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Challenges of Implementing E-Procurement in State Corporation-A Case Study of Kenya Ports Authority

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Abstract:
Despite government initiative for public organization to adopt E-procurement, the process has been slowly adopted among many public organizations. E-procurement as a practice if implemented can lead to efficiency, transparency, reduction in costs among state corporations in Kenya. Its slow realization raises questions as to what challenges State Corporation face. This underlined the need to carry out a study on challenges facing its implementation. Like other public institutions, Kenya Ports Authority has not fully adopted E- procurement and therefore continues to miss the many benefits that accrue after totally embracing E-procurement systems. The specific objective therefore for this study is to investigate whether organization factors, management support, technical and environmental factors hinder implementation of E-procurement. Stratified random sampling method will be used. The study targeted about 100 employees working in a supplies and procurement related field. A modified likert scale questionnaire will be developed and was divided into three parts. A pilot study was carried out to refine the instrument before the final presentation of this proposal. The quality and consistency of the survey was further being assessed using Cronbach's alpha. Data analysis will be performed on a PC computer using Statistical Package for Social Science (SPSS Version 22) for Windows. Analysis was done using frequency counts, percentages, means and standard deviation, regression, correlation and the information generated will be presented in form of graphs, charts and tables. The response rate was 78.9% and the general reliability Cronbach Alpha was 0.752. Majority of the respondents were in middle management representing 40%. Majority of the respondents held a bachelor's degree. The correlation between the independent variable and dependent variable was 0.768, 0.646, o.776 and 0.773 for organizational factors, lack of management support, technical factors and environmental factors respectively. From the research findings, the study concluded all the independent variables studied have significant effect on challenges of implementing e-procurement as indicated by the strong coefficient of correlation and a p-value which is less than 0.05.The overall effect of the analyzed factors was very high as indicated by the coefficient of determination. The overall P-value of 0.00 which is less than 0.05 (5%) is an indication of relevance of the studied variables, significant at the calculated 95% level of significance. This implies that the studied independent variables organizational factor, lack of management support, technical factor and environmental factor have significant effect on challenges of implementing e-procurement in State Corporations in Kenya.

1. Introduction

1.1. Background

In Africa, since 1990s, organizations are assertively moving towards reducing cost involved in their operations. This is achieved through ensuring the organizations operation performance is done effectively and efficiently to improve profitability and enhance accountability. E-purchasing has been the cornerstone of reduced procurement cost and improved operational performance throughout organizations. Consequently, the emphasis on good interdepartmental and inter-organizational relationships has gained attention as they provide potential great opportunities (Cavinato, 2012). Over the years, Kenya has embraced the application if information technology and the concept of E-purchasing in the operational activities thereby improving the way goods and services are offered.

E-Procurement refers to the use of Internet-based (integrated) information and communication technologies (ICTs) to carry out individual or all stages of the procurement process including search, sourcing, negotiation, ordering, receipt, and post-purchase review (Croom & Brandon-Jones, 2004). While 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/Purchasing, e-Procurement can be viewed more broadly as an end-to-end solution that integrates and streamlines many procurement processes throughout the organization. According to Public Procurement and Disposal Act (PPDA) Act (2005) "procurement" means acquisition by purchase, rental, lease, hire purchase, license, tenancy, franchise, or any other contractual means, of any type of works, services or supplies or

any combination. Procurement is the acquisition of goods and services at the best possible total cost of ownership, in the right quality and quantity, at the right time, in the right place and from the right source for the direct benefit or use by corporations, individuals, or governments. (Gilbert A, 2010). E-procurement is the acquisition of goods and services without the use of paper processes (Panayiotou, Sotiris & Tatsiopoulos (2004).

However, Wittig, 2003; Callender and Schapper, (2003) noted that a good procurement system has to meet the basic principles of good governance such as transparency, accountability, and integrity With these in mind, the government of Kenya decided to introduce E-procurement in state corporations which will ensure public financial resources are used prudently and for the intended purposes. This was after many complaints from Kenyans that the Government is being overcharged for goods and services that it purchases. By introducing transparency and accountability through e-procurement, it is expected to eliminate the abuse of our procurement system. Since procurement of goods and services constitute about 50 percent of the Governments annual budget, e-procurement will save substantial financial resources and help to instill confidence among taxpayers that they are getting value for their money. Emphasizing the benefits of e-procurement will strengthen the government-supplier relationship by providing easy access to information, documentation, simplify the bidding process and ensure cost saving for the Government and taxpayers. Through the automation of public financial processes, the Integrated Financial Management Information System (IFMIS) will provide an interlinked system of internal controls providing clear audit trails and identification of the originator of all transactions. The roll-out of electronic procurement system through the IFMIS "Procure to Pay" module introduced a new era to Government procurement by bringing to an end manual procurement challenges that the country has experienced in the past. This will make Kenya a more attractive destination for investment. Kenya takes great pride in being the first African country to automate end-to-end procurement and payment processes in a devolved government system (Presidential Strategic Communications Unit PSCU, 2014). A key milestone in the reformation of public procurement has been the amendment of the Procurement Regulations in 2006 that has enhanced the efficiency of procurement systems in state corporations in the recent past. The aggressive reforms being implemented by the Kenyan government can be attributed to the realization by the government of the need to continuously improve internal procurement policies and procedures. Government leaders must take a firm stance on changing longstanding culture and championing new and innovative ways to increase efficiency (Shalle and Irayo, 2013).

Why should government state corporations like Kenya Ports Authority embrace ICT for its procurement process? What is the potential that ICT can offer? In describing the main benefits of using ICT in procurement processes, government, supplier and the public in general, the following consideration may give reason enough for government agencies or state corporations to shift their procurement activities online.

The use of ICT is a key component that a government utilizes in the development process to stimulate the economy, lowering the digital gap, modernizing the public sector, and improving government performance as it is evident now in the use of IFMIS. Bringing together government and private industries in a virtual environment, ICT systems are sustainable only on the condition of a win-win situation. In providing improved transparency and a huge potential of efficiency gains for both, government and suppliers, ICT offers two major benefits that help to create such a situation. Moreover, political reasons from the public in general due to transparency and efficiency in spending taxpayers' money can contribute to enhancing the image of good governance (Badaso 2014). In processing and documenting procurement information and transactions online, ICT offers by far more transparency and fairness.

To this end, ICT helps reduce opportunities and incentives for fraud (anti-corruption), to improve the quality of government agencies procurement management, including monitoring and decision making, and to encourage the participation of private industries in the public market by increased fairness and competitiveness. As a second major benefit of ICT, the huge potential of efficiency gains can considerably contribute to reducing/redistributing fiscal expenditures. Although intensive studies and research on detailed benefit in terms of quantity and quality is hardly available, the use of ICT in an increasing number of countries clearly has shown major efficiency gains. The simplification or elimination of repetitive tasks in the procurement process by moving them online results in time and cost savings. Given the extensive timeline of paper-based government procurement, shorter procurement cycles are welcome to both KPA and the suppliers.

Cost savings is a strong driving force for ICT mainly resulting from reductions in price and transaction costs. Cheaper prices can be achieved through increased competition, better access to markets, increased purchasing volumes under framework contracts, reduced sales costs for suppliers, and use of e-Reverse Auctioning. Transaction costs can be lowered due to the automation of the procurement process with an ICT system being available at any time and any connected location, accelerating the procurement.

A study by Angeles and Nath (2007) identified three important challenges to e-procurement implementation: Lack of system integration and standardization issues; Immaturity of e-procurement-based market services and end user resistance; maverick buying and difficulty in integrating e-procurement with other systems. Lack of system integration and standardization issues relates to the fact that e-procurement is still relatively new business application and it is not unusual to lack a benchmark or reference models. Another challenge is software immaturity and the lack of certain key features like invoicing, payment reconciliation or managing of different geographical jurisdictions, tax structures, currencies etc. Also, companies need to be aware of the possible hidden costs related to implementation of e-procurement solutions, such as system integration, content aggregation and rationalization, catalog and search engine maintenance, supplier enablement, end user training and procurement process re-engineering. These costs can easily exceed software licensing and maintenance cost by five to ten times (Angeles & Nath (2007).

Government agencies often have competing priorities and E-procurement is not always one of them. E-procurement has been successful in governments where these priorities along with policy reform have been clearly stated and maintained. E-procurement initiatives require a large financial commitment and assessing the benefits from the financial investment is a complicated task.

<u>1.1.1. Profile of Kenya Ports Authority</u>
Kenya Port authority was established through an act of parliament in 1978 after the collapse of the East African Community. It is commonly known as the port of Mombasa and is one of the most modern and vibrant port in Africa. Mombasa Port handles all types of ships and cargo services, not only for Kenya, but also Uganda, Rwanda, Burundi, DR Congo, Ethiopia, Southern Sudan, north-eastern Tanzania and Somalia. The port has 19 deep-water berths — six handle containers and 13 conventional cargos. Two oil jetties are for refilled and crude oil, with the capacity to handle tankers of up to 80,000 Dead Weight Tonnage. Mombasa is the second largest port in Africa (Durban in South Africa is the largest) in tonnage and containers handled. Total cargo traffic through the port averages 16 million tonnes a year. After Durban, Mombasa is also the second best connected port in the region, with 17 shipping lines calling and direct connectivity to more than 80 ports Kenya Ports Authority also owns and operates Inland Container Depots (ICDs) or 'dry ports' in Nairobi and Kisumu. The ICDs are connected to the port by a special rail service (railtainer) that transports containerized imports and exports. Expansion of the port is high on the Government's agenda. Its annual cargo turnover is projected to reach 30 million tonnes by 2030.In this regard, the Transport ministry, through KPA, has started developing port infrastructure at Kilindini harbour to expand the ship turning basin, dredge the channel to increase the depth of the berthing areas and construct additional cargo termini.

The port has initiated computerization programs to enhance quick and efficient processing of cargo. E-procurement has revolutionized procurement systems and the way goods and services are obtained. The use of biometric time management has also initiated the elements of accountability and self-motivation. It now operates a 24-hour, seven-days-a week work system.
 KPA, s vision statement according to www.kpa.go.ke is ''World class seaports of choice'' and the mission is ''to facilitate and promote global maritime trade through provision of competitive port services''. Service excellence is key to KPA operations with the aim to exceed customer expectations and always striving to uphold the virtues of fairness, honesty, professionalism and transparency.

1.2. Statement of Problem
The objective of a state's public procurement system is to deliver efficiency and "value for money" in the use of public funds, whilst adhering to requirements outlined in national laws and policies. Efficiency can be measured from the purchasing organization's context as to how well the purchasing department is performing in the activities they are expected to perform against the budget that is in place for that department. (Edwards and Graham, (2011). The world is increasingly getting interconnected by electronic networks and, hence, progressively shrinking with each passing day (Gate, 2009). According to Friedman (2006), the business transaction across all organization is steadily transitioning to electronic platform. The barrier of time, distance and space are collapsing at a rapid pace (Gates, 2009).
Meso (2010) carried out a study on Public e-procurement in Kenya: a critical analysis of the legal technological and governance challenges. According to her findings, e Procurement is slowly gathering momentum but the existing legal framework does not adequately support it.
Orina (2013) in her study on E-procurement readiness factors in Kenya's Public sector found that resistance to change, lack of enthusiasm, staff skills, and to some extent procurement policies impacted the readiness of e-procurement in public institutions. According to her findings, the main e-procurement readiness factors include: technology, organization's finance, leadership and integrity, legal framework and technical preparedness, international law and employee attitude, procurement policy and national procurement law, e-procurement adoption and staff I.T adequacy, and online marketplace and government support. Her study however fails to outline the impact of e-procurement in light of enhancing performance in public procurement an objective the current study aimed at achieving. From the foregone discussion, it is clear that; despite the centrality of E-Procurement as a key strategy and supply chain management tool, there is inadequate literature from previous empirical studies relating to challenges facing the implementation of E-procurement in state corporation. While a number of past studies have unraveled the impact of E-Procurement most of them have not exhaustively investigated the challenges facing the implementation of E-procurement in state corporation.   Against this backdrop the current study set to establish the challenges facing the implementation of E-procurement in state corporation; A case study of Kenya ports Authority.

1.3. Objectives
This study was guided by the general and specific objectives as outlined.

<u>1.3.1. General Objective</u>
The general objective of this study was to examine the challenges facing the implementation of E-Procurement in state corporation- A case of Kenya Ports Authority.

<u>1.3.2. Specific Objectives</u>
This study was guided by the following specific objectives;
1. To establish whether organizational factors affect E-procurement implementation at KPA
2. To establish whether management support affect E-procurement implementation at KPA
3. To establish whether technical factors affect E-procurement implementation at KPA
4. To establish whether environmental factors affect E-procurement implementation at KPA

1.4. Hypothesis

The objectives of this study were fulfilled by testing the four hypotheses stated both in terms of null (HO_1) and alternative hypotheses (HA_1). The multiple regression analysis was used to explore the relationship between organizational factors, management support, technical factors and environmental factors as independent variables and challenges facing implementation of E-procurement as the dependent variable. Karl Pearson product moment and correlation analysis was used to explore relationships between variables. Correlation coefficient and analysis of variance (ANOVA) was used.

1. Hypothesis One
    → HO_1: Organizational factors have no significant effects on implementation of E-procurement at KPA.
    → HA_1: Organizational factors have significant effects on implementation of E-procurement at KPA.
2. Hypothesis Two
    → HO_2: Management support has no significant effects on implementation of E-procurement at KPA.
    → HA_2: Management support has significant effects on implementation of E-procurement at KPA.
3. Hypothesis Three
    → HO_3: Technical factors have no significant effect on implementation of E-procurement at KPA.
    → HA_3: Technical factor have significant effect on implementation of E-procurement at KPA.
4. Hypothesis Four
    → HO_4: Environmental factor have no significant effect on implementation of E-procurement at KPA.
    → HA_4: Environmental factors have much significant effect on implementation of E-procurement at KPA.

1.5. Justification

The challenge of not using ICT in the procurement processes in government institutions has led to loss of tax payer's money. The government needs to be confident that the procurement done by its agencies is carried out honestly, transparently, fairly and competently for the good of every stakeholder, with the sustained amount of interest to reform the public procurement sector in Kenya. It was therefore important that research should be conducted to establish the challenges facing the implementation of E-procurement in state corporation- A case of Kenya Port Authority.

1.6 .Scope of the Study

Due to the diversity of the factors affecting procurement planning, this study focused only on challenges that are general that is; organizational factors, management factors, technical and environmental factor.

The study was carried out at the Kenya Ports Authority headquarters in Mombasa. It has several departments namely; the human resource and administration department, corporate development, Finance department and Accounts department, ethics and integrity department, procurement and supplies department, Engineering, Planning, Information communications technology department, security services among others. The study involved 100 staff in procurement department comprised of senior managers, the middle-level managers and support staff.

1.7. Limitation

The study used questionnaire for data collection which were left with the respondents to be collected later after they were complete. The problem associated is loss of questionnaires, incomplete questionnaires and failure to give information will be overcome by organizing meeting outside working hours, seeking for the personal contacts of would be respondents and use of incentives where necessary.

The researcher used closed-ended questions which have the disadvantage of limiting responses. This will avoid including as many questions as possible of each objective. Open-ended questions will also be used which have a tendency to provide information which does not answer the stipulated questions or objectives, these responses may be difficult to categorize and are time consuming thus resulting to varied responses which are difficult to analyze. This problem will be avoided by limiting questions to the main variables of the study, giving enough time to respondents as well as including the findings in narrative form.

Last but not least, the researcher also anticipates a challenge of staff not willing to give full information for fear of adverse repercussions. This will be averted by allowing the respondents to administer the questionnaires themselves. The researcher will also assure the respondents that the research was only for academic purposes and all the information obtained will be treated with outmost confidentiality.

2. Literature Review

2.1. Introduction

Reviewing the existing literature around the topic of research interest is significantly important because it helps in understanding not only the body of knowledge that relates to the research topic but also in developing an argument about the relevance of the research (Bryman, 2012). This chapter will systematically review the related literature to guide the reader in understanding what has already been done by other researchers in as far as challenges facing the implementation of E-procurement in state corporations is concerned, that is exploring what concepts and theories are relevant in this area of research.

2.2. Theoretical Review
Theories are formulated to explain, predict, and understand phenomena and, in many cases to challenge and extend existing knowledge within the limits of the critical bounding assumptions. The theoretical framework introduces and describes the theory which explains why the research problem under study exists. A theoretical framework consists of concepts, together with their definitions, and existing theory/theories that are used for the particular study (Sekaran, 2005).

2.2.1. Theory of Planned Behavior
The theory of planned behavior (Azjen, 2011) is an extension of the theory of reasoned action (TRA). Azjen & Fishbein (1998), made necessary by the latter model's inability to deal with behaviors over which individuals have incomplete volitional control. At the heart of TPB is the individual's intention to perform a given behavior (e.g. use of ICT in procurement). For TPB, attitude toward the target behavior and subjective norms about engaging in the behavior are thought to influence intention, and TPB includes perceived behavioral control over engaging in the behavior as a factor influencing intention.
TPB has been used in many different studies in the information systems literature (Mathieson, 2009; Taylor and Todd, 2009a, b; Harrison et al., 2005). According to TPB, an individual's performance of a certain behavior is determined by his or her intent to perform that behavior. Intent is itself informed by attitudes toward the behavior, subjective norms about engaging in the behavior, and perceptions about whether the individual will be able to successfully engage in the target behavior. According to Azjen (2002), an attitude toward a behavior is a positive or negative evaluation of performing that behavior. Attitudes are informed by beliefs, norms are informed by normative beliefs and motivation to comply, and perceived behavioral control is informed by beliefs about the individual's possession of the opportunities and resources needed to engage in the behavior (Azjen, 2002). Azjen compares perceived behavioral control to Bandura's concept of perceived self-efficacy (Bandura,2003).
TPB also includes a direct link between perceived behavioral control and behavioral achievement. Given two individuals with the same level of intention to engage in a behavior, the one with more confidence in his or her abilities is more likely to succeed than the one who has doubts (Azjen, 2002). As a general theory, TPB does not specify the particular beliefs that are associated with any particular behavior, so determining those beliefs is left up to the researcher. An underlying hypothesis of the current study is that beliefs about privacy and trustworthiness of the ICT platform inform attitudes toward Internet purchasing. TPB provides a robust theoretical basis for testing such a premise, along with a framework for testing whether attitudes are indeed related to intent to engage in a particular behavior, which itself should be related to the actual behavior. Based on the theory, beliefs about how important others feel about ICT adoption in procurement, and motivation to comply with the views of others, should also influence the purpose to use internet based procurement. Equally, beliefs about having the necessary opportunities and resources to engage ICT in Procurement process should influence intent to purchase as well as directly influence purchasing behavior itself.

2.2.2. Technology Diffusion Theory
Technology diffusion theory is the common lens through which theorists study the adoption and development of new ideas. Diffusion is defined basically as the process by which an innovation is adopted and gains acceptance by individuals or members of a community. The Diffusion theory represents a complex number of sub-theories that collectively study the processes of adoption. The most famous account of diffusion research by Rogers (2010) where the definition of diffusion comprises of four elements which are defined as;
Innovation: an idea, practices or object perceived as new by individuals or group of adopters. Communication channels: means by innovation moves from one individual to the next or group to group. Time: the non-spatial interval through which Diffusion event takes place. The events include: innovation diffusion process, relative span of time for the individual or group to adopt the innovation and social system: a set of interrelated units that are engaged in joint problem solving activities to accomplish the goals. Rogers (2010) also came up with the perceived attributes theory that assumes that innovation bears the following characteristics;
Relative advantage: Degree in which an advantage is perceived as better than the idea it supersedes.
Compatibility: Degree that an innovation is seen to be consistent with existing values and norms, Complexity: The degree in which an innovation is seen to be difficult or easy to understand and use, Trial ability: is the degree in which an innovation may be experienced on a limited basis and Observability: The degree to which the results of innovation are visible to others. The easier it is for individuals to see results of an innovation, the more likely they are to adopt it.
Although the process is not limited to these perceived attributes, the elements are helpful in formulating questions for potential adopters in better understanding what factors make adoption possible or desirable. Endogenous growth theory however indicates that the rate of technological progress, and hence the long-run rate of economic growth, can be influenced by economic factors which will curtail technology adoption in procurement as technology is seen as being costly. It starts from the observation that technological progress takes place through innovations, in the form of new products, processes and markets, many of which are the result of economic activities (Lieberth, 2007).
Technology revolution has impacted on purchasing, the drivers for change in purchasing function must include the objectives of eradicating paper transactions to a secure system that facilitates procure to pay as an objective of a world class procurement which is seen to enhance the performance of the procurement function (Lysons & Farrington, 2012). The Technology Diffusion theory is important in guiding the organization to initiate change and adopt technologies in procurement in the shift towards world class procurement.

2.2.3. Information System Success Model
The last most cited theory was the Information Systems Success Model. DeLone & McLean (2006) reviewed prior research and introduced a comprehensive categorization of factors contributing to the success of information systems. The authors examined the literature on IS success and categorized success measures into six major categories: system quality, information quality, use, user satisfaction, individual impact, and organizational impact. These categories are interrelated and interdependent and provide a comprehensive view of IS success. The target of the model is to guide future research efforts. In conclusion, the most cited theories of previous publications showed that the theory of the research area focused on the acceptance and adoption of technology.

The most cited theories were TAM, TRA, DOI, and TPB. Most of the theories focus on the individual level (i.e., TAM, TRA, TPB, and UTAUT), but they may also focus on an organizational level (the Model of the IT Implementation Process) or on the level of a social system (e.g., DOI focuses on a group or an organizational level). In the Information Systems Success Model, the focus of the analysis is on critical success factors in ICT implementation in organizations. These results are mostly in line with earlier research on the most influential theories used in ICT implementation and adoption studies. Gallivan (2001) distinguishes the same four most cited theories, namely TAM, TRA, DOI, and TPB, as the core theoretical frameworks (Jeyaraj et al., 2006). Previous literature has also distinguished TAM as the most influential model (Chuttur, 2009; Jeyaraj et al., 2006; Lee et al., 2003). There is one exception in the results compared with the previous literature, namely that Gallivan (2001) and Jeyaraj et al. (2006) include Social-Cognitive Theory (SCT, e.g., Compeau and Higgins, (2012) among the most influential theories. SCT is a learning theory based on the idea that people learn by observing others (Bandura, 1986). However, SCT was not represented in the most cited theories in this study.

2.3. Conceptual Framework
Mugenda (2008) defines conceptual framework as a concise description of phenomenon under study accompanied by a graphical or visual depiction of the major variables of the study. According to Young (2009), conceptual framework is a diagrammatical representation that shows the relationship between dependent variable and independent variables. In this study, the dependent variable is the Challenge facing E-procurement while the independent variables are organizational factors, management support, technical factors and environmental factors (See Fig. 1 below)
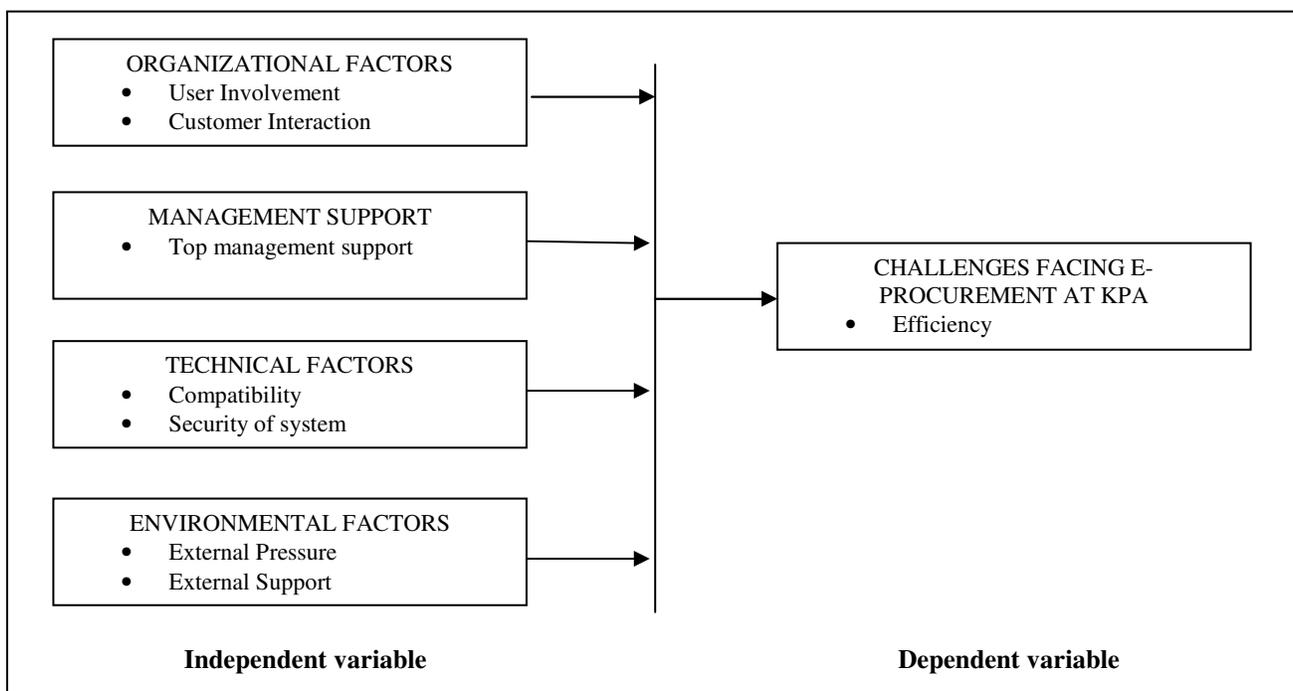

Figure 1

2.4. Challenges Facing E-Procurement and KPA ICT growth
Despite the effort by governments to encourage public sector agencies to adopt e-Procurement, its implementation does not appear to have been smooth and the rate of e-Procurement implementation success has been less than spectacular, as supported by Steinbergs (2008) claim that "Government e-Procurement projects have been notoriously unsuccessful". The development and implementation of e-Procurement has not been as easy as some of the solution providers have suggested, nor has it necessarily brought the anticipated savings. In Kenya and the rest of Sub-Saharan Africa, the implementation rate of public procurement systems has been slow and many government agencies tend to overstate the degree to which they are involved in e-Procurement (MacManus, 2008). Despite the benefits that can be achieved from a successful e-Procurement implementation in the public sector, the business press has reported a number of failures of e-Procurement initiatives in a number of public sector agencies in Kenya in the recent past including the Anglo-Leasing Scandal of the mid-2000, the biometric kits procurement fiasco which led to many protests about the transparency of the 2012

general elections and the recent primary schools laptop procurement project which had to be cancelled after several firms raised issues concerning corruption. As observed by Heywood (2010), e-Procurement will result in large investments of time and money, without absolute certainty that its full potential will be achieved every time (Boudijilda and Pannetto, 2013). However, there is need to first ensure that the systems are developed to the highest industry standards to minimise criticism and also build a culture of change among stakeholders.

KPA is the first Government Corporation to **embrace E- procurement** by implementing the Supplier Relationship Management (SRM) module. Like the government's Integrated Financial Management Information System (IFMIS), SRM aims at giving equal access and opportunities to all by **Attaining compliance** with the Public Procurement and Disposal Act 2005 and Public Procurement and Disposal Regulation (2007) and establishing a **customer Care Centre** to provide dedicated services to the suppliers. The system also aims at achieving the **30 % affirmative action** to guarantee some opportunities to the Youth, Women and Persons with Disabilities. For these reasons kenya ports authority started automation of the port operations in the year 2000 and deployed the system application product (SAP) which incorporates Enterprise Resource Planning (ERP) system for all its financial, procurement, human resources and engineering functions.

The authority successfully upgraded its SAP, ERP infrastructure to ECC 6.0 from r/3 4.6 c in 2014. In an effort to realize the governments' vision of e-procurement, the authority sourced for SAP SRM (supplier relationship management) to facilitate supplier collaboration in e-procurement. The system shall enable the suppliers to receive and respond to request for quotations and tenders online via the sapnetweaver portal. The suppliers shall also be able to receive the purchase order and creates a purchase order response, confirmation, advance shipping notification and invoice on the supplier portal. The tender opening process shall also be done via the portal.

The SAP SRM application requires one to log in to the web to access it. To access the application you log in to: http://sapcpq.kenya-ports.com

2.4.1. Organizational Factors

The e-procurement processes support the procurement and sourcing activities via internet technologies and enable an efficient negotiation between buyers and suppliers (Sarkar, 2009). According to Reddick (2004), e-procurement implementation is hampered by suppliers' providing inaccurate product data for its electronic catalogs. Many organizations are frustrated by e-procurement technologies since the suppliers do not make easy-to-search catalogs (Reddick, 2004). The automobile electronic markets (e markets) have product descriptions that are incomplete and show inaccurate unit measures (Reddick, 2004). He indicates that these glitches make it difficult for companies to fully implement e-procurement.

E-procurement is also beset by the challenge of the digital divide (Davila, Gupta & Palmer, 2006). Not all suppliers have equal access to internet knowledge and the different technology learner curves impede the seamless assimilation of e-procurement operability (Reddick, 2004). Supplier knowledge gaps with respect to the e-procurement technologies can be a significant handicap leading to insufficient catalog choices to satisfy the requirements of their customers (Davila, Gupta & Palmer, 2006). The lack of a critical mass of suppliers accessible through the organization's e-procurement system would limit the network effects that underlie these technologies, further hindering the acceptance and adoption of the technology (Davila et al, 2006). The suppliers lack business models that support e-procurement technologies and this affects the willingness of players in the state corporations to adopt the procurement technologies (Davila et al, 2006).

A research conducted on large Swiss companies revealed user involvement issues and inadequate customer interaction at managerial level (Tanner, Wolfe, Schubert. & Quade, 2007). The research found that there were optimization challenges spawned by organizational inflexibility and inability to foster customer friendliness in the e-procurement application (Tanner et al, 2007). Pires and Stanton (2011) conducted a research to establish pertinent issues in the e-procurement implementation process. The global research established that common important drivers for e-procurement adoption are process design, international operational efficiency, and cost reduction and organizational leadership (Pires & Stanton, 2011). The research indicated that the organizational factors including user-related variables affect the successful implementation of e-procurement (Pires & Stanton, 2011). Other factors highlighted by the research as affecting e-procurement implementation are: variations in e-procurement adoption based on industry differences, business size differences and complexity of products.

2.4.2. Management Support

According to Beauvallet, Boughzala and Assar (2011), the e-procurement lack of user-friendliness and confidence affects its usability and service level agreements drafting. The lack of governmental support for e-procurement as the default means of purchasing affects the confidence level among the players (European Commission, 2012). The European Commission (2002) identified several barriers affecting e-procurement: leadership failures, financial inhibitors, digital divides and choices, poor coordination, workplace and organizational inflexibility, lack of trust and poor technical design. These failures have an impact on the purchasing contracting within the e-procurement platforms.

The e-procurement implementation in State Corporation is also affected by apparent lack of standardization in the electronically exchanged documents (Kubicek, Hansen & Cimander, 2009). Such a challenge has a direct impact on the contracting process since the parties must have a common and solid understanding before entering into contracts (Kubicek et al, 2009). According to the World Bank (2004) the e-procurement implementation is affected by commonly low awareness, understanding, or skill in relation to evolving technologies.

The United Nations conducted a research on the efficiency and transparency levels in public procurement covering sub-Saharan Africa and Asian countries (UN, 2011). The research findings indicated that the update of the e-procurement systems across private sector and public sectors was dependent on the top management support and technical knowledge of the chief executives. The United Nations research findings tend to echo the Swiss research where it was found that management played a critical role in the successful implementation of e-procurement (Tanner et al, 2007). The Pires and Stanton (2011) conducted a research to develop a predictive model for e-procurement implementation. The research pointed to management support and knowledge as the key drivers of successful e-procurement implementation.

2.4.3. Technical Factors

Technology has played pivotal role in the evolution of e-procurement (Mukhopadhyay & Kekre, 2002). Electronic procurement is frequently defined as the sourcing of goods and services via electronic means, usually through the internet (Schoenherr & Tummala, 2007). The precursors of e-procurement in the 1980s formed the basic technological trends. It began with the evolution of Material Requirement Planning (MRP), Manufacturing Resource Planning (MRP II), and then to Enterprise Resource Planning (ERP) systems in the mid-1990s (Schoenherr et al, 2007).

Most organizations adopting or looking to adopt e-procurement software already have significant investments in the relevant technology systems; failure to integrate these technologies with existing platforms creates duplicative work steps and jeopardizes the reliability of e-procurement information (Davila et al, 2006). E-procurement implementation can suffer performance handicaps due to incomplete technological development of the virtualization platforms (Beauvallet et al, 2011). The World Bank blames the inadequate access and connectivity to limited absorption and usage of e-procurement technologies (World Bank, 2004).

E-procurement implementation is affected by the lack of a widely accepted and standardized solution and this blocks the integration of different e-procurement software across the supply chain (Davila et al, 2006). Without widely accepted standards for coding, technical, and process specifications, e-procurement technology adoption will be slow and will fail to deliver much of the benefits expected (Davila et al, 2006). Companies fear buying into a "closed" technology that cannot communicate with other technologies and thus limits access to a broader network of supply chain constituencies (Davila et al, 2006). The European Commission (EC) states that the level of information technology infrastructure and usage in developing countries still remains an impediment to a full integration of e-procurement (EU, 2012).

Dholakia et al (2011) suggested that skills and knowledge of employees influence the future adoption of a new technology in a large extent. Implementing a new technology needs skills and knowledge to operate in the organizations and most organization do not implement because organizations employees are not familiar with new technology. Implementing e-procurement necessitates knowledgeable and skilled employees, such reasons may cause delay in e-procurement implementation. Lack of appropriate abilities and skills can limit workers productivity. Competence based theorists frequently suggest that firms' abilities to acquire, assimilate and exploits new technological knowledge is directly related to their portfolio of human resources Cheffey (2009). Lack of IT skills makes it difficult to implement supplier relationships. This is more so where the supplier has adopted e-procurement while the buyer employs the traditional approaches.

 According to Schoenherr (2007) shows that IT in its simplest and complex forms is essentially specialized knowledge, skills and tools. He further added that there is a general feeling of helplessness among many employees in public organizations due to their inability to use appropriate technology to further the goals of their organizations and this makes majority of them shun away from implementing e-procurement. The reluctance nature of public organizations may lead to employee's reluctance in learning and using new technologies associated with e-procurement (Stevens 1990). Empirical evidence identifies that organizations whose employees have the necessary skills and technical knowledge are more likely to implement e-government applications Hawking (2004). Again, e-procurement will lead to a situation where there is little possibility of suppliers interacting with procurement staff and this will minimize elements of corruption.

The United States –based Aberdeen Group conducted a global research to establish the best practices in e-procurement (Aberdeen Group, 2007). The research findings pointed to external pressures, competition and external support factors as determining the success of e-procurement implementation in enterprises. The external pressures include legal requirements, customer expectations and international politico-economic environment (Aberdeen Group, 2007). The United Nations conducted a global research on e-procurement and developed a knowledge guide for its 193 member states (UN, 2005). The United Nations e–procurement Knowledge Guide posits that states must understand and address competition dynamics issues and external pressures in order to ensure success in the e-procurement implementation process (UN, 2005). The Deutche Bank also conducted a research in Germany on the variables affecting e-procurement implementation and established that industry competition and legal challenges are pivotal factors affecting global e-procurement success (Deutsche Bank, 2011).

2.4.4. Environmental Factors

Several scholars have highlighted the linkage between the international regulatory environment and e procurement implementation. Reddick (2004) states that companies and governments have to overcome existing legislative, regulatory and organizational barriers in order to succeed in the e-procurement implementation. Many countries have not made e-procurement laws part of the national legislative framework as is the case with Portugal (European Union, 2012). According to Beauvallet, Boughzala and Assar (2011), Public e-procurement is constantly progressing, although difficulties related to insufficient technical skills and the complexity of the juridical context hinder seriously its full adoption. Governments have not enacted laws that support e-procurement and this frustrates the usage of the technology in all industries (Beauvallet, 2011).

There are legal barriers that impede participation in cross-border tenders and this breeds a fertile ground for discriminatory purchasing and hinders transparency (European Commission, 2012). There are no elaborate laws guiding digital signatures as a principle of legal recognition and evidence value of electronic documents (European Commission, 2012).

The World Bank states that with regard to cross-border electronic procurement, companies point out that the most significant barriers to its development are: incompatible IT standards; inappropriate design of tendering systems; inadequate legal framework; and linguistic barriers (World Bank, 2004). Poor pre-existing procurement practice, legislation and regulation hinder procurement adoption (World Bank, 2004).

2.5. Critique of the Existing Literature
There is no study that provides an analytical model for electronic procurement implementation. Most of the studies conducted are general, there is no intensive industry-specific research which has been conducted. The writers agree that e-procurement implementation is cross-industry challenge. There studies do not provide geographical specificity on the challenges of the e-procurement implementation. This would have helped to focus the study in terms of the global digital divides.

There have been few, if any studies which explicitly focus on the public sector, in general, nor the adoption of e-procurement by Kenyan public sector organizations, in particular; There are a number of studies that identify factors that might affect the adoption of e-procurement, but they tend not to be empirically tested. Ruben Kiprono (2013). Moreover noted that, such studies do not provide complete and coherent classification of the problems with traditional procurement, or the potential benefits of and inhibitors of e-procurement adoption.

 Where empirical studies of the adoption of e-procurement, have been conducted, they tend to be questionnaire-based, private sector-oriented, focusing on a restricted set of adoption factors and a narrow conceptualization of e-procurement. In particular, it is important that more case studies are conducted, so that the issue of causality can be more explicitly addressed. The existing empirical literature tends not to explicitly draw upon theory, to help interpret their results. Consequently, the extent to which an organization's adoption practices might be explained through the use of an appropriate theoretical lens, such as Institutional theory, has not been widely explored. Against this backdrop, this study is initiated to investigate the challenges facing the implementation of E-procurement in State Corporation such as of Kenya ports Authority. Whilst this study was explicitly built upon the factors identified in prior studies, it was envisaged that it would provide a far deeper and richer data set, upon which to draw conclusions.

2.6 .Summary
The above chapter reviews the various theories that inform the independent and dependent variables. The chapter explores the conceptualization of the independent and the dependent variables by analyzing the relationships between the variables. In addition, empirical literature in a wide range of studies has considered challenges facing implementation of E- procurement as well as the theoretical review.

2.7. Research Gaps
The research's conducted on electronic procurement are few and far between. Much of the research was conducted in the developed world. It is, therefore, necessary that scholars in the developing world invest time and conduct research to establish the root causes of the implementation challenges specifically in the procurement systems and other business sectors. Ruben Kiprono (2013) examined the challenges of E-procurement adoption in the Kenyan Public sector: a survey of parastatals in the ministry of finance. Therefore there is a gap in examining the challenges facing e-procurement implementation in state corporations.

3. Research Methodology

3.1. Introduction
This chapter outlines the research design and methodology that will be used to carry out the study. The chapter also deals with the target population, type of data collected, sampling frame, sample and sampling technique, the sample size, data collection procedures, pilot test, validity and reliability of the instrument as well as the data analysis techniques and how eventually data will be presented.

3.2. Research Design
The researcher used descriptive research design. Descriptive study is concerned with finding out who, what, where and how much of a phenomenon, which is the concern of the study. Sekaram (2006) observes that the goal of descriptive research is to offer the researcher a profile or describe relevant aspects of the phenomena of interest from the individual, organization, industry or other perspective. In addition the design best fit in the ascertainment and description of characteristics of variable in this research study and allows for use of questionnaires, interviews and descriptive statistics such as frequencies and percentages. In addition a descriptive design is appropriate since it will enable the researcher to collect enough information necessary for generalization.

3.3. Target Population
The study targeted 3,080 employees of KPA in the top, middle level management and unionsable employees in procurement, finance and engineering departments. Since the study was descriptive in nature, Mugenda (2003) recommends a sample size of ten percent. However, Kothari (2004) recommends that a sample size be as large as possible in order to reproduce salient characteristics of the

accessible population to an acceptable level as well as to avoid sampling errors. Mombasa port is selected as a case study because of proximity to the researcher, time availability for research and budgetary constraints.

Management Level	Population	Percentage	Target Population
Top Management	80	10	8
Middle Management	200	10	20
Unionsable Workers	1,000	10	100
TOTAL	**3,080**	10	**128**

Table 1: Target Population

3.4. Sampling Size
Mugenda and Mugenda (2003) asserts that sampling is that part of the statistical practice concerned with the selection of individual or observations intended to yield some knowledge about a population of concern, especially for the purpose of statistical inferences. They advise that a researcher would have to use 30% of the total target population as a sample for it to be accepted as a good representative sample.

Management Level	Target Population	Percentage Sample Size	Sample Size
Top Management	8	30%	2
Middle Level	20	30%	6
Line Managers	100	30%	30
TOTAL	**128**		**38**

Table 2: Sample Size

3.5. Sampling and Sampling Technique
Sampling is the process of selecting a number of individuals or objects from a population such that the selected group contains elements representative of the characteristics found in the entire population. Sample is a small group of objects or individuals selected or drawn from a population in such a manner that its characteristics represent population characteristics (Orodho, 2009).
Stratified random sampling method was used to select relevant respondents from various departments of KPA. Mugenda and Mugenda (2003) argue that stratified random sampling is where a given number of cases are randomly selected from each population sub-group. It thus ensures inclusion in the sample of subgroup which otherwise could be omitted entirely by other sampling methods. In this case stratification will be based on department from which employees come from.
Stratified sampling enables the population to be divided into five segments (relevant departments within KPA) called strata. Simple random sample is then drawn from each stratum, and then those sub-samples joined to form complete stratified samples. In addition proportional allocation is done, where each stratum contributed to the sample a number that is proportional to its size in the population.

3.6. Data Collection Instruments
The researcher used structured questionnaires to collect data from KPA respondents. A questionnaire with high reliability would receive similar answers if it is done again and again or by other researchers (Bryman & Bell, 2011; Saunders et al., 2007). In addition the questionnaires are convenient for the task in that they can be easily and conveniently administered with the study sample. The use of questionnaire is cost effective, less time consuming as compared to the use of interview. Data collected through the use of well-structured questionnaire is easy to analyze.

3.7. Data Collection Procedures
The researcher used primary and secondary data. Structured questionnaires are used to collect primary data from respondents. The questionnaire was self-administered to the respondents and collected after three days. Secondary data was obtained from related materials in the internet, procurement journals, white papers, periodicals and books relevant to the study.

3.8. Pilot Test
The questionnaire was pilot tested before the actual data collection. This involved a few respondents from KPA to ascertain its effectiveness. The researcher will be interested in testing the reliability of the research instruments, the questionnaire hence validity of data collected.
Validity is the accuracy and meaningfulness of inferences which are based on the research results (Mugenda & Mugenda, 2003) asserts that reliability is done using Cronbach's Alpha Model on SPSS. Mugenda and Mugenda (2003) assert that reliability is the measure of the degree to which research instrument yields consistent results or data after repeated trials. The researcher will do a pilot with 10 respondents before distributing the questionnaire. The purpose is to ensure that those items in the questionnaire are clearly stated and have the same meaning to all respondents. At the same time I will help to determine how much time is required to administer the questionnaire. Respondents for pre-testing will not form part of the sample.

3.9. Data Processing, Analysis and Presentation

Kothari (2009) argues that data collected has to be processed, analyzed and presented in accordance with the outlines laid down for the purpose at the time of developing the research plan. Data analysis involves the transformation of data into meaningful information for decision making. It involved editing, error correction, rectification of omission and finally putting together or consolidating information gathered. The collected data was analyzed quantitatively and qualitatively. Descriptive and inferential statistics will be done using SPSS version 22 and specifically multiple regression model will be applied. Set of data will be described using percentage, mean standard deviation and coefficient of variation and presented using tables, charts and graphs. Fraenkel and Wallen (2009) argue that regression is the working out of a statistical relationship between one or more variables. The researcher used a multiple regression analysis to show the effect and influence of the independent variables on the dependent variables.

The relationship was as follows;

$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Y = Represents the dependent variable, challenges facing E-procurement implementation

α = Constant

$\beta_1, \beta_2, \beta_3, \beta_4$ = Partial regression coefficient

X_1 = Organizational factors

X_2 = Management support

X_3 = Technical factors

X_4 = Environmental factors

ε = error term or stochastic term

4. Data Analysis Results and Discussions

4.1. Introduction

This chapter presents analysis of the data on the challenges of implementing E-procurement in state corporations: a case study of Kenya Ports Authority. The chapter also provides the major findings and results of the study and discusses those findings and results against the literature reviewed and study objectives. The data is mainly presented in frequency tables, means and standard deviation.

4.2. Response Rate

The study targeted 38 employees of Kenya Ports Authority in Mombasa. From the study, 30 out of the 38 sample respondents filled-in and returned the questionnaires making a response rate of 78.9 %as per Table 3 below.

	Frequency	Percentage
Questionnaire Respondent	30	78.9
Non-respondent	8	21.1
Total	**38**	**100**

Table 3: Questionnaire Return Rate

According to Mugenda and Mugenda (2003) a response rate of 50% is adequate for analysis and reporting; a rate of 60% is good and a response rate of 70% and over is excellent; therefore, this response rate was excellent for analysis and reporting.

4.2.1. Data Validity

The researcher asked experts, three academicians, to assess the scales' content validity. Accordingly, the researcher made changes on the first draft in terms of eliminating, adding or rewording some of the items included in that draft.

4.2.2. Reliability Analysis

Prior to the actual study, the researcher carried out a pilot study to pre-test the validity and reliability of data collected using the questionnaire. The pilot study allowed for pre-testing of the research instrument. The results on reliability of the research instruments are presented in Table 4 below.

Scale	Cronbach's Alpha	Number of Items
Organizational Factors	0.764	7
Lack of Management Support	0.809	6
Technical Factors	0.723	6
Environmental Factors	0.771	6
The overall Cronbach's alpha for the four categories which is 0.752. The findings of the pilot study shows that all the four scales were reliable as their reliability values exceeded the prescribed threshold of 0.7 (Mugenda and Mugenda, 2003).		

Table 4: Reliability Coefficients

4.3. Background Information

The background information was gathered based on the positon, level of education and work experience in the organization.

Position	Frequency	Percentage %
Top management	8	26.7
Middle management	12	40
Line managers10	3	3.3
TOTAL	**30**	**100**

Table 5: Position of Respondents

The study revealed that middle management were the majority respondents with 40% whereas top management and line managers were 26.7% and 33.3% respectively.

Level of Education	Frequency	Percentage %
PHD	0	0.0
Master	7	23.3
Bachelors	20	66.6
Others	3	10.1
TOTAL	**30**	**100**

Table 6: Level of education

The study shows that none of the respondents hold a PHD degree. However the study shows that 23.3% of the respondents had master's degree, 66.6% had a bachelor's degree and 10.1% hold other forms of academic qualifications.

Years worked	Frequency	Percentage %
0-5 Years	2	6.7
6 -10 Years	8	26.7
11 – 15 Years	11	36.6
Over 15 Years	9	30
TOTAL	**30**	**100**

Table 7: Respondents Work Experience

From the study, majority of respondents have worked for between 11 – 15 years with 36.6%. 30% of the respondents have worked for over 15 years, 26.7% have worked for between 6 – 10 years and 6.7% were respondents who have worked for between 0 – 5 years.

4.4. Challenges of Implementing E-procurement in State Corporations

In the research analysis the researcher used a tool rating scale of 5 to 1; where 5 were the highest and 1 the lowest. Opinions given by the respondents were rated as follows, 5 = Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree and 1= Strongly Disagree. The analysis for mean, standard deviation and coefficient of variation were based on this rating scale.

4.4.1. Organizational Factors Affecting E-Procurement Implementation

		Organizational factors affecting e-procurement implementation		
	Statements	**Mean**	**Standard Deviation**	**Coefficient of Variation**
B1	Lack of Finances	4.1722	0.6941	0.1664
B2	Staff competence in IT	4.5000	0.6969	0.1549
B3	Lack of E-procurement approval by organization	4.3056	0.7077	0.1643
B4	Resistance to change from employees	4.0566	0.7538	0.1858
B5	Multi departmental implementation	4.1134	0.7409	0.1802
B6	Lack of clear legal framework	4.000	0.7001	0.1750
B7	Poor methods of detecting fraud in IT systems	3.111	1.001	0.3218

Table 8: Organizational Factors Affecting E-Procurement Implementation

The first objective of the study was to establish the effects of organizational factors on challenges of implementing E-procurement in state corporations. Respondents were required to respond to set questions related lack of management support and give their opinions.

The opinion that lack of finance affected implementation of e-procurement had a mean of 4.1722, standard deviation of 0.6941 and a low dispersion of 16.64% signifying a high level of agreement. The opinion that Staff competencies in IT skills had a mean score of 4.5 and a standard deviation of 0.6969 and a dispersion rate of 15.49%. Lack of e-procurement approval by the organization had a mean score of 4.3056, standard deviation of 0.7077 and dispersion rate 16.44%. The opinion that employees resisted change had a mean of 4.0566 standard deviation of 0.7538 and a dispersion rate of 18.58%. Lack of clear legal framework to implement e-procurement has a mean score of 4.000 standard deviation of 0.7001 and a dispersion rate of 17.50. Multi departmental implementation and poor methods of detecting fraud in IT systems had a mean score of 4.1134 standard deviation of 0.7409 and dispersion of 18.02% and a mean of 3.111 standard deviation of 1.001 and dispersion rate of 32.18% respectively. These findings concur with Spriano (2013) who carried out a study on the successes and failures of e- Government projects in Developing Countries: a case study of Zambia. According to him, the implementations of e-government projects and particularly e-procurement in Sub-Saharan Africa largely fail due to poor implementation strategies, organizational factors and lack of top management support and awareness among the key stakeholders.

4.4.2. Lack of Management Support

		Lack of Management Support		
	Statements	Mean	Standard Deviation	Coefficient of Variation
C1	Reluctance to implement E-procurement	4.2778	1.0032	0.2345
C2	Lack of adequate budget allocation	4.4722	0.9706	0.2170
C3	Long procedures and bureaucracy	3.6389	1.3555	0.3725
C4	Fear of losing control of organization	3.8611	1.0731	0.2779
C5	Fear of negative exposure in case of Procurement scandal	3.1217	1.4723	0.4716
C6	Maintain the status quo	4.3361	0.9873	0.2277

Table 9: Lack of Management Support

The second objective of the study was to establish the effects of lack of management support on challenges of implementing e-procurement in state corporations. Respondents were required to respond to set questions related to lack of management support and give their opinions. The opinion that management was reluctant to implement e-procurement had a mean of 4.2778 standard deviation of 1.0032 and a dispersion of 23.45%. Lack of adequate budget allocation to implement e-procurement had a mean of 4.4722 standard deviation of 0.9706 and a dispersion rate of 21.7%. The opinion that long administrative procedures and bureaucracy had a mean score of 3.6389 standard deviation of 1.3555 and a dispersion rate of 37.25%. The opinion that management feared losing control of organization had a mean of 3.8611 standard deviation of 1.0731 and dispersion rate of 27.79%. Fear of negative exposure in case of procurement scandal had a mean score of 3.1217 standard deviation of 1.4723 and dispersion rate of 47.16% and the opinion that management wants to maintain the status quo had a mean score of 4.3361 standard deviation of 0.9873 and a dispersion of 22.77%. These findings concur with Spriano (2013) who carried out a study on the successes and failures of e- Government projects in Developing Countries: a case study of Zambia. According to him, the implementations of e-government projects and particularly e-procurement in Sub-Saharan Africa largely fail due to poor implementation strategies, organizational factors and lack of top management support and awareness among the key stakeholders.

4.4.3. Technical factors affecting Implementation of E-procurement

		Technical factors		
	Statements	Mean	Standard Deviation	Coefficient of Variation
D1	Inadequate IT and networking infrastructure	4.2444	0.7149	0.1812
D2	Lack of skilled personnel	4.5833	1.0522	0.2936
D3	Lack of tamper-proof software to use	4.3722	0.5829	0.1333
D4	Unreliable internet connection	3.6389	1.3581	0.037
D5	Lack of compatibility	4.5278	0.5623	0.1241
D6	Language variability	3.8611	1.0731	0.2779

Table 10: Technical factors affecting implementation of e-procurement

The third objective of the study was to establish the effects of technical factors on challenges of implementing e-procurement in State Corporation. Respondents were required to respond to set questions related to technical factors and give their opinions. The opinion that inadequate IT skills and networking infrastructure had a mean of 4.2444 standard deviation of 0.7149 and dispersion rate of 18.12%. Lack of skilled personnel had a mean score of 4.5833 standard deviation of 1.0522 and dispersion of 29.36%. Lack of tamper-proof software to use had a mean of 4.3722 and a standard deviation of 0.5829 with a dispersion of 13.33%. Language variability had a mean score of 3.8611 standard deviation of 1.0731 and dispersion of 27.79%. The opinion that lack of compatibility had a mean score of 4.5278 standard deviation of 0.5623 and dispersion of 12.41% Hardy & Williams (2011), agrees with the findings.

4.4.4. Environmental Factors Affecting Implementation of E-procurement

		Environmental Factors		
	Statements	Mean	Standard Deviation	Coefficient of Variation
E1	Political influence in procurement	4.3611	0.8669	0.1988
E2	Poor data management system	4.2500	0.7319	0.1743
E3	Roll out strategy	4.1389	0.9607	0.2321
E4	Outsourcing contracts	4.1222	0.6431	0.1560
E5	Fear of losing business by suppliers	4.0076	1.0756	0.2683
E6	Lack of full implementation	3.8929	0.6101	0.1567

Table 11: Environmental factors

The first objective of the study was to establish the effects of environmental factors on challenges of implementation of e-procurement. Respondents were required to respond to set questions related to environmental factors and give their opinions. The opinion that there is political influence in procurement processes in state corporations had a mean score of 4.3611 standard deviation of 0.8669 and dispersion rate of 19.88%. Poor data management system had a mean of 4.2500 standard deviation of 0.7319 and dispersion of 17.43%. The opinion that suppliers will loss business had a mean of 4.0076 standard deviation of 1.0756 and a low dispersion rate of 26.83%. The opinion that state corporations do not have sufficient rolling out strategies had a mean of 4.1389 a standard deviation of 0.9607 and dispersion rate of 23.21%. The opinion that outsourcing of contracts had mean of 4.0076 standard deviation of 1.0756 and dispersion rate of 26.83% Shalle & Irayo agrees with the findings in their research factors affecting implementation of e-procurement practice in public service.

4.4.5. Challenges of Implementing E-procurement in State Corporation

		Challenges of Implementing e-procurement in State Corporation		
	Statements	Mean	Standard Deviation	Coefficient of Variation
F1	Making equipment compatible is expensive	4.6444	0.7412	0.1559
F2	High cost of E-procurement implementation	4.1389	1.1012	0.2796
F3	Resistance to change	3.7500	1.0522	0.2806
F4	Lack of E-procurement human capital	4.0833	1.0790	0.2642
F5	Lack of internet access	2.0019	1.0292	0.5141
F6	Lack of consistency	3.0151	1.4242	0.4724
F7	Lack of management support	3.3333	0.2917	0.2918

Table 12: Challenges of implementing e-procurement

On challenges of implementing e-procurement in State Corporation respondents were required to respond to some items related to the same. Respondent's opinions indicate that high cost of e-procurement implementation and lack of management support are partly the challenges of e-procurement implementation in State Corporations in Kenya.

4.5. Multiple Regressions Analysis

The correlation analysis Table 12 shows the relationship between the independent variables, organizational factors, lack of management support, technical factors and environmental factors the dependent variable challenges of implementing e-procurement KPA. The analysis indicates the coefficient of correlation, r equal to 0.768, 0.646, 0.776 and 0.773 for organizational factors, lack of management support, technical factors and environmental factors respectively. This indicates a very strong positive relationship between the independent variables, organizational factors, lack of management support, technical factors and environmental factors and the dependent variable challenges of e-procurement implementation.

Coefficients[2]					
		Unstandardized Coefficients	Standardized Coefficient		
Model	B	Std. Error	Beta	t	
		Sig			
(Constant)	.658	.136		5.511	
		.000			
		Organizational			
Factors	.483	.137	.282	3.194	
		0.01			
Lack of Management	.357	.015	.159	2.950	
		0.04			
		Technical			
Factors	.496	.121	.485	4.111	
		.000			
Environmental	.451	.145	.391	3.109	
		0.04			
a. Dependent Variable: Challenges of implementing e-procurement					

Table 13: Multiple Regression Analysis Coefficients

→   Hypothesis 1

H_0: There is no effect of organizational factors on challenges of e-procurement implementation

$\beta_1 = 0$,

H_1: There is an effect of organizational factors on challenges of e-procurement implementation

$\beta_1 \neq 0$,

In relation to the variable organizational factors, the results in Table 13 above indicate that organizational factors have a significant influence on challenges of implementing e-procurement in State Corporations. This is supported by regression analysis t-value of 3.194 which is greater than the critical value 2.0 and a p-value of 0.01 at 95% level of significance which is less than 0.05. After testing the hypothesis by comparing the scores of calculated t-value and critical t ; Calculated t-values was, 3.194 for organizational factors, which is greater than the critical t_{36-1} (0.05) = 2.0, the study rejected the null hypothesis that there is no effect of organizational factors on challenges of e-procurement implementation in State Corporations.

Therefore the study accepted the alternative hypothesis that there is an effect of organizational factors on challenges of e-procurement in State Corporations in Kenya.

→   Hypothesis 2

H_0: There is no effect of lack of management support on challenges of e-procurement implementation

$\beta_1 = 0$,

H_1: There is an effect of lack of management support on challenges of e-procurement implementation

$\beta_1 \neq 0$,

In relation to the variable lack of management, the results in Table 13 above indicate that lack of management support has a significant influence on challenges of e-procurement implementation in State Corporation. This is supported by regression analysis t-value of 2.95 which is greater than the critical value 2.0 and a p-value of 0.04 at 95% level of significance which is less than 0.05.

After testing the hypothesis by comparing the scores of calculated t-value and critical t ; Calculated t-values was, 2.95 for lack of management support, which is greater than the critical t_{36-1} (0.05) = 2.0, the study rejected the null hypothesis that there is no effect of lack of management support on challenges of e-procurement implementation.

Therefore the study accepted the alternative hypothesis that there is an effect of lack of management support on challenges of e-procurement implementation.

→   Hypothesis 3

H_0: There is no effect of technical factors on challenges of e-procurement implementation

$\beta_1 = 0$,

H_1: There is an effect of technical factors on challenges of e-procurement implementation

$\beta_1 \neq 0$,

In relation to the variable technical factors, the results in Table 13 above indicate that technical factors in infrastructure has a significant influence on challenges of e-procurement implementation. This is supported by regression analysis t-value of 4.111 which is greater than the critical value 2.0 and a p-value of 0.00 at 95% level of significance which is less than 0.05.

After testing the hypothesis by comparing the scores of calculated t-value and critical t ; Calculated t-values was, 4.111 for technical factors , which is greater than the critical t_{36-1} (0.05) = 2.0, the study rejected the null hypothesis that there is no effect of technical factors on challenges of e-procurement implementation.

Therefore the study accepted the alternative hypothesis that there is an effect of technical factors on challenges of e-procurement implementation.

$\rightarrow$ Hypothesis 4

H_0: There is no effect of environmental factors on challenges of e-procurement implementation

$\beta_1=0,$

H_1: There is an effect of environmental factors on challenges of e-procurement implementation

$\beta_1\neq0,$

In relation to the variable environmental factors, the results in Table 13 above indicate that environmental factors have a significant influence on challenges of e-procurement implementation in State Corporation. This is supported by regression analysis t-value of 3.109 which is greater than the critical value 2.0 and a p-value of 0.004 at 95% level of significance which is less than 0.005.

After testing the hypothesis by comparing the scores of calculated t-value and critical t; Calculated t-values was, 3.109 for environmental factors, which is greater than the critical t_{36-1} (0.05) = 2.0, the study rejected the null hypothesis that there is no effect of environmental factors on challenges of e-procurement implementation in State Corporation.

Therefore the study accepted the alternative hypothesis that there is an effect of environmental factors on challenges of e-procurement implementation in State Corporation.

Model Summary									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.786[a]	.773	.770	.15625	.773	179.329	4	32	.000
a. Predictors: (Constant), organizational factor, lack of management support, technical factor, environmental factor									

Table 14: Regression Analysis Summary

Table 14 above indicates an overall P-value of 0.000 which is less than 0.05 (5%). This shows that the overall regression model is significant at the calculated 95% level of significance. It further implies that the studied independent variables namely organizational factor, lack of management support, technical factor and environmental factors have significant effect on challenges of e-procurement implementation.

Table 14 shows the regression model summary indicating the coefficient of determination R Square as 0.770. This means that 77.0% of the relationship is explained by the identified four factors namely organizational factors, lack of management support, technical factors and environmental factors. The rest 23.0% is explained by other factors in State Corporations not studied in this research.

In summary the four factors studied namely, organizational factors, lack of management support, technical factors and environmental factors explains or determine 77.0% of the relationship while the rest 23.0% is explained or determined by other factors.

4.6. Anova

The study used ANOVA to establish the significance of the regression model. In testing the significance level, the statistical significance was considered significant if the p-value was less or equal to 0.05. The significance of the regression model is as per Table 14 below with P-value of 0.00 which is less than 0.05. This indicates that the regression model is statistically significant in predicting challenges of e-procurement implementation.

Basing the confidence level at 95% the analysis indicates high reliability of the results obtained. The overall Anova results indicates that the model was significant at F = 259.329, p = 0.000.

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	29.909	4	8.477	259.329	.000[b]
	Residual	.763	26	.032		
	Total	30.672	30			
a. Dependent Variable: Challenges of e-procurement implementation						
b. Predictors: (Constant), organizational factor, lack of management support, technical factor, environmental factor						

Table 15: Anova

5. Summary, Conclusions and Recommendations

5.1. Introduction

This chapter deals with the summary of the findings and provides conclusions of the findings in relation to the study. It also highlights recommendations and suggestions for further study.

5.2. Summary
From the 38 questionnaires administered, 30 of them representing 78.9 % were returned and analyzed for mean, standard deviation and coefficient of variation. The overall Cronbach's alpha was 0.752. The studies revealed that majority of the respondents were in middle level management and had worked for between 11 – 15 years. The study also revealed that majority of respondents held a bachelor's degree. Further the study revealed that lack of financial resources and lack of allocating sufficient budget for implementation of e-procurement were some of the challenges that State Corporation face. Political influence in procurement processes and lack of clear legal framework were additional challenges facing State Corporations in their endeavors to implement e-procurement. The correlation analysis indicates the coefficient of correlation, r equal to 0.768, 0.646, 0.776 and 0.773 for organizational factor, lack of management support, technical factors and environmental factors.
This indicates a very strong positive relationship between the dependent variable organizational factors, lack of management support, technical factor and environmental factor and dependent variable challenges of implementing e-procurement in State Corporation in Kenya.
After testing the four hypothesis by comparing the scores of calculated t-value and critical t ; Calculated t-values were above 2.0 for all the independent variables studied , which is greater than the critical t_{36-1} (0.05) = 2.0, the study rejected all four the null hypothesis accepted all the four alternative hypothesis.
This implies that the studied independent variables namely organizational factor, lack of management support, technical factor and environmental factor have significant effect on challenges of implementing e-procurement in State Corporations in Kenya.

5.3. Conclusions
From the research findings, the study concluded all the independent variables studied have significant effect on challenges of implementing e-procurement as indicated by the strong coefficient of correlation and a p-value which is less than 0.05.The overall effect of the analyzed factors was very high as indicated by the coefficient of determination. The overall P-value of 0.00 which is less than 0.05 (5%) is an indication of relevance of the studied variables, significant at the calculated 95% level of significance. This implies that the studied independent variables organizational factor, lack of management support, technical factor and environmental factor have significant effect on challenges of implementing e-procurement in State Corporations in Kenya.

5.4. Recommendations
The study recommended the following;
1. That State Corporations allocates sufficient budget to implement e-procurement processes
2. That State Corporations operate freely from political influence in procurement process
3. That State Corporations put in place clear legal framework to guide the procurement process
4. That State Corporations train their existing staff in matters IT and recruit IT savvy staff
5. That there should be a change of mind in both the management and supplier as concerns e-procurement

5.5. Suggestions for Further Research
The study indicates organizational factor, lack of management support, technical factor and environmental factors have a significant effect on challenges of implementing e-procurement. The researcher further recommends research in related areas in the private sector.

6. Acknowledgement

7. List of Acronyms
- B2B   Business-to- Business
- B2C   Business –to- Consumer
- B2G   Business –to-Government
- CIPS   Chartered Institute of Purchasing and Supply
- DOI   Diffusion of Innovation Theory
- ERP   Enterprise Resource Planning
- ICT   Information and Communication Technology
- IFMIS   Integrated Financial Management Information System
- KPA   Kenya Ports Authority
- MRP   Material Resource Planning
- PPOA   Public Procurement Oversight Authority
- PSCU   Presidential Strategic Communication Unit
- SCT   Social Cognitive Theory

- SME   Small and Medium Enterprises
- TAM   Technology Acceptance Model
- TRA   Theory of Reasoned Action
- UTAUT   Unified Theory of Acceptance and Use of Technology
- PPDA   Public Procurement Disposal Act
- DOI   Diffusion of Innovations theory
- TPB   Theory of planned behavior

8. Definition of Key Terms

Business-to-Business: Business that is conducted between companies and individual consumer. (Katie Jensen, 2000)

Business-to-Consumer: Business transacted directly between a company and consumer who are the end users of its products or services. (Katie Jensen, 2000)

Business-to-Government: Business model that refers to business selling products, services or information to governments or government agencies. (Katie Jensen, 2000).

Material resource planning (MRP): it's a formal computerized approach to inventory planning, manufacturing scheduling, and supplier scheduling and overall corporate planning. (K. lysons & farrington,2012)

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APPENDIX I:

LETTER OF INTRODUCTION
Samuel Wachira Mahinda
JKUAT Mombasa Campus
P.O.Box 95133
Mombasa.
10rd Aug, 2015

Head of Human Resource
Kenya Ports Authority
P.O.Box 95013
Mombasa.
Dear Sir/Madam,

RE: RESEARCH PROPOSAL

I am a student of JKUAT Mombasa campus pursuing a Master of Science degree courses in logistics and procurement. Research Proposal is part of the requirement for the award of this degree. I selected Kenya Ports Authority to undertake my study titled "**THE CHALLENGES FACING THE IMPLEMENTATION OF E-PROCUREMENT IN STATE CORPORATIONS- A CASE STUDY OF KENYA PORTS AUTHORITY.**"
I therefore kindly request your permission to undertake the study in your organization. I assure you that the information given will purely be used for academic purposes.
Your assistance will be highly appreciated.

Yours faithfully,

Samuel W. Mahinda

APPENDIX II: QUESTIONNAIRE

I'm a student in JKUAT Mombasa campus. I'm carrying out an academic research proposal study for the partial fulfillment of the requirement for the Award of the degree of Master of Science in procurement and logistics. I kindly request you to accurately fill in the information requested as per instructions given. The information provided will be held in confidence and will be used for academic purposes only.

- **Section A: Background Information**

A1. Job Title/ Designation (Optional)   …………………………………………………….
A2. What department do you work in this organization? …………………………………...
A3. What is your position in the organization?

    Top Management   [ ]
     Middle Management   [ ]
     Supervisory   [ ]
A4. What is your level of education?

     PhD   [ ]
     Masters   [ ]
     Bachelor's degree   [ ]
     Other   [ ]
A5. How long have you worked in this organization?

     0-5 Years   [ ]
     6-10 Years   [ ]
     11-15 Years   [ ]
     Over 15 Years   [ ]

- **Objective 1: Organizational Factors Affect E-Procurement Implementation**

To what extent do you agree with this statement? Please indicate your agreement or otherwise with the following statements using the following Likert scale.

1= strongly disagree, 2=Disagree, 3= Neutral, 4= Agree and 5= strongly agree.

Description	1	2	3	4	5
Lack of finances					
Staff competence in IT					
Lack of E-procurement approval by organization					
Resistance to change from employees					
Multi-departmental implementation					
Lack of clear legal framework to implement E-procurement					
Poor methods of detecting fraud in IT systems					

- **Section C: Lack of Management Support Affects Implementation of E-Procurement**

To what extent do you agree with this statement? Please indicate your agreement or otherwise with the following statements using the following Likert scale.

1= strongly disagree, 2=Disagree, 3= Neutral, 4= Agree and 5= strongly agree.

Description	1	2	3	4	5
Reluctance to implement E-procurement					
Lack of adequate budget allocation to implement E-procurement					
Long administrative procedures and bureaucracy					
Fear of losing control of the organization					
Fear of negative exposure in case of procurement scandal					
Maintaining the status quo					

- **Section D: Technical Factors Affects Implementation of E-Procurement**

To what extent do you agree with this statement? Please indicate your agreement or otherwise with the following statements using the following Likert scale.

1= strongly disagree, 2=Disagree, 3= Neutral, 4= Agree and 5= strongly agree.

Description	1	2	3	4	5
Inadequate IT and networking infrastructure					
Lack of skilled personnel					
Lack of tamper-proof software to use					
Unreliable internet connection					
Lack of compatibility					
Language variability					

- **Section E: Environmental Factors Affects Implementation of E-Procurement**

To what extent do you agree with this statement? Please indicate your agreement or otherwise with the following statements using the following Likert scale.

1= strongly disagree, 2=Disagree, 3= Neutral, 4= Agree and 5= strongly agree.

Description	1	2	3	4	5
Political influence in procurement					
Poor data management system					
Roll out strategy					
Outsourcing contracts					
Fear of losing business by suppliers					
Lack of full implementation					

- **Section F: Challenges Facing Implementation of E-Procurement**

To what extent do you agree with this statement? Please indicate your agreement or otherwise with the following statements using the following Likert scale.

1= strongly disagree, 2=Disagree, 3= Neutral, 4= Agree and 5= strongly agree.

Description	1	2	3	4	5
Making equipment compatible is expensive					
High cost of E-procurement implementation					
Resistance to change					
Lack of E-procurement human implementation capacity					
Lack of internet access					
Lack of consistency in implementation					
Lack of management support					

THANK YOU!

APPENDIXIII: WORK PLAN

ACTIVITY	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER
Assigning supervisor & Topic selection	■				
Proposal Development	■				
Proposal submission		■			
Proposal presentation			■		
Proposal correction & Supervisor approval			■		
Data collection & analysis				■	
Report writing				■	
Project presentation				■	
Project correction & Supervisor approval				■	
Printing of golden copies					■

APPENDIX IV: BUDGET

	DESCRIPTION	AMOUNT (KES)
1	Laptop	60,000/=
2	Internet	5,000/=
3	Library services	5,000/=
4	Secretarial services	10,000/=
5	Printing and binding	3,000/=
	TOTAL	**83,000/=**