A of the questionnaire had dichotomous questions while section B consisted of questions in a likert scale. Section A had 5 questions on the bio data of the respondent. Section B contained questions that were related to the objectives. Questions 1-5 dealt on objective, questions 5-8 dealt on objective 2, while questions 9-15 covered objective 3. The questionnaires were administered through drop and pick. The respondents were allowed ample time to fill the questionnaire.

A pilot study was conducted by use of a pilot questionnaire which was administered on 2 respondents in each stratum. The researcher was satisfied with the questionnaire as there were no issues from the respondents.

3.5 Data Analysis

The data collected was analyzed using quantitative analysis. The data was assigned numerical values. The quantitative data analysis entailed calculating the mean and performing regression analysis. The mean was calculated from the scores obtained from likert scale. The mean score of each factor indicating Supply Chain practices at TSC, level of e-Procurement application at TSC and the effects of e-Procurement on Supply Chain performance at TSC on likert scale was calculated. A mean of 3.0 and above in each factor implied satisfaction in Supply Chain Management. The global mean of the factors on Supply Chain practices at TSC level of e-Procurement application at TSC and the effects of online requisitions on Supply Chain Management was calculated.

Regression analysis was used. The regression equation was of this form:

$Y=\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$

The estimated regression model is of the form;

$Y=b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3$

Where:

Y=Supply Chain Management

X_1= Level of E-Procurement application

X_2= Level of ICT expertise

X_3=Online requisitions

$\beta_i (i = 0 \text{ to } 3)$ = Actual regression coefficient

$b_i (i = 0 \text{ to } 3)$= Estimated regression coefficient

ε= Error term

The regression equation would help in predicting performance in Supply Chain at TSC at given level of e-Procurement application.

CHAPTER FOUR: DATA ANALYSIS ND FINDINGS

4.1 Introduction

This chapter presents the data analysis and findings. Each statement was analyzed and presented in form of a frequency table that showed the frequencies on the respondents and the percentages of the total respondents.

4.2 General Information

There was 71% response rate. There were 32 respondents from human resource which represents 41% of the total respondents; 11 respondents were from administration which represented 15.6%; 23 respondents from finance which represented a 32.4% of the total respondents and 5 respondents from Supply Chain Management which represented a 7% of the total respondents.

Table 4. 1: Response rate

Respondents	**Frequency**	**Percentage (%)**
Responded	71	71
Not responded	29	29
Total	**100**	**100**

Source: Survey data (2013)

Table 4.2 shows the frequency and percentages of the composition of the respondents regarding the management levels. The analysis shows that most of the respondents are from the human resource directorate.

Table 4. 2: Directorates respondents

Directorate	Frequency	Percent (%)
Human Resource	32	45.1
Administration	11	15.5
Finance	23	32.4
Supply Chain Management	5	7.0
Total	**71**	**100.0**

Source: Survey data (2013)

4.2.1 Management Levels

Table 4.3 shows the number of respondents in the three management levels.

The findings show that most of the respondents are from middle level. This is explained by the corresponding frequency rates.

Table 4. 3: Management levels

Management levels	Frequency	Percent (%)
Top	15	21.1
Middle	38	`53.5
Lower	18	25.4
Total	**71**	**100.0**

Source: Survey data (2013)

4.2.2 Number of years in the Commission

The study revealed that 7 respondents had worked in the Commission for a period of 1-5 years which represented a 9.9%, 20 respondents have worked for 6-10 years which represents a 28.2%, 23 respondents have worked for 11-15 years which is a 32.4% of the total respondents while 21 respondents have been in the Commission for over 16 years

which represented a 29.6% of the respondents. Table 4. 4 show the response rate and the percentages on the period of employment for the respondents.

Table 4. 4: Number of years in the commission

Number of yrs in the Commission	Frequency	Frequency
1-5 years	7	9.9
6-10 years	20	28.2
11-15 years	23	32.4
16 and above	21	29.6
Total	**71**	**100.0**

Source: Survey Data(2013)

4.2.3 Period in the directorate

The study showed that 8 respondents had worked in the directorate for 1-2 years, 10 respondents had worked for 2-4 years while 53 respondents had worked for over 5 years. This represents 11.3%, 14.1% and 74% respectively. This showed that almost three quarters of the respondents had worked in their respective directorates for over 5 years. Therefore these respondents had adequate information relevant to the study.

Table 5 shows the frequency rate of the respondents and percentages as per the length of stay in their respective directorates.

Table 4. 5: Number of years in the directorate

No. of Years in the directorate	Frequency	Percent (%)
1-2 years	8	11.3
3-4 years	10	14.1
5 and above years	53	74.6
Total	**71**	**100.0**

Source: Survey data (2013)

4.2.5 Level of ICT Expertise

The study findings have revealed that only 7 respondents had a very high level if ICT expertise, 53 respondents had moderate level of ICT expertise while 11 respondents had very low level of ICT expertise. This represents a 9.9%, 74.6% and 15.5% respectively. This shows that the highest percentage of the respondents have moderate level of ICT expertise.

Table 4. 6 shows the frequency and percentages of respondents as per their levels of ICT expertise.

Table 4. 6: ICT levels

Levels of ICT expertise	Frequency	Percent (%)
Very High	7	9.9
Moderate	53	74.6
Very Low	11	15.5
Total	**71**	**100.0**

Source: Survey data (2013)

In line with the first objective of the study which sought to establish the use of Supply Chain practices at TSC. The answers to this objective were derived from questions 1-4 in section B of the questionnaire. The findings of the study showed that 2 respondents felt that the e-Procurement software that is currently in use is appropriate to a very low extent, 13 respondents felt that the software was moderately appropriate, 20 respondents felt that the software was appropriate to a high extent, 34 respondents felt that the software was appropriate to a very high extent. Two (2) respondents did not respond to this question. This showed a 2.8%, 18.3%, 28.2%, 47.9% and 2.8% respectively. This shows that nearly half of the respondents felt that the e-Procurement software that is in use is appropriate to a very high extent.

Table 4. 7: Software application

Appropriateness of e-Procurement software	Frequency	Percent (%)
Very Low extent	2	2.8
Moderate extent	13	18.3
High extent	20	28.2
Very High Extent	34	47.9
no response	2	2.8
Total	**71**	**100.0**

Source: Survey data (2013)

Table 4.8 shows the responses on the purchase requisitions made online. It indicates that 1 respondent said that no purchase requisitions are made online, 2 respondents said that the extent to which purchase requisitions are made online is very low, 8 respondents indicated a moderate extent on online purchase requisitions, 18 respondents felt that there is a high extent of online purchase requisitions while 42 respondents felt that the online purchase requisitions is on a very high practice. This represents 1.4%, 2.8%, 11.3%, 25.4% and 59.2% respectively.

Table 4. 8: Purchase requisition

Purchase requisition online	Frequency	Percent (%)
Not at all	1	1.4
Very low extent	2	2.8
Moderate extent	8	11.3
High extent	18	25.4
Very high extent	42	59.2
Total	**71**	**100.0**

Source: Survey data (2013)

On the store requisitions online, the research findings revealed that 1 respondent said that stores requisitions are not made online, 3 respondents said that the requisition was to a very low extent, 3 respondents said to a moderate extent, 15 respondents said that stores requisitions was to a very high extent while 48 respondents said that the stores requisition was made online to a very high extent. This represents 1.4%, 4.2%, 4.2%, 21.1%, 1.4% and 67.6% respectively. One respondent did not give a response. This is an indicator that e-Procurement is highly practiced through the internal operations

Table 4. 9 show the responses on the stores requisitions that are made online.

Table 4. 9: Stores requisition

Stores requisition online	**Frequency**	**Percent (%)**
Not at all	1	1.4
Very low extent	3	4.2
Moderate extent	3	4.2
High extent	15	21.1
Very high extent	48	67.6
No response	1	1.4
Total	**71**	**100.0**

Source: Survey data (2013)

On the receipt of the purchased goods online, 3 respondents indicated that no goods are received online, 20 respondents indicated that the goods are received online to a very low extent, 13 respondents felt that the receipt of goods online is at a moderate extent, 17 respondents indicated that the online receipt is at high extent while 14 respondents felt that the receipt of goods online is to a very high extent. Four respondents did not respond. The percentages of the responses were 4.2%, 28.2%, 18.3%, 23.9%, 19.7 % and 5.6% respectively.

Table 4. 10: Responses on receipt of goods online.

Receipt of goods online	Frequency	Percent (%)
Not at all	3	4.2
Very low extent	20	28.2
Moderate extent	13	18.3
High extent	17	23.9
Very high extent	14	19.7
No response	4	5.6
Total	**71**	**100.0**

Source: Survey data (2013)

4.4 Level of e-Procurement application.

The second objective of the study was to establish the level of e-Procurement application on Supply Chain at TSC. This is covered by the statements in questions 5-9.

Table 4. 11 show the frequency rates of the responses regarding the extent of stock outs when e-Procurement applications are used in supply chain. The responses were as per the table below. Two respondents indicated that the use of e-Procurement application did not affect the stock outs, 5 respondents showed that it affected the stock outs to a very low extent, 11 respondents felt that the stock out was not experienced to a moderate extent, 15 respondents indicate that it affected the stock out was not experienced to a high extent and 37 respondents felt that there was no stock out was experienced to a very high extent. This represented a 2.8%, 7%, 15.5%, 21.1% and 52.1% respectively. More than half of the respondents indicated that no stock out are experienced when an e-Procurement application is used in supply chain. One respondent did not give a feedback which represented 1.4% of the respondents.

Table 4. 11: Level of e-Procurement application.

Level of e-Procurement application	Frequency	Percent (%)
Not at all	2	2.8
Very low extent	5	7.0
Moderate extent	11	15.5
High extent	15	21.1
Very high extent	37	52.1
No response	1	1.4
Total	**71**	**100.0**

Source: Survey data (2013)

Table 4.12 shows the responses towards the statement on reduction of requisition to issuing period when e-Procurement applications are used. One (1) respondent indicated that e-Procurement application reduced the requisition period to a very low extent, 9 respondents said that it reduced the requisition period to a moderate extent, 19 respondents indicated that it reduced the requisition period to a high extent and 40 respondents said that it reduced the requisition period to a very high extent. This was more than half of the respondents. Two (2) respondents declined to give a response towards this statement. This represented 1.4%, 12.7%, 26.8%, 56.3% and 2.8% of the total respondents.

Table 4. 12: Reduction of requisition period

Stores requisition online	Frequency	Percent (%)
Very low extent	1	1.4
Moderate extent	9	12.7
High extent	19	26.8
Very high extent	40	56.3
No response	2	2.8
Total	**71**	**100.0**

Source: Survey data (2013)

Table 4.13, it shows the responses on availability of disposable items online. It shows that 42 respondents said that disposable items are not found in the website, 11 respondents said that the disposable items are only available in the website to a very low extent, 9 respondents indicated that availability was to a moderate extent, 3 respondents said that availability of disposable items in the website was to a very high extent. Three (3) respondents did not give their responses This represented 60.6%, 15.5%, 12.7%, 2.8%, 4.2%, and 4.2% of the respondents respectively.

Table 4. 13: Disposable items online

Online Disposal of items	Frequency	Percent (%)
Not at all	43	60.6
Very low extent	11	15.5
Moderate extent	9	12.7
High extent	2	2.8
Very high extent	3	4.2
No response	3	4.2
Total	**71**	**100.0**

Source: Survey data (2013)

Table 4.14 indicates the responses on preparation and submission of annual procurement plan online. It shows that 51 respondents said that annual procurement planning is never prepared and submitted on line, 4 respondents indicated that it is prepared and submitted online to a very low extent, 8 respondents said that it is done to a moderate extent, 3 respondents indicated that it was done to a high extent and 3 respondents said that it was done to a very high extent. No response was given by 2 respondents. This represented 71.8%, 5.6%, 11.3%, 4.2%, 4.2% and 2.8% of the respondents respectively.

Table 4. 14: Annual procurement planning

Annual procurement planning	**Frequency**	**Percent (%)**
Not at all	51	71.8
Very low extent	4	5.6
Moderate extent	8	11.3
High extent	3	4.2
Very high extent	3	4.2
No response	2	2.8
Total	**71**	**100.0**

Source: Survey data (2013)

4.5 The practice of Supply Chain Management .

The respondents had been asked questions on the challenges encountered in use of e-Procurement in Supply Chain Management. This was covered under the third objective. It sought to answer to various practices that affect the implementation of e-Procurement in the Supply Chain Management. The responses to this were covered in statements 9-15. In determining this, the researcher sought to establish the ratio of the personal computers to

that of the personnel. The results showed that 10 respondents indicated that the ratio was not recommendable at all, 6 respondents felt that the ratio was recommendable to a very low extent, 27 respondents felt that the ratio was recommendable to a moderate extent, 24 respondents said that the ratio was recommendable to a high extent while 3 respondents said that the ratio was recommendable to a very high extent. One (1) respondent did not give a response to this statement. This represents a 14.1%, 8.5%, 38%, 33.8%, 4.2% and 1.4% respectively.

Table 4.15 shows the frequencies on the responses regarding the statement on the current ratio on the number of personal computers to that of the personnel. The research showed that majority of the respondents felt that the ratio is moderately recommendable.

Table 4.15: Ratio of personal computers to number of personnel

Ratio of computers to personnel	**Frequency**	**Percent (%)**
Not at all	10	14.1
Very low extent	6	8.5
Moderate extent	27	38.0
High extent	24	33.8
Very high extent	3	4.2
No response	1	1.4
Total	**71**	**100.0**

Source: Survey data (2013)

Table 4.16 indicates the frequency of the responses on the ability of the server to operate throughout. Five (5) respondents felt that the server does not at all operate throughout, 11 respondents felt that the server operated throughout to a low extent, 19 respondents said that the server operated throughout to a moderate extent, 26 respondents said that the server was operational throughout to a high extent while 4 respondents felt that the server

operated throughout to a very high extent. No response was received from 6 respondents. This represents 14.1%, 8.5%, 38%, 33.8%, 4.2%, and 1.4% of the respondents respectively.

Table 4.16: Server operations

Server Operations	**Frequency**	**Percent (%)**
Not at all	5	7.0
Very low extent	11	15.5
Moderate extent	19	26.8
High extent	26	36.6
Very high extent	4	5.6
No response	6	8.5
Total	**71**	**100.0**

Source: Survey data (2013)

Table 4.17 represents data on responses towards the integration of e-Procurement system with the other systems in the Commission. One (1) respondent felt that e-Procurement system was not integrated at all with the other existing systems, 12 respondents felt that the e-Procurement system is integrated with other systems to a very low extent, 33 respondents showed that the systems are moderately integrated, 20 respondents indicated that the systems are integrated to a high extent and 4 respondents felt that the systems are integrated to a very high extent. One (1) respondent did not response to this statement. This represented 14%, 16.9%, 46.5%, 28.2% 5.6%, and 1.4% of the respondents respectively.

Table 4. 17: E- procurement integration with other systems

E-Procurement integration	Frequency	Percent (%)
Not at all	1	1.4
Very low extent	12	16.9
Moderate extent	33	46.5
High extent	20	28.2
Very high extent	4	5.6
No response	1	1.4
Total	**71**	**100.0**

Source: Survey data (2013)

Table 4.18 shows a response results on the appropriateness of the communication channels that have been established at the Commission. One (1) respondent felt that the communication channels are not established, 14 respondents felt that the communication channels are established to a very low extent, 38 respondents felt that the communication channels are established to a moderate extent, 13 felt that the communication channels are established to a high extent while 2 respondents felt that the communication channels are established to a very high extent. Three respondents did not give their output to this statement. This represents 1.4%, 19.7%, 53.5%, 18.3% 2.8% and 4.2% respectively.

Table 4.18: Response on communication channels

Communication channels	Frequency	Percent (%)
Not at all	1	1.4
Very low extent	14	19.7
Moderate extent	38	53.5
High extent	13	18.3
Very high extent	2	2.8
No response	3	4.2
Total	**71**	**100.0**

Source: Survey data (2013)

The study findings on the security measures of the e-Procurement system showed that only 1 respondent felt that there was no adequate measures , 34 respondents said that adequate security measures were in place to a very low extent, 21 respondents felt that the security measures were adequate to a moderate extent , 11 respondents said that the security measures were adequate to a high extent and only 2 respondents said that the adequacy of the security measures in regard to e- procurement measures is very high. There was no response from 2 respondents. This represented 1.4%, 47.9%, 29.6%, 15.5%, 2.8% and 2.8% of the respdoentrs respectively.

Table 4.19: Response on security measures

E-Procurement security measures	Frequency	Percent (%)
Not at all	1	1.4
Very low extent	34	47.9
Moderate extent	21	29.6
High extent	11	15.5
Very high extent	2	2.8
No response	2	2.8
Total	**71**	**100.0**

Source: Survey data (2013)

In regards to payment of supplier on time when e-Procurement is used, the research findings showed that 49 respondents said that e-Procurement did not at all attribute to the timely payment of suppliers, 7 respondents felt that the e-Procurement system contributes to suppliers timely payment to a very low extent, 7 respondents said that the system contribution to timely payment of suppliers was to a moderate extent, 6 respondents said that the contribution of e-Procurement was to a high extent while 1 respondents felt that the e-Procurement only contributes to suppliers timely payments to a very high extent. No response was received from one respondent. This represented 69.0%, 9.9%, 9.9%, 8.5%, 1.4% and 1.4% of the respondents respectively.

Table 4.20: Response on Supplier payments

Supplier payment	Frequency	Percent
Not at all	49	69.0
Very low extent	7	9.9
Moderate extent	7	9.9
High extent	6	8.5
Very high extent	1	1.4
No response	1	1.4
Total	**71**	**100.0**

Source: Survey data (2013)

The last statement in the third objective was aimed at establishing whether the top Management supports the e-Procurement activities. Out of the 71 respondents, 47 respondents felt that the top management did not support the e-Procurement activities, 5 respondents felt that the top Management only supported e-Procurement to a very low extent, 9 respondents felt that the top. Management only supported e-Procurement activities to a moderate extent, 7 respondents said that top management supported e-Procurement to a high extent and 2 respondents said that top management supported e-Procurement to a very high extent. No response was received from one respondent.

Table 4.21 shows the responses on support from top management on use of e-Procurement application on all procurement activities.

Table 4.21:Response on top management support

Top management support	Frequency	Percent (%)
Not at all	47	66.2
Very low extent	5	7.0
Moderate extent	9	12.7
High extent	7	9.9
Very high extent	2	2.8
No response	1	1.4
Total	**71**	**100.0**

Source: Researcher (2013)

4.6 The Relationship between e-Procurement and Supply Chain efficiency

In line with process re-engineering, e-Procurement is now a major competitive strategy in today's dynamic liberal market where competition is no longer between firms, but between supply chains. Current and past studies concur on the fact that firms which have adopted e-Procurement have enhanced their operation efficiency.

The study sought to establish the relationship between e-Procurement and Supply Chain performance at the TSC. Respondents were asked questions regarding the performance level of their respective departments. The results are as shown in Table 4. 22.

Table 4.22: Supply Chain Performance

Supply Chain performance	Frequency	Percent	Valid Percent	Cumulative Percent
10%	4	5.6	5.6	5.6
20.0	6	8.5	8.5	14.1
30.0	3	4.2	4.2	18.3
40.0	5	7.0	7.0	25.4
50.0	4	5.6	5.6	31.0
60.0	31	43.7	43.7	74.6
70.0	13	18.3	18.3	93.0
80.0	4	5.6	5.6	98.6
90.0	1	1.4	1.4	100.0
Total	**71**	**100.0**	**100.0**	

Source: Researcher (2013)

The results in Table 4.22 indicate that 43.7% of the departments reported a performance of 60%. Only 10% of the respondents reported a performance level of less than 10%. 25.35% of the departments indicted a performance level of over 70%. The results therefore support the fact that e-Procurement has a positive impact on Supply Chain performance in the TSC.

4.6.1 Descriptive Statistics on e-Procurement

Descriptive statistics were used to test the significance of e-Procurement yielding the results in Table 4.23.

Table 4.23: Descriptive Statistics on e-Procurement

Descriptive statistics	Supply Chain Performance	Extent of Application e-Procurement	Level of ICT Expertise	Online Requisitions
	71	71	71	71
Mean	53.944	4.099	2.056	4.465
Std. Error of Mean	2.2826	.1378	.0598	.1149
Median	60.000	5.000	2.000	5.000
Mode	60.0	5.0	2.0	5.0
Std. Deviation	19.2338	1.1607	.5039	.9685
Variance	369.940	1.347	.254	.938
Skewness	-.931	-1.156	.113	-2.131
Std. Error of Skewness	.285	.285	.285	.285
Kurtosis	.108	.417	1.077	4.250
Std. Error of Kurtosis	.563	.563	.563	.563
Range	80.0	4.0	2.0	4.0
Minimum	10.0	1.0	1.0	1.0
Maximum	90.0	5.0	3.0	5.0
Sum	3830.0	291.0	146.0	317.0

Source: Researcher (2013)

From Table 4.23 shows the mean Supply Chain performance level is 53.944%. This implies that e–Procurement has led to a 53.944% improvement in Supply Chain performance of TSC over the last five years. On average the various departments in TSC have applied e-Procurement to a High Extent as indicated by the mean (4.099). The mean of 2.056 postulates that the level of ICT Expertise is moderate among the departments in TSC. However, the departments have adopted online requisitions to a high extent with a mean of 4.465.

A t-test was applied to test the significance of the variables. The results are shown in Table 4.24.

Table 4.24: One-Sample Test

E-Procurement variables	Significance test			Mean Difference	95% confidence interval of the Difference	
	t	df	Sig. (2-tailed)		Lower	Upper
Supply Chain Performance	23.632	70	.000	53.9437	49.391	58.496
Extent of Application e-Procurement	29.753	70	.000	4.0986	3.824	4.373
Level of ICT Expertise	34.385	70	.000	2.0563	1.937	2.176
Online Requisitions	38.844	70	.000	4.4648	4.236	4.694

Source: Researcher (2013)

The findings in Table 4.24 show a p-Value of 0.00 for all the variables. This implies that all the variables are significant at 5% confidence level.

4.6.2 Correlation Analysis

Correlation analysis was used to show the magnitude and direction of relationship between the variable as shown in Table 4.25;

Table 4.25: Correlations

Correlations					
Correlation models	**Supply Chain variables**	**Supply Chain Performance**	**Extent of Application e-Procurement**	**Level of ICT Expertise**	**Online Requisitions**
Pearson Correlation	Supply Chain Performance	1.000	.917	.758	.874
	Extent of Application e-Procurement	.917	1.000	.674	.912
	Level of ICT Expertise	.758	.674	1.000	.677
	Online Requisitions	.874	.912	.677	1.000
Sig. α. (1-tailed)	Supply Chain Performance	.	.000	.000	.000
	Extent of Application e-Procurement	.000	.	.000	.000
	Level of ICT Expertise	.000	.000	.	.000
	Online Requisitions	.000	.000	.000	.

Source: Researcher (2013)

It is clear from Table 4.26 shows that, there is a near perfect positive relationship between the extent e-Procurement application and Supply Chain Procurement evident from the high correlation coefficient (0.917). The next most critical variable is online application with a correlation coefficient of 0.874. The level of ICT expertise is also positively correlated with a correlation coefficient of 0.758. All the independent variables have a p-value of 0.00 implying that they have a significant effect on the Supply Chain performance of the departments in TSC.

4.6.3 Regression Analysis

The relationship between e-Procurement practices and Supply Chain performance was established by regression. The independent variables were: Extent of Application e-Procurement; Level of ICT Expertise; and Online Requisitions. The Dependent variable was Supply Chain Management.

Table 4.26 Model summary

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
				R Square Change	F Change	df1	df2	Sig. F Change	
.938	.879	.874	6.8349	.879	162.439	3	67	.000	.476

Table 4.26 show a high coefficient of multiple determination of 0.879. This implies that the model is of good fit since it explains 87.9% of the variation in the Supply Chain performance of the various departments in TSC.

Table 4.27: Regression Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig. α 2-tail 5%	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	b_i	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
(Constant)	-19.883	4.292		-4.633	.000	-28.449	-11.317					
Extent of Application e-Procurement	10.405	1.744	.628	5.965	.000	6.923	13.886	.917	.589	.253	.163	6.142
Level of ICT Expertise	9.187	2.244	.241	4.095	.000	4.708	13.665	.758	.447	.174	.522	1.915
Online Requisitions	2.753	2.099	.139	1.312	.194	-1.436	6.942	.874	.158	.056	.162	6.190

Source: Researcher (2013)

Table 4.27 shows the coefficients of the regression analysis of the various independent variables (e-Procurement practices) on the dependent variable (Supply Chain Performance).

From the analysis the Coefficient of multiple determinations (R^2) is 0.879 showing that the model is of high 'goodness of fit'. This means that the regression line explains 87.9% of the variation of competitive advantages (the dependent variable).

As per the SPSS generated results shown in Table 4.27, the estimated regression equation is:

$Y = -19.883 + 10.405X_1 + 9.187X_2 + 2.753X_3$ where:

X_1 = Extent of application of e-Procurement

X_2 = Level of ICT Expertise

X_3 = Online requisition

According to the regression equation established, keeping all other independent variables constant, the Supply Chain performance of TSC will be -19.883. The findings also show that keeping all other independent variables constant, a unit increase in the extent of application of e-Procurement, will lead to a 10.405 increase in the Supply Chain performance of TSC. Keeping all other variables constant, a unit increase in the level of ICT expertise will lead to a 9.187 increase in the Supply Chain the Supply Chain performance of TSC. Keeping all other independent variables constant, a unit increase in online requisitions will lead to a 2.753 increase in the corporation's Supply Chain performance

4.7 Discussion of Results

The research findings have revealed that e-Procurement has led to a 53.9% improvement on the Supply Chain performance in TSC for the last 5 years. The average mean score on the level of e-Procurement application was 4.009. This is far above the research target which was 3.00. This places the e-Procurement application to a high extent as per the likert scale. The research finding has been compared with findings from various researchers and the results are similar.

The success of implementation of e-Procurement in public sector is influenced by some given critical factors. Vaidya et al (2006) identified the critical factors that included: system integration; system security; and authentication. Among the propositions for his research was that the high degree of system integration is positively associated with successful implementation of e-Procurement system. This was confirmed by his research findings. The results of this research also agree with Vaidya et al's findings. The findings revealed that e-Procurement integration with other systems was to a moderate extent with a response rate of 46.5%. This has enabled the purchase requisition and stores requisition to be practiced to a very high extent with a response rate of 59.5% and 67.6% respectively. This shows that system integration is a critical success factor in implementation of e-Procurement.

Baily (2008) in his research study: A mini case study—Shell, indicated that though the company was spending a lot of money every year on materials and services, received a good deal in terms of increased discounts and reduced lead period after the adoption of e-Procurement. The findings in this study concur with Baily's since results show that use of e-Procurement in TSC had reduced the lead period to a very high extent. Forty (40) respondents felt that e-Procurement application reduced the lead period. This represented a 56.3% of the respondents. This shows that when e-Procurement is used, the lead time is reduced which translates to reduced costs in terms of inventory and operation costs.

Steinberg (2003) asserts that the implementation of an e-Procurement system does not appear smooth to an extent that government e-Procurement projects are notoriously unsuccessful. Birks (2001) suggests that e-Procurement initiative only delivers the planned benefits if users and buyers change the way of work which should be championed by the senior management. The assertions of the two researchers confirm the respondents' perceptions in this research on the top management support on e-Procurement system. Fourty seven (47) respondents felt that the top management did not support e-Procurement process. This explains why not all the procurement activities are automated. Therefore, top management support is very essential in implementation of e-Procurement system.

The research findings are thus similar with the other researchers' findings that have shown that e-Procurement applications contribute to the Supply Chain efficiency. The top management should be in the forefront in support of e-Procurement implementation if the total benefits are to be achieved.

CHAPTER FIVE: CONCLUSIONS AND RECOMMENDITIONS

In this chapter conclusion, recommendations, limitations and suggestions for further research gaps have been highlighted.

5.1 Conclusion

The research findings have shown that procurement practices are in use in TSC since the global mean surpassed that of the researcher which was (3.0). The global mean of 4.10 shows that procurement practices in use to a high extent. The level of e-Procurement application is very high since it was 4.5 compared to the target (3.0). According to research findings the researcher has achieved the research objectives. The TSC has been portrayed as an organization which uses procurement practices in its Supply Chain Management. This is as per the high positive correlation between e-Procurement, Supply Chain practices and its applications. The global mean for research findings in objective three was the lowest. This was due to the lack of support from the Management and the fact that majority of the respondents said that e-Procurement application does not assist in timely payment of suppliers.

The global mean score of the research findings is 3.16 which is a positive indicator of e-Procurement contribution in Supply Chain Management in TSC. The results show that companies that will prosper and gain competitive advantage will be those that embrace e-Procurement in their supply chains. There is a rapid technological change that organizations need to embrace if they are to remain relevant in the global market. It can be concluded from the TSC case study that for any organization to have an efficient supply chain, e-Procurement application has to be given priority.

5.2 Recommendations

The TSC management should improve on the preparation and submission of annual procurement plan, update the TSC website with information on the available goods that are destined for disposal, security measures should be improved in regards to e-Procurement system and the top Management should be in the forefront in support for

full implementation of e-Procurement. This would help minimize Supply Chain risks and make the Supply Chain more efficient for the benefit of the Commission.

5.3 Limitations of the study

Time and resources for undertaking this study were limited and could not allow the researcher to administer the questions to all the employees. The counties were also not covered though they form a very wide web in the field. May be some of the employees left out had some crucial information. Some of the respondents were not so much willing to fill the questionnaire which and delayed the process of analyzing data. The top Management personnel were very busy and could not give the questionnaire a priority.

5.4 Suggestions for further research

Since this study is considered as the first attempt to investigate the concept of e-Procurement in TSC, directions for further research are suggested. Further comparative studies with other government parastatals that are service providers is needed in order to determine the effects of e-Procurement on Supply Chain Management. A research study can focus on the in-depth of the TSC or any other public institution of its nature. On the other hand critical success factors in implementation of e-Procurement should be subjected to review, critique and discussion for an extended period before making a generalization.

REFERENCES

Amit, R. and Zott, C. (2001), "Value creation in e-business", *Strategic Management Journal*, Vol. 22 Nos 6-7, pp. 493-520

Baily, P. Farmer, d. Crocker, B. Jessop, D. & Jones D. (2008) Procurement Principle and Supply Chain. Prentice, Hall

Bowersox, D.J. and Daugherty, P.J. (2009), "Logistics paradigm: the impact of information technology", *Journal of Business Logistics*, Vol. 16 No. 1, pp. 65-80.

Birks, C., Bound,S & RAd Ford, M (2001) Guide to e-Procurement in the Public Sector cutting through the Hype. London.UK: Office of Government Commerce, HMSO

Croom S and Brandon-Jones A (2004), "e-Procurement: Key Issues in e-Procurement

Dawe, R.L. (2004), "An investigation of the pace and determination of information technology use in the manufacturing materials logistics system", *Journal of Business Logistics*, Vol. 15 No. 1, pp. 229-58

Dong, S., Xu, S.X. and Zhu, K.X. (2009), "Information technology in supply chains: the value of IT-enabled resources under competition", *Information Systems Research,* Vol. 20 No. 1, pp. 18-32.

e-Maintenance and e-Service", *Draft Report NSF Workshop Organized by NFS* Industry/University Cooperative Research Center, October 1-2, Wisconsin, USA.

Eng, T.Y. (2004), "The role of e-marketplaces in supply chain management", *Industrial Marketing Management*, Vol. 33 No. 2, pp. 97-105

Entrepreneurship, Vol. 9, No. 2, pp. 22-43.

Evans, P. and Wruster, T.S. (2001), Blown to Bits: How the New Economics of Information Transforms Strategy, Harvard Business School Press, Boston, MA.

Greunen D. V. et al (2010) Implementation of regulation based e- procurement in Eastern Cape provincial administration African journal of Business Management Vol 4(17), pp 3655-3665

Gupta M and Narain R (2012), "A Survey on Adoption of e-Procurement in Indian Implementation and Operation in the Public Sector", *Journal of Public Procurement*,

Koorn R, Smith D and Mueller C (2001), *e-Procurement and Online Marketplaces*, Compact, Amsterdam, The Netherlands.

Liker, J.K. and Choi, T.Y. (2004), "Building deep supplier relationships", *Harvard Business* Review, Vol. 82 No. 12, pp. 104-13

Lysons K. and Gilligham M. (2003) Purchasing and Supply Chain Management, Prentice, Hall

MacManus S A (2002), "Understanding the Incremental Nature of e-Procurement Implementation at the State and Local Levels", *Journal of Public Procurement*, Vol. 2,Management Prentice Hall, 10th Edition.

Networks, Prentice Hall No. 1, pp. 5-28. Madison, USA.

Mugenda,O.& Mugenda ,A,(2003) Research Methods; Quantitative & Qualitative Approaches Acts Press.

Ordanini, A. and Rubera, G. (2008), "Strategic capabilities and internet resources in procurement", International Journal of Operations & Production Management, Vol. 28 No. 1, pp. 27-52

Organisations", *International Journal of Indian Culture and Business Management,* Vol.5, No. 1, pp. 76-109.

Orori J.M (2011) Factors that influence the introduction of e-procurement in retail industry: A survey of retail Chain supermarkets in Kenyan, unpublished research, Jomo Kenyatta University of Agriculture and Technology.

Panayides, P.M. and So, M. (2005), "Logistics service provider-client relationships", Transportation Research Part E, Vol. 41 No. 3, pp. 179-200.

perspective", Journal of Business Logistics, Vol. 12 No. 1, pp. 145-68.

Porter, M.E. (1980), Competitive Strategy, The Free Press, New York, NY

Presutti, W.D. (2008), "Supply management and e-procurement: creating value added in the supply chain", *Industrial Marketing Management*, Vol. 33 No. 2, pp. 219-2

Puschmann, T. and Alt, R. (2005), "Successful use of e-procurement in supply chains", Supply Chain Management: *An International Journal*, Vol. 10 No. 2, pp. 122-33.

Rasheed H S (2004), "Capital Access Barriers to Public Procurement Performance: The moderating effects of Ethnicity, Gender and Education" *Journal of Development Entrepreneurship*, 9(2):22-43)

Reichel, M., & Ramey, M. A. (Eds.). (1987). *Conceptual frameworks for bibliographic education: Theory to Practice.* Littleton Colorado: Libraries Unlimited Inc.

SteinbergR,(2003) Strategies for successful government e-procureement.htt://4gartner.com

Tatsis, V., Mena, C., Wassenhove, L.V. and Whicker, L. (2006), "E-procurement in the Greek food and drink industry", *Journal of Purchasing and Supply management*, Vol. 12 No. 2, pp. 63-74

The Moderating Effects of Ethnicity, Gender and Education", *Journal of Developmental*

Timme, S.G. and Timme, C. (2001), "The financial-SCM connection", *Supply Chain Management Review*, Vol. 4 No. 2, pp. 33-40

Turban, E., Lee, J., King, D. and Chung, M.H. (2000), *Electronic Commerce*, Prentice Hall, Upper Saddle River, NJ

Vaast, E. and Walsham, G. (2009), "Trans-situated learning: supporting a network of practice with an information infrastructure*", Information Systems Research,* Vol. 20 No. 4, pp. 547-64. Vol. 5, No. 3, pp. 367-387.

Vaidya K, (2006). Journal of Public Procurement, volume 6 issues 1&3, 7099. University of New England, Australia

Walters, P.G.P. (2008), "Adding value in global B2B supply chains: strategic directions and the role of the internet as a driver of competitive advantage", *Industrial Marketing Management*, Vol. 37 No. 1, pp. 59-68.

Wiengarten, F., Fynes, B., Humphreys, P., Chavezand, R. and McKittrick, A. (2010), "Assessing the value creation process of e-business along the supply chain", *Supply Chain Management: An International Journal*, Vol. 16 No. 4, pp. 207-19.

APPENDICES

APPENDIX 1: QUESTIONNAIRE

The questionnaire is aimed at collecting information in regard to effect of e-Procurement on Supply Chain Management at the Teachers' Service Commission.

Please tick the appropriate answer.

The information provided will be treated with utmost confidentiality

Section A: Bio-data

1. Which is your Directorate?

   Human resource ◯

   Administration ◯

   Finance ◯

   Supply Chain Management and services ◯

2. Which is your management level?

   Top ◯

   Middle ◯

   Lower ◯

3. Number of years in the commission?

   1 -5 years ◯

   6-10 years ◯

   11-15 years ◯

   16 and above ◯

4. How long have you been in the directorate?

   1-2 years ◯

   2-4 years ◯

   5 and above years ◯

5. What is the level of your ICT expertise?

   Very high ◯

   Moderate ◯

   Very low ◯

   No expertise ◯

   In the following questionnaire, indicate the extent to which each indicator is applicable to e-Procurement in Supply Chain Performance at TSC.

Section B

This section includes questions on Supply Chain (SC) practices at TSC, level of e-Procurement (EP) application at TSC and the effect of e-Procurement on Supply Chain performance at TSC.

The scale below shows the ranking of application of e-Procurement in Teachers Service Commission. Please indicate by ticking the extent to which the indicator applies to TSC, where 5=Very high extent, 4=High extent, 3=Moderate extent, 2=Very low extent and1= None at all.

Statement on SC practices, EP applications and factors that contribute to slow adoption of e-Procurement at TSC	**5**	**4**	**3**	**2**	**1**
Statement on Supply Chain practices					
1. The e-Procurement software that is in use is appropriate					
2. All the purchase requisitions are on line					
3. All store issues are made on line					
4. Receipt of all items is done on line					
5. When an e-Procurement application is used, no stock out is experienced					
6. E-Procurement application if used, the period from requisition to issuing is reduced					
7. All disposable items are normally available in the website					
8. Annual procurement planning is prepared and submitted on line					
9. The ratio of personal computers to the number of personnel is recommendable					
10. The server is operational throughout					
11. E-Procurement system is well integrated with the other systems in operation					
12 .Communication channels are well established in the commission					
13. Adequate security measures are in place in regard to e-Procurement system					
14.E-Procurement application has enabled suppliers to be paid on time					
15. Top management has embraced the use of e-Procurement in all procurement activities.					

THANK YOU VERY MUCH FOR YOUR COOPERATION!!