

**INFORMATION AND COMMUNICATION TECHNOLOGY AND SERVICE
DELIVERY IN KENYA POWER**

BY

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DECLARATION

Declaration by the student

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ABSTRACT

The growth, integration and sophistication of ICT are changing our society and economy. Today, computers around the world are connected via Internet. Consumers now can use the Internet through various devices to interact with sellers and transact business operations. Although the adoption and use of IT services is widely studied in the industrialized world, only a small number of these studies focus on developing countries. This study was aimed at investigating the impact of ICT adoption on service delivery at Kenya Power and Lighting Company. The objectives of the study were to ascertain the level of computerization of business operation at KPLC, to establish factors that hinder full realization of value of ICT investment and to determine impact of ICT systems on services delivery at KPLC. The research design adopted in this study was descriptive survey. A population of 5400 staff was targeted on which a sample size of 400 was derived. Systematic sampling was applied to choose every 20th item hence forming a sample size in each stratum. Sample frames were lists of employees in each strata and this was obtained from HR departments in each region. Questionnaire was the primary data collection instrument for this study. The instrument was

pre-tested to establish the reliability and validity of the data collection instrument. This was done by providing the instruments to ten respondents in each category as pilot test. Data analysis was done by use of SPSS package for quantitative data while thematic analysis was used for the qualitative data. Frequency distribution tables and charts were used to present the results. The finding of the study concluded that the investment in ICT has a significant positive influence on the service delivery.

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LIST OF ABBREVIATIONS AND ACRONYMS

BI	Business Intelligence
CAD	Computer-aided Design
CM	Content Management
CRM	Customer Relationship Management
EAPL	East African Power & Lighting Company.
ERP	Enterprise Resource Planning
ICT	Information Communication Technology
I.T	Information Technology
KENGEN	Kenya Electricity Generating Company
KETRACO	Kenya Electricity Transmission Company
KPLC	Kenya Power and Lighting Company Ltd
MW	Megawatt
NSE	Nairobi Securities Exchange

SCM	Supply Chain Management
SMS	Short Message Service

CHAPTER ONE

INTRODUCTION

- **Background of the study**

Information and Communication Technology (ICT) has become one among key drivers of recent developments and has pervaded every business segment and also every home (Kuppusamy and Santhapparaj, 2005). It is often claimed that ICT has become to the economy what steam and machine power were to the industrial revolution (Hoek, 2001). In the meantime, expectations about the impact of ICT on business are positive and high.

According to Pokharel (2005) use of ICT is positively correlated with improved overall organizational performance. ICT consists of whole range technologies designed to access, process and transmit information: hardware, software and media for collection, storage, processing, transmission and presentation of information in the form of voice sound, data, text and images. They range from telephones, mobile phones, hardware, and software to the Internet. In regard to service delivery in business organizations, Information Communication Technology (ICT) has been employed to facilitate the service provision, even though it involves substantial portion of investment. The objective of such investments is to create business value by offering timely and reliable goods and services.

In order for any investment to have a positive impact on business value, additional revenues need to be created or overall costs reduced. Thus, when evaluating impacts of technology investment to the improvement of business performance, the interactions of costs among the various business processes and activities need to be considered (Roztock and Weistroffer, 2008).

Investment in information technology can have dramatic impact on both the internal and external operations of a business organization. Internally, improved ICT systems can enhance and strengthen organizational infrastructure and capacity by increasing employees'

efficiency, service coordination, and information sharing between departments, financial record keeping and tracking of an organization's production. Externally, information technology solutions can fundamentally transform business organization service delivery (Allison, 2010). Organizations around the world are expanding their investment in Information Communication Technology (ICT). The development of e-business practices has made it easier for organizations to share information and to encourage co-operation among stakeholders.

ICT has become the foundation of success in every sector of economy globally. In economic stimulation and development, Information and Communications Technologies play a critical role in reducing transaction costs and thereby improve productivity, offering immediate connectivity (voice, data, visual) and thus improving efficiency, transparency, and accuracy. ICT has also substituted more expensive means of communicating and transacting business operations, for instance; physical travels, increasing choice in the marketplace and provide access to otherwise unavailable goods and services, widening the geographic scope of potential markets and channeling knowledge and information of all kind.

According to Bryson (2006), IT systems have provided sound knowledge management in corporate institutions. With knowledge and information planning, information services have the dual responsibility of adding value to business policy and strategy, planning and managing all the corporate resources. IT systems provide an efficient and flexible service infrastructure, that enable organizations achieve competitive opportunities through innovations, sound management of resources and improved service delivery.

Today, ICT has brought dramatic change on ways of delivering services to customers in business organizations. This development has enabled businesses to work and to re-structure their business operations to align them to the new technologies for better service delivery (Jagdev and Browne, 1998). A good example is the use of ICT to integrate business functions, flow of operations, improved business collaborations through such systems as Enterprise Resource Planning systems, Customer Relationship Management systems and Supply Chain Management systems.

Information and communication technologies (ICT) have made possible new business models and even new business structures. There are many opportunities for developing business through new processes, models and methods and, of course, with new ICT solutions. On the other hand, some problems could arise, when the business development lives its own life without taking care of real business needs and co-operation aspects, (Chan *et. al* 1997).

These kinds of problems are sometimes real in enterprises where business developers follow all the new waves and "trendy" business methods like, in many cases, Customer Relationship Management (CRM) Enterprise Resource Planning (ERP) and Business Intelligence (BI). Other problems arise when developing new methods but neglecting ICT. Of course problems could rise if a company implements a new solution, for example a CRM system, without creating support processes and methods. That's why the development and implementation of business and ICT should take place concurrently (Hanseth and Braa, 1998).

There are new emerging business models which make business more and more competitive. It is not wise, however, to take all new waves seriously and implement them all in strategy and business. Consultants always bring new ideas and provide their help in implementing new business models. Those models and methods are not good for every kind of business. It is challenging to find the right solutions for one's own business. Today ICT has a significant role in business, and businesses should be due attention to ICT at an early stage of every development activity (Henderson and Venkatraman, 2000).

In recent years, organizations have strived for homogeneous and standardized ERP systems that forms the informational backbone of the corporation organizations and seamlessly integrate business processes and information flows throughout the whole supply chain. As a result, information infrastructures of today's organizations consist of a growing pile of systems that specifically target various aspects of the business, including customer Relationship Management, Enterprise Resource Planning, Supply Chain Management, Business Intelligence, Content Management, Portals, Computer-aided Design, Embedded Systems, and Network and Collaborative systems (Hanseth and Braa, 1998).

- **Profile of Kenya Power**

The Kenya Power and Lighting Company (KPLC) Ltd is a limited liability company which transmits, distributes and retails electricity throughout Kenya. KPLC is a public company and was incorporated in 1922 as the East African Power & Lighting Company (EAP&L). It changed its name to the Kenya Power and Lighting Company Ltd. (KPLC) in 1983. In the last three years Kenya Power was rebranded to Kenya Power with a view to improve on service delivery.

The majority shareholder in KPLC is the Government of Kenya and its institutions, while the rest is owned by private shareholders. In the last fifteen years Kenya Power was unbundled to form new companies namely: Kenya Power (transmission and Distribution) Kengen

(Generation only), Rural Electrification Company (Distribution for Rural customers supported by the Government of Kenya) KETRACO (Transmission only). With the current trend in liberalization, all these Companies will be distributing electricity to the end consumers in future creating stiff competition within the energy sector.

To achieve its business objectives, Kenya Power & Lighting Company has embraced the challenges and opportunities posed by ICT technologies to conduct its business by developing products to meet the changing customer demands and also to match the dynamic business needs. This has been accomplished through continuous development and adoption of various ICT products to support the business strategy.

KPLC has invested heavily on infrastructure, Databases systems and Applications. The ICT systems comprise of open integrated suite of front end applications systems running on back-end databases developed along the areas of specialization and then overall linked together through interfaces. The main database applications in this area are;

DIVISION	DATABASE SYSTEM	MAIN FUNCTION
Distribution	Design & Construction System (DCS)	Estimates for new electricity customers, way leaves acquisition and construction of new lines
	Facilities Database (FDB)	Geographical Information system for distribution network
Customer Service	Integrated Customer Service System (ICS)	Billing, accounts creation, metering collection, Anomaly resolution, Customer queries and disconnection services for postpaid customers
	Pre-Paid System	Billing, accounts creation, metering collection, Anomaly resolution, Customer queries and disconnection services for pre-paid customers
	Incidence Management System (IMS)	Incidence management on power outages
	Customer Relationship Management(CRM)	Marketing & Customer Relations
Transmission	Distribution and Transmission Maintenance and Management	Incidence management for transmission network

Finance	SAP – IFS	Finance, Treasury, Controlling, Account payable(staff & Vendor accounts) , Interface with ICS, DCS & ILS
Supply, Stores & Transport	SAP – ILS	Logistics, Materials, Warehousing, and procurement
	Transport Management System(TMS)	Vehicle and mileage management
Human Resources	SAP – IHRS	Payroll, Organization structure, staff Accounts, leave and travel management.
Others	Business support systems	(Library System, Legal System, E-mail System, Internet services, Desktop packages, Document management Systems

In additional to the above systems, the company has developed other systems to meet and address the challenges and opportunities posed by the Electronic-Commerce (E-Commerce). Under the online systems the company has in conjunction with mobile service providers has developed products under the brand name e-bill to enable electricity account holders to check their electricity account bills by sending a SMS using a mobile their mobile phones.

ICT adoption has enabled KPLC meet customer needs; plan on expansion strategies and to build values into services offered. Systems like Integrated Customer Systems (ICS), Design Customer Systems (DCS), have been designed to enable quick and easy access to and follow-up of customer job flow and to increase efficiency in delivery of customer oriented services, (KPLC 2006).

• **Research Problem**

The impact of ICT investments on service delivery and business value is an important issue for researchers, resource managers and other stakeholders. IT business value and service delivery include productivity enhancement, profitability improvement, improved work relations, competitive advantage and efficient use of resources at both intermediate level and organizational level (Prasad, 2008; Melville, 2004; and Kohli, 2003).

While institutions invest heavily in ICT resources both in developing and developed countries, much attention has not been given to the understanding of how ICT creates value in business especially in developing countries (Devaraj 2003). Considering the enormous benefits that are experienced by multinational organizations on use of IT systems, the local business organizations have moved to adopt the same kind of technologies. However, they still experience some obstacles or hindrances in the effective and efficient use of the ICT resources in their operations.

In most organizations in Kenya today, there is growing ICT system acquisition, adoption and implementation, to facilitate a shift towards e-service provision. The levels of computerization have drastically improved especially in the public organization in the last few years. In this regard, the issue of the pay-offs of IT investments in the developing countries like Kenya is an important issue for policy makers, economists, and business managers and academics researchers. It has been observed that very little research is reported about the impact of IT investments on business value and service delivery in organizations (Roztock, 2004).

Studies that have been done revealed that ICT service delivery qualities influence consumer evaluation and drive purchase intention. Factors include customization, interactivity, care, cultivation, community, choice, convenience, and character (Srinivasan *et al.*, 2002); content, context and infrastructure quality (Lu & Lin, 2002); Complexity, novelty and interactivity (Huang, 2003); community, convenience, free services, individualization and technical integration (Wirtz & Lihotzky, 2003); connectivity, information quality, interactivity. Within a business environment, Information and Communication Technology (ICT) has become an important enabler in disseminating and sharing of knowledge and supporting services to the core business.

An understanding of the contribution of IT investments to business value and service delivery in developing countries will provide investors more confidence and direction in their IT investments (Prasad 2008). This research work therefore, investigated on the impact of ICT on service delivery in Kenya Power and Lighting Company. Despite the huge investments in Information and Communication Technology in Kenya Power, there are still problems being experienced in service delivery and sometimes users complain that they are not getting the best services from ICT division and at times ICT systems are implemented without their involvement. Management and other stakeholders would like to find whether there is value for the investments in ICT and therefore, this study was guided by the following research questions: To what extent has information and communication technology been adopted in Kenya Power? What factors have hindered full realization of value of ICT investment in Kenya Power? What are the impacts of ICT systems on service delivery at Kenya Power? Answers to these questions will provide elaborate understanding of ICT and service delivery at Kenya Power

- **Aim of the Study**

The aim of this study was to investigate the impact of ICT on service delivery at Kenya Power and Lighting Company.

- **Specific Objectives**

- To ascertain the level of computerization/automation of business operations in Kenya Power.
- To determine the impacts of ICT systems on service delivery at Kenya Power.
- To establish factors that has hindered full realization of value of ICT investment in Kenya.

- **Value of the Study**

Through this research, Kenya Power will be able to assess the impacts of ICT on service delivery, hence able to improve and deal with the shortcomings in service provisions. Molla (2005) proposed a model based on the DeLone & McLean (2003) system success model that suitably form basis of variables in this study.

The findings of this study will guide the KPLC Company to implement policies, standards and procedures for better service delivery. In effort to provide efficient, effective and reliable services to clients the study findings will benefit ICT industry players with clients in similar setup by equipping them with prior knowledge on the kind of system functionalities that their customers may require.

This will go a long way in adopting faster and timely service delivery, thereby saving on costs and time that would be spent on evaluating the systems and at the same time offer solutions to challenges and to improve the systems. Many public institutions in Kenya will find this study very valuable to harness the benefits of ICT and obtain a benchmark to decisions related to ICT implementation in public organization.

The policy makers in the Ministry of Industrialization and other state agencies will find the study useful as a basis of formulating policies, which can be effectively implemented for better and easier business operations. The government will use the study so as to come up with policies and ways of promoting better services to the public.

CHAPTER TWO

LITERATURE REVIEW

2.1. Information Communication Technology Concept

Information and Communication Technology (ICT) refer to a myriad of stand-alone media, including telephone and mobile telephony, radio, television, video, tele-text, voice information systems and fax, as well as computer-mediated networks that link a personal computer to the internet, (Matambalya, 2000). ICT is an integrated system that incorporates the technology and infrastructure required to store, manipulate, deliver and transmit information, the legal and economic institutions required to regulate ICT access and usage, and the social and inter-personal structures which allow information to be shared, facilitate access to the ICT infrastructure, and through which innovation takes place (Wangwe 2007).

Information and communication technology (ICT) has in particular brought a complete paradigm shift on organizations' functions and on their customer service delivery. In a bid to catch up with global development and to achieve quality of service to customers, and reduce transaction cost, organizations have invested heavily in ICT and its related technologies to support delivery of a range of value added products and services (Koski, 2009). As a result, there more flexible and user friendly service delivery modes that business organizations have derived. Customer satisfaction and customer service delivery is one of the key parameters organizations aspire to achieve for the success and achievement of the business goals.

2.2. ICT use and Service Delivery in business Organizations

According to Bloemer (1998) most models in the business and customer evaluations of services focus on the comparative judgment of expectations versus perceived performance resulting in the two major evaluative judgments of perceived service quality and customer satisfaction. For instance, customers access service delivery by comparing their expectations prior to their service encounter. Customers also, develop perceptions during the service delivery process and then compare their perceptions with the actual service received. In this case, prior perception and individual judgment influence customer's evaluation of service provided.

Customer services according to Gronroos (2001) can be divided into high touch and high-tech services. High touch services are mostly independent to people offering the services whereas high tech services are predominantly based on the use of automated systems.

Therefore, one should always remember that high-touch also includes physical resources and technology based systems that have to be managed and integrated into the service process in a customer oriented fashion (Gronroos, 2001). Consequently, electronic services include both high-tech and high-touch services. For example, high-tech services include online pay, Mobile billing, ATM machines, etc whereas high-touch services consist of instructions and personnel assistance in using the services.

Customer service delivery is differentiable and stem from the expectations of customers. Hence, it is necessary to identify and prioritize expectations for customer service and incorporate these expectations into a process for improving customer service delivery (Kassim and Bojei, 2001). Implementing and evaluating customer service is a very complex process. Zeithaml and Bitner (1996) reported that two aspects need to be taken into consideration when evaluating customer service: *Content* and *Delivery*. Customers may be in the best position to evaluate the quality of service delivery, while the service providers are the best judges of the content of the message. Though there is a number of different aspects of services involved.

2.3. ICT and Quality Service Delivery at Kenya Power

Perceived service quality is the overall support delivered by the ICT service provider, which is measured in terms of assurance, empathy and responsiveness (Delone & Mclean, 2003). Many researchers have identified service quality as an important factor of information system success (Kettinger & Lee, 1995). Most service companies have research programs designed to measure service quality, and/or customer satisfaction, and/or relationship quality. Such programs are designed to allow management to manage service provision and relationship building initiatives. They provide essential information to guide efforts to reduce variability in service quality and to provide customers with the service that will help ensure their continued patronage.

While there is little direct evidence as to the link between service quality and better company performance, company-level data suggests a link between higher quality, higher market share and improved profitability. Measuring service quality and satisfaction traditionally involves asking customers for subjective attitudinal evaluations, that is, asking if they personally felt the service they received was satisfactory.

For ICT customers, it is the right way for a virtual service provider to express friendship or careful attention and it really has social meaning, which may ensure customer satisfaction and loyalty (Deighton, 1996; Watson *et al.*, 1998). The rapid development in Information and Communication Technology (ICT) has impacted the way we interact and manage our lives. ICT has become a utility, which needs to be managed to assist core business of an organization in achieving the mission and vision of that particular organization. Business driven IT Management is defined as the application of a set of models, practices, techniques and tools to map and to quantitatively evaluate dependencies between IT solutions and business performance and using the quantified evaluation to improve the IT solutions quality of service and related business results. Thus, in order to deliver quality ICT services to a particular organization, the proper model, processes and related technology need to be studied to map to the actual business of the organization.

One of the key roles of businesses is to retain and have customer confidence through building customer satisfaction. Companies that want to maintain a competitive edge, both now and in the future, are realizing that reactive customer interaction services must be replaced by a more proactive approach that recognizes the growing user-centricity of consumer communications networks. Kenya Power's customer base has been increasing tremendously and as a result has led to increased transactions. This has resulted in the rapid technological changes in the ICT industry, and to cope with the growth in customer population, there has been need to determine the optimal capacity and quality to meet the short term and long term corporate requirements (KPLC, 2006).

The paradigm is shifting, and Kenya Power can move quickly to respond to this change and gain market share, as well as reduce customer churn, by enhancing the experience of customers who now expect anytime. Information and Communication Technology (ICT) connectivity (PCs and Internet) is very widespread in businesses of all sizes. Kenya Power is determined to foster appropriate business environments for e-business and ICT uptake, and target programmes to overcome market failures to the extent that they are needed in particular areas (e.g. skill formation, specialized information).

Kenya Power has adopted an ICT system in transacting business with their customers; in so doing, it expects to gain customer confidence and customer satisfaction (KPLC, 2006). ICT is currently being used across all the functions of Kenya Power namely in Distribution functions, Customer Service and marketing, Finance, Procurement and other office functions. In Kenya Power, approximately 50% (5400) of the staff are using ICT in their daily operations.

2.5. Impacts of ICT adoption on Service Delivery

2.5.1. International Context

According to the *Report on the Review of ICT governance in Queensland Government* prepared by Service Delivery and Performance Commission (2006), investment in technology provides significant benefits to government organizations, industries and the community at large, including: Increased accessibility, inclusivity and flexibility in service delivery – the ability for more of the customers to interact with their providers, with the flexibility of choice offered by multiple delivery channels and at more convenient times. It has also improved value for money that is, it enables quality services to be provided through lower cost delivery options, improved productivity – both of public servants and the economy, and providing stimulation of the ICT industry – through identification of opportunities for innovation and partnering with the private sector to improve government service delivery.

Ssweanyana & Busler (2007) examined the extent of adoption and usage of ICT on one hundred and ten firms in Uganda with respect to the contribution of ICT to the firm. The study illustrated that the majority of respondents strongly agree that ICT provides increased savings, increased efficiency, improved service delivery, low transaction costs, and improved market performance to the organization that invests in IT systems. The results further revealed that the adoption and usage of ICT by firms in developing countries follow the same pattern as in developed countries, and they only differ in the level of usage and adoption because there are various factors that determines their success, for instance, high cost of hardware, software, internet and ICT professional, which inhibit governments to adopt appropriate policies to address them (Ssweanyana & Busler 2007).

A research conducted by the Commonwealth Telecommunications Organization (CTO) undertaken in Ghana, India and South Africa revealed that demand and supply factors affects the provision of services by use of IT systems. It further reported that, expense was the main reason for respondents not using e-services in South Africa, while a perceived lack of demand for services was the least important. In contrast, it was noted that in Ghana, there was a feeling that there is no need for the e-services while local language issues was cited as the least important (CTO 2007).

Heeks (2001) found that the use of ICT can make a significant contribution to the achievement of good services. Analyzing case studies from countries such as the Philippines, Honduras, Chile and South Korea, the study outlined three key contributors of e-service:

improving business processes (e-marketing), connecting customers (e-customers and e-service delivery), and building external interactions (business outsourcing). Heeks (2000) also identified two major challenges that developing countries face when it comes to the successful implementation of e-service provisions. First, is the strategic challenge of e-readiness and secondly, the tactical challenge of closing design-reality gap, adopting best practice in e-service projects in order to avoid failure and to achieve success. The study also claimed that that eservices still has certain weaknesses in terms of double processes (physical and online), wrong communication and lack of options for feedback.

2.5.2. Regional Context

Schuppan (2008) in his article *E-government in developing countries: Experiences from sub-Saharan Africa* addresses the different institutional and cultural contexts which must be considered when implementing ICT services in sub-Saharan Africa. It was clear that the development potential of ICT services can only be realized if certain minimum preconditions exist in the country or if they are taken into consideration during implementation. Due to institutional conditions in Africa, longer preparations and project times (compared to developed countries) are expected when implementing ICT project. The article suggested that different administrative contexts and rationalities must be taken into an account when implementing ICT projects and strategies to ensures success.

Dhakal and Jamil (2010) provided challenges of ICT use and their effects on the service delivery in Nepal. Data revealed that the majority of the respondents viewed much improvement in terms of easier to know information in time (70%); easier to make complain (59%); and service delivery in time (52%). On the other hand, more than half of the respondents confirmed that reporting of services has been in the improvement process. The study concluded that improvements have been felt through the application of ICTs; however, there was a feeling that there is still lack of skills on the use ICT for the better delivery of services.

According to Porter (2001), using the Internet in isolation reduces the chances of businesses achieving e-commerce success. Porter's findings were confirmed by Daniel (2003) who suggested Internet and web related technologies were being increasingly integrated into business strategies, goals and strengths in developing countries. Grimshaw et al. (2000) conferred that the extent of such integration affected the benefits to businesses. It was noted that it has increased levels of integration resulted directly in increased benefits to businesses. From 1997, a trend emerged whereby Internet-based businesses started to move away from

storefronts, content websites, search engines, shopping malls and incentive-and web-presence based sites, to more sophisticated e-commerce websites and many firms started developing their own websites. However, in Africa, some businesses resisted this trend and preferred to keep their focus on more traditional methods to conduct business (Chasten & Baker, 1998).

In Kenya, connectivity is now sufficient and human resource capacity to support it is plenty. The laying of the fiber optic cables opened Kenya's potential to be IT and ecommerce hub. The enacting of Kenya Communications (Amendment) Act 2008 also previously known as the ICT Bill has played a role in the creation of conducive IT environment. The law opened legal space to promote electronic trade within Kenya and other trading partners and also provide a conducive legal environment for all players to do business and transact. It geared towards encouraging e-services and protects the privacy of the public, interests of consumers and clients from potential misuse, (Kemutai, 2009).

2.6. Factors that hinder use of ICT in Public institutions

The factors for failure are those occurrences that constraint proper/smooth implementation and use of ICT projects in government. These can either be barriers or inhibitors as described by (Khaled 2003, Heeks 2003, Ndou 2004, Saul and Zulu 1994). Barriers can be considered as those occurrences that hinder ICT implementation/adoption in organization. Some of these factors that hinder success use of ICT include: Infrastructural status, finances, poor data systems and lack of compatibility, level of personnel skills, leadership styles, culture, and bureaucracy and user attitudes. The best way to achieve maximum benefit for ICT implementation is to have all the factors for success with no occurrence of the factors for failure (Bhatnagar 2003). However, in real world that is not the case. Given such a situation, an action to increase the chances of success is always required.

2.7. Past studies on ICT adoption in Organizations

According to Loonam (2008), ICT advancements, globalization, competition and changing social trends such as heightened customer pro-activeness and increased preferences for convenience have caused intense restructuring of the service industry. A review of some related literatures reveals that ICT may essentially affect negatively organizations efficiency and may reduce productivity. Conversely, there are various literatures that Debunk Solows (2005) claiming in totality and approve the positive impacts of Information and Communication Technology expenses to business value.

In a similar study, Kozak (2005) investigated the influence of the ICT evolution on the profit and cost effectiveness of the organizations within the stipulate period of 1992-2003. From the

findings, there was a significant relationship between the executed ICT, productivity and cost savings. The modernization of ICT has set the stage for extraordinary improvement in organizations procedures throughout the world. For instance the development of worldwide networks has considerably decreased the cost of global funds transfer. Berger (2003), reveals organizations that are using ICT related products such as, electronic payments and information exchanges can deliver high quality customer services delivery to customers with less effort. Through guidelines for an organization's ICT infrastructure and ICT services are set in the enterprise architecture. It establishes an organization-wide road map to achieve the organization's mission through optimal performance of its core business processes within an efficient ICT environment (Institute for Enterprise Architecture Developments, 2007).

McAfee, (2006) found that ICTs has set off several kinds of revolutions in organizations and identified three distinct categories of these technologies. It has introduced new interdependencies, processes, and decision rights, and necessitates organizational changes as soon as the new systems go live (McAfee, 2006). The Information management function's role in the organization may be perceived too often as a technology provider instead of focusing on providing services. The basis of a service orientation is that the operations are organized and managed as services and that the Information Management personnel perceive themselves as service providers. If ICT services are not designed from the viewpoint of the users, then service roles may become blurred.

Although ICT services may become more fluent for the Information Management function, service tasks typically are not reduced but just transferred to the users. When this happens, the overall efficiency does not improve and the result may be even more costly. ICT services should be designed as services for the users, and the users should interact directly with the designers of the services to improve them. ICT services should also be accompanied by well-planned and organized user training.

Converting data from various entities or from different contexts for the organization's data repositories may be time consuming and reduce the organization's ability to take action in a timely manner (Seo & La Paz, 2008). Standardization of data formats or application interfaces is a good solution for cross-organizational interoperability, particularly when the interaction is frequent and continuous, such as between partnering organizations. The needs for cross-organizational interoperability should be identified so that standardization can take place and the necessary application interfaces implemented.

Findings in the work of Ziadi and Knufie (2006) that examined the impact of ICT on organizations in Tunisia revealed that the Tunisian companies are not yet completely

committed to the revolution of the information technology. This lack of initiative is primarily explained by the fact that these new technologies require investments, including development of human resources, which Tunisian companies do not feel ready to provide. Also, Prasad (2008) conducted a study of intangible benefits of IT investments in Fiji. The findings indicated that for businesses in developing countries, their IT investments provide intangible benefits, especially at the process level and this contributes to business value.

Furthermore, in the work of Roztocki and Weistroffer (2008), a value chain analysis framework was presented for evaluating investments for services. They argued that in order to achieve reliable cost estimation, the framework employs a costing system, which integrates activity-based costing with economic value-added performance measure. Weistroffer (2008) also examined the impact of ICT on higher education among tertiary teachers and students. The study also explored the issues that emerged from the implementation of ICT in higher education institutions, in the University of Tasmania. His finding revealed that ICT tools employed in learning and teaching can be both advantageous and disadvantageous.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Research Design

The research design adopted in this study was descriptive survey. This design was appropriate because the main interest in this study was to establish impact of ICT adoption on service delivery in KPLC by collecting views and facts from the organization. Descriptive design method provides both quantitative and qualitative data from cross section of the chosen population (Cooper and Schindler, 2005). A case study approach was adopted in order to gain in-depth understanding and be able to evaluate the impact of IT on service delivery at KPLC.

3.2. Sample size

The population in this study comprised of top management, middle level management and contract staff at KPLC in the four regions in the country, giving a population of five thousand four hundred (5400). The sample frame was obtained from HR department and consists of list of employees in all the four regions in their respective levels in the management.

To determine the sample size, the Yamane (1967) formula was used thus:
$$n = \frac{N}{1 + Ne^2} .$$

Where: n = required responses

N = Sample size

e^2 = error limit

Placing the formula for SMEs will yield a sample size of:

Sample size (n) =

Therefore the sample size will be 400 respondents

3.3. Sampling design

From the above sample size of 400, each category of population was represented. Systematic sampling was applied to choose every 20th item hence forming a sample size in each stratum. Sample frames were lists of employees in each strata and this was obtained from HR departments in each region as shown in table 3.2.

Table 3.1 – Sample population

Region	Sections	Sample
Nairobi Central office	Top management	13
	Middle level management	108
	Contract	102
Coast	Top management	3
	Middle level management	14
	Contract	17
Western	Top management	6
	Middle level management	90
	Contract	59
Mt. Kenya	Top management	3
	Middle level management	14
	Contract	17
Total		400

Source: Author, 2013

3.4. Data collection Instruments

A questionnaire was used to collect data from the respondents. The questionnaire was structured and designed based on the objectives of the study. Section A provided general

information about respondents; Section B contained information on ICT knowledge and use; Section C provided questions on level of automation at KPLC, Section D contained questions on impact of ICT on service delivery and finally section E provided information on factors that hinder ICT use at KPLC. The instruments were pre-tested to establish the reliability and validity of the data collection instrument. This was done by providing the instruments to ten respondents in each category as pilot test. The population that was involved in the pilot study was not included in the sample.

3.5. Data analysis and Presentation

After data collection, the completed questionnaires were checked for errors before subjecting them to analysis. Statistical techniques such as descriptive statistics; frequencies, mean, standard deviation were carried out using SPSS (Statistical Package for Social Sciences) computer package. Section A was analyzed descriptively to provide frequency ranges and percentages of the results. Cross-tabulation was used to determine the relationships between the study variables. Inferential statistics such as chi-square tests were used to analyze significant effects between variables. The findings were presented in form of tables, charts and narrative statements.

CHAPTER FOUR

DATA ANALYSIS AND PRESENTATION

4.1. Introduction

This chapter presents the analysis and the results of the study. The analysis was based on the data collected by use of questionnaires to ascertain impacts of ICT on service delivery at KPLC.

4.2. Background Information

4.2.1. Response rate

The researcher administered 400 questionnaires to respondents, however, 379 (94.8%) were returned while 21 (5.2%) were not returned due to logistical problems. Therefore, the data analysis is based on the returned instruments, which were enough to provide credible information for the study.

4.2.2. Designation

The respondents engaged in this study were drawn from various designations. From the table 4.2, 39.5% are from MG 10-13 grade, 9.5% MG 07-09 grade, 4.4% MG 01-06 grade, 3.3% UNION A-E grade, 9.5% UNION F-J grade and finally 6.8% UNION K-M grades. This is an evidence to show that all cadres of employees were involved in this study. However, not all of the respondents responded on this particular question hence getting three hundred and sixty seven (367) responses.

Table 4.2 Designation

Designation	Frequency	Percentage%
MG 01-06	16	4.4
MG 07-09	35	9.5
MG 10-13	145	39.5
UNION A-E	12	3.3
UNION F-J	35	9.5
UNION K-M	25	6.8
CONTRACT	99	27.0
Total	367	100.0

Source: Field Data 2013

4.2.3. Work section

It was essential to know the divisions at which the respondents are working. From the findings, majority of them 119(32.2%) were stationed at customer service section, 58(15.7%) in finance, 48(13.0%) in the design and construction section, 46(12.4%) in the HR division, 15(4.1%) in energy transmission, 12(3.2%) company secretary, others in supply, stores and transport, planning research and performance monitoring units as shown in table 4.3.

Table 4.3 - Division

Division of Employment	Frequency	Percentage%
Design and Construction	48	13.0
Customer Service	119	32.2

Finance	58	15.7
Supply, stores & transport	32	8.6
Human Resources Division	46	12.4
Managing Director's	31	8.4
Company Secretary (legal affairs)	12	3.2
Energy Transmission	15	4.1
Planning, research and Performance monitoring	9	2.4
Total	370	100.0

Source: Field Data 2013

4.2.4. Gender of the respondents

The study population was composed of 52.0% male and 48.0% female. This indicates that the researcher was gender sensitive though it seemed that there are slightly more men than women in this organization. This enabled the researcher to obtain information from both genders, hence more appropriate and reliable information.

4.2.4. Level of Education

The results of the survey indicated that 57.3% of the respondents had University degree as their highest qualification of education, 39.5% had tertiary/college level education and 3.2% had secondary level qualification as indicated in table 4.4 below. This shows that most of the people in this sector have attained the professional knowledge that enable them perform their duties.

Table 4.4 – Education level

Level of Education	Frequency	Percentage%
Secondary level	12	3.2
Tertiary/College level	146	39.5
University level	212	57.3
Total	370	100.0

Source: Field Data 2013

4.2.5. Work experience at KPLC

From the findings, it was found that majority of the staff, 40.7% had worked at KPLC for a period between 5-10 years while 30.9% had 11-20 years, 22.8% had worked over 20 years and 5.7% had experience of less than a year.

Figure 4.2 - Work Experience

Source: Field Data 2013

4.3. Automation/Computerization at KPLC

The study sought to establish whether KPLC has fully adopted ICT systems in all its business operations. Majority of the respondents 57.6% responded in agreement that the company has fully computerized its activities while 42.4% were of contrary and that there is still need to fully automate KPLC services.

Figure 4.3 – Level of automation

Source: Field Data 2013

The following areas were cited to require improvement: Application for electricity connections, e-procurement, CCTV surveillance in remote areas, detection of power outages, emergency operation and monitoring, Online querying of bills and payment history, record management and payments, processing of loans, leave, petty cash, advances and accounting processes.

4.4. Impact of ICT on Service Delivery

4.4.1. Impact of ICT on business operations

In regard to the impact of ICT on business operations, it was found that ICT systems e.g ERP, CRM has brought positive impact on business achievements at KPLC, 293(78.6%) and that these systems have eased working procedures and efficient delivery of services 80(21.4%).

Table 4.6 – Impact of ICT on business operations of KPLC

Impact	Frequency	Percentage%
ICT has brought positive impact on business achievements at KPLC	293	78.6

ICT systems have eased working procedures	80	21.4
Total	373	100.0

Source: Field Data 2013

4.4.2. Extent that ICT adoption has improved service delivery at KPLC

In addition, the study sought to establish the extent to which ICT adoption at KPLC has improved service delivery. It was found that, ICT adoption has to great extent improved service delivery, for instance, fast delivery of services, efficient incident reporting, improved customer relations etc.

Table 4.7 - Extent that ICT adoption has improved service delivery at KPLC

	Frequency	Percentage%
Very great extent	86	22.7
Great extent	247	65.2
Moderate extent	46	12.1
Total	379	100.0

Source: Field Data 2013

4.4.3. Impact of ICT on Service Delivery

One of the objectives of this study was to determine impact of ICT on service delivery at KPLC.

Table 4.8 – Impact of ICT on Service Delivery

ICT factors	Mean	Std. Dev	Sample (N)
IT systems has provided reliable service delivery	4.1	.8	370
ICT has facilitated effective access to services	4.0	.8	363
ICT has facilitated timely delivery of services	3.8	.8	350
ICT systems has led to improved quality of service	4.1	.8	365
ICT systems has provided effective means of communication within KPLC	4.1	.8	369
ICT systems has provided effective means of communication within KPLC	3.8	.9	364
It has improved on incident reporting	3.8	.9	352

ICT systems provides convenient customer feedbacks	3.6	1.0	376
ICT systems services has reduced congestion	3.5	1.0	369
IT systems has facilitated decision making at higher levels of management	3.5	.9	376
ICT has boosted staff morale	3.5	.9	366
ICT has improved staff working relationships	3.6	.9	370
Average Mean & Std Dev.	3.8	.9	

Source: Field Data 2013

From the findings, the respondents felt that IT systems has provided reliable service delivery (Mean = 4.1, Std. dev =0.8); and that ICT has facilitated effective access to services, timely delivery of the same services (Mean = 4.0, Std. dev =0.8); again respondents felt that, ICT systems has led to improved quality of service, and provided effective means of communication within KPLC (Mean = 4.1, Std. dev =0.8).

More so, it seems that ICT systems provides convenient customer feedbacks, (Mean = 3.8, Std. dev =1.0), and that, it has reduced congestion, boosted staff morale and facilitated decision making at higher levels of management (Mean = 3.5, Std. dev =0.9). In general, it was established that ICT adoption has had positive impact on the delivery of services at KPLC, (Mean = 3.8, Std. dev =0.9).

4.4.4. Cross tabulation of Regions and ICT on service Delivery

The researcher conducted a cross tabulation between the regions and service delivery. It was noted that some regions (coast, western and Mt. Kenya) has shown confounding effect of ICT on service delivery since its P-Value was less than 0.05 or each of them. This could be explained by the fact that for these regions recently adopted ICT on their services and therefore its effects has tremendously noted. However, Nairobi region has proved no effect on ICT on service delivery, since the P-Values was above 0.05. This could be explained by the fact that Nairobi region has fully automated its services before and therefore its impacts may not be visible as opposed to the other regions.

Table 4.9: Cross tabulations between Region and service delivery

	X²- Value	df	Sig
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Nairobi Central region*ICT on service delivery	1.903	3	0.593
Coast region* ICT on service delivery	17.974	15	0.044
Western region* ICT on service delivery	8.591	10	0.031
Mt Kenya region* ICT on service delivery	13.422	6	0.047

Source: Field Data 2013

4.5. Factors Hindering Use of ICT systems

One other objective of this study was to establish factors hindering the use of ICT systems at KPLC. Among the challenges that were cited by the users include the following: Lack of basic computer skills, system breakdown e.g fiber link break down, change resistance, Improper/inadequate user trainings, Inadequate technical support services, Poor incident reporting procedures, old/obscelete, unreliable hardware, frequent changes and upgrades that make users unable to cope with them. In relation to the above, it was certain that majority of the users 78.9% experience challenges while using ICT systems and only 21.1% are much comfortable with ICT systems used at KPLC.

Figure 4.4 – Staff experience on ICT systems

Source: Field Data 2013

4.5.1. Challenges in the adoption ICT services

One other objective of this study was to establish challenges related to the adoption of ICT services at KPLC.

Table 4.10 – ICT Challenges

Challenges	Mean	Std. Dev	Sample (N)
Resistance to change due to technology is one of the challenge at KPLC	3.0	1.2	111
Lack of trainings to users has posed a challenge	3.6	1.3	112
Unstable infrastructure poses a challenge in use of ICT systems	3.5	1.2	112
system failures are a challenge in use of ICT systems	3.8	1.0	113
Insufficient funds hinder continuity of system operations	3.1	1.2	113
Poor implementation and deployment of the system have created	3.3	1.3	111

problems on the business operations			
ICT security threats are a challenge in use of ICT systems	3.5	1.2	107
Average Mean & Std Dev	3.4	1.2	

Source: Field Data 2013

The researcher wanted to know the degree of agreement or disagreement by respondents on various ICT challenges and how they related to service delivery. It was noted that, system failures are a challenge in use of ICT systems (Mean = 3.8, Std. dev =1.0); and that Lack of trainings to users has posed a challenge (Mean = 3.6, Std. dev =1.3); again it was asserted that, Unstable infrastructure poses a challenge in use of ICT systems (Mean = 3.5, Std. dev =1.2) and that ICT security threats are a challenge in use of ICT systems (Mean = 3.5, Std. dev =1.2).

However, there were factors which the respondents showed uncertainty, these included the fact that Insufficient funds hinder continuity of system operations (Mean = 3.1, Std. dev =1.2), and that resistance to change due to technology is one of the challenge at KPLC, (Mean = 3.0, Std. dev =1.2) and that poor implementation and deployment of the system have created problems on the business operations (Mean = 3.3, Std. dev =1.3).

As conclusion, the following were cited solution to the above challenges by the users: Provide effective incident reporting procedures, adequate ICT security measures to be implemented, provide adequate trainings, increase funding to ICT maintenance and support, build resilient backup systems, clear change management initiative is necessary for any newly introduced system, conduct periodic training and workshops and finally develop clear ICT policy to govern all the processes.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1. Introduction

This chapter provides the summary of findings from chapter four and also gives the conclusions and recommendations of the study based on the stated objectives. The objectives of the study were to ascertain the level of computerization of business operation at KPLC, to establish factors that hinder full realization of value of ICT investment and to determine impact of ICT systems on services delivery at KPLC.

5.2. Summary of Findings

The study sought to establish whether KPLC has fully adopted ICT systems in all its business operations. Majority of the respondents 57.6% responded in agreement that the company has fully computerized its activities while 42.4% were of contrary and that there is still need to fully automate KPLC services. The following areas were cited to require proper automation to improve on service delivery: Application for electricity connections, automation at low level voltage lines, e-procurement, CCTV surveillance in remote areas, detection of power outages, emergency operation and monitoring, Online querying of bills and payment history, record management and payments, processing of loans, leave, petty cash, advances and accounting processes.

In regard to the impact of ICT on business operations, it was found that ICT has brought positive impact on business achievements at KPLC, 293(78.6%) and that ICT systems have eased working procedures, 80(21.4%). More so, ICT adoption has to great extent improved service delivery, 247(65.2%), very great extent 86(22.7%) and moderate extent 46(12.1%).

On determining impact of ICT on service delivery, findings showed that IT systems has provided reliable service delivery (Mean = 4.1, Std. dev =0.8); and that ICT has facilitated effective access to services, timely delivery of the same services (Mean = 4.0, Std. dev =0.8); again respondents felt that, ICT systems has led to improved quality of service, and provided effective means of communication within KPLC (Mean = 4.1, Std. dev =0.8).

More so, it was found that ICT systems provides convenient customer feedbacks, (Mean = 3.8, Std. dev =1.0), and that, it has reduced congestion, boosted staff morale and facilitated decision making at higher levels of management (Mean = 3.5, Std. dev =0.9). In general, it was established that ICT adoption has had positive impact on the delivery of services at KPLC, (Mean = 3.8, Std. dev =0.9).

One other objective of this study was to establish factors hindering the use of ICT systems at KPLC. In this regard, it was found that majority of the users 78.9% experience challenges while using ICT systems and only 21.1% are much comfortable with ICT systems used at KPLC. It was established that system failures are a challenge in use of ICT systems (Mean = 3.8, Std. dev =1.0); and that Lack of trainings to users has posed a challenge (Mean = 3.6, Std. dev =1.3); again it was asserted that, Unstable infrastructure poses a challenge in use of ICT systems (Mean = 3.5, Std. dev =1.2) and that ICT security threats are a challenge in use of ICT systems (Mean = 3.5, Std. dev =1.2).

However, there were factors which the respondents showed uncertainty, these included the fact that Insufficient funds hinder continuity of system operations (Mean = 3.1, Std. dev =1.2), and that resistance to change due to technology is one of the challenge at KPLC, (Mean = 3.0, Std. dev =1.2) and that poor implementation and deployment of the system have created problems on the business operations (Mean = 3.3, Std. dev =1.3).

5.3. Conclusions

The finding of the study concludes that the investment in ICT has a significant positive influence on the service delivery. That might be due to lower transaction costs, e.g. for information for purchasing inputs as well as distributing and providing services. Furthermore it could be partly attributed to a more efficient production process and a better resource allocation within the organization. This observation is in line with the findings of Brynjolfsson and Hitt (2000) and others for organizations in developed countries that suggest that ICT (use and investment) is positively linked with quality services and productivity.

However, the mechanisms and direction of causality is not clearly established as firms with good performance are likely to spend their windfall on ICT equipment maybe also for prestige reasons. The elasticities for investment in ICT and other investment don't differ much for the Kenyan organizations which mean that given the fact that the share of ICT in total investment is below 10 % on average, an additional investment in ICT in absolute terms will be more productive.

Evidently, the ICT adoption influences service delivery in the organizations. Considering how fast the world are moving in the development, procurement and of information and communication technology, KPLC should make immediate step to catch up if it want to keep in track. ICT brings a lot of advantages and has a great impact on human and business daily life. Therefore, ICT development is the best choice in helping KPLC stay on the track, and that is why ICT development is important for KPLC's future.

5.4. Recommendation

Given the findings, the study recommends the following:

The government through the ministry of Energy should be involved in providing environment to support KPLC to better use information technology and increase the countries competitiveness, productivity and growth through investment in information technology, e-

business and new business models. The quality of the system used is bound to dictate the level of service delivery that transforms to customer satisfaction.

The KPLC should increase funding on resource acquisition and training of its personnel since the study identified inadequate ICT staff training and development as the main challenge encountered by KPLC in implementation of ICT service delivery and this has a major impact affecting the quality of service delivery through use of ICT payment system. The KPLC management should train its employees in the handling of customer complaints and the importance of having positive attitude towards its customer.

The Company should further find out ways of motivating its employees as the study found out that lack of motivation was hampering the quality of service delivery through use of ICT system. Further still there is need for employees to exercise due care while discharging their duties. There is need for frequent customer seminar and retreats to be carried out to enable the customers to acquaint themselves with the services offered through use of ICT system.

5.5. Suggestions for Further Research

The study only focused on the impact of ICT on service delivery at KPLC. The effectiveness of ICT adoption in the study was looked from improvement in service delivery which was again measured by time effectiveness, reliability of services and customer satisfaction. However, other major objectives of service delivery like ensuring transparency, reducing corruption, reducing cost and quality of services, if studied in future research, then it would add more value to the effectiveness of service delivery in state corporations.

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APPENDICES

Appendix I: Questionnaires

Introduction

Dear Respondent,

I am conducting an academic research on the Impact of ICT adoption on service delivery at KPLC. By filling this questionnaire you will be providing useful information that will assist me conduct this study successfully. Your answers will be treated with a lot of confidentiality. Please answer all the questions below. *(Please tick in the appropriate box)*

SECTION A: GENERAL INFORMATION

- **Choose your designation**

Category	Tick (√)
MG 01-06	
MG 07-09	
MG 10-13	
UNION A-E	
UNION F-J	
UNION K-M	
CONTRACT	

2. Which Division do you work for?

DIVISION	Tick (√)
DESIGN AND CONSTRUCTION	
CUSTOMER SERVICE	
FINANCE	
SUPPLY, STORES & TRANSPORT	
HUMAN RESOURCES DIVISION	
MANAGING DIRECTOR'S	
COMPANY SECRETARY (LEGAL AFFAIRS)	
ENERGY TRANSMISSION	
PLANNING, RESEARCH AND PERFORMANCE MONITORING	

- **Gender**

Male

Female

- **Highest Education Level Attained**

Primary Level

Secondary Level

Tertiary / College Level

University Level

- **State your overall work Experience**

Less than 10 years

Between 10-20 years

Between 20-30 years

Over 30 years

- **State your overall work experience at KPLC**

Less than 1 year

Between 5-10 years

Between 11-20 years

Over 20 years

SECTION B

LEVEL OF AUTOMATION AT KPLC

- To what extent has KPLC automated its operations?

Very great extent ()

Great extent ()

Moderate extent ()

Low extent ()

- What other essential IT technologies are needed for better service delivery at KPLC?

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- Has KPLC adopted ICT systems in all its business operations?

Yes () No ()

- If No, what are the areas that require automation?

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SECTION C

IMPACT OF ICT ON SERVICE DELIVERY

- What is your view on the impact of ICT on business operations and service delivery?
ICT has brought positive impact on business achievements at KPLC ()
ICT adoption has led to negative impacts on the services at KPLC ()
ICT Systems have eased working procedures ()
- To what extent has ICT adoption at KPLC improved operations of the Company?
Very great extent ()
Great extent ()
Moderate extent ()
Low extent ()
- Indicate your level of agreement with the following statements by ticking at the appropriate box using the rating criteria below.

1.Strongly Disagree (SD), 2. Disagree (D), 3.Uncertain (U), 4. Agree (A), 5. Strongly Agree (SA)

	Statements	1.SD	2.D	3.U	4. A	5.SA
i.	IT systems have enabled reliable efficient service delivery					
ii.	ICT has facilitated efficient access to services					
iii.	ICT has facilitated timely delivery of services					
iv.	ICT systems has led to improved quality of services					
v.	ICT systems have provided effective means of communication within KPLC					
vi.	ICT systems have provided effective means of communication outside KPLC					

vii.	ICT has improved on incident reporting					
viii.	ICT systems provide convenience customer feedback					
ix.	ICT Systems has reduced congestion at the banking halls.					
x.	IT systems have facilitated decision making at all levels of management					
Xi	ICT has boosted staff morale					
x.	ICT has improved staff work relationships					

- In your own view, what should be done to realize optimum quality service by using ICT systems?

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SECTION D

FACTORS HINDERING USE OF ICT SYSTEMS

17. Do you think KPLC staff experience challenges while using ICT systems?

Yes () No ()

18. If Yes, what are these challenges?

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19. Indicate your level of agreement with the following statements by ticking at the appropriate box.

Use the ratings criteria below.

- Strongly Disagree (SD), 2. Disagree (D), 3.Uncertain (U), 4. Agree (A), 5. Strongly Agree (SA)
-

	Statements	1.SD	2.D	3.U	4.A	5.SA
i.	Resistance to change due to technology is one challenge at KPLC					
ii.	Lack of skillsby users has posed a challenge					
iii.	Unstable infrastructure poses a challenge in use of ICT systems					
iv.	System failures are a challenge in use of ICT systems					
iv.	Insufficient funds hinder continuity of system operations					
v.	Poor implementation and deployment of the systems have created problems on the business operations					
vi.	ICT security threats area challenge in use of ICT systems					

20. According to you, what are the possible solutions to the above challenges?

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<<<<END>>>>

Appendix II: The Budget

ITEM	COST (KSHS.)
<ul style="list-style-type: none"> Proposal Development <ul style="list-style-type: none"> Printing of 30 pages@ ksh. 10 300.00 Reproduction 5 copies@ ksh 90 450.00 Binding 5 copies @ KShs 50 250.00 Travelling expenses and subsistence 4,000.00 Miscellaneous expenses 7,000.00 	
Data collection	
<ul style="list-style-type: none"> Books and reading material 5,000.00 Data collection, analysis and computer runtime 8,000.00 Photocopying 2100.00 	
GRAND TOTAL	27,100.00

Appendix III: Time Plan

Time Frame

Star- Finish Duration

Phase	Description	Number of weeks											
		1	2	3	4	5	6	7	8	9	10	11	12
1	Data collection	X	X	X									
2	Data analysis				X	X	X						
3	Result writing							X	X				

[illegible]