EFFECT OF SUPPLIER DIGITIZATION ON ORGANIZATION PERFORMANCE IN THE PUBLIC SECTOR IN KENYA

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DECLARATION

I declare that the work in this dissertation has not been previously published or submitted elsewhere for award of a degree. I also declare that this is my own original work and contains no material written or published by other people except where due reference is made and author duly acknowledged.

Caroline Kinanu Makokha **15/01807**

Sign: _____ Date: _____

This research dissertation has been submitted for examination with my approval as the University Supervisor

Sign……. Date…….....

Dr. Brigitte Okonga

ABSTRACT

Supplier digitization is more than just a system for making purchases online. In today's competitive market most organizations in the world are gradually transacting business using information technology. The aim of the study was to establish the effect of supplier digitization on organizational performance in Public Sector. The specific objectives of the study are to establish the effect of digital firm-supplier communication on organizational performance, to investigate the effect of digital order taking on organizational performance, to determine the effect of digital tendering on organizational performance and to establish the effect of digital contract management on organizational performance in Kenya Power which is a Public sector. The study adopted a descriptive approach in trying to establish the effect of supplier digitization on organizational performance in Kenya Power. A sample size of 30%which is162 respondents was selected from the target population of 10% which is 540 suppliers and supply chain officers. Data was collected from the respondents through a questionnaire. The collected data was analysed using Statistical Package for Social Sciences (SPSS) and presented in form of tables and figures while explanations will be given in prose. The study found that all independent variable of supplier digitization has effect on organizational performance in Kenya Power and hence play a key role in the supply chain of Kenya Power. The study recommends that for faster adoption of supplier digitization by suppliers and hence Kenya Power to have a smooth flow of processes, Kenya Power must ensure that their on-boarded suppliers and the ones that are on-boarding understanding benefits accrued from use of technology such as supplier digitization on procurement processes which incorporates digital tendering, digital order processing, contract management as well as digital firm -supplier communication which create efficiency and transaction effectiveness in the entire supply chain of the Organization. To the employees, the management must emphasise the importance of procure to pay perceptive through online process that enhances transparent processes.

Key words: Digital Firm-Supplier Communication, Digital Order Taking, Digital Tendering, Digital Contract Management.

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DEDICATION

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LIST OF ACRONYMS AND ABBREVIATIONS

CIPS - Chartered Institute of Purchasing and Supplies

EDI - Electronic Data Interchange

ERP - Enterprise Resource Planning

ICT - Information communication technology

IFMIS - Integrated Financial Management Information System

KRA - Kenya Revenue Authority

RBT - Resource based theory

PPDA - Public Procurement Disposal ACT

PPOA - Public Procurement Oversight Authority

SAP - Systems Applications and Products

SUS - Supplier Self Service

SPSS -Statistical Package for Social Sciences

VIF -Variance inflation factor

ANOVA - Analysis Of Variance

DEFINITION OF KEY TERMS

The definition of the key terms used in my study that explains the effect of supplier digitization are presented in this section as follows.

Supplier digitization

It is an online process that organizations use to identify potential sources of supply to procure goods and services as well as interacting with suppliers through online process (Min and Galle, 2003).

Supplier on-boarding

Supplier on-boarding is a process of gathering documents and data needed through suppliers registers online with the buying organization in order to be approved in the system for the purpose of supply chain online transactions (Stefan, 2012)

Supplier self service

This basically is a solution that enables suppliers after successful online registration to have their own business client portal online to integrates with buying organization procurement portal and through the internet respond to request for tenders, order functions received in their portal and invoice payment (Sijaona, 2010)

Digital firm-supplier communication

Digital firm-supplier communication through supplier digitalization allows electronic documentation to flow from the suppliers to the buying organization and hence eradicates the traditional process where much paper is used, timelines communication not met and errors on documentation processes (Roma and McCue, 2012)

Digital order taking

The approved digital purchase order is passed to the supplier portal automatically for their acceptance and deliveries. Waters (2002) explains that an automated procurement system is designed to manage the procurement process more effective and efficiently

Digital tendering

Tendering is referred to the procurement process from the perspective whereby governments, financial institutions and corporations issue a Tender and invite Bids for the quotes. Digital tendering is an end-to-end tendering system that is used and operated through a computer system connected to the Internet (Johnson 2011).

Digital contract management

Digital contract management is the process that enables both parties to a contract to meet their obligations through digitization in order to deliver the objectives required from the contract. The digital contract management includes invitation to tender and evaluation of bids, awarding and implementation of contracts; order progression and payment to the supplier (Kakwezi, 2012

Organization performance

Organization performance is a concept that basically measures the analysis of effectiveness and efficiency of the outcome of the organization activities where accomplishment of a given task is measured against pre-set known standards such as accuracy, completeness, cost, speed, flexibility, quality of supplies, and supplier profile among many others (Timothy (2012).

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

In today's competitive market most organizations in the world are gradually transacting business using information technology. Digitized business transaction in Procurement entity is growing in its scope and importance. Supplier digitization has drastically changed the ways in which Organizations interact and transact business with their various suppliers. Hence Supplier digitization is an important exercise for organizations that are focused on being the market leader and at the same time effectiveness and efficiency is their driving force to achieve high-quality service delivery to its customers.

In the current market trends, it appears that technology is interrupting many organizations on how they do business by making them more aware of the efficiency and effectiveness of their processes on procurement in the current changing market trends (Eadie et al (2007). Hence, Digitized procurement activities on the internet can allow a decrease in procurement costs, skilled procurement negotiation and increasing supplier availability and fairness. It is evident that in today's market trends, supplier digitization immensely transforming the way organizations and governments operate and transact business in the world (Nelson, et al. 2001).

Jaya and Selang (2014) explains that the following trends of technology over the last 20 years spells out some of the achievements and uphill technology adoption. Evidently supply chain based internet has significantly changed the way people obtain goods, works and services worldwide. It is observed that technology based transaction combines many aspects of electronic procuring tool. Most private sector organizations are not keen on technology adoption such as supplier digitization and hence being held responsible for slow

adoption digitization based supply chain and as such avoiding it. Jaya and Selang (2014) explains that externally hosted technologically based services are clearly part of a growing trend. Some organizations that operate in the industry sector such as those dealing with oil and gas, pharmaceutical and mining industries most have embraced technology more than some other sectors.

In our local market, private organization like Bidco Oil Refineries Limited (BORL) according to the website (2017) Bidco has implemented E-commerce business solutions in 1999 that translates to supplier digitization to assist Bidco staff, suppliers and customers throughout Africa to process sales, pricing and financial information online, so as to remain and competitive in the growing industry and at the same time to significantly reduce strategic procurement costs. The solution has allowed Bidco to provide its customers with a range of online functions including placing sales orders, accessing product information, obtaining real-time quotes, and viewing relevant back-office information.

Some governments and public sector in mature economies are adopting technology based transaction for their business consciously as it enhances structure, audit trails and transparency of the business transactions. Khanapuri, et al (2011) suggest that corporate procurement can be enhanced through digitization yielding profits, establishing good procurement controls. However, governments in emerging markets are often unaware of the benefits that digitization can provide. World Bank research (2014) found out that reluctance by public sector and governments in adopt a system that demonstrates transparent on all its business transaction.

In our local market, due to the changing market trends, the government of Kenya came up with an automated system called Integrated Financial Management Information System (IFMIS) which is meant to enhance efficiency in planning budgeting, procurement, expenditure management and reporting in the National and County Governments in Kenya.

For the government to implement this system was mainly to ensure any expense undertaken in the public sector is traceable and will affirm transparency and accountability in the management of the public's finances and optimal value delivery to every taxpayer. Hence, organization like Kenya Ports Authority, KPA 2009/2010 financial year state the decision made by the management to implement and adopted digitization of its supply chain processes in order to gain from an online partnership with potential suppliers over the world as well as providing an environment of paperless buying, supplier collaboration, electronic generation of tenders, online order function, online supplier invoicing and payment.

In the current trends, the need for change in supply chain business transaction is being driven by lack of efficiency and effectiveness of the traditional procurement processes as well as the need for public sector organizations to deliver sustainable competitive advantage to the global markets which has become critically competitive. Supplier Digitization will allow electronic documentation to flow to the buying organization and hence eradicates the traditional process where much paper is used, timelines of supplier registration are not met by the buying organization, delayed tender responses, delayed order function and curbs irregularities and unnecessary costs that are accrued on manual documentation processes (Zheng, *et al.* 2004).

Min and Galle (2003), Supplier digitization is an online process that organizations use to identify potential sources of supply to procure goods and services as well as interacting with suppliers. In most public sectors, you realize that traditional supplier's onboarding is the dominant process of interfacing an organization with various suppliers' in supply chain. This process has various deficiencies that are contributing to huge losses of public funds in most organizations hence poor supplier performance due to lack of capability and capacity within its scope. Incidentally, most buyers and suppliers are comfortable with the traditional process of suppliers' onboarding where documents are forwarded to the head of procurement function

in the organization and they can make a judgment on whether to have the supplier on-board or not. Again, traditional supplier onboarding leads to manual registration, manual tendering, manual order processing, and manual invoicing payments which pose a challenge of loss of documents or misplacement of documents. This has caused mistrust between the buying organization and the supplier wishing to on-board in the organization's vendor master data and catalogue.

Supplier digitization allows firms that are supplying goods, works, and services to sign up and enjoy the benefits of digitization in the organization database (Nelson *et.al*. 2001). Supplier digitization enables the buying organization to find even new suppliers who may have advanced a new production technology and has modernized its process to enable them to reduce their production costs on goods, works, and services. According, to Public procurement and Asset Disposal 2015 (clause 71), states the important of the procurement entities in public sector to keep a list of updated suppliers by maintaining and continuously updating the lists of registered suppliers, contractors and consultants in various specific categories of goods, works or services depending on its procurement needs. The continuous process of supplier digitization creates an environment for an organization to have large vendor master data of suppliers who supplies them with goods, works and service as and when required by the organization. Supplier digitization has revolutionized various markets trends in the world and changed the business operations and its models to fit the current competitive market trend (Bowersox,2009). This means Organizations and its suppliers operates at a very critical moment in the market calendar where it has become essential for them to provide their customers with a solution that is cost effective and efficient. Supplier digitization enhances collaboration with the buying organization through information sharing to the supplier's portal online from the buying organization portal.

1.1.1 Supplier Digitization among Kenyan Firms

To thrive in today's market, most organizations are forced to adopt technology for the business transactions to keep them relevant and competitive in the modern market (Nelson *et.al*. 2001). The most common system used is System Applications Products (SAP) which is an Enterprise Resource Planning ERP system that integrates the key business functions of the various organization in the world with its suppliers and various partners. It is a system that is largely used by the organization for system processes such as finance, production planning, procurement in material management, logistics, sales and human resource. In today's market, most organizations in Kenya are slowly adopting and implementing technology in their operational processes so that they can be relevant in the current market. Technology such as Supplier digitization will create a conducive environment for better business transactions faster and efficiently at the same time enhancing time management and quality of goods, works and services delivery. The purpose of pursuing adoption is to ensure organization can get value for money at the same time creating an environment for a smoother business transaction with the wider market in Supply chain.

According to Reddick (2004), technology such as supplier digitization creates a platform that will enable suppliers after successful online Onboarding to have their own business client portal online to integrates with Kenya Power procurement portal and through the internet respond to tenders, quotations and submit them online. Hence, electronically received tenders by Kenya Power creates efficiency where suppliers submit electronic documents, make inquiries, collaborate with buyers, raise disputes online and participate in online bid opening sessions and order function. It is also a solution that enhances order functions online where the supplier responds by creating an advancing shipping note reference to the order given online by the buying organization. After online good receipt by the buying organization, the supplier creates an online invoice for the payment of the

delivered goods. Electronically received purchase orders and invoices making payment and delivery of goods a simple process to promote mutual relationship between Kenya Power and its Suppliers hence advancing organizational performance. In a digitalised procurement, e-invoices are used instead of paper invoices which not only bring huge savings but also improve integration and automate the process by also monitoring outstanding payments where invoices are overdue so that suppliers can keep up to date with payments and act on delayed payments accordingly without re-billing it twice. This indeed reduces time-wasting on documentations and increases efficiency on the processes involved in both parties and enhance Organizational performance in Kenya Power.

In Kenya, there are some organizations that have successfully embraced supplier digitalization as a technology to transact business with. Most organizations are ensuring operations are efficiently and effectively conducted giving the best output to its customers through effective digitised system that on-board all potential suppliers the organization requires for the supply of goods, works, and services to satisfy the need of its customers. Archer and Gebauer (2001) state that technology on digitization presents a vital opportunity for effective and efficient supply chains that has enhanced the entire business process of the organization creating an environment of integrity, transparency, timeliness and faster transaction processes. Suppliers digitization in most organizations has increased its vendor master data capacity with more reliable suppliers on-board who can supply quality goods, works, and services to the organization. It has also enhanced supplier confidence with the system usage, buyer acceptability of the system to effect procure to pay scenario, efficiency, and governance in the entire supply chain while improving documentation flow from and to both parties and transparency in contract management between parties. Sijaona (2010) explains that supplier digitization enables the suppliers to create a business partnership portal that is known as Supplier Self-Services (SUS) which is basically a solution that enables

suppliers after successful online registration generate their own business client portal online to integrates with Organization procurement portal. Digitised suppliers can respond to request for tenders and order functions received in their portal and invoice payment through the internet. This has indeed reduced time wasting on documentations and increase efficiency on the processes involved by both parties. Supplier digitization has further promoted time management that leads to faster procurement processes while enhancing effectiveness on transactions, timely delivery of goods, works and services, faster document processing by buying organization and hence smooth and faster payments to the suppliers.

Full adoption of supplier digitization creates best practice in the business transaction with the buying organization as well as ensuring transparency, integrity in process management on-board suppliers. Supplier digitization enhances collaboration where buying organization publishes tenders online and supplier can respond to them on time (Sijaona 2010). Digitization fast tracks the document flow from the supplier to the buying organization hence ensuring a prompt tender response, order function, online invoicing and online supplier payments. Therefore' additionally supplier digitization ensures payment to suppliers are done online at the same time attain a larger supplier database that gives all current and prospective suppliers an equal opportunity to submit tenders and quotations for the supply of goods, works, and services in a timely manner. Once the supplier is online on-boarded to organization System, they create business partnership portal that facilitates them to do business with the organization.

Garran (2005), argues that supplier digitization solution has enhanced real-time operational reporting in the Kenyan firms while giving visibility into companywide spending patterns and boosting their forecast business needs appropriately. The solution has also assisted in maximizing cost savings and reducing supplier risks. In adopting digitization solution organizations optimizes revenue sources by being able to adjust their product mix

and placement based on actual sales and inventory data hence being able to maximize sales opportunities and cut out of unnecessary stocks. This has offered great convenience and eased transactions with its customers. The digitization solution enables organization to drive its strategic procurement processes through the Internet, consolidating items, suppliers, and contracts, enabling it to route and control the flow of money out of the company. With the digitalized solution, organization can track re-order level of the suppliers and companies they are transaction business with and hence deliver the product in a timely manner. The firms and organization that have embraced supplier digitization are Kenya Ports Authority, Kenya Revenue Authority (KRA), Kenya power, Kenya Medical Supplies Authority, Savannah Cement and Bidco Oil Refineries Limited

1.1.2 Concept of Firm's Supplier Digitization

Lysons (2006) of the Chartered Institute of purchasing and supplies (CIPS), technology such as Digitization of Suppliers is a collective usage of electronic information and communications technology (ICT) to interface Suppliers and the buying organization for a business transaction. The concept of adopting supplier digitization is largely influenced by organization and suppliers' understanding of the benefits not only financial factor but also non-financial factors of digitization process in the Organization. This indicates the understanding of the benefits of digitization that provides technological expertise and awareness of new technologies of transacting business. Supplier digitization not only shifts the buyer and suppliers from the traditional methods of transacting business but brings in cost effectiveness element that reduces slow processes undertaken in the procurement system. It also enhances real-time information, a flawless procurement process, improves relationships with the supplier, improves procurement effectiveness, less inventory carrying costs, better price, shorter order cycle time and integrated supply chain (Gunasekaran, et al. 2009). It is,

therefore, important to realize that supplier digitization will not only give an organization a large vendor master database but will also create a good environment that enhances transparency, efficiency, and growth for both the buying organization and suppliers. Supplier digitization will improve cost-effective production of goods, works, and service and at the same time maintain a high level of quality and after-sales services Sonmez, (2006). This creates a platform for a competitive process where the buyer is confronted with a large choice of supplier selection, especially for small quotes.

Rankin (2006) argues that digitised procurement leads to lower administration costs. This means that supplier digitization will lead to no paperwork, postage fee and other costs associated with preparation and sending information to the suppliers. Supplier digitisation enhances time efficiency and transparency in the entire procurement processes and hence give faith on the output to both parties since documents are transmitted electronically to both parties online portal. In supplier digitisation, information regarding procurement process is shared in the organization portal and registered suppliers can track it in their business client portal once approved by the management of the buying Organization and this leads to faster transmission of documentation flow.

It is evident that supplier digitization has an impact on both the Organization and its Suppliers. There are various benefits that amassed to an organization when supplier digitization and procurement processes is fully embraced in all their activities which leads to cost reduction, transparent processes, effective and efficient processes, paperless environment, entrant of new supplier and smooth flow procurement process to both parties. This reduces various costs associated with traditional processes, break dishonest attitudes between buyer and sell and lessen the number of mediators who cause little profit in the procurement process for both parties. Supplier digitization enhances fair supplier

qualification and supplier selection that increases transparent supplier database in the organization system.

Quesada et al., (2010), states that the form of digitized procurement assumed in the organization that is confronted with growing global competition and cost reduction pressures by various partners is largely expected to change the way procurement methodologies are done in those organizations. These largely depend on how the implementation of technology is done to such organization and acceptance of the digital system by the users and suppliers as well. Hence, digitised procurement process in an organization has become a critical tool to its business success so that it can upgrade its role from tactical procurement process to one that is value-driven and aligned to its business goals to efficiently meet its customers' needs in a timely manner.

1.1.3 Organization Performance

Organizational performance is the ability of an organization to fulfil its mission through sound management, strong governance and a persistent rededication to achieving results. In most organizations in the world organization performance also is viewed as a performance that touches effectiveness, efficiency, competitiveness in achieving their mission, purpose or goals of the organization. According to Roma and McCue, (2012) states that organization performance has been impacted by technology to reducing transaction cost, efficient processes, contract compliance, reduced lead times and reduction in inventory costs. To survive as an organization in the intensely competitive global economy, it is vital to not only develop existing suppliers but also to discover new suppliers by doing supplier registration, evaluation and selection continuously to keep an updated vendor master database. Organization performance is a concept that basically measures the analysis of effectiveness and efficiency of the outcome of the organization activities where accomplishment of a given

task is measured against pre-set known standards such as accuracy, completeness, cost, speed, flexibility, quality of supplies, and supplier profile among many others (Timothy (2012). Performance is deemed to be the fulfilment of an obligation, in a manner that releases the performer from all liabilities under the contract. Hence organization Performance includes activities which ensure that goals are consistently being met in an effective and efficient manner.

Parasuraman (2002) proposed that firms delivering services must broaden their examination of productivity from the conventional company-oriented perspective to a dual company-customer perspective. This broadened approach can help reconcile conflicts or leverage synergies between improving service quality and boosting service productivity (Parasuraman, 2002). Organizations that have adopted technology are able to deliver their products and services effectively. When defining Organizational performance, it is important to consider a wide variety of potential organizational performance measures. This research considers organizational performance relative to the competition from multiple organizational perspectives including quality, productivity, market share, profitability, return on equity, and overall organizational performance.

Technology creates a positive impact in an organization by ensuring transparency that calls for a complete view of Supply chain and its functionality. It ensures there is communication that facilitates information availability to all supply chain members simultaneously hence creating a collaboration between buying organization and its Suppliers. It is prudent to realise that migration of procurement processes of the buying organization from the traditional way of doing things to the Internet based transaction processes that have a significant impact on reducing the prevalent corruption in public procurements (Panda & Sahu, 2011).

Dessler (2012), states that Organizational performance involves analysing the performance of a company by comparing its set standards against its actual achievements. Performance can be defined as a collection of work activities, operational efficiency and effectiveness, their measurement and subsequent outcomes attained. Methods used to measure organizational performance are comparative to the framework in which the organization operates and the strategic purposes pursued by the organization (Akinyi, 2012). In this study, organization performance in Kenya Power for supplier digitisation is measured by various impact dimension that is attributed to the steady growth of the organizational business function since its implementation. Currently the management of Kenya power recognizes this and have put the necessary effort to define the supply chain organization goals, performance indicators and evaluate them due to its direct impact with the modern market.

1.2 Statement of the Problem

Whereas digitization is expected to enhance efficiency and effectiveness firms have been faced with various challenges which include massive scandals and indignity. This has attributed to poor handling of supplier information and supplier on boarding processes. The study has established the loopholes, challenges and at the same time to find the remedy for the challenges observed. Since supplier digitization is a way of suppliers collaborating with the buying organization through technology to transaction supply chain business by making it easier, faster and less expensive to purchase the goods, works and services they require, then the key question is, can supplier digitization enhance organizational performance? Digitization ensures the sourcing and purchasing process in an organization is simplified increasing effectiveness and efficiency. However, there is still some resistance to change form the responsible parties and therefore the importance of identifying whether supplier

digitization creates value to a supply chain process, how and what are the benefits of changing from traditional procurement process to electronic procurement is highly hypothesised.

Studies have mainly been carried out merely on e-procurement emphasises and benefits to organizations Wyld (2004) and not much on supplier digitization done yet. Makali, (2015) researched on the adoption of e-procurement and procurement performance in supermarkets in Nairobi and found out that the ICT sector should enhance ICT in retail industry in Kenya and also needed to scale down on traditional procurement activities if the benefits of e-procurement are to be actualised. The study by Muhia (2015) on implementation of e-procurement and procurement performance at Kenya Revenue Authority (KRA) established that e-procurement positively influences procurement performance at KRA. However, as much as extensive studies have been done on e-procurement, scanty studies have been carried out on supplier digitization which promotes collaboration between supplier and the buying organization by creating an e-portal platform licenced by the buying organization which allows suppliers to own the entire supply chain. The e-portal is provided to the supplier for them to interface with buying organization for online procure-to-pay process such as online response to tenders, order function, contract management, timely deliveries, invoicing and payment to the supplier. It is therefore in this light that the proposed study sought to fill this knowledge gap by finding out the effect of supplier digitization on organizational performance in public sector entities

For the management of the organizations, it is prudent and critical to prepare internal and external customers at the same time actively communicate with them to ensure they are on board with the system. It is prudent for the management and employees of public sector to be more receptive and familiar with all aspect of its goals, technical procedures and impact of electronic procurement process of the organization regarding the processes of digitization of

procurement so that they can reap the benefit of the effectiveness and efficiency of the technology in business management in the current competitive market and enhance organizational performance.

Suppliers lack confidence and trust of the system and usually feel there could crop up security problems of the internet whereby their company profile might be hacked or misused by some people on the internet. According to Harrigan (2008), trust and confidence is key in any business environment. But this is an uphill to most supplier because most of them feel they are not computer literate hence cannot use the system for procurement transaction at the same time they feel the cost of acquisition of technology tools is not achievable.

Johnson (2011) states that procurement is an important area of operations where the adoption of innovative technologies can enhance business transaction with various partners. Incidentally, the manual procurement process has evidently shown to be long, tedious, time-consuming processes and even sometimes led to documents loss between for both organization and supplier. It has led to so much mistrust and loss of confidence among supplier and buyers and at times attracted legal implications. Manual onboarding of supplier's process is known to be a slow and time-consuming process with many small, repetitive tasks. Manual onboarding of suppliers is a generally difficult process to control and makes visibility more blurred, leading to a bigger loss of control and is usually increased by miscommunication between buying organization and many suppliers involved. Therefore, the study sought to answer the question, what is the effect of supplier digitization on organizational performance in the Public sector.

1.3 General objectives

The general objective of the study was to establish the effects of supplier digitization on organization performance in Public Sector. The following are the specific objective:

i. To establish the effect of digital firm-supplier communication on organizational performance in Public Sector

ii. To investigate the effect of digital order taking on organizational performance in Public Sector

iii. To determine the effect of digital tendering on organizational performance in Public Sector

iv. To establish the effect of digital contract management on organizational performance in Public Sector

1.4 Research questions

i. What is the effect of digital firm – supplier communication on organization performance in Public Sector?

ii. What is the effect of digital order taking on organization performance in the Public Sector?

iii. What is the effect of digital tendering on organization performance in supplier digitization in the Public Sector?

iv. What is the effect of digital contract management on organization performance in the Public sector?

1.5 Significance of the Study

This study can help the management of public sector with its employees and its suppliers on how best to manage, adapt and embrace the use of information technology as a tool that will add value to supply chain and hence promotes efficiency in the procurement processes of

Kenya Power as an organization. The findings of the study may also serve as a benchmark to other organizations who anticipate implementing supplier digitalization to manage their Supply chain processes. Over the years, there have been numerous complaints of the traditional process of supply chain processes that are not transparent, do not uphold integrity and loss of documentations and application letters from suppliers. Having this in mind, the research work will serve as a policy-shaping documentation for the Kenya power and other public sectors set up to improve its supply chain processes by adopting supplier digitization that carry with it a huge benefit on full implementation of organization-supplier-customer satisfaction.

Consequently, the findings would help to design a strategy on how firm- supplier partnership with Kenya power system and other organizations can actively stimulate the growth and sustainability of the supplier relationship management as well as transfer of knowledge and understanding of the digitalised system implementation process. Suppliers digitization will create collaboration between suppliers and the buying organization.

To the academicians, this study is scholarly in nature and hence will be of value to researchers and scholars both in academia and industry contributing and enhancing to the existing literature in the field of supplier digitalization and bridge the knowledge gap of organizational performance in the public sector. Findings of the study will be useful to researchers and scholars by further refining and extend the present study especially in the public sector in Kenya. It will also assist other researchers to further their studies in areas of interest not yet exploited.

1.6 Scope of the Study

The study will be carried out in Kenya Power as a Public Sector with her Suppliers and the aim is to determine the effects of supplier digitization on organization performance. The

study targets Organization's Supply chain officers and their Suppliers. It is in view of this that the study seeks to assess the effects of supplier digitization on organization performance in a public-sector firm with their suppliers. The study will use the questionnaire as a source of data collection.

1.7 Delimitations of the Study

Due to the nature of the study research and its objectives, this research study is delimited in some aspect. Hence delimitation of this study is narrowed to the scope of the study being Kenya Power which is adopting supplier digitization as one of the systems to transact business with its suppliers effectively (Creswell, 2003). The investigation is focused exclusively on supplier chain officers of Kenya Power and its on-boarded suppliers, since the study target population is the most relevant for this research due to the ongoing implementation of supplier digitization in the organization. The supplier chain officers of Kenya Power and its on-boarded suppliers are homogeneous in the supply chain activities, hence allows for generalization of the activities such as supplier digitization. The research will view supplier digitization from the buying organization's perspective and supplier perspective and excludes other organizations in the public sector as well as suppliers who are not on-boarded in Kenya power system from the research study and data collection.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The literature review is generally an appreciation that various scholars have researched the subject and new knowledge can be gathered by appreciating and building on the same subject. This chapter aims at identifying and evaluating opinions knowledge, attributes and findings of various studies that have been carried out on supplier digitization on organizational performance. The chapter has looked at the works of other researchers to evaluate findings in this area and add contributions to the existing theories.

2.2 Theoretical Review

The study examines the various theories that are used to inform the study on the effect of supplier digitization on organizational performance. The following theories are used to analyse the areas of supplier digitization on organizational performance in the Public Sector.

2.2.1 Network Perspective Theory

The network perspective theory was developed by Hammarkvist, Håkansson, and Mattsson in 1982. Network perspective theory states that organizations depend on the strong relationship they have with their suppliers in Supply chain. This relationship creates a competitive advantage that is achieved through efficiency and effectiveness network of Supply chain (Chicksand, el at, 2012). In this view, supplier digitization creates an environment of trust and confidence as the most supplier are on boarded to do business with organization and acquires portal that enables them to see and action on various tenders they are interested in. Therefore, the focus of the network perspective theory is to develop long-term, trust-based relationship between supply chain firms in supply networks.

According to Johanson and Vahlne, (2009), Network perspective theory signifies the outcome of organization's activities to strengthen network positions. The network perspective goes beyond the models of incremental supplier vendor master data by suggesting that a firm's strategy is influenced by a variety of network relationships that is achieved through supplier digitization. The network perspective draws attention to the long-term business relationships that exist between firms in dynamic markets. Network perspective theory enhances supplier digitization by creating a platform where the buyer-supplier relationship achieves trust to transact business with both partners. This theory advances transparency and fairness in the business transaction as buyer and supplier collaborate to ensure smooth flow of information among them.

Supplier digitization through network perspective theory enhances network competence that is embedded within the whole company and resource availability is a precondition for the development of competence. Network orientation of human resources, communication structure and corporate culture are positively associated with competence which is key to supplier digitization. The network perspective theory emphasizes the importance of the organization's development where cooperation is more efficient than the competition and demonstrates the importance of long-term relationships with buyers and suppliers (Hadley and Wilson 2003). This aspect has enhanced confidence in transacting business and continuous flow of information across the organization to connect various activities between the buyer and supplier thus creating an environment to implement supplier digitization in public sector.

2.2.2 Systems Theory

System theory was created by sociologist John Dunlop in 1958. System theory demonstrates that industrial relations system is usually a social subsystem and actions within this theory are

dependent on factors such as technology, the economy and the distribution of power in the society. In view this, the principle can apply to organization's supply chain performance where it can bring together various components of a complex supply chain such as human, capital, information, materials and financial resources to form a subsystem that leads to a larger system of supply chains or network of the system. Hence allows e-collaboration with organizations and suppliers to increase coordination through the internet in all supply chain activities (Lee, 2003). Dunlop states that **c**hanges in technology enhance the employer's expectations about the skills of workers. The work processes and methods with modern techniques reduce manual processes and workers can acquire greater control over work hence higher production is achieved. He further emphasizes that the theory to achieve a holistic perspective of system theory aspect, an organization must understand the internal and external factors that shape an organization's supply chain performance within its scope. Therefore, supplier digitization become a key factor in system theory to on-board the right mix of suppliers in organization vendor master data who understand the business process of the organization and at the same time creates a partnership in business transactions.

According to Presutti, (2008), Information technology based purchase system plays a big role in integrating organizations and promoting collaboration between suppliers and the buying organization. This enhances faster process on supplier registration, faster-tendering process and smooth payments of the supplier invoices. The technology based process between an organization and its suppliers' advocates automation of procurement processes of an organization, improving efficiency and transparency, and thereby reduce the costs (Puschmann & Alt, 2005). In system theory, Dunlop emphasizes that industrial relationship is complex system with interconnected parts that cannot operate independently of each other. A procurement system is a vital component of an organization's supply chain system that comprises of supplier registration, tendering, order function and supplier invoicing and

payment. In the current market, an organization cannot do without suppliers who can supply them with the quality products to meet its customers need efficiently (Kaufmann, 2009).

2.2.3 Technology Acceptance Theory

Technology Acceptance Theory Technology acceptance model was introduced by Devis (1986). This theory states that emerging technologies cannot improve organizational effectiveness and performance if the change has not been accepted by the users (Davis, 1986). This means that supplier digitization as a technology for interfacing the buyer and supplier will require acceptability by both firms. The theory of technology acceptance requires understanding adoption of computer technologies which enhances skills to the suppliers in digitization (Kamel,2014). Adoption of an innovation like information technology requires investment in computer based tools to support decision making, planning communication and document flow. However, these systems may be risky and expensive but it is very critical that the systems are specified on organizational preference and logic regarding the area of operation specially on procurement processes. It therefore important for organization and supplier to invest in technology in order to be relevant in the current modern market.

It is also necessary to understand that people may resist technological changes but there must be an effort from the buying organization to understand why people resist changes and the possible ways through which such issues can be resolved to create an effective document flow. Appropriate training to the supplier must be done to demystify digitization for change to be adopted in an incremental way accompanied by continuous communication. Everyone involved must be informed on their roles and empowered to perform the respective roles (Kamel, 2014). Theory of technology is based on assumptions such as digitization improving performance, enhancing productivity, effectiveness and efficiency in operations. It

requires all stakeholders to participate in the implementation of the technology and the new ideas that accompanies the implementation of the entire system. Supplier digitization is the answer to the tinting supply chain processes hence technology acceptance will shift the tradition way of doing business to a modern practice.

2.2.4 Resource Based View Theory

The Resource based view theory believed that firm is a package of valuable resources as well as capabilities that enables the firms to sustain competitive advantage (Wernerfelt, 1984). Resource-based theory (RBT) has been one of the dominant theories in strategic management research since the 1990s (Acedo, Barroso & Galan, 2006). Resource-Based View theory suggests that firms create value by combining resources, both tangible and intangible along with the term resources and this translates to where the value of a specific resource may depend on the presence of other, related resources (Mohd Salleh, 2009). In view of this, Resource-based theory can create a competitive advantage in enhancing capacity to the organization and its suppliers. Srinivasan et al (2002), in a survey of companies in multiple industries in the US, found that the adoption and use of e-business was influenced by the technological capabilities of the firms.

Resource-based theory distinguishes physical capital resources, human capital resources, and organisational capital resources. When an organization has requisite resources, it has capacity to innovate and creatively enhance performance in its operations. Hence, Resource-based view theory contributes to supplier digitalization by ensuring smooth onboarding of suppliers to create an environment that has a platform for the suppliers to transact business with the buying organization. In Resource-based view theory digitization can be looked at as a physical capital resource while suppliers and supply chain officers who are highly relevant to adoption of supplier digitization can be viewed as human capital

resources. The supply chain operating systems of the organizations and suppliers operating system licenced by the buying organization for the inter-organisational system integration are reflected as organisational capital resources. The study uses this theory to establish the capacity of the organization to meet the resources for facilitating effect of supplier digitalization on organization performance

Crook (2008), Resource based view theory distinguishes the organizational capital resource, human capital resource and physical resource. A capability is a capacity for a set of resources to perform a stretch task of an activity. Each organization is a collection of unique resources and capabilities that provides the basis for its strategy and the primary source of its returns. Information technology in this view, is a capability organizational capital resource, human capital resource and physical resource hence supplier digitalization in this view reflects system usage by both suppliers and buying organization for business transaction (Caridi et al. 2004). This enhances capacity building for both suppliers and the buyers of the buying organizations hence increasing skills of the technology know-how.

In areas of Information Technology, Resource based view theory has been identified as new set up that can analyse the sources and sustainability of Information Technology (Baily, 2008). Hence supplier digitization through resource based view theory creates competitive advantage facilitates reduction of cost on manual process that are costly and time wasting. Previous traditional methods of procurement are costly resulting to costly tender response by the Suppliers to cater for their profit margin. Weele (2006) stated a relationship exists between performance, procurement process, efficiency and effectiveness.

Resource based view theory can create and build a smooth collaboration between suppliers and buyers hence sharing of information is efficient and fast leading to faster response on tenders, order function and supplier invoicing and payment. In this study, supplier digitization is viewed as an approach that enhances use of available resources to

improve efficiency and effectiveness in supply chain as well as delivering a competitive advantage. Hence, competitive advantage in this case manifests as improved lead times, cost efficiency and customer satisfaction. Supplier digitization leads to better management and use of supply chain resources towards seamless effective operations through supplier digitization that enhances Organizational performance.

2.3 Empirical Review

The empirical review is a method where a researcher endeavours to present the work done by various researchers on the subject being researched. This section analysis the following: effect of digital firm-supplier communication on organizational performance, effect of digital order taking on organizational performance, effect of digital tendering on organizational performance and effect of digital contract management on organizational performance.

2.3.1 Digital Firm-Supplier Communication and Organizational Performance

Supplier digitization has opened new possibilities for the development of electronic communication networks for firms and their suppliers. Roma and McCue, (2012) defined digitization as a system that interfaces firm and suppliers by creating faster follow of information among them. Digital firm-supplier communication through supplier digitalization allows electronic documentation to flow from the suppliers to the buying organization and hence eradicates the traditional process where much paper is used, timelines communication not met and errors on documentation processes. Abarden (2001) points out that digitization leads to improved satisfaction of customer demands, where firm-supplier communication is collaborative enhancing partnership on the supply chain processes and easy access of goods, works and service supply.

Payments to the suppliers are electronically communicated to the buying organization and documents are processed electronically by the finance in the organization. Digitised firm have looped in potential suppliers that are technologically enabled to partner with them even in product development and redesigning. Digital firm-supplier communications the required specification over the internet enabled portal for review and acceptance without necessarily supplier or buyers working to the premises of the other. This has basically led to improved supplier and firm/customer relations and enhance achievement of strategic procurement goals within the specified time and requirement of the buying organization. Supplier digitization is a collaborative method of using web technologies to perform business activities electronically and enhance the communication efficiency with customers, improving speed and agility, providing real-time control and increase customer satisfaction. Akyuz, (2009) explains that systems such as the supplier digitization, EDI and the reliability of the system are critical to the formation of effective communication between the members of the supply chain and their suppliers. Supplier digitization has enhanced the firm-supplier communication at the click of a button by ensuring faster documentation flow, timely information transmission, timely response on communication creating a huge difference on time management for both firm and supplier on communication. Wagner & Essig (2006) explains that electronic markets through technology such as supplier digitization are accessible and suppliers' interfaces with the buying organization in the competitive modern market.

Digital firm-supplier embarks on the development of electronic catalogues that enables organisations to market their product offer electronically hence that acts as marketing tool for suppliers and buyers. Supplier digitization has enabled supplier to communicate their catalogues and brochures which represent a key application of electronic procurement of the goods works and service the organization is undertaking electronically. Hence the catalogues provide access over the internet to information about products and services which the buying

organization can analyse electronically and give the feedback to the supplier electronically regarding the products to be purchased. There is a good firm-supplier communication among the partners since the alerting system notifications would remind buyers and suppliers the tasks to be done minimizing human errors as well as to route documents to appropriate parties or alerts individuals of actions of tasks in the system.

Whipple et al (2010) points out that communication plays a crucial role in the firm performance and a satisfaction seen in firm-supplier relations has impact in the entire supply chain in terms of product development skills. Some researchers state that the existence of long-term relationships is important for any business continuity but still not adequate to improve the communication skills between firm -supplier in the business environment. It is evident that firm-supplier must improve their skills for effective communication in order to remain relevant in the modern market and enhance quality on goods, works and service delivery. Digital firm-supplier will be impacted with a collaborative communication relation through the full adoption of supplier digitization which will promote and safeguard the common ties between the organizations and its suppliers. Strategic communications and information flows between the buying organization and suppliers generate performance benefits such as best models of communication, increases productivity, improves planning and control of resources in a timely manner.

Communication in the supply chain enhances the cooperative relations between buyers and suppliers by imposing the necessary investments in joint action and flexibility between the firm and supplier (Pimentel el at 2010). Supplier digitization plays a big role in firm - supplier by allowing communication that has cooperative relations to exchange important information such as operational data and supply chain data to gain efficiency and effectiveness from the joint relationship and enhance the overall business performance.

2.3.2 Digital Order Taking and Organizational Performance

Muffato and Payaro (2004), digital ordering is essentially the raising of orders by the buying organization on the agreed contracts and transmitted online for final acceptance by suppliers. Digital purchase orders placed by the buying organization to the digitised supplier fast-track the goods, works and service deliveries as required by the firm. Waters (2002) explains that an automated procurement system is designed to manage the procurement process more effective and efficiently results to reduction on procurement lead time enhancing organization -supplier performance. The buyer creates a purchase order based on the inventory level or the user purchase requisition for the intended goods, works and services electronically and have it approved through the system workflows. The approved digital purchase order is passed to the supplier portal automatically for their acceptance and deliveries. Electronic purchase order flows faster than the manual purchase order that must be carried to the approving agent physically and at times the document can be misplaced in process. The digital purchase order displays the creation date in the system and the time approval took place. Built-in approval processes, controls, and funds management are incorporated to ascertain efficiency is maximised to avoid delays notifications. Digital order taking is time-saving and efficient. As an electronic task of generating purchase orders it simplifies the purchasing process and transaction speed is increased as well as procurement cycle times speeds up.

Amit and Zott (2001) states that supply chain performance is one of the primary drivers for online business transaction in the modern market. Hence digital order taking through supplier digitization is critical in enhancing performance of the organization by increasing productivity to the organization through online timely deliveries as well as providing actual lead times that ascertains materials are delivered as and when required by the user. Digital order taking creates a transparent transaction process that stats clearly the quantities the supplier is supposed to delivery and when as well as cost management (Evans

and Wurster, 2000). Digital order taking has reduced procedural errors that are brought about by traditional method of transacting business in supply chain through manual typed orders and contributes to more tender responses from the suppliers.

Digital order taking through supplier digitization contributes to the organization performance by enhancing transparency as well as accountability in all the organization supply chain process increasing its performance with achievable targets that are verifiable by firm-supplier partnership. Public Procurement and Disposal Act (PPDA) 2007 points out the importance of economical and efficient procurement of goods, works and services which is paramount in every supply chain in the public sector can only be brought about by supplier digitization. Suppliers are able to digitally communicate with the buying organization regarding the delivery schedules drawn by the buying organization.

Digital order taking reduces costs by leveraging volume and enhancing paperless environment. Paperless environment through supplier digitization enhances time efficiency and transparency in the entire procurement processes and hence give faith on the output to both parties. Rankin (2006), argues that digitised procurement leads to effective supply chain process with minimal or no paper related process to purchase order taking leading to order accuracy, improvement and transparency in its processes. This means that supplier digitization lead to no paperwork, postage fee and other costs associated with preparation and sending information to the suppliers. Through supplier digitization purchase orders are shared in the organization portal and supplier tracks them in their business client portal once approved by the management of the buying organization. Supplier digitization ensures accountability on digitization process that enhances circulation of information regarding the order taking both to supplier and the buying organization. This cannot effectively be possible with the traditional method of procurement process that create a lot of doubt between the buyer and supplier and much paper used.

Digital order taking results in efficiency that creates higher productivity with call- off orders and templates in the system for both buyer and supplier portal leading to no paperwork and reducing cost (Mabert et al. 2010). Hence for effective procurement processes, supplier digitization should be used by both the organization and suppliers to curb any delays caused by disrupted technology that is paper based. Paperless environment through supplier digitization creates commercial gains for both the buying organization and Suppliers hence eliminate paperwork, reworks and errors that are normally caused by manual procurement processes. Digital order taking enables internal customers to obtain the items they want from a catalogue of approved items through an on-line requisition and ordering system. It evidently releases procurement staff from processing orders and handling low value transactions through manual processes. Xu et al. (2008) affirms that compliance with digitization system significantly aids in reduction of the cost of transaction by enhancing greater accuracy level in the appropriation, billing, electronic documentation payment and system computerization as well as enhancing efficiency the time taking in processing the order.

2.3.3 Digital Tendering and Organizational Performance

Farzin and Nezhad (2010) emphasises that technology practices such as digital tendering is referred to as the procurement process from the perspective whereby governments, financial institutions and corporations issue a tender to the potential suppliers. Digital tendering is a process where organization have the capability to electronically invite bids for the quotes that must be submitted in accordance to the requirements specified within a definite deadline. Johnson, (2011) states that procurement is an important area of operations where the adoption of innovative technologies enhances business transaction with various partners across the word leading to enhances supplier involvement with prompt participation in the procurement

process which is beneficial to the procuring entity. Traditionally this process was conducted manually and was very lengthy and cumbersome process involving huge costs in terms of investment of human resources while trying to manage huge manual tender copies submitted by the suppliers. It is evident that the arrival of technology the procurement process is streamlined, improved and made efficient by employing digital tendering systems through supplier digitization. Digital tendering is an end-to-end tendering system that is used and operated through a computer system connected to the Internet. Digital tendering helps organisations of all sizes to make their procurement more efficient and effective while promoting reduction in paperwork and duplication on records.

According to Sonmez, (2006), technology improves cost effective on goods, works and service and at the same time maintain a high level of quality and after-sales services. Digital tendering results in a more profitable contract because it embraces minimal paper trail on tendering exercises as opposed to manual tendering process that is more paper based at the same time reducing errors on tendering processes. Digital tendering reduces advertisement cost and manages the tendering cycle from the advertisement of the notice straight through to the issuing of an award. It reduces cost to obtain detailed analysis of tender at the same time reducing the costs of participation for purchasers and supplier hence prices are transparent and one is able see how much items cost and buyers can compare offers from various suppliers. Digital tendering provides a centralized process to help organizations improve efficiencies and accountability while reducing traditional tendering costs. Digital tendering helps organise the process and manage supplier bids online by automatically inviting and managing supplier submissions. It allows buyers and the bidders to simply upload and download documents online faster with less manual forms filling on tender preparation and data re-entry when upon receiving the tender.

Digital tendering attracts suppliers from different places to action and to submit their bids for a tender through the system portal provided by the buying organization. Suppliers are able to download tender documents and to do an online return. Hence this in turn promotes competition, transparency and efficiency in the tendering process for both the organization and suppliers (Aberdeen, 2007). Digital tendering manages responses through the system by streamlining the comparison and evaluation of bids from the suppliers. It reduces take-off costs and errors with direct digitizer input on tender participation by ensuring fair, free and fearless participation of Tenderer by the suppliers. Digital tendering reduces labour intensive tasks of receipt, recording and distribution of tender as well as hassles involved in communication and administration, achieving higher accuracy on tender responses.

Quality in tendering is key for the buying organization and the suppliers. Puschmann (2005) shows that use of electronic technologies enhances quality of process that provides confidence to both parties leading to enhanced standardization of processes while streamlining procurement process in the organization leads to effective tendering practice. Digital tendering assists the users to visualize the status on each tendering process by the comprehensive progress tracking function, reducing time for keeping track of status as well as reducing the time-to-procure. It is able to streamline workflow that is realized with faster tender process and document submission hence improving information distribution to the buying organization and suppliers. Digital tendering upholds integrity of goods, services, works and supplier information as a provision of quality management of centralized source for instant access to both current and historical tender information. It creates a platform for detailed purchase history for efficient negotiation with suppliers as well as real time updating and eliminating obsolete information from the system of the buying organization. Digital tendering enhances quality of process by improving audit trail increasing integrity and transparency of the tendering process at the same time a critical lead over their competitors. It

also improves quality of tender specification and supplier response as well as database of goods, services, works and contractors to be build up and understand importance of supplier digitization.

According to Wagner & Essig (2006), technology is accessible and most suppliers are able to interface with the buying organization in the competitive modern market. Digital tendering in operating in the competitive market is able to shorten the procurement cycle when processes are automated with tender analysis, allowing users to allocate resources and time for other critical issues. It automates the entire tendering lifecycle for procurement of goods and services starting from creation of a purchase requisition through to the award of contract with strict control as well as faster response to questions and points of clarification during tender period creating a paperless environment while reducing costs and run sustainable, environmentally responsible tenders.

2.3.4 Digital Contract Management and Organizational Performance

Organizations are keen on contract management because it forms a basis of any relationship with suppliers. Kakwezi (2012) explains that contract management is the process that enables both parties to a contract to meet their obligations in order to deliver the objectives required from the contract. Kenya Power adopted a digital contract management solution that deal with complexity of the contract formation and execution of it. Digital contracting involves the establishment of an agreement between a buying organization and a supplier through award of the contract. The digital contract management includes invitation to tender and evaluation of bids, awarding and implementation of contracts; order progression and payment to the supplier. On the other hand, it is a relationship management discipline employed by both buyers and suppliers whose objectives are to manage customer and supplier expectations and relationships, control risk and cost, and contribute to organizational profitability and

success. Contract management is therefore a necessary condition for successful end-to-end procurement and supplier performance and engagement process of the full execution of the contract.

Stefan (2012) states that technology enhances relationship with the suppliers that translates to contract management and constant determinant of the right mix of suppliers and its performance capacity leading to leading to contract compliance by both the buying organization with its suppliers. It optimizes the aspect of order progression that eases the fulfilment of the order placement to the suppliers. Digital contract managements allow the buyer to create contract agreement through the contract management solution system after the tender is evaluated and award stage is reached. Hence, call-off orders are created through the system and suppliers notified of the delivery schedules beforehand. The created digital contract flows electronically to the legal department for endorsement and the approved digital contract is passed to the supplier for acceptance or rejection. Digital contract management process ensures the buying organization and suppliers comply with the contractual terms and conditions at the same time able to accept changes that may arise during contract execution. The automated contract streamlines the contractual monitoring and acceptance management, manages the contractual relationship, contract administration. Digital contract management keep check on the fulfilment of contract as stipulated by the buying organization providing dispute resolution and contract closure.

Sanghera (2008) explains that organization that adopts effective contract management ensures right decisions are made to enhance efficiency in contract fulfilment enhances standardization while streamlining procurement process in the organization. Digital contract management improves efficiency for contracts in the organization reducing errors within the contract, maintaining a visible audit and transactions trail, analysing progress in the contract process while analysing spending and cost allocations in the procurement of goods, works

and services. Digital contract management solutions therefore provide automated notifications to the suppliers and buyers when important contracting dates are coming up such as renewals, ending of contracts and compliance issues to ensure all parties are aware of important dates. Digital contract management create a platform where buyers can draw call-off orders to the supplier to replenish the stocks at the right time. It assists logistics team on managing stock at minimal level that reduces the stock holding cost at the same time ensuring materials are readily available for user consumption.

2.4 Conceptual Framework

According to Mugenda &Mugenda, (2008), a conceptual framework is a research tool with a variable that assists a researcher to develop awareness and understanding of the situation under scrutiny and to communicate the same. A dependent variable is a variable dependent on another variable which is the independent variable (Kothari, 2008). A dependent variable is what you measure in the experiment and what is affected during the experiment. Hence a conceptual framework is a preferred approach of an idea in research to outline possible course of action (Kothari, 2008). A variable is a measurable characteristic that assumes different values among subjects (Mugenda &Mugenda,2008).

According to Young (2009), conceptual framework is a diagrammatical representation that shows the relationship between dependent variable and independent variables. Therefore, the interconnection of these variables completes the framework for certain expected outcomes in a research. The conceptual framework illustrates the interconnection between the dependent, moderating variable and independent variables. It shows that the independent variables appear because of supplier digitization and they comprise of digital firm-supplier communication, digital order taking, digital tendering, digital contract management whereby they influence the dependent variable which is the organization performances. The

moderating variable comprises of contract compliance by both parties, level of elimination of corruption practices and level of transparent tendering.

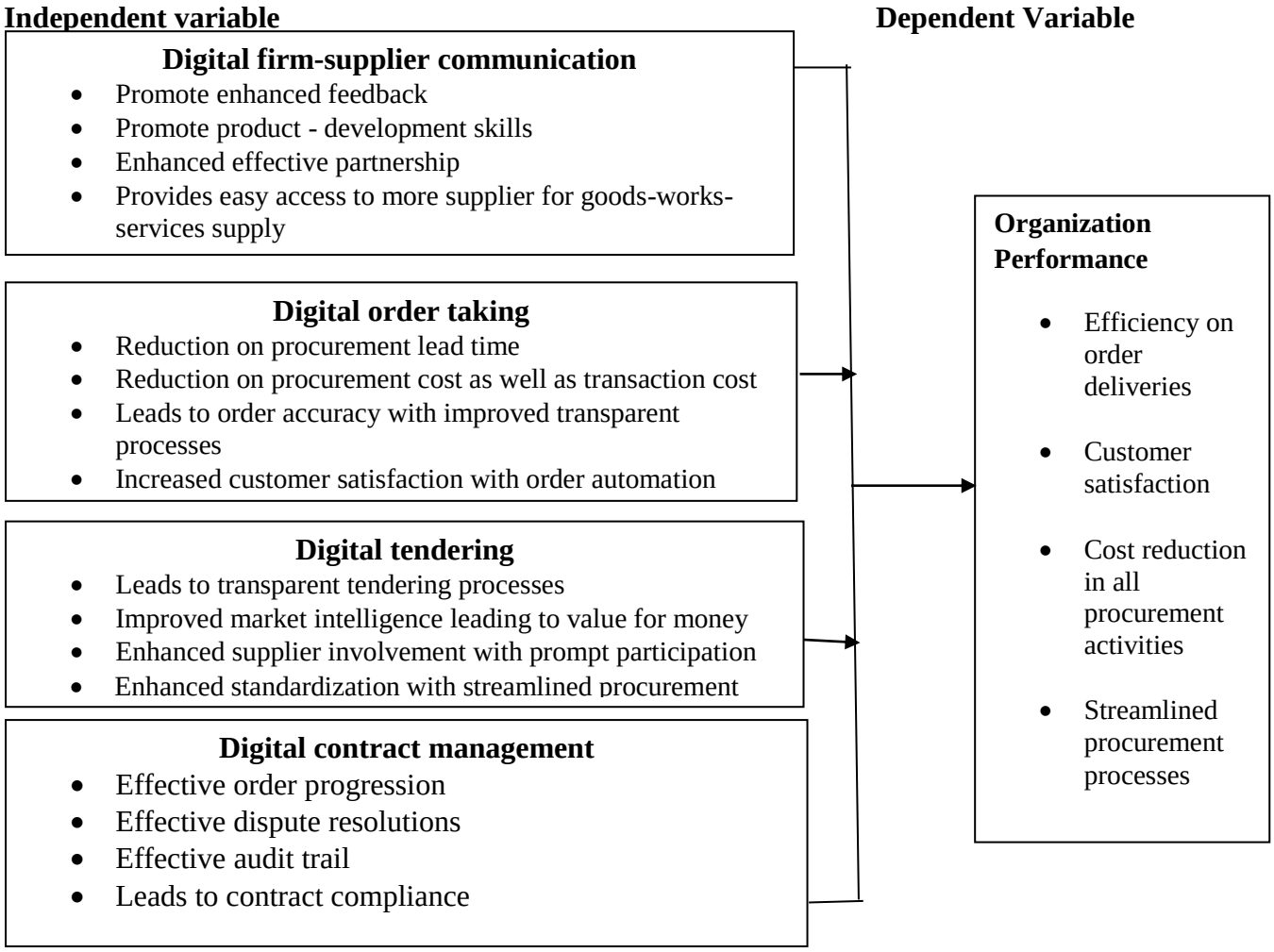

Figure 2.1 Conceptual Framework

2.5 Operationalization of Variables

Wright (2007, operationalization is the process of strictly defining variables into measurable factors. The process defines an ambiguous concept and allows them to be measured, empirically and quantitatively. Operationalization uses a different logic when testing a formal (quantitative) hypothesis and testing working hypothesis (qualitative). This section analyses

the operational definition of variables on the effects of supplier digitalization on organizational performance of the Public-sector organizations. The operationalization of the variables is as shown below:

Table 2.1 Operationalization of variables

Objectives	Variables	Indicators	Measurement	Measurement scale	Type of Analysis	Tool of Analysis
To establish the effect of digital firm-supplier communication on organizational performance in Public Sector	digital firm-supplier	Real time document flow	Timely response by both parties	Interval	Descriptive	Regression
		Effective collaboration	Product and skills development	Interval	Descriptive	Regression
		Enhanced feed-back	Effective partnership	Ordinal	Descriptive	Regression
To investigate the effect of order taking on organizational performance in Public Sector	order taking	Reduced Procurement lead time	Just in time materials.	Interval	Descriptive	Regression
		Reduction on stock holding	Timely delivery of quality goods	Ordinal	Descriptive	Regression
		Stocks availability	Customer satisfaction	Ordinal	Descriptive	Regression
To determine the effect of digital tendering on organizational performance	digital tendering	Paperless environment	Reduce costs and run sustainable, environmentally responsible tenders	Ordinal	Descriptive	Regression
		Errors reduction on tendering	More tender responses from the suppliers	Ordinal	Descriptive	Regression
		Reduces the time-to-procure	Shorter lead time	Interval	Descriptive	Regression
To determine the effect of digit contract management on organizational performance	digit contract management	Effective order progression	Availability of goods	Ordinal	Descriptive	Regression
		Effective call-off orders	Effective delivery schedules	Ordinal	Descriptive	Regression
		Effective dispute resolution	Reduced disputes	Ordinal	Descriptive	Regression

2.6 Research Hypothesis

According to Levine et al (2008), null hypothesis is a type of hypothesis used in statistics that proposes that no statistical significance exists in a set of given observations. Null hypothesis will be random effect model is appropriate while alternative hypothesis will be fixed effect is appropriate model. If the P. value is less the 5% I shall reject null hypothesis and accept alternative hypothesis (William, 2008). Hence the following are the summary of the hypothesis that were used to check the null hypothesis in the study:

H_{01}: Digital firm-supplier communication has no significant effect on organizational performance in Kenya Power.

H_{02}: Digital order-taking has no significant effect on organizational performance in Kenya Power.

H_{03}: Digital tendering has no significant effect on organizational performance in Kenya Power.

H_{04}: Digital contract management have no significant effect on organizational performance in Kenya Power.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter has discussed and highlighted the research design, the target population, the sampling design, the data collection instruments and data analysis methods. Hence, this chapter has explored the design and the methodology of the research study. It has provided a systematic description of the research methodology that was used to answer questions described in chapter one.

3.2 Research Design

The study was guided by descriptive research design, which according to Orodho, (2009) enables collection of important data that can be obtained through questionnaires and interviews to a selected sample of respondents. The research adopted descriptive design because it aimed at gathering data without any manipulation of the research context thus describing various events and then organized data collection (Kothari, 2006). Research design constituted to the blue print for the collection, measurement and analysis of data and the method selected determined the quality of data obtained.

Descriptive research described data and characteristics about the population or phenomena being studied. It also answered the questions who, what, where, when and how (Mugenda and Mugenda, 2008). Research design addressed important issues relating to a research study such as purpose of study, location of study, type of investigation, extent of researcher interference, time horizon and the unit of analysis (Sekaran & Bougie, 2010). The study found the design appropriate since it used stratified random sampling technique to obtain information from few respondents to have a general view of the effect of supplier digitalization on Organization performance in the Public Sector.

3.3 Target Population

According to Kothari (2004), the target population is the whole set of available objects where data can be obtained to get relevant information that was used in the research study. Ngechu (2004), explains that target population is the totality of elements about which the study makes some interpretations and in this study Kenya Power is selected as a case study in the public sector because of its proximity to the researcher, time availability for research as well as budgetary constraints. According to Kenya Power Human Resource Report of 2017, the organization has about 465 buyers companywide and a total of over 1500 suppliers as per Kenya Power Supply Chain System Report of 2017 have been on-boarded through supplier digitization.

This study used a portion of the population of 1440 on-boarded suppliers whom performance on system processes according to Kenya Power Supply Chain System Report has been good in the organization to obtain information since they are the ones mostly involved in the execution of supplier digitization in the organization. The study also used a portion of population of supply chain officers who are in permanent union term, middle management, standard terms management and executive terms management as a target population of 365 supply chain officers and 144 suppliers as target population as a representation of rest of the group involved. Mugenda and Mugenda (2008) explains that 10% of the total target population of a sample should be used for the results to be accepted as a good representative sample of the analysis of the study the researcher is carrying out.

3.4 Sampling Size Design and Sampling Procedures

A sample size is a subset of the total population that is used to give the general views of the target population (Kothari, 2004). Since the study is descriptive in nature, the study used a sample size of 30% of the target population of supply chain officers and suppliers as

recommended by Mugenda (2003) which was 162 both suppliers and supply chain officers. A sample size that is 30% of the target population enables to obtain an adequate data that can be generalized to reflect the opinion of the entire population on the study research. The sample size of the target population is as follows:

Table 3.1 Sample size

Population category	Target Population	Percentage 30%	Sample size
Supply chain Officers	396	30%	110
Suppliers	144	30%	52
Total	540	30%	162

3.5 Research Instrument and Data Collection

The researcher used structured questionnaires to collect data since it is a convenient tool as it facilitates quick and easy derivation of information from the target group (Napa, 2007). The main source of data was from supply chain officers in Kenya Power and Suppliers who formed the study respondents as a primary tool for the data collection since it allowed respondents to give much of their opinions pertaining to the researched study (Dempsey, 2003). The data was obtained from the field using structured questionnaire. The questionnaire was organized based on the research objectives and research questions. Questionnaire of a structured questions was considered useful for this study, since according to Mugenda (2003), a questionnaire is a series of questions asked to individuals to obtain statistically useful information about a given topic which are relatively cheap, easy to administer and are easier to analyse. They are also more practical and large amounts of information can be collected from many people in a short period and in a relatively cost-effective way.

The Likert-type format was selected and used since according to Kiess and Bloomquist (2009). Likert-type uses more powerful statistical statistics to test research

variables that results to equal-interval of data collection indicating whether he or she agrees to a great extent or no extent. Likert scale was used because it was easy to understand and responses were easily quantifiable and subjective to computation of mathematical analysis (Allen et.al, 2011). According to Kothari (2006) the information obtained from questionnaires is generally objective and free from researchers' influence and biasness while providing an accurate and valid data for the research study. It is vital therefore for the questions addressed by the questionnaires to endeavour to gather quantitative and qualitative data to determine in detail the effect of supplier digitization on Organization performance in the Public Sector.

3.6. Validity and Reliability of Instrument

According to DeVellis (2006) validity is often defined as the extent to which instrument measures what it purports to measure. On the other hand, according to DeVellis, reliability is the ratio of the true score's variance to the observed variable's variance. It can estimate and evaluate the stability of measures and internal consistency of measurement instrument while rating the reliability of the instrument scores. For validity to take place an instrument should reliable for better results though an instrument can be reliable as required but necessarily being valid. According to Brotherton (2008) validity is the degree by which the sample of test items represents the content the test is designed to measure. To establish the validity of the data collection instruments, the research instruments was given to sample size of the target population and they was expected to tick if the item in the questionnaires addresses the effect of supplier digitization on organizational performance. The researcher used content validity to analyse whether the instruments answered the research questions since it is a measure of the degree to which data collected using a specific instrument represents a specific domain or content of a specific concept. Mugenda and Mugenda (1999) contend that the usual procedure

in assessing the content validity of a measure is to use a professional or expert in a specific field.

Reliability means the ability of a measuring instrument to give accurate and consistent results. The question of reliability arises only for the questions used to measure perception which cannot be accurately measured. In this research, statements are used to measure supplier digitization related variables and organizational performance of Kenya power. According to Sekeran (2010), it is necessary to have a pilot test for testing the reliability of data collection instruments. Reliability is the consistency of measurement which will be assessed using the test–retest reliability method. Therefore, before the launch of full-fledged data collection, a small pilot study was carried out to check required reliability of the constructs included in the questionnaire. This ensured that the constructs included in the questionnaire captured the necessary data needed for the research. From the pilot study results, the questionnaire was further modified to ensure that the questionnaire best serve the cause of capturing the desired information the effect of supplier digitization. Reliability is then increased by including many similar items on a measure, by testing a diverse sample of individuals and by using uniform testing procedures. To obtain a high degree of reliability in study the researcher solely collected the data and analyse it to obtain the findings.

According to Cooper and Schindler, (2003) states that researcher would conduct a pilot study with the aim to detect weakness in design and instrumentation and hence provide accurate data for selection of a sample. The pilot test involved selecting four (4) respondents from each population category and issue them with questionnaires to obtain data from them. For the reliability, the researcher will use Cronbach's alpha and according to Zinbarg (2005), Cronbach's alpha is an internal consistency measure that provides a coefficient of reliability that gives an unbiased estimate of data in general. To measure the reliability of instrument Cronbach alpha was calculated using Stata. The test pilot survey was conducted not only for

testing reliability of instruments but also for making required changes in the questionnaire in order to elicit necessary information from respondents. The questionnaire was altered according to the feedback given by the respondents during the initial pilot study. This process was repeated with the remaining set of respondents to ensure consistency.

3.7 Diagnostic Tests

Diagnostic tests check on multivariate data analysis assumptions (Hair et al., 2010). Multivariate techniques are a set of assumptions that are based on fundamental statistical theory. According to Osborne and Waters (2002) it is important to check on some of the assumptions of multiple linear regression in the research study carried by the researcher. Therefore, in this study, the diagnostic test was done using following assumptions:

3.7.1 Multicollinearity Test

Multi Collinearity is important issue when researcher uses more than one independent variable to predict a dependent variable. The researcher is able to interpret regression coefficients as the effects of the independent variables on the dependent variables when collinearity is low (Keith, 2006). Multicollinearity test will be performed in this study to detect multicollinearity problem on the in the independent variable influencing effect of supplier digitization on organization performance. If there is any relationship among independent variables then multicollinearity problem will be there. Multicollinearity occurs when several independent variables correlate at high levels with one another, or when one independent variable is a near linear combination of other independent variables (Keith, 2006). Variance inflation factor (VIF) was checked to detect multicollinearity problem in the model from the study variables. If value of VIF higher than five and tolerance level is less than 0.2 then it shows that presence of multicollinearity problem which needs to be corrected.

In many cases this problem arises as a result of using too many independent variables to measure the same dependent variable. If this problem exists then, it can be corrected by dropping the variable with high VIF in order to convert the other variables from non-significant to significant (William, 2008).

3.7.2 Normality of Residuals Test

Screening for normality is an important early step when conducting multiple regression, as residuals are normally distributed is assumed (Stevens, 2009). Non-normal distributions that are positively or negatively twisted, contain large kurtosis, or have extreme outliers can distort the obtained significance levels of the analysis, resulting in the standard errors becoming biased (Osborne & Waters, 2002). Though multiple regression is generally considered to be quite robust to violations of normality, a small sample size can increase the seriousness of non-normality of a distribution (Osborne & Waters, 2002). Multiple regression assumes that variables have normal distributions (Darlington, 1968; Osborne & Waters, 2002). It is in this view that Shapiro wilk test will be used to identify normality of the residuals that exist in the independent variable of the study. The errors are normally distributed and that a plot of the values of the residuals will approximate a normal curve (Keith, 2006). The assumption is based on the shape of normal distribution and gives the researcher knowledge about what values to expect (Keith, 2006). When scores on variables are twisted, correlations with other measures will be weakened, and when the range of scores in the sample is restricted relative to the population correlations with scores on other variables will be reduced (Hoyt et al., 2006). Normality can further be checked through histograms of the standardized residuals (Stevens, 2009). Histograms are bar graphs of the residuals with a superimposed normal curve that show distribution.

3.7.3 Heteroscedasticity

Heteroscedasticity is a serious problem since it tends to inflate the standard errors, thereby increasing the probability of committing a type two errors, i.e. failing to reject a false hypothesis about a coefficient. The Breusch-Pagan test was used to test the data for heteroscedasticity. Heteroscdasticity is a problem that arises when the variance of the error terms is not constant. It leads to a bias in test results due to distortion of standard errors, thereby increasing the probability of committing hypothesis testing errors. According to Vinod (2008) states that heteroscedasticity is a condition where the variability of a variable is imbalanced across the array of values of a second variable that predicts it. A state of homoscedasticity is when the value of "Prob > Chi-squared" is higher than 0.05 (Park,2008). The null hypothesis of the Breusch-Pagan test is that the data is homoscedastic, i.e. the error terms have a constant variance. If the null is rejected, the conclusion is that the data is heteroscedastic, i.e. the variance of error terms is not constant.

3.8 Data Processing and Analysis

Marshall and Rossman, (2006) state that data analysis is a process of bringing order and clarity in structures and interpretation to the collected data by the researcher. Quantitative data collected will be analysed using descriptive statistics using Statistical Package for Social Sciences (SPSS) version 20 and presented through tables frequencies and percentages. This will be done by tallying up responses, computing percentages of variations in response as well as describing and interpreting the data in line with the study objectives and assumptions through use of SPSS statistic data analysis. This package is relevant for this kind of data analysis as it involves generating comparisons between the dependent and the independent variables. Findings and analysis of data acquired from the survey will be presented in tables and figures while explanations will be given in prose. The questionnaires will first be

checked for completeness and accuracy and then edited where necessary. Afterwards they will be sorted, grouped, coded and keyed in into Microsoft Excel spreadsheet. This will help to clearly bring out findings of the research and better interpretation, conclusion and recommendation of study of effect of supplier digitization on Organization performance.

The data will be cleaned, coded, categorized per each of the research variables and then will be analysed using descriptive analysis such as percentage mean and STD deviation. Qualitative data analysis method will be applied to analyse the data gathered using open end questions. The study used ANOVA to test the level of significant of the variables on the dependent variable at 95% level of significance, the ANOVA was used to test whether there exists any significant difference between the study variables. In addition, the study conducted a multiple regression model to establish the significance of the independent variables on the dependent variable. The regression model is as follows:

The model will be: $Y= \beta o + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$

Y= Organizational Performance

X_1= Digital firm-supplier communication

X_2= Digital order taking

X_3= Digital tendering

X_4= Digital contract management

β1 - β4 are the regression co-efficient or change introduced in Y by each independent variable

ε = Error term that accounts for all other variables that affect profitability but not captured in the model.

3.9 Research Ethical Considerations

The researcher sought permission from the relevant authorities before conducting the research such as KCA University and Kenya Power. Utmost caution was exercised while administering questionnaires so as to avoid any mistrust between the respondents and the

researcher. Assurance was given to the respondents that the study findings would be used for academic purposes only and that their responses would be treated with utmost confidentiality and anonymity.

CHAPTER FOUR

FINDINGS AND DISCUSSION

4.1 Introduction

This chapter focuses on the analysis of the data collected from the field as well as the discussions of the findings. The results of the study are based on the general objective of the study which was to assess the effects of supplier digitization on organization performance of Kenya Power. The results of the study are presented in both tabular and graphical formats.

4.2 Response Rate

Out of the 162 sampled respondents, 149 respondents returned duly filled questionnaires. This means that the response rate of the study was 91.97%. According to Mugenda and Mugenda (2003) a 50% response rate is adequate, 60% good and above 70% rated very well. Kothari (2004) also asserts that a response rate of 50% is adequate, while a response rate greater than 70% is very good. As such, the response rate of this study was deemed satisfactory.

4.3 Demographic Characteristics of the Respondents

This section describes the general demographic information of the respondents as derived from the analysis of the study's data.

4.3.1 Organizational Worked For

Out of the 149 questionnaires that were received back, 102 were from KPLC employees who are the owners of the system while 47 were from suppliers. This implies that KPLC

employees accounted for 68.45% of the total respondents while employees of suppliers accounted for the remaining 31.55%. This is shown in table 4.2 below.

4.3.2 Gender of Respondents

The study sought to establish the gender of the respondents. The representation in terms of gender was as shown below and was considered appropriate for study. In the Kenyan constitution, 30% female representation is considered a fair representation. Hence out of 149 respondents, 52 were female and 97 were male. This accounts for 35% and 65% of the total respondents respectively as shown in Table 4.1 below.

Table 4.1 Gender of Respondents

Gender of Respondents	Frequency	Percentage
Male	97	65%
Female	52	35%
Total	149	100%

4.3.3 Age of Respondents

The respondents were distributed across various age brackets as evident in table 4.2 below. Majority (42%) of the respondents were aged between 26 and 36 years. People aged below 18-15 years made 38% of all the respondents while 16% of the respondents were aged between 37 and 45 years. Only 5% of the respondents were aged above 45 years. Hence, this implies that many of the respondents were well knowledgeable about the supplier digitization on organizational performance.

Table 4.2 Age of Respondents

Age	Frequency	Percentage
18 – 25 years	56	38%
26 – 36 years	62	42%
37 – 45 years	24	16%
Over 45 years	7	5%
Total	149	100%

4.3.4 Highest Level of Education

The study sought to find out the highest level of education attained by the respondents and table 4.3 below shows the distribution of respondents based on the highest level of education attained. It can be seen from the results that majority of the respondents (63.76%) had up to bachelors degree, 8.05% had up to diploma education, and 4.7% had up to certificate level of education. 30.81% of the respondents had a master's degree while 2.68% had a PhD degree. This revealed that the population under consideration was well informed to give the relevant and informed data

Table 4.3 Highest Level of Education Attained

Highest level of education	**Frequency**	**Percentage**
Certificate	7	4.70%
Diploma	12	8.05%
Bachelors Degree	95	63.76%
Masters Degree	31	20.81%
PhD	4	2.68%
Total	149	100%

4.4 Independent Variables

The results about the statements that were used to evaluate the relationship between the independent variables and the dependent variable are discussed in this section.

4.4.1 Digital Firm-Supplier Communication and Organizational Performance

Digital firm-supplier communication through supplier digitalization allows electronic documentation to flow from the suppliers to the buying organization and hence eradicates the traditional process where much paper is used, timelines communication not met and errors on

documentation processes. Table 4.4 below gives the results the respondents who agreed that Digital firm-supplier communication provides easy access to more suppliers for goods, works and services supply (with a mean of 3.74). The respondents also agreed that Digital firm-supplier communication promotes product and skills development for both the organization and suppliers (mean 4.14) Additionally they support the fact that Digital firm-supplier communication leads to effective partnership with the buying organization and its suppliers (mean 3.86). The respondents were also of the idea that Digital firm-supplier communication provides easy access to more suppliers for goods, works and services supply (mean 4.27). This implies that digital firm-supplier communication creates a conducive environment where supply of goods-works-services being the most voted for, can easily be accessed from the suppliers efficiently.

Table 4.4 Digital Firm-Supplier Communication and Organizational Performance

	Mean	**SD**
Digital firm-supplier communication promotes enhanced feedback from suppliers to organization	3.74	.933
Digital firm-supplier communication promotes product with skills development for both the organization	4.14	.775
Digital firm-supplier communication leads to effective partnership with the buying organization with its suppliers	3.86	1.000
Digital firm-supplier communication provides easy access to more suppliers for goods-works - services supply	4.27	.949

4.4.2 Digital Order Taking and Organizational Performance

According to Table 4.5 below, the respondents' perception was that digital order-taking results to reduction on procurement lead time enhancing organization-supplier performance (mean response=4.17). Additionally, the respondents agreed that digital order-taking reduces procurement cost and transaction cost (mean response of 3.90). With

a mean response of 4.13, there was approval of the statement that digital order-taking leads to order accuracy, improvement and transparency in its processes. Finally, the respondents agreed that digital order-taking increases customer satisfaction by automation of order placement (mean response = 3.86). The implication obtained in this variable shows that digital order-taking results to reduction on procurement lead time enhancing organization -supplier performance as well as accountability in all the organization supply chain process increasing its performance with achievable targets that are verifiable by firm-supplier partnership.

Table 4.5 Digital Order Taking and Organizational Performance

	Mean	SD
Digital order-taking results to reduction on procurement lead time enhancing organization -supplier performance	4.17	1.229
Digital order-taking reduces procurement cost and transaction cost	3.90	1.179
Digital order-taking leads to order accuracy, improvement and transparency in its processes	4.13	1.160
Digital order-taking increases customer satisfaction by automation of order placement	3.86	1.194

4.4.3 Digital Tendering and Organizational Performance

The study further sought to find out respondents' views on the relationship between digital tendering and organizational performance. The respondents agreed that digital tendering leads to transparency in tendering thereby promoting a good organization-supplier relationship. Moreover, they supported the statement that digital tendering leads to improved market intelligence, thereby helping the organization acquire value for its money. Additionally, respondents felt that digital tendering enhances supplier involvement and participation in the procurement process which is beneficial to the procuring entity. Finally, they expressed support for the notion that digital tendering

enhances standardization and streamlining of procurement process. This implies that digital tendering enhances supplier involvement as well as participation in the procurement process which is beneficial to the procuring entity by ensuring efficiency and effectiveness of the processes. This is shown in Table 4.6 below.

Table 4.6 Digital Tendering and Organizational Performance

	Mean	**SD**
Digital tendering leads to transparency in tendering thereby promoting a good organization-supplier relationship.	3.84	.994
Digital tendering leads to improved market intelligence, thereby helping the organization acquire value for its money.	3.88	1.146
Digital tendering enhances supplier involvement with prompt participation in the procurement process which is beneficial to the procuring entity.	4.26	1.087
Digital tendering enhances standardization while streamlining procurement process in the organization	3.95	1.093

4.4.4 Digital Contract Management and Organizational Performance

On the relationship between Digital Contract Management and Organizational Performance, the study established that digital contract management enhances effective order progression promoting efficiency and effectiveness on organization performance. Moreover, there was support for the statement that Digital contract management results in effective dispute resolution promoting organization-supplier partnership and performance. The respondents also agreed that digital contract management provides an effective audit trail which enhances professionalism and fairness in procurement. Finally, there was consensus with the statement that digital contract management leads to contract compliance by both the buying organization and the suppliers. The implication of the

digital contract management as noted by the respondents indicates that Digital contract management provides an effective audit trail which enhances professionalism and fairness in procurement. This enhances procurement ethics in all the organization's procurement processes. This is shown in table 4.7 below.

Table 4.7 Digital Contract Management and Organizational Performance

	Mean	**SD**
Digital contract management enhance effective order progression promoting efficiency and effectiveness on organization performance	3.70	0.912
Digital contract management results in effective dispute resolution promoting organization-supplier partnership performance	3.81	1.184
Digital contract management provides an effective audit trail which enhances professionalism indicates fairness in procurement processes	4.16	1.180
Digital contract management leads to contract compliance by both the buying organization with its suppliers.	4.11	1.129

4.4.5 Organizational Performance

The Organizational Performance of Kenya Power was the dependent variable of this study. The responses received with respect to the likert statements which were in respect to this variable are summarized in table 4.8 below. It is evident that the respondents were in agreement on the essence of implementing the various digitization strategies as a ploy of increasing Organizational Performance of Kenya Power.

Table 4.8 Organizational Performance

	Mean	SD
Digitization of firm-supplier communication has affected the organizational performance of KPLC positively leading to cost reduction in all procurement activities	3.74	.933
The organizational performance of KPLC has improved after introduction of digital order taking leading to customer satisfaction.	3.84	.994
Digitization of tendering has enhanced KPLC's organizational performance with Streamlined procurement processes	4.16	1.194
Digital contract management is beneficial to organizational performance of KPLC leading to efficient Efficiency on order deliveries with prompt call-off orders	4.21	1.129
The combined effect of digitization of firm-supplier communication, digital order taking, digital tendering, and digital contract management is advantageous to KPLC's organizational performance.	3.93	1.107

4.5 Validity and Reliability Analysis

Since the study was designed carefully using the descriptive research design approach, we can infer that the findings can be generalized and hence they have external validity. Construct validity can be inferred from the fact that most of the regressors were significant and the overall regression model, as indicated in the ANOVA table, was also significant.

To measure the reliability of the data collection instruments an internal consistency technique, the Cronbach's alpha, was computed using SPSS. Table 4.8 below indicates that the research instrument was reliable since data obtained from all independent variables had a Cronbach's alpha of greater than 0.7 that exceeded the prescribed threshold of 0.7 (Mugenda & Mugenda, 2008). Hence, the overall Cronbach's alpha for the three categories which is 0.861. This implies that the research data had high internal consistency and supplier digitization is the tool for the modern market as shown.

Table 4.9 Reliability Analysis

Variable	Cronbach's Alpha	Comments
Digital Firm-Supplier Communication	0.851	Acceptable
Digital Order Taking	0.874	Acceptable
Digital Tendering	0.886	Acceptable
Digital Contract Management	0.832	Acceptable

4.6 Diagnostic Testing

4.6.1 Testing for Multicollinearity

The researcher used Variance inflation factors of the independent variables to test multicollinearity. Variance inflation factors (VIF) measure how much the variance of the estimated regression coefficients are inflated as compared to when the predictor variables are not linearly related. As a rule of thumb, a variable whose VIF values are greater than 10 may merit further investigation. Tolerance, defined as 1/VIF, is used by many researchers to check on the degree of collinearity. A tolerance value lower than 0.1 is comparable to a VIF of 10. It means that the variable could be considered as a linear combination of other independent variables. As evident in table 4.10 below, all VIFs were below 10. Consequently, it was concluded that there was no multicollinearity in the dataset regarding supplier digitization variables.

Table 4.10 Variance inflation Factors

Variable	VIF	Tolerance
Digital Firm -Supplier Communication	1.65	0.6055
Digital Order Taking	1.33	0.7543
Digital Tendering	1.76	0.5682
Digital Contract Management	1.55	0.7289
Mean VIF	1.57	0.6901

4.6.2 Testing for Normality of Residuals

The Shapiro wilk test was used to evaluate normality of residuals. If this test is significant, this is an indication that the residuals do not follow a normal distribution. According to the output in table 4.11 below, the residuals were normally distributed. This is because the p value of the test wasn't significant (p=0.23707) 23% and hence the null hypothesis of normality cannot be rejected.

Table 4.11 Shapiro wilk test for Normality

Shapiro-Wilk W test for normal data

Variable	Obs	W	V	z	Prob>z
residuals	44	0.96704	1.402	0.716	0.23707

4.6.3 Testing for Heteroscedasticity

Heteroscedasticity is a serious problem since it tends to inflate the standard errors, thereby increasing the probability of committing a type two errors, i.e. failing to reject a false hypothesis about a coefficient. The Breusch-Pagan test was used to test the data for heteroscedasticity. The null hypothesis of the Breusch-Pagan test is that the data is homoscedastic, the error terms have a constant variance. If the null is rejected, the conclusion is that the data is heteroscedastic, hence the variance of error terms is not constant. The rejection criterion is that the null of homoscedasticity is rejected if the p value of the Breusch-Pagan test is less than 5%. As per the output in table 4.11 below, the null hypothesis on homoscedasticity cannot be rejected since the test isn't significant. As such, heteroscedasticity was deemed absent as shown in Table 4.12.

Table 4.12 Breusch-Pagan test for Heteroscedasticity

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of ORG_PERF

         chi2(1)      =     0.64
         Prob > chi2  =   0.4223
```

4.7 Effect of Supplier Digitization on organizational performance

To compute the strength between dependent variable and the independent variables the researcher conducted several forms of inferential analysis on the study data. In particular, the study conducted an Analysis of Variance (ANOVA) test, computed the coefficient of determination to gauge model fitness, and conducted a multiple regression analysis.

4.7.1 Analysis of Variance

The study used ANOVA to establish whether the overall regression model is significant or not. In testing the significance level, the statistical significance was considered significant since the p-value was less than 5%. This indicates that the regression model is statistically significant in predicting the effects of supplier digitization on organizational performance of Kenya Power. Hence, basing the confidence level at 95% the analysis indicates high reliability of the results obtained from the analysis in that dependent variable is largely determined by the independent variables as per table 4.13 shown below.

Table 4.13 Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	110.177	4	27.544	2152.861	.000[a]
	Residual	1.842	144	.013		
	Total	112.019	148			
a. Predictors: (Constant), Digital Firm-Supplier Communication, Digital Order Taking, Digital Tendering, Digital Contract Management						
b. Dependent Variable: Organization performance						

4.7.2 Regression Analysis and Related Procedures

This part discusses regression analysis and procedures related to it which were carried out on the data to determine the relationship between organizational performance and the four variables investigated in this study. These procedures include Ordinary Least Squares (OLS) regression and evaluation of the goodness of fit.

4.7.3 OLS Regression Analysis

In order to quantify the relationship between the independent variables and the dependent variable, the researcher undertook multivariate regression analysis. Table 4.14 below shows the results of the regression analysis.

Table 4.14 Coefficient of Supplier Digitization

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	**Std. Error**	**Beta**		
1	(Constant)	.075	.02		3.750	.000
	Digital Firm -Supplier Communication	.211	.047	.185	4.497	.000
	Digital Order Taking	.125	.034	.132	3.676	.000
	Digital Tendering	.173	.059	.205	2.939	.004
	Digital Contract Management	.449	.064	.493	6.986	.000
a. Dependent Variable: Organizational Performance						

The regression analysis table shows that all the regressors had a positive impact on organizational performance additionally, all independent variables were significant. Equation is therefore restructured as follows:

$Y = 0.075 + 0.211X_1 + 0.125X_2 + 0.173X_3 + 0.449X_4$…………………..............……..(ii)

Y = organizational performance

0.075 = Constant

X_1 = Digital Firm-Supplier Communication

0.211 = Coefficient of X_1

X_2= Digital Order Taking

0.125 = Coefficient of X_2

X_3= Digital Tendering

0.173 = Coefficient of X_3

X_4= Digital Contract Management

0.449 = Coefficient of X_4

The regression equation above has established that taking all factors into account, Organizational Performance as a result of (Digital Firm-Supplier Communication, Digital Order Taking, Digital Tendering, Digital Contract Management) constant at zero organizational performance will be 0.075 (7.5%). The findings presented also shows that taking all other independent variables at zero, a unit increase in Digital Firm-Supplier Communication will lead to a 0.211 (21.1%) increase in the scores of organizational performance of Kenya Power; a unit increase in Digital Order Taking will lead to a 0.125 (12.5%) increase in organizational performance of Kenya Power; a unit increase in Digital Tendering will lead to a 0.173 (17.3%) increase in the score of organizational performance of Kenya Power and a unit increase in Digital Contract Management will lead to 0.449 (44.9) increase in the score of organizational performance of Kenya Power. This therefore implies that all the four variables have a positive relationship with organizational performance with Digital Contract Management contributing most to the dependent variable.

4.7.4 Model Fitness

Table 4.15 below shows the R^2 of the model as 0.684. This is an indication of a strong goodness of fit of the study data to regression analysis as the empirical model. The value of the R^2 means that 68.4% of the variability in the dependent variable can be explained by variability in the independent variables. The remaining 31.6% of variability can be attributed to other factors that are not included in the model.

Table 4.15 R Square for model fitting

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.692[a]	.684	.683	.11311
a. Predictors: (Constant), Digital Firm-Supplier Communication, Digital Order Taking, Digital Tendering, Digital Contract Management				

4.7.5 Hypothesis Testing using the Multiple Regression Model

Going by the results outlined in the regression table, we can see that all independent variables were significant. Therefore, the conclusion is to *reject* all null hypotheses and conclude that the four independent variables had a significant effect on organizational performance as discussed below: -

H_{01}: Digital firm-supplier communication has no significant effect on organizational performance in Kenya Power. The results rejected the hypotheses ($\beta = 0.211$, $p = 0.000$). The regression results showed that Digital firm-supplier communication has an effect on organizational performance with a beta coefficient of 0.211, the effect is very significant at ($p=0.000$) and thus rejecting the hypotheses that there is no significant relationship between Digital Firm-Supplier Communication and organizational performance.

H_{02}: Digital order-taking has no significant effect on organizational performance in Kenya Power. The regression results showed that Digital order-taking has an effect on organizational performance with a beta coefficient of 0.125, the effect is very significant at (p=0.000) and thus rejecting the hypotheses that there is no significant relationship between Digital order taking and organizational performance.

H_{03}: Digital tendering has no significant effect on organizational performance in Kenya Power. The results rejected the Hypotheses ($\beta = 0.173$, $p = 0.000$). The regression results showed that Digital tendering has significant effect on organizational performance with a beta coefficient of 0.173, p=0.000). Thus, rejecting the hypotheses that there is no significant relationship between Digital tendering and organizational performance

H_{04}: Digital contract management have no significant effect on organizational performance in Kenya Power. The results rejected the hypotheses ($\beta = 0.449$, $p = 0.000$). The regression results showed that Digital contract management has a significant effect on organizational performance with a beta coefficient of 0.449. There has been improvement in organizational performance of the Kenya Power as a result of investing in Digital contract management. According to the interpretations made on the findings of the study, Digital contract management is the most efficient element in the procurement process to enable the procurement department manage procurement processes with the suppliers by ensuring no stock holding and promotes call-off orders as and when goods are required. Thus, Digital contract management affects organizational performance.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the summary, conclusion and recommendations of the findings. The objective of this study was to establish the effect of supplier digitization on organizational performance in Kenya Power.

5.2 Summary of Findings

The objective of this study was to examine the effects of supplier digitization as electronic tool on organizational performance. To achieve this, a model discussed in Chapter 3 regression model was used to establish the extent to which the four independent variables digital firm-supplier communication, digital order taking, digital tendering and digital contract management to explain the effect on organizational performance. Regression was performed on the composite values obtained to establish if there is a relationship between the variables computed under the model, the nature of the relationship and the strength of the relationship. Data was collected using questionnaires self-administered by the respondents. Processing and analysing of the raw data was done using SPSS data analysis program which generated inferential and descriptive statistics such as mean, the standard deviation and frequencies. The data is then presented in tables and figures from the respondents to establish the relative importance and weight of each variable. The summary is followed by the conclusion, which is also based on the findings of the study and lastly the recommendations of the findings are presented.

5.2.1 Digital Firm-Supplier Communication

The study found that digital firm-supplier communication has effect on organizational performance in Kenya Power. Digital firm-supplier communication through supplier digitalization has allowed electronic documentation to flow from the suppliers to the buying organization and hence eradicates the traditional process where much paper is used, timelines communication not met and errors on documentation processes. Majority of respondents agreed that Digital firm-supplier communication provides easy access to more suppliers for goods, works and services supply (with a mean of 3.74). The respondents also agreed that Digital firm-supplier communication promotes product and skills development for both the organization and suppliers (mean 4.14).

Hence, Digitised firm have looped in potential suppliers that are technologically enabled to partner with them even in product development and redesigning and the same time ensuring development of electronic catalogues that enables organisations to market their product offer electronically hence that acts as marketing tool for suppliers and buyers. Additionally, they support the fact that Digital firm-supplier communication leads to effective partnership with the buying organization and its suppliers with (mean 3.86). Seemingly, communication plays a crucial role in the firm performance and a satisfaction seen in firm-supplier relations has impact in the entire supply chain at the same time, collaborative communication relation through the full adoption of supplier digitization which will promote and safeguard the common ties between the organizations and its suppliers leading to digital firm-supplier communication. The respondents were also of the idea that digital firm-supplier communication provides easy access to more suppliers for goods, works and services supply (mean 4.27) while resulting to quick payments to the suppliers are communicated electronically. This is in tandem with Abarden (2001) who concluded that digital communications in a supply chain had a positive impact on supply chain efficiency. It further

confirms the thought by Whipple et al (2010) that communication plays a crucial role in the firm performance and a satisfaction seen in firm-supplier relations has impact in the entire supply chain in terms of product development skills as echoed by the respondent.

5.2.2 Digital Order Taking

In relation to the digital order taking, the study found that the respondents' perception was that digital order-taking results to reduction on procurement lead time enhancing organization-supplier performance (mean response=4.17). Hence, Digital purchase orders placed by the buying organization to the digitised supplier fast-track the goods, works and service deliveries as required by the firm thus manages the procurement process more effective and efficiently. Additionally, the respondents agreed that digital order-taking reduces procurement cost and transaction cost (mean response of 3.90). Thus, reducing the costs by leveraging volume and enhancing paperless environment ensuring no paperwork, postage fee and other costs associated with preparation and sending information to the suppliers. With a mean response of 4.13, there was approval of the statement that digital order-taking leads to order accuracy, improvement and transparency in its processes. Hence, digital order taking has reduced procedural errors that are brought about by traditional method of transacting business in supply chain through manual typed orders and contributes to more tender responses from the suppliers. Finally, the respondents agreed that digital order-taking increases customer satisfaction by automation of order placement (mean response = 3.86). This has enhanced built-in approval processes, controls, and funds management which are incorporated to ascertain efficiency is maximised to avoid delays in notifications.

These results concur with Waters (2002) who found that digital order taking was beneficial in that it helped in establishing precision in procurement results to reduction on

procurement lead time enhancing organization -supplier performance. Hence, order taking systems could be merged with the ERP of the procuring entity thus reducing the lead times due to timely placement of orders. Moreover, Rankin (2006) concluded that electronic order taking eliminated loopholes for supply chain and procurement fraud since it closed the system off from modification by people with ill intents leading to order accuracy, improvement and transparency in its processes

5.2.3 Digital Tendering

The study further sought to find out respondents' views on the relationship between digital tendering and organizational performance. The respondents agreed that digital tendering leads to transparency in tendering thereby promoting a good organization-supplier relationship (mean response = 3.84). This organises the process and manages supplier bids online by buyers automatically inviting and managing supplier submissions electronically. It allows buyers and the bidders to simply upload and download documents online faster with less manual forms filling on tender preparation and data re-entry when upon receiving the tender. Moreover, they supported the statement that digital tendering leads to improved market intelligence, thereby helping the organization acquire value for its money (mean =3.88). Hence, allows accessibility and most suppliers are able to interface with the buying organization in the competitive modern market. Digital tendering attracts suppliers from different places to action and to submit their bids for a tender through the system portal provided by the buying organization. Additionally, they were of the opinion that digital tendering enhances supplier involvement and participation in the procurement process which is beneficial to the procuring entity (mean=4.26). This leads to a platform for detailed purchase history for efficient negotiation with suppliers as well as real time updating and eliminating obsolete information from the system of the buying organization. Finally, they

expressed support for the notion that digital tendering enhances standardization and streamlining of procurement process (mean= 3.95). It is evident that the arrival of technology, the procurement process is streamlined, improved and made efficient by employing digital tendering systems through supplier digitization. Digital tendering helps organisations of all sizes to make their procurement more efficient and effective while promoting reduction in paperwork and duplication on records. This concurs with Johnson (2011) that digital tendering due to the high level of transparency leads to enhanced supplier involvement with prompt participation in the procurement process which is beneficial to the procuring entity and enhanced organizational performance of pertinent firms. Likewise, Puschmann (2005) indicates that enhanced standardization of processes while streamlining procurement process in the organization leads to effective tendering practice.

5.2.4 Digital Contract Management

In regard to finding out the relationship between digital contract management and Organizational performance, the study established that digital contract management enhances effective order progression promoting efficiency and effectiveness on organization performance (mean=3.70). Thus, technology enhances relationship with the suppliers that translates to contract management and constant determinant of the right mix of suppliers and its performance capacity. Digital contract managements allow the buyer to create contract agreement through the contract management solution system after the tender is evaluated and award stage is reached. Moreover, there was support for the statement that digital contract management results in effective dispute resolution promoting organization-supplier partnership and performance (mean=3.81). This shows that digital contract management process ensures the buying organization and suppliers comply with the contractual terms and conditions at the same time able to accept changes that may arise during contract execution.

The respondents also agreed that digital contract management provides an effective audit trail which enhances professionalism and fairness in procurement (mean=4.16). Hence, Digital contract management improves efficiency for contracts in the organization reducing errors within the contract, maintaining a visible audit and transactions trail, analysing progress in the contract process while analysing spending and cost allocations in the procurement of goods, works and services.

Finally, there was consensus with the statement that Digital contract management keep check on the fulfilment of contract as stipulated by the buying organization providing dispute resolution and contract closure (mean=4.11). This shows that automated contract streamlines the contractual monitoring and acceptance management, manages the contractual relationship, contract administration. Digital contract management solutions therefore provide automated notifications to the suppliers and buyers when important contracting dates are coming up such as renewals, ending of contracts and compliance issues to ensure all parties are aware of important dates. This concurs with Kakwezi (2012) that digitalized contract management helps prevent order misspecification and it establishes an audit trail which leads to better performance of the supply chain management function. Likewise, Sanghera (2008) concurs that effective contract management ensures right decisions are made to enhance efficiency in contract fulfilment leading to contract compliance by both the buying organization with its suppliers.

5.3 Conclusion

Based on the foregoing findings of this study, it is evident that supplier digitization has improved procurement processes in Kenya Power. The objective considered were digital firm-supplier communication, digital order taking, digital tendering and digital contract management. Based on the findings, it was concluded that all independent variables are

trending in the modern market through supplier digitization. This means organizations and its suppliers operates at a very critical moment in the market calendar where it has become essential for them to provide their customers with a solution that is cost effective and efficient. Further the findings conclude that supplier digitization has revolutionized various markets trends in the world and changed the business operations and its models to fit the current competitive market trend of technology. The findings show that in the current market trends, it appears that technology has interrupted many organizations on how they do business by making them more aware of the efficiency and effectiveness of their processes on the procurement processes in the current changing market trends through supplier digitization. Hence, with the advent of technology, automation of the procurement process can now be done which can help achieve the best results for supply chain task efficiently.

From the survey findings, all independent variables show that supplier digitalization creates a platform that enables suppliers after successful online onboarding to have their own business client portal online to integrates with Kenya Power procurement portal and through the internet respond to tenders, quotations and submit them online. Hence, electronically received tenders by Kenya Power will creates efficiency where suppliers will submit electronic documents, make enquiries, collaborate with buyers, raise disputes online and participate in online bid opening sessions and order function. It also a solution that enhances order functions online where the supplier will respond by creating an advancing shipping note reference to the order given online by the buying organization. After online good receipt by the buying organization, the supplier will create an online invoice for the payment of the delivered goods. Electronically received purchase orders and invoices will make payment and delivery of goods a simple process that will promotes mutual relationship. Finally, supplier digitization is confirmed to a significant tool which organizations use to identify potential

sources of supply to procure goods and services as well as interacting with various suppliers in the market at the same time ensuring low cost in supply chain.

5.4 Recommendations

From the above conclusion, the researcher recommended that Kenya Power should emphasize on supplier digitization as tool that leads to procure to pay process in order to have better procurement and organizational performance.

Supplier digitalisation is an uphill to many suppliers and hence slows supplier adoption due to the fear of using system or supply chain processes. It is therefore important for the buying organization to realise that suppliers of the various businesses model are not ready and willing to adopt electronic mode of transaction. The study recommends that for faster adoption of supplier digitization by suppliers and for Kenya Power to have a smooth flow of processes, Kenya Power must ensure that their on-boarded suppliers and the ones that are on-boarding understanding benefits accrued from use technology such as supplier digitization on procurement processes. At the same time, how to respond to digital tenders, digital order processing, how to manage the contract online as well as embracing digital firm -supplier communication which create efficiency and transaction effectiveness in the entire supply chain of the Organization. To the employees, the management should consciously train and remind the employees that supplier digitization is a tool to enhance and fast track supply chain processes efficiently leading to transparent processes from procure to pay perceptive that is inclined to their daily target.

5.5 Areas for further research

The study on effect of supplier digitization on organizational performance was carried out in Kenya Power and its suppliers. The study restricted itself to digitization of firm-supplier

communication, digital order taking, digital tendering, and digital contract management. It is therefore, recommended that a study be carried out on other factors that affect organizational performance. The research should also be done in other organizations and the results compared so as to ascertain whether there is consistency on the effects of supplier digitization on organizational performance of Kenya Power.

5.6 Limitations of the Study

The research encountered number of challenges. Firstly, inadequate time and finances were the major limitations in this study. There was no enough time as well as funding to exhaust all the aspects of supplier digitization on organizational performance among most suppliers.

Secondly, some of the targeted respondents did not give the feedback. Others did not submit back the feedback forms saying they did not have enough time feeling them. This is attributable to inadequate access to information especially from some suppliers.

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APPENDIX 1

LETTER OF INTRODUCTION TO RESPONDENTS

CAROLINE K.MAKOKHA
KCA UNIVERSITY
TOWN CAMPUS,
NAIROBI

June, 2017

Dear Respondent,

RE: CAROLINE K.MAKOKHA- REG. NO. 15/01807

I am a graduate student undertaking Master of Business Administration at KCA University, Town Campus. In partial fulfilment of the requirements for a project, and I am carrying out a research entitled **EFFECT OF SUPPLIER DIGITIZATION ON ORGANIZATIONAL PERFORMANCE** in the selected institution of Public sector.

You have been selected to be part of this study and I kindly request you to assist me in filling the attached questionnaire. Kindly fill in all the parts of the questionnaire. The document will be collected in a week's time. The information you give will be purely used for the purpose of this research and will be treated in confidence. Your assistance and cooperation will be highly appreciated.

Yours faithfully

Carol Makokha

APPENDIX II

RESEARCH QUESTIONNAIRE

Below is a questionnaire you are required to fill read carefully and give appropriate answers by ticking [ ] or filling the blank spaces. The information obtained in this questionnaire will be treated with at most confidentiality.

PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY BEFORE YOU START FILLING THE QUESTIONNAIRE

1. Please read each question carefully.
2. For questions requiring you to choose the extent of agreement or importance indicate only one appropriate choice on scale of 1-5
3. Fill in answers to all questions with blank spaces.
4. Do not indicate your name on the questionnaire

Section A: RESPONDENTS BIO DATA

1. Name of the Organization/Supplier
   _____

2. Sex Male [ ] Female [ ]

3. Age 18-25 [ ] 26-36 [ ]
   36-45 [ ] 46 and above [ ]

4. Highest Education level Certificate [ ] Diploma [ ]
   Degree and above [ ] Others [ ]

Section B: Determine the effect of digital firm-supplier communication on organizational performance in Public Sector

Please indicate by ticking the extent to which you agree with the following statements.

Use the following scale: 1=Strongly Disagree; 2=Disagree; 3=Not Sure; 4=Agree; 5=Strongly Agree

Indicators	**I**	**2**	**3**	**4**	**5**
Digital firm-supplier communication result to real time document flow from and to the buying organization and supplier's system					
Effective collaboration enhances firm-supplier performance through digital firm-supplier communication					
Digital firm-supplier communication promotes enhanced feedback to both the organization and suppliers					
Digital firm-supplier communication provides good relationship and better customer services					
Digital firm-supplier communication promotes product and skills development for both the organization and suppliers					
Digital firm-supplier communication leads to effective partnership with the buying organization and its suppliers					
Digital firm-supplier communication provides easy access to more suppliers for goods, works and services supply					
Digital firm-supplier communication empowers non-specialists to run and manage procurements processes with professionalism					

Section C: Determine to what extent is effects of digital order taking on organizational performance in Public Sector

Please indicate by ticking the extent to which you agree with the following statements.

Use the following scale: 1=No Extent; 2=Little Extent; 3=Moderate Extent; 4=Great Extent; 5=Very Great Extent

Indicators	**I**	**2**	**3**	**4**	**5**
To what extent does digital order-taking results to reduction on procurement lead time enhancing organization -supplier performance					
To what extent does digital order-taking lead to reduction on stock holding improving organization -supplier performance					
To what extent does digital order-taking enhance stock availability promote organization and supplier performance					
To what extent does digital order-taking reduce procurement cost and transaction cost					
To what extent does digital order- taking lead to order accuracy improvement and transparency					
To what extent does digital order-taking enhance error-free customisation of orders					
To what extent does digital order-taking reduce customer wait time enhancing quicker order processing					
To what extent does digital order-taking increase customer satisfaction by automation of order placement					

Section D: Effects of digital tendering on organizational performance in Public Sector

Please indicate by ticking the extent to which you agree with the following statements.

Use the following scale:1=Strongly Disagree; 2=Disagree; 3=Not Sure; 4=Agree; 5=Strongly Agree

Indicators	**I**	**2**	**3**	**4**	**5**
Do you agree digital tendering leads to paperless environment enhancing organization-supplier performance?					
Do you agree digital tendering leads to error reduction on tendering promoting organization-supplier performance?					
Do you agree digital tendering reduces the time-to-procure enhancing organization-supplier performance?					
Do you agree digital tendering enhances effective supplier partnership					
Do you agree digital tendering lead to improved market intelligence					
Do you agree digital tendering enhance competition among suppliers					
Do you agree digital tendering enhance supplier involvement and participation					
Do you agree digital tendering enhance standardization and streamlining of procurement process					

Section E: Effect of digital contract management on organizational performance in Public Sector

Please indicate by ticking the extent to which you agree with the following statements.

Use the following scale:1=No Extent; 2=Little Extent; 3=Moderate Extent; 4=Great Extent; 5=Very Great Extent

Indicators	**I**	**2**	**3**	**4**	**5**
To what extent does digital contract management enhance effective order progression promoting efficiency on organization performance					
To what extent does digital contract management lead to effective call-off orders while saving time to enhance organization performance					
To what extent does digital contract management result to effective dispute resolution promoting organization-supplier partnership and performance					
To what extent does digital contract management lead to good governance in procurement process					
To what extent does digital contract management provide effective audit trail					
To what extent does digital contract management result to integrity and records retention					
To what extent does digital contract management enhance elimination of unethical practices					
To what extent does digital contract management lead to contract compliance					