

**IMPACT OF ADOPTION OF INFORMATION COMMUNICATION TECHNOLOGY
APPLICATIONS ON SERVICE DELIVERY ON POSTAL AND COURIER SERVICES
IN KENYA- A CASE OF MURANG'A COUNTY**

BY

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**A RESEARCH DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE AWARD OF MASTERS IN BUSINESS
ADMINISTRATION, KCA UNIVERSITY**

NOVEMBER, 2015

DECLARATION

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

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ABSTRACT

Information and Communication Technology (ICT) application has been adopted by many organizations in the world for the main purpose of enhancing efficiency and effectiveness in work logistics. The application is viewed in terms of e-commerce, mobile phone applications and Website technology. This enhances service delivery for better performance. ICT related infrastructure which encompasses computers and software's which are changing the way individuals and the greater society work and transact business. The current study focused on establishing how the ICT applications have impacted on the Kenyan Postal corporation and courier service provider. It is not clear to what extent this organization has adopted ICT applications neither is it clear what this adoption has impacted on the organization. The study adopted a descriptive research survey. The study's target population was all the customers who currently rented postal boxes from the postal and courier services in Murang'a County. The study used census approach to select 230 respondents from the ten Postal Corporation of Kenya sub-offices in Murang'a County and six courier services who had rented boxes. Primary data was collected through use of closed ended questionnaire. Data analysis was done using descriptive inferential statistics, by means of measures of central tendency, frequency and percentages. Regression analysis was used to establish the relationship between the Dependent (Quality of service delivery by Courier and Postal service provider) and Independent (ICT Applications adopted by the service provider) variables. Data will be presented both graphically and in tabular forms. The findings revealed a positive significant relationship between use of E-commerce and quality of service delivery. In contrast there was a negative significant relationship between use of mobile phones and quality of service delivery. ICT adoption had a negative though insignificant influence on quality of service delivery. There is need to sensitize on the use of E commerce so as to improve the quality of service. The level of ICT adoption ought to be evaluated as such to ensure there is maximum benefit as compared to the negative influence.

Key words: ICT adoption, E commerce, Mobile applications.

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OPERATIONAL DEFINITIONS OF TERMS

E-Commerce: This is the transmission of good or services through the use of electronic Media (Donnelly, 2011).

ICT facilities: Application of computer based computer based tools in organization communication (Milken Exchange on Education Technology, 1999).

Mobile Phone Application Programs designed on mobile phones plat forms as aid to communication (Kim, 2000).

ABBREVIATIONS AND ACRONYMS

CAK	Communication Authority of Kenya
EMS	Expedited Mail Services
GDoP	Geneva Declaration of Principles
ICT	Information and Communication Technology
IPC	International Post Corporation
ISIC	International Standard Industrial Classification
KCA	Kenya College of Accountancy
KP&TC	Kenya Post and Telecommunications Corporation
PCK	Postal Corporation of Kenya
SPSS	Statistical Package for Social Sciences
UPU	Universal Postal Union
USO	Universal Service Obligations

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

Postal services have existed for over two thousand years and have historically been critical to the development of nations. For instance, the Roman postal service, the *cursus publicus*, used a network of messengers carrying mail up to 80 kilometers per day. The modern postal service dates back to 1840 when the stamp was introduced in Great Britain (World Bank Group, 2004). Postal Services were nationalized all over the world and integrated into state administrations with the emergence of the modern nation-states. On the nationalization of postal services, it became inevitable to regulate international postal activities as part of agreements between national governments. This saw the creation, in 1874, of the Universal Postal Union in Bern, Switzerland which is still in existence to this day (Magdzicka, 2008).

Similarly, the idea of couriers and courier services has been around almost as long as civilization, with rulers in antiquity using couriers as a means to make new laws. Courier services involve transportation of documents and parcels with the following characteristics; speed, international, local, door to door, reliable and secure. Courier markets can be described through courier, express parcels, freight and logistics. Bessant *et al.*, (2005) stated that a courier service is an organization which offers special delivery of packages, money, documents or information. Courier services usually boast faster delivery times than any alternative method of transportation documents, and many services in the modern world rely on them.

Generally, postal and courier services are associated with delivery of packages in terms of letters and parcels. The scope of postal and courier services consists of pick-up, transport and delivery services of letters and packages, whether for domestic or foreign destinations, as

rendered by service providers. A differentiating aspect between postal offices and courier providers is that whereas postal offices rely on a national administration structure, courier service providers vary in terms of their administrative structure, and are normally private operators. Again, postal offices offer counter services such as sale of postage stamps, handling of registered letters and parcels, and other services such as mail box rental. Nonetheless, the distinction between postal and courier activities is highly interesting as it is based more on the provider of the service than the activity itself. This is a factor corroborated by The United Nations International Standard Industrial Classification, Rev. 3.1 (ISIC), which breaks the “post and courier activities” sector (group 641) down into “national post activities” and “courier activities other than national post activities” (World Bank, 2014).

Basically, the postal and courier service stream consists of parcel collection, input sorting, organize the movement of mail (global area transportation), output sorting, and distribute mail. The complexity of the process, therefore need to be assisted by ICT to ensure that the correct parcel can be received by the customer on time. It is notable that in the past, the postal industry used to involve physical transportation of physical communication, like package and mail delivery (Grunert and Sebastian, 2000). However, the postal and courier industry has evolved to include traditional post, courier services, freight services and e-services in recent years. Emerging technology based on the convergence of telecommunications, broadcasting and publishing has and will continue to change the landscape of physical communications globally. Therefore, postal organizations nowadays, regardless of their sizes face with the challenges dealing with the new technologies; with operating in the same way as private corporations, understanding what products are profitable and which are not, and dealing with almost constant change.

1.1.2 Postal and Courier Services in Kenya

The history of postal services in Kenya dates from the colonial era. The Kenyan postal service has its origins in the mail system created by Britain, the colonial power, to serve sub-Saharan British East Africa, constituting of Kenya, Uganda and Tanzania. The combined East African postal service for the three territories was consolidated into a single postal union in 1933. Up to 1977 when the East African community disintegrated, the East African Posts and Telecommunications Corporation controlled the communication business. After the demise of the East African Union and its regional postal service in 1977, the government controlled Kenya Post and Telecommunications Corporation (KP&TC) emerged as the country's national postal service. In 1998 the Kenya Posts and Telecommunications Corporation was split into three independent entities in preparation to liberalization of the communication sector. Postal Corporation of Kenya (PCK) was formed through an Act of Parliament and the communication sector was liberalized.

The Post office fully supports the communication sector by availing postal services at almost every sub-location in the country. However, the following considerations do influence the distribution and classification of post offices: Population it serves: at least three thousand per office; Number of private box renters: at least a demand of fifty renters; Commercial activities of the area: the population is active economically; Volume of mail it handle: there is traffic of mail; Infrastructure: availability of roads, rail, sea, air. The Postal Corporation of Kenya offers four main service streams as follows: mail (International, registered, speed post, franked, advertising, postage prepaid, parcel); financial (Ordinary money order, express money order, interstate money order, speed cash, and electronic funds); and agency (savings and withdrawal, paying pensioners, and bill payment) (Ahmed, 2013). The postal corporations have also become more

innovative by adding none traditional services to their portfolio. Some of the nontraditional services are agency services and Huduma services in Kenya.

In pursuit of provision of postal services, PCK operates a network of 31 Head Post offices 472 departmental postal outlets and 204 postal agencies (sub-post offices). The service provided letter post, parcels, expedited mail services (EMS), money orders, third-party payments and receipts (agency services), electronic money transfer services, and lottery tickets. Posta employed roughly 4,114 postal workers in 2009. The main labor union representing Kenyan postal workers is the Communication Workers Union of Kenya (Postal records, 2009).

Posta Kenya effectively maintains a monopoly on the delivery of letter mail. Exclusive services in the postal sector are provided by the Postal Corporation of Kenya (PCK), which is designated as the Public Postal Licensee and the body charged with the responsibility of providing universal postal services. Consequently, mail delivery expectations stipulated by CAK for postal services range from one to six days, depending on the day of posting and whether the delivery is to be made in an urban or rural area. Mail posted for delivery before noon within the same urban area is expected to be delivered on the same day. Mail posted after noon for delivery within the same urban area is expected to be delivered the next day. The same is true for letters sent from one urban area to another. Urban to rural delivery standards are established at three days, and rural to urban standards at five. In accordance with these standards, PCK is considered in compliance with its universal service obligation if it reaches these standards at least 65 percent of the time.

Again, to fulfill the Universal Service Obligations (USO), PCK has been granted exclusivity in certain services (reserved services) including: acceptance and delivery of postal

articles weighing up to 350 grams; provision of private letter-boxes and bags; printing and issuance of postage stamps; financial remittances; and equity participation. Kenyan law requires that private operators handling letters of up to 350 grams charge at least five times Posta's basic PCK letter rate. All firms offering postal or courier services are required to obtain licenses from the Communication Authority of Kenya (CAK). Licenses are valid for 15 years, as long as the licensed firm pays the annual fee. Fees for private operators range from Ksh 22,500 (US\$290) to Ksh 450,000 (US\$5,800). On the other hand, Postal Corporation of Kenya must pay an annual license fee of Ksh 3,750,000 (US\$48,300).

Nonetheless, both the Postal Corporation of Kenya (PCK) and other courier operators provide: courier services (faster and more efficient means of delivery mainly same-day or overnight); parcel services (catering for all postal items other than letters); Direct mail marketing services (passing message to a larger audience-customer communication, distribution of catalogues, orders, statements etc.); Postal financial services (financial transfers particularly to help the rural folk from urban able or active heads); Electronic and hybrid mail services (use of modern technology to improve delivery speed); Distribution of publications (reliable system to distribute newspapers, magazines and journals); and Agency services (to provide profitable value added services as agents for paying taxes, municipal fees, electricity, motor licenses and pensions amongst others. Notably, there are nearly 150 postal and courier firms that currently operate within Kenya in accordance with the Kenya Communications Act of 1998. As of 2008, there were 14 licensed international operators and well over 100 licensed operators within the country (Postal Consumer Council, 2012). This growth of courier firms is testament to the liberalization of the once monopolized communication market in Kenya (Postal Records 2014).

1.1.3 Information and Communication Technology (ICT) Applications

Information and communication technology (ICT) applications that have been applied in Postal Corporation includes; E-commerce, Use of mobile phone application aiding delivery, and Use website applications, these have been made possible by ICT related infrastructure which encompasses computers and software which are changing the way individuals and greater society work, operate and transact business. For instance, the internet has opened up the world. In its formative development stage, the internet was initially designed to connect separate networks, allowing them to communicate with each other. What then occurred was a super framework of networks that could store and transmit digital media almost instantaneously allowing all linked systems to communicate with each other (Castells, 2001).

Internet users can send and receive e-mails or log on to a website from anywhere in the world, thus being able to harness communication ability. For organizational users, the internet has made communication to be relatively easier which has facilitated greater cooperation within and amongst enterprises. Consequently, organizations are employing the internet to drive considerable cost savings by improving asset utilization, enhancing process efficiency and boosting productivity (Cognizant, 2014). This in turn leads to benefits such as increased return on ICT investments; reduce time to market, and opening up of additional sources of revenue from new business models and opportunities.

E-government is one of the benefits accruing from ICT development in both developed and developing markets. E-government enhances the ability of government to deliver services in a faster, effective and economic manner. Another positive is that through e-government, governance is made more transparent and responsive through citizenry participation, thus resulting to reduced corruption incidence (Universal Postal Union, 2010). It is based on this

premise that the link between ICT's and socioeconomic development is widely accepted. The Geneva Declaration of Principles (DoP) states that 'Under favorable conditions, these technologies can be a powerful instrument, increasing productivity, generating economic growth, job creation and employability and improving the quality of life of all' (Universal Postal Union, 2010).

1.1.4 Concept of Service Quality Delivery

Service delivery is an important concept in every organization; it determines whether the business will continue surviving or otherwise, service delivery in postal corporation encompasses the transmission of letters, data and parcels. Effective Service delivery will be attained by ensuring that factors such as time and timelessness, completeness, courtesy, consistency, accessibility, convenience, accuracy, and responsiveness are continuously sustained. This will ensure Customer satisfaction, lower costs of delivery, enhanced Firm image and reputation.

There is need to enhance quality service within corporations since it influences customer satisfaction which has a relationship with both customer perceptions and expectations. According to Oliver (1997) quality service delivery is attained through customer comparison between customer expectations and perceptions on how they are served within a company. Therefore, when the perceptions exceeds expectations then the service will be excellent and if expectations are lower than perceptions then the services will be considered substandard. Gibson (2005) argued that a satisfied customer will become loyal and spread a positive word through the word of mouth. Moreover, an understanding of what promotes customer satisfaction increases the chances of better service delivery amongst the customers since the service provider understands the needs of all the parties involved.

Zeithmal, Parasuram, Malhotra (2002), studied service quality delivery through websites, a critical review of extant knowledge. The study showed that service delivery through application of websites is a good strategy for success. The study recommended that management of companies using website services to continuously evaluate their services as such to ensure that they maintains quality services which will ensure they attains superior performance.

Pathak *et al.*, (2010) studied the role of ICT for Improved Public Service Delivery in Papua New Guinea. Results of the study found that e-governance has a role in improving customer service delivery and satisfaction among the members of the public. Moreover, the study found that there is a disconnect between public expectations and quality of service received from the public sector. Due to deteriorating levels of service delivery there was need for faster implementation of e-governance as such to improve the level of service delivery among the residents.

In Kenya the government through the Ministry of Devolution has established Huduma centers which is geared towards provision of government services easily rather than knock from office to office. Through these procedures the service delivery has been made easy since members of the public can be guided with ease where to look for the specific service if their need cannot be met by Huduma centers.

1.2 Problem Statement

Information communication technology (ICT) has become the vital word in most business and non-business organizations. It is expected to positively impact on the firm's performance by enhancing service delivery which in turn improves on customer satisfaction. Developments in ICT has had a considerable influence in the way postal and courier services providers have operated globally and locally, especially since liberalization of the communication sector.

Despite this expectation the rural regions seem to still face challenges that are expected to have been solved by the advent of ICT. These regions still faces such challenges s delays in delivery of services, inability to track parcels among others. This is evidenced through the Postal Consumer Council (2012) Report which indicates that Postal Corporation of Kenya (PCK) is apparently looking at working with outside firms to upgrade mail and courier services and move into modern financial businesses.

Before liberalization took effect in the postal sector, there was very little if any technology within postal activities because postal service operations were mostly manual. There are still complaints from consumers about delays, poor customers handling and late parcel deliveries (Kimani, 2014). The main activities of postal business were collection, transport, manual sorting and manual distribution of mails and registered parcels at specific centers within urban and peri-urban areas. However, with digitization accompanying ICT developments, technology is having a considerable impact on postal service provision. According to Nader (2004), global decline in letter mail volume growth as reported by the Universal Postal Union (UPU) and the International Post Corporation (IPC) has been due to the growth in use of email and the internet by consumers. Consequently, the Universal Postal Union (UPU) created the term “e-post” to characterize the fact that the ICT’s can and are being used to generate new postal business in the form of new services and perhaps even new postal business models (Universal Postal Union, 2004).

Ebenezer (2015) highlighted a diminishing role of postal services in Ghana due to technology impacts; a similar case is not absolute in Kenya’s environment without empirical evidence to support such a notion. It is therefore imperative to develop an evidence-based approach for postal and courier service providers to know the impact of developments in ICT on

market development in light of competition and convergence of postal and courier services market (Magdzicka, 2008). However, today almost every postal enterprise, irrespective of whether it operates in a protected or open market, or whether it operates as a government corporation or as a private company, or whether it operates in urban or rural environment, is keen to use ICTs applications in order to become more efficient, accessible and profitable.

Otiso, Chelangat and Bonuke (2012) showed that there is a positive significant influence on service quality through use of ICT by KPLC. Pathak *et al.*, (2010) showed a positive significant relationship between service delivery and implementation of e-governance. Kaliannan, *et al.*, (2009) examined Malaysian case of ICT context in the public sector. Results of the study found that the success of ICT related service delivery will be influenced by the legislative, procedural managerial and organizational imperatives. Therefore, there must be clearly defined policies support the success of ICT projects in the public sector.

It is apparent that organizations have embraced ICT applications. However, with all these ICT applications in place and in use by Postal and courier service providers, there is hardly any research information on its impact on quality service delivery to clients. Therefore, there is need to gain an understanding of the impact of ICT applications on quality of service delivery by postal and courier service providers, especially in rural Kenya such as Murang'a County. It is against this backdrop that this study assessed the impact of ICT applications on quality of service quality of postal corporation and courier services in Kenya.

1.3 Objectives of the Study

The general objective of the study was to examine the impact of ICT on postal and courier services on performance in Murang'a County. The specific objectives were as follows:

- i. To explore the extent to which ICT has been incorporated in service delivery in postal and courier service organizations in Murang'a County.
- ii. To establish in what ways e-commerce has impacted on performance in postal and courier service organizations in Murang'a County.
- iii. To determine how the use of mobile phones has impacted on performance in the postal and courier service organizations in Murang'a County.

1.4 Research Questions

The study sought to answer the following questions:

- i. To what extent has the postal and courier service provider incorporated information and communication services in their service delivery?
- ii. In what ways has e-commerce impacted on performance in postal and courier service organizations in Murang'a County?
- iii. How has the use of mobile phones impacted on performance in the postal and courier service organizations in Murang'a County?

1.5 Significance of the Study

The study would be important to policy makers, leaders and society in general as it will provide an insight into how developments in ICT may be embraced in postal service offering, especially in a rural set-up such as Murang'a County. It is of note that digital inclusion policies for certain developing countries have been anchored on ICT developments through transforming rural post offices into ICT access points. To be able to embrace such a transformation, an impact assessment of current ICT use on postal service provision is a pre-requisite. At the same time, stakeholders such as government, consumers and operational staff in postal and courier

companies would be able to draw on this study to address the role that postal offices can play in accelerating solutions to their service capabilities. Governance and an enabling institutional framework is essential in successful adoption and use of ICT resources to strengthen and improve service provision. Further, it would add to the existing knowledge on the relationship between ICT's and postal service provision as a basis for further studies.

1.6 Scope of the Study

The study was primarily conducted in Murang'a county, and draw responses from postal officers, courier service operators and the postal users. Primarily, the study aimed to address the following: postal service staff interaction with ICT's in service provision; cross impact of ICT use amongst postal and courier service operators; and public users' level of satisfaction with standard of service delivery at postal stations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter outlines the study's literature review and related theoretical review with a view to respond to the objectives of the study. These include extent to which ICT has: been incorporated in service delivery in postal and courier services; enhanced service quality in postal and courier service operators and impacted on cost factor in the postal and courier services in Murang'a County.

2.2 Theoretical Framework

The study was guided by a model and two theories namely: The Domestication Model, Development Theory, and Time-efficiency Theory.

2.2.1 The Domestication Model

This model as proposed by Silverstone, Hirsch *et al.*, (1992) attempts to explain the nature of how households and the public community interact with technology on the onset. Domestication is a tool to allow the researcher to follow the process of cultural integration of artefacts from the outside world into the home without losing sight of the physical artefacts (Berg, 1996). (Silverstone, Hirsch *et al.*, 1992) suggest domestication comprises four elements of symbolic and cultural work: appropriation (the technology is brought into the home setting), objectification (the way the object is fitted into the space and time structure of the home), incorporation (the everyday usage) and conversion (fitting the object to the wider social and cultural surroundings). These are not discrete, but inter-linked facets of the biography of a domestic technology and the

home environment. Although these processes would appear to relate primarily to the initial adoption of a product, they continue as use, the household and technology change.

Other researchers have taken up the ideas of domestication as a general approach to analysing the appropriation of a generic technology to a specific setting, whether it is the home, an organisation or even a country. Lie and Sorensen (1997) use domestication to emphasise the practical and symbolic work that is done in appropriating technologies in many situations. As appropriation occurs, local routines are constructed, and general scripts (Akrich, 1992) or ways of doing things are transformed as the technology creates new opportunities, but also imposes itself on the existing organisation. There is a two-way process of enabling and disabling, done on the one hand by the strategies of designers and marketers trying to shape and promote certain uses and meanings (Woolgar, 1991), and the counter strategies of users appropriating and redefining the technology both in relationship to the technology, and between each other. Domestication does not imply taming, but rather “stable truces that can be broken” (Lie and Sorensen, 1997): re-domestication can and often does occur (e.g. telephone, screen activities).

2.2.2 Development Theory

Development theory attempts to explain qualitative changes in the structure and framework of postal and courier services in the society, that help the society to better realize its aims and objectives. Development is a process of social change, not merely a set of policies and programs instituted for some specific results. According to this theory, the basic mechanism driving social change is increasing awareness leading to better organization of courier services. Life evolves by consciousness and consciousness in turn progresses by organization transfer and receipt of goods and services.

When society senses new and better opportunities for progress, it accordingly develops new forms of organization to exploit these new openings successfully. The new forms of organization are better able to harness the available social energies and skills and resources to use the opportunities to get the intended results via efficient delivery. Development is governed by many factors that influence the results of developmental efforts. There must be a motive that drives the technological change and essential preconditions for that change to occur. The motive must be powerful enough to overcome obstructions that impede that change from occurring. Development also needs resources such as capital and technology and the availability of supporting infrastructures. The pace and scope for ICT development varies according to the stage that society is in during the developmental process. The three main stages of ICT evolution and development are physical, vital (the term vital refers to the dynamic and nervous social energies of humanity that propel individuals to accomplish) and mental and all these three have their own unique characteristics.

2.2.3 Time-efficiency Theory

Time efficiency theory assumes that firms are clients whose behaviors are aligned with the objectives of their customers in a timely manner. The theory argues and looks at a different form of commitment for postal and courier firms drawn from organizational theory. Postal and courier firms are viewed as loyal to the customers' delivery interests in achieving high performance (Bolt, 1998). The dominant motive, which directs courier firms to accomplish their job, is their desire to perform excellently. Specifically, workers are conceived as being motivated by a need to achieve, to gain intrinsic satisfaction through successfully performing inherently challenging work, to exercise responsibility and authority, and thereby to gain recognition from peers and bosses and customers.

The theory also argues that an organization requires a structure that allows harmonization to be achieved most efficiently between management and field team (Bolt, 1998). In the context of firm's leadership, this situation is attained more readily if coordination is upheld. This leadership structure will assist them to attain superior performance to the extent that the management exercises complete authority over the company and that their role is unambiguous and unchallenged. In this situation, power and authority are concentrated in teams. Hence, the expectations about corporate leadership will be clearer and more consistent both for subordinate managers and for other members of the corporate board (Kimani, 2014). Thus, there is no room for uncertainty as to who has authority or responsibility over a particular matter. The organization will enjoy the benefits of unity of direction and of strong command and control.

2.3 Empirical Review

In this section past studies will be reviewed in relation to the impact of ICT on the quality of service delivery. The section will be grouped into ICT and service quality, quality rater factor, service quality and customer satisfaction, service quality, firm image and reputation.

2.3.1 ICT Adoption and Quality of Service Delivery

Kaliannan, Raman and Dorasamy (2009) studied ICT in relation to service delivery in Malaysian public sector. The study used a case study design to evaluate the level of ICT adaptation in the public sector. Results of the study found that ICT adoption is influenced by political will, national ICT policy strategies, ICT strategic plans, infrastructure, human capital, and research and development strategy and environmental of trust and confidence. Although there were various government ICT projects in place, ICT adoption was hampered by legislative and regulatory barriers, budgetary constraints, work culture, low levels of technological adoption, service delivery system and level of integration and consistency among the key players.

Nchunge, Sakwa and Mwangi (2013) assessed the level of ICT adoption among education institutions in Kiambu County. The study adopted descriptive research design in order to answer the research questions. Correlation analysis and regression analysis revealed that there was a positive and significant relationship between ICT adoption and high infrastructure cost. In addition, the study revealed that the level of ICT adoption was demeaned by low levels of internet connectivity in rural schools. The study recommend that to increase the level of ICT adoption in public secondary schools then the relevant infrastructure ought to be provided in these schools, ICT infrastructure meant for school use ought to be waived off the tax as such to hasten the rate of ICT adoption in public secondary schools. Nchunge et al argued that the higher the levels of ICT adoption the better the quality of service delivery.

Fadun (2013) investigated the impact of ICT adoption on performance of insurance companies in Nigeria. Through the use of both correlation and regression analysis the study found a positive and significant relationship between ICT adoption and quality of service delivery which in turn improved the profit levels in the insurance sector.

Information and Communication Technology (ICT) are modern tools and equipment's that are used for the processing, storing, disseminating and utilization of information. According to Ogbomo, *et al* (2012), ICT is concerned with the technology used in handling, acquiring, processing, storing and disseminating information. ICT covers any product that will store, retrieve, manipulate, transmit or receive information electronically in a digital form, for example: personal computers, scanner, printers, digital television, email and robots It is also concerned with the way these different uses can work with each other.

In this sense, ICTs are composed of an interrelated and interdependent mix of people, their social and work practices, the norms of use, hardware and software, the support systems that aid users, and the maintenance systems that keep the ICTs operating. Again, Kling (2000) opines that ICTs are sometimes referred to as “technologies of freedom” because of how they extend the capabilities of people and organisations. It is common for many technology-centered accounts of new ICTs to emphasise the ways in which they enable new kinds of actions that were previously more costly, difficult or impossible, e.g. access to more data, instant communication, etc. Organisational informatics researchers have found that ICTs can restructure workplaces through the ways in which they are incorporated into the everyday lives of those who use them. ICTs enable people and organisations to reduce some of the communicational restrictions of space and time in ways that were incomprehensible in the not too distant past.

2.3.2 E commerce and Quality of Service Delivery

Zhang and Cao (2012) studied the service delivery through the use of e-commerce. Specifically the study explored ecommerce representative model. The model aims at showing the causal effect of e-commerce and customer behaviour. The study hypothesized that there are 14 attributes of e-commerce which were website characteristics, inter and intranet connectivity, the web design, customer assurance of provision of care if need be, reliability of the e-commerce, website environmental characteristics, information processing quality, the level of human computer interaction interfaces, fulfillment, aesthetic and web service quality. Results of the study revealed that e-commerce attributes influenced service quality delivery positively.

Lee and Lin (2005) studied customer perceptions of e-service quality on online shopping. A sample of 297 online consumers was selected through the use of simple random sampling.

Confirmatory factor analysis was carried out to examine the reliability and validity of measurement model while structural equation modeling fitted the research model. Results of the study revealed that both customer satisfaction and service quality are significantly influenced by web site design, reliability, responsiveness and level of human computer interaction interphase. The study recommended that in order to improve the level of service delivery online shops ought to ensure that measures are taken to improve trustworthiness, loyalty of on line related service delivery.

Sobihah, Mohammad, Ali and Ismail (2015), examined the effect of e-commerce service quality on customer satisfaction, belief and loyalty in Malaysian tourism industry. Through the use of confirmatory factor analysis, results of the study showed that there is a positive and significant relationship between e-commerce and customer satisfaction in tourism sector.

2.3.3 Use of Mobile Devices and Quality of Service Delivery

Adewoye (2013) examined the impact of mobile banking on the service delivery among commercial banks in Nigeria. Questionnaires were used to collect primary data from 140 respondents who were drawn through simple random sampling. Results of the study revealed that through mobile adoption the quality of service delivery has improved through reduction of transaction cost, saving on time, quick transaction alert and improved security of transactions.

Salim and Rashid (2011) examined the relationship between customer satisfaction and mobile banking adoption in Kenya. Primary data collected through the use of questionnaires was analysed using correlation, regression and factor analysis. Although, they promoted service delivery the customers were concerned about security, reliability and authenticity of mobile technology thus they adopted the innovation with several reservations. To sustain the level of

mobile adaption in the financial sectors innovative means of addressing the shortcoming facing related with security which has consequently enhanced adoption of mobile related services.

2.3.4 Service Quality and Customer Satisfaction

Every firm aspires to continuously enhance their firm image by thoroughly working on anything and everything that improves firm reputation. Service quality is one major building block that is a vehicle toward firm reputation and subsequent firms' goodwill and firms' corporate image. Postal corporations' objective of maximising on ICT applications is to eventually meet and even exceed the expectations of customers and hence enhance reputation and their firms' corporate image.

Duygun, Menten and Kubas (2014) studied the relationship between corporate reputation and service quality. Simple random sampling was used to select 384 respondents who were consumers of fast moving consumer goods. Correlation analysis was used to test for the significance relationship between corporate image and service quality. The study findings found a positive significant relationship between corporate image and service reputation. Since the current study was done in the marketing environment the current study seeks to fill a gap on service provision of service among postal and courier services, it will be different from previous studies which are more geared towards marketing of manufactured products.

Cretu and Brodie (2005) examined the relationship between brand image and company reputation, a customer value perspective among small manufacturing firms. Structural equation modelling was used to analyse the primary data which was collected through the use of questionnaires. Results of the study found that there was a positive significant relationship between brand image and customer perceived value from the company. Similarly, there was a

significant relationship between company reputation and customer perceived value. Therefore, the providers of postal and courier services in Murang'a County should strive to provide quality services which will create good image and improve their reputation in the service provision.

Service delivery is an important concept in every organization; it determines whether the business will continue surviving or otherwise, quality Rater factors facilitates the determination or measurability of the effectiveness of customer service. Zeithaml (1990) argues that such enables the organization to sort and arrange factors depending on their relative importance. The major focus is to diminish the customer's perception gap by improving continuously so as to meet and even exceed customer expectations. Service delivery in postal corporation encompasses the transmission of letters, data and parcels. Effective Service delivery will be attained by ensuring that factors that relate to quality of services such as reliability, responsiveness, assurance, empathy, tangibility (Zeithaml, 1990), time and timelessness, completeness, courtesy, consistency, accessibility, convenience, accuracy, and responsiveness are continuously sustained. This will ensure Customer satisfaction, lower costs of delivery, enhanced Firm image and reputation.

Postal and courier companies the world over are under pressure to deliver quality public services that are responsive to peoples' needs, choice and access. This has called for adoption of modern technologies to re-engineer work processes and improve on communication channels (Siambi, 2008). In this regard therefore, ICT applications is increasing becoming an important resource with the potential to transform the way people live, transact business and interact as individuals and with organizations and at the same time the way in which organisations do business. ICT applications therefore enables organisations reduce the customers perceived or real

appearance gap through enhancing such factors as competence, courtesy, credibility, security, accessibility, communication, reliability and responsiveness.

In fact, in coordination with government agencies and regulators, postal and courier service operators have adopted ICT tools as a means of delivering of informational services 24 hours per day, seven days per week (Norris and Llyod, 2006). Kling (2000) suggests that the cultural and institutional contexts in which ICTs are embedded influence how they are implemented and used, and the range of consequences that they have for organisations and other social groupings.

Customer satisfaction refers to the state of reaction by a customer to the level of fulfilment they attain from a product or a service (Kim, 2004 citing Oliver 1997). Service quality is therefore imperative in determining customer satisfaction. ICT applications play a key role in ensuring that services offered by Postal Corporation are enhanced to a level where customers are satisfied with.

Pairot (2008) postulates Customer's satisfaction as the company's ability to fulfill the business, emotional, and psychological needs of its customers. However, customers have different levels of satisfaction as they have different attitudes and experiences as perceived from the company. Customer's satisfaction is affected by the importance placed by the customers on each of the attitudes of the product/service. ICT applications make customers to vary their levels of satisfaction greatly.

A study by Kim, (2000) on mobile telecommunication services established that, Service quality has been measured by call quality, pricing structure, mobile devices, value-added services, convenience in procedures, and customer support. This, equally applies in the case of

postal and courier services, customers want the company to maximize such technological innovations to their advantage and benefit.

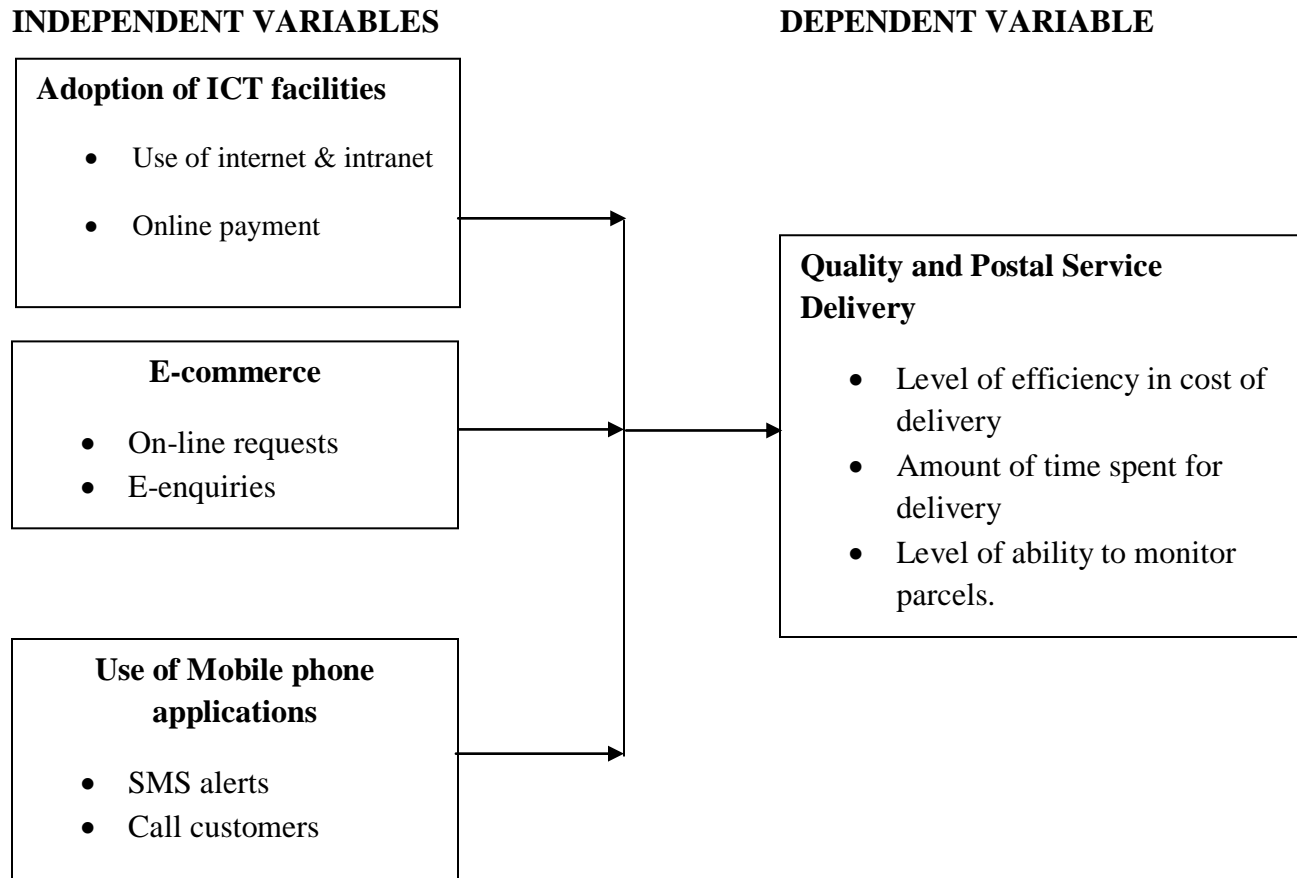
The findings above seems to resonate with findings of a study by Ibrahim et al (2006), which revealed six composite dimensions of electronic service quality, including the provision of convenient/accurate electronic banking operations; the accessibility and reliability of service provision; good queue management; service personalization; the provision of friendly and responsive customer service; and the provision of targeted customer service. It is important to note that ICT applications could easily be embedded to better most of these variables that determine the level of customer satisfaction.

Customers aspire to services that exceed their expectations, and always customers will continue looking for this kind of search that makes them satisfied, Ankrah (2013) notes that most of the prominent societal, behavioral and technological tendencies affecting the postal ecosystem were coupled with the ongoing improvement in communication and media trends and there has been progressive shifts in communications moving from the physical to the digital world. The more the companies adapt ICT applications the more customers are satisfied.

2.4 Conceptual Framework

Mugenda and Mugenda (2003), define a conceptual framework as a hypothesized model identifying the concepts under study and their relationships. In this framework, there are certain factors underlying ICT applications. These factors include use of internet facility, use of mobile phone facility, and maximization of corporate websites. This constitutes the studies independent variables while Courier and Postal Service Delivery constitute the studies dependent variable as conceptualized in the framework below:

FIGURE I
CONCEPTUAL MODEL



2.5 Hypothesis of the study

The study will be guided by the following hypothesis:

H1. The postal corporation has to a large extent incorporated ICT applications into its service provision.

H2. The E-commerce incorporated by postal corporation has impacted service delivery positively.

H3. The use of mobile phone application by postal corporation has a positive impact on service delivery.

2.6 Operationalization of the Variables

TABLE 1

Operationalization of the Variables

Variable	Measures
Level of quality of postal and courier service delivery	-Amount of time spent in service delivery -Level of ability of service provider and customers to monitor parcel movement -Number of customer complaints
Adoption of ICT facilities	Use of internet and extranet Use of online and mobile payments
E-commerce	-Online requests (e.g. through emails) -E-payment -E-procurement
Use of Mobile phones	-Use of SMS alert -Use of Call customers

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.1 Introduction

This section discusses the research design, target population, sample and sampling techniques. In addition, it examines the research instruments, reliability and validity, data collection methods and procedures and data analysis and presentation techniques.

3.2 Research Design

Research design is a plan of action to be carried out in connection with the proposed research work. This study employed descriptive survey research design, in which data will be collected to fulfill objectives of the study. The major considerations in designing the study shall include the determination of the subjects from who required data would be obtained, the data collection techniques, tools and instruments that would be used for data collection (Postal Consumer Records, 2014).

The choice of descriptive survey research was motivated by the by the fact that a survey research provides for a suitable instrument for collecting a large amount of data on similar data items over a short period of time. This facilitates gaining insight into the situation as it is, within a very short time without elaborate and often expensive preparations or long waiting. Secondly, survey studies have strong data reliability. This provides information on the situation as it was at the time of the study.

3.3 Target Population

A population is defined as all members of a real or hypothetical set of people, events or objects to which a researcher wishes to generalize results of the research (Mugenda &

Mugenda, 2003). The study target population were all the people who have rented postal boxes in Murang'a County for a period of not less than a year. They must be living and/or working in Murang'a County. There are a total ten Postal Corporation of Kenya sub-offices in Murang'a County. These people are likely to use both Postal and courier services of Murang'a. According to the Murang'a post Office records (2014), there are 230 rental postal boxes. Therefore, the population of study is 230.

TABLE 2

Target Population and Sample

	Area/Name of Postal Corporation sub office/branch	No. of Boxes rented to individuals
1	Murang'a	30
2	Maragua	18
3	Kangema	14
4	Kenol	23
5	Kangari	30
6	Kiriani	33
7	Sabasaba	28
8	Kahuhia	18
9	Kahuro	21
10	Kigumo	15
		230

Source (Postal Corporation of Kenya Records, 2015)

3.4 Sampling Technique and Procedures

A sample is defined as a small proportion of the population selected for observation and analysis. By observing the characteristics of a carefully selected and representative sample, one can make certain inferences about the characteristics of the population from which sample is selected. To be considered valid, there has to be an acceptable procedure for selecting the sample (Mugenda & Mugenda, 2003). The current study used census

sampling technique since the study population is relatively small. This involved all customers who currently rent postal boxes within Murang'a County.

3.5 Instrumentation and Data Collection Procedures

A questionnaire was the main tools for collecting primary data. The questions in the questionnaire will be semi-structured partly to give the respondent (public user, postal and courier operators) easy time in responding and partly to allow them to express their views not captured in the structured sections. The questions were formed based on Likert scale which will enable the respondents to express their opinion on the study variables. The questionnaires were administered on a drop and collect later basis to allow the respondent's time to fill in. This data collection exercise was done in a period of one week.

3.6 Validity and Reliability of Research Instrument

Validity is the extent to which an instrument measures what it is supposed to measure and performs as it is designed to perform (Kiambati & Itunga, 2014). Content validity will be determined in this study. Content validity refers to the appropriateness of the content of the instrument (Kiambati & Itunga 2014). Ng'ang'a *et al.*, (2008) posits that validation is a matter of determining if the content that the instrument contains is adequate and checks the format of the instrument. This is important to establish the level of accuracy and truthfulness of the research. In order to ascertain face validity, the researcher designed the instruments and handed to the supervisors KCA University for review and corrections if any before it is finally used.

Orodho (2005) states that reliability of a measurement concerns the degree to which a particular measuring procedure gives similar results over a number of repeated trials. To test the reliability of the instruments the study will use test-retest technique. Test-retest reliability is measured by administering a test twice at two different points in time (Ng'ang'a *et al*, 2008). According to Orodho (2004) the number in the pre-test should be 10 percent of the entire sample.

A pilot study was conducted among 20 users of post office letter boxes in Thika post office, which hails from Kiambu County. According to Mugenda and Mugenda (2009) there is need to pre-test a research instrument in order to enhance its validity and reliability. Through pilot study the researcher was guided on areas to change the research instrument in order to ensure it answers the research questions. Data collected in the pilot study will be used to test reliability and validity. According to Kothari (2007) a research instrument is valid if it can consistently yield similar results when administered to different group of respondents. Reliability was tested through the use of Cronbach's Alpha coefficient which will also serve as a test for internal consistency. According to Nullay (1978) as cited in De, Vaus (2002) Cronbach's Alpha coefficient ranges between 0-1 and a reliable research instrument ought to have a coefficient greater than or equal to 0.7. Both the university supervisor and a statistician helped in determining validity and reliability of research instrument, the former gave an expert opinion and the latter calculated the reliability coefficients. The instrument was reliable since it had an overall coefficient of 0.785.

3.7 Data Analysis and Data Presentation

The data collected was analyzed and interpretations drawn based on the analysis. Descriptive statistics will be used in the analysis of quantitative data. The Statistical Package for Social Sciences (SPSS)/ predictive analytic software (PASW) version 21 computer program was used to analyze data whereby the questionnaires were coded and frequency distributions and percentages run.

Descriptive statistics such as frequency and percentages were used to analyze the data. The research also used regression analysis to determine the relationship between the dependent variables (Quality of service delivery by the courier and postal service provider) and the Independent variables (ICT Applications adopted by the service provider). The findings were presented in tables and graphs for easy interpretation. The following regression equation was used;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e \dots\dots\dots(i)$$

α = Constant (constant showing the level of service delivery in the absence of ICT)

$\beta_1, \beta_2, \beta_3$ = Coefficient of the independent variables

X_1, X_2, X_3 = Elements of ICT Application (ICT facilities adopted, Frequency use of e-commerce, Frequency use of mobile phone usage), respectively.

CHAPTER FOUR

ANALYSIS AND FINDINGS

4.1 Introduction

The current chapter presents the study results in relation to the objective. The primary collected through the use of questionnaires was analysed using descriptive statistics such as frequencies, percentages and inferential statistics such as correlation and regression analysis. The chapter is arranged from back ground information, quality of service delivery, and adoption of ICT, use of E commerce and use of mobile phones and inferential statistics to show the fitness of the conceptualised model in chapter two.

4.2 Response Rate

The study sample size was 230 respondents and 220 questionnaires were correctly filled and returned. They formed the study response rate of 95.7. This response was appropriate because Oso and Onen (2009) argued that if the response rate exceed 70% then it is appropriate.

TABLE 3

Response Rate

Sample size	Number	Percent
Correctly filled and returned	220	95.7
Not returned	10	4.3
Total	230	100

4.3 Back ground Information

The study sought to find out the respondents back ground information which included gender, highest level of education attained, mobile phone service provider, access of

internet through the mobile phone, frequency of internet use and frequency of receiving letter or parcels through postal and/ or courier service providers. Both frequencies and percentages were used to summarize the findings as shown in Table 4.

Regarding the respondents gender majority 52.7% who responded were females and 47.3% were males. There was almost an equal gender of those who had sought the service of both postal and courier providers. The highest level of the education acquired by the respondents was secondary (45.5%) followed by 38.2% who had attained diploma or certificate qualification while 16.3% had under graduate qualifications. This implies that the respondents had embraced to undertake formal educational qualification thus they could easily embrace use of ICT facilities once rolled out by postal and courier service providers. The most common mobile phone service provider was safaricom (56.4%) followed by Airtel at 29 %. This implies that safaricom had dominated the provision of mobile phone services in Murang'a County, thus if the either postal or courier services wishes to form strategic alliance with mobile phone provider then they should partner with safaricom.

Further, the study sought to examine the use mobile phones to access internet and majority 92.3% reported that they had accessed internet service through the use of mobile phones. Moreover, 41.8% of the respondents reported that they often accessed internet services, followed 40% with regular access, and 9.1% either accessed it rarely or occasionally. This implies there is good internet penetration in Murang'a County. Both courier and postal services were regularly used by Murang'a County residents as indicated by 54.5% though 32.7% had occasional use of either postal or courier services.

TABLE 4**Back ground Information**

		Frequency	Percentage
Gender	Male	104	47.3
	Female	116	52.7
	Total	220	100
Education Level	Secondary	100	45.5
	Diploma/ Certificate	84	38.2
	Undergraduate	36	16.4
	Total	220	100
Service provider			
Safaricom	Yes	194	88.2
Airtel	Yes	64	29.1
Orange	Yes	16	7.3
Yu	Yes	16	7.3
Internet access via mobile phone	Yes	203	92.3
	No	17	7.7
	Total	220	100
Frequency of internet use	Often	92	41.8
	Regular	88	40
	Occasional	20	9.1
	Rarely	20	9.1
	Total	220	100
Frequency of receiving letters/parcels through postal or courier services	Often	20	9.1
	Regular	120	54.5
	Occasional	72	32.7
	Rarely	8	3.6
	Total	220	100

4.4 Service Delivery in Postal and Courier Services

Customers are always concerned on the quality of services they receives. The study sought to examine the quality of service delivery on services offered by postal and/ or courier firms. Results in Table 5 shows a comparative analysis on the frequency of receiving quality services from either postal or courier services. 30.5% of the respondents

reported that they were accorded above average service by postal corporation, followed by 29.5% who received average services. Similarly, 47.7% of those who sought courier services received above average services while 25.9% were accorded below average services. This implies that in both postal corporation and courier firms they are high chances of receiving quality services.

TABLE 5

Frequency of Receiving Services through Postal or Courier

		Postal		Courier	
		Frequency	Percent	Frequency	Percent
How often do you send and/or receive any letters or send any letters through	Poor	35	15.9	22	10
	Below average	53	24.1	57	25.9
	Average	65	29.5	36	16.4
	Above average	67	30.5	105	47.7
	Total	220	100	220	100

Results in Table 6 shows a comparative analysis on the geographical location of both postal and courier service providers in Murang'a County. Through a five point Lickert scale the respondents were required to indicate their level of rating from poor to excellent. 39.1% of the respondents argued that the locality of postal corporation service outlets in Murang'a County was excellent as compared to 22.7% who rated couriers as excellent. Both postal and courier were rated poorly by only 9.1%. This implies that the nearness of both postal corporation and courier services was within the proximity of the service seekers.

TABLE 6**Rating on Geographical Area**

		Poor	Below average	Average	Above average	Excellent
Postal	Frequency	20	34	47	33	86
	Percent	9.1	15.5	21.4	15	39
Courier	Frequency	20	36	42	72	50
	Percent	9.1	16.4	19.1	32.7	22.7

Further the study sought to examine the respondent rating on the speed of service delivery. Through a five point Lickert scale 54% of the respondents reported that the speed of postal service was excellent while 46.4% argued courier firms had excellent speed. This implies that there were minimal chances of experiencing delays among those who sought the services of either courier firms or postal corporations.

TABLE 7**Rating on Speed**

		Poor	Below average	Average	Above average	Excellent
Postal	Frequency	16	12	26	47	119
	Percent	7.3	5.5	11.8	21.4	54
Courier	Frequency	20	30	42	26	102
	Percent	9.1	13.6	19.1	11.8	46.4

Further the study sought to examine the rating of specific services which were provided by either courier firms or postal corporation on a five point Lickert scale. Table

8 shows postal corporation rating. Almost an equal number of respondent rated mail sorting or delivery to the right place as below average, average, above average or excellent. 46.4% rated above average on right time on mail delivery, 35.9% had same rating for online tracking of mails on transit and 35.9% rated speed of service the same. This implies that there were minimal or no delays in regard to service provision among the seekers of postal services in Murang'a County.

TABLE 8
Rating on Quality of Services Provided by Postal Services

		Poor	Below average	Average	Above average	Excellent
Mail sorting/ delivery to the right place	frequency	8	52	51	56	44
	Percent	3.8	24.6	24.2	26.5	20.9
Mail delivery time	frequency	16	24	37	102	41
	Percent	7.3	10.9	16.8	46.4	18.6
On line tracking of mail status	frequency	16	21	26	79	78
	Percent	7.3	9.5	11.8	35.9	35.5
Speed of service	frequency	8	38	18	79	77
	Percent	3.6	17.3	8.2	35.9	35

Results in Table 9 shows the rating service quality among the respondents in regard to services sought through the courier firms. 37.9% of the respondents argued that they received poor services in regard to mail sorting/ delivery to the right place while 21.8% had an above average rating for the firms. Regarding the right delivery of mails 26.8% rated courier firms below average and 24.1% gave average rating. Generally, there was an above average on rating in rating in regard to online tracking of mail status by courier firms. There was an above average speed of delivery among courier firms as

indicated by 35.5% of the respondents while 22.3% rated the speed as excellent. Although, there is on line tracking and good speed on mail delivery there is need to improve on sorting of mails and consequently minimize delivery of mails to the wrong parties.

TABLE 9
Rating on Quality of Services Provided by Courier Services

		Poor	Below average	Average	Above average	Excellent
Mail sorting/ delivery to the right place	frequency	80	30	26	46	29
	Percent	37.9	14.2	12.3	21.8	13.8
Mail delivery time	frequency	28	59	53	27	53
	Percent	12.7	26.8	24.1	12.3	24.1
On line tracking of mail status	frequency	16	38	16	93	57
	Percent	7.3	17.3	7.3	42.3	25.9
Speed of service	frequency	21	21	51	78	49
	Percent	9.5	9.5	23.2	35.5	22.3

In addition, the study sought to establish the chances of customer complaints upon using either postal or courier services. Results in Table 10 revealed that 61.8% of postal corporation service users had complained as compared to 65.5% who had never complained on courier firm's service provision. This implies that there is need for courier firms to embrace the culture of customer feedback and consequently increases the chances of quality service delivery.

TABLE 10

Complaint Reporting on Postal and Courier Services

		Postal		Courier	
		Yes	No	Yes	No
Complaint reporting	frequency	136	84	76	144
	Percent	61.8	38.2	34.5	65.5

Having established the level of reporting among the respondents the study sought to examine the level of recording in regard to customer complaints in postal corporation. The pictorial presentation in Figure 4.1 revealed that 48.6% of the respondents reported very small extent on the loss of their parcel, 51.4% reported small extent on their parcel damage, 86.8% reported small extent on right place parcel delivery and 79.1% reported small extent of parcel sorting. This implies there were minimal cases of customer complaints reported among postal corporation service users.

FIGURE 2

Level of Recording Service Complaints in Regards to Postal Services

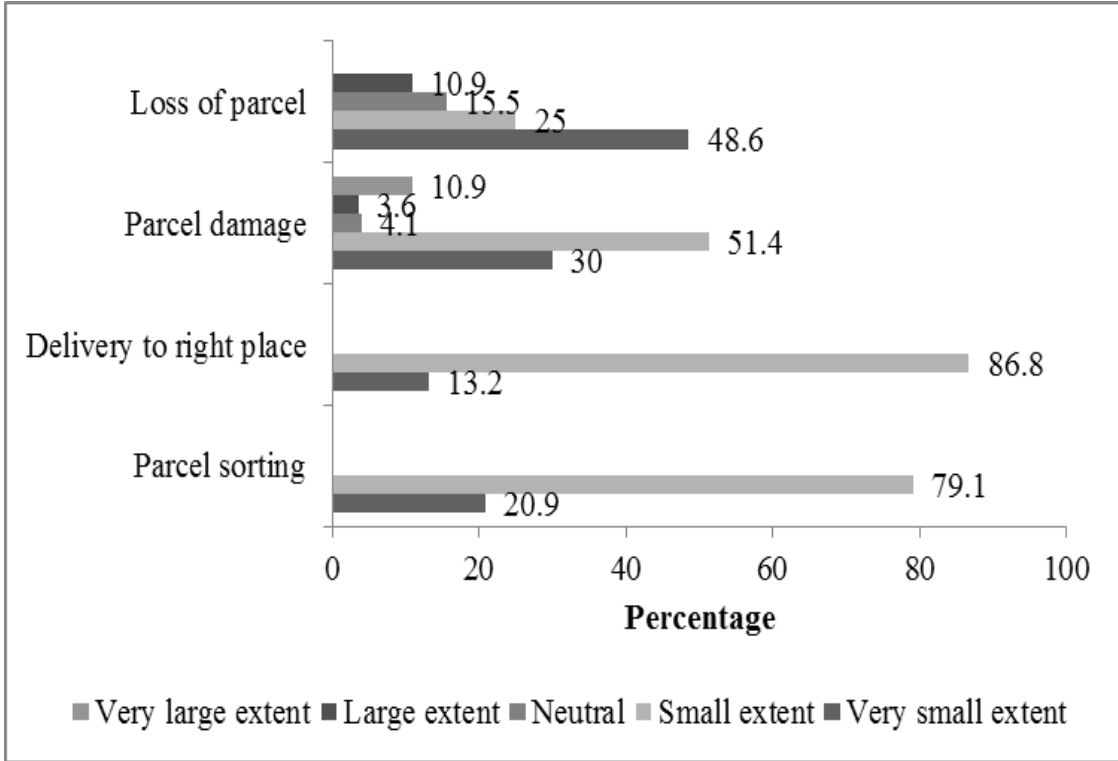
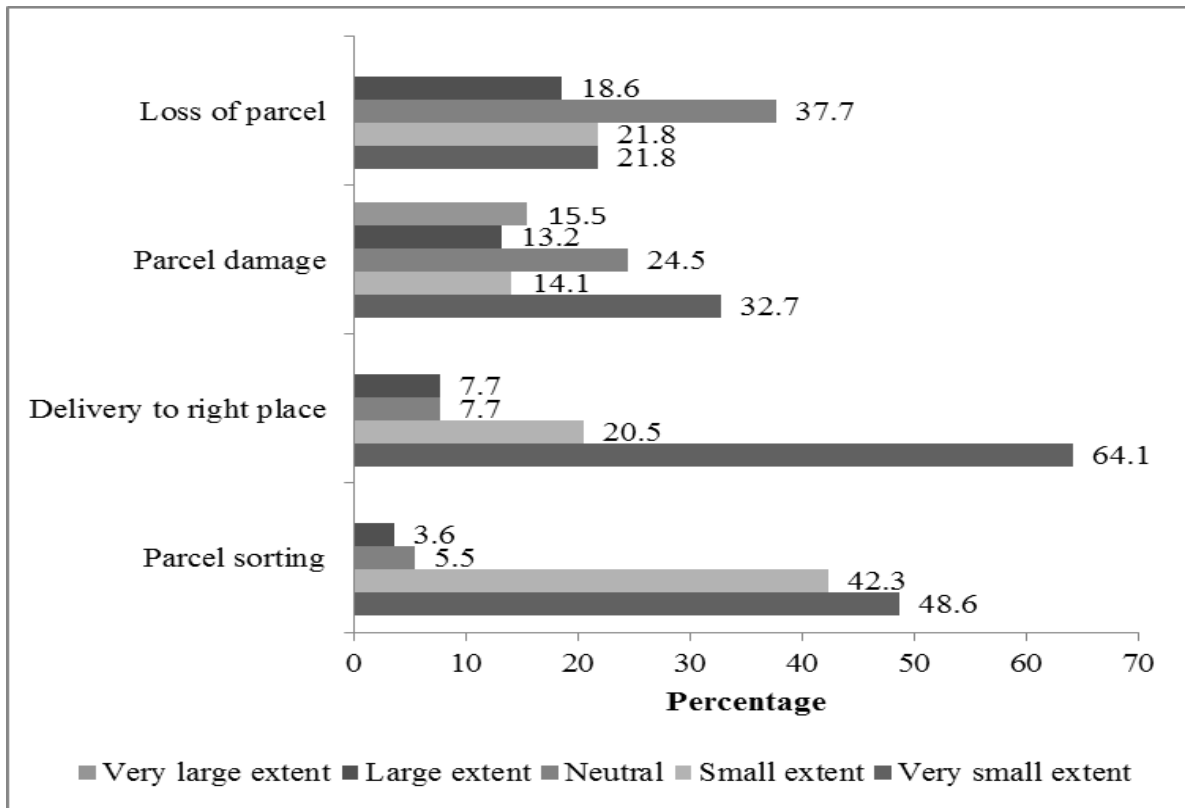


Figure 2 shows the level of recording in regard to customer complaints upon service accorded by courier firms. 37.7% reported that there were very large extent of losing the parcel through courier firms, 32.7% reported very small extent on the parcel damage, 64.1% reported very small extent on right time delivery of the parcel and 48.6% reported very small extent of parcel sorting. This implies the most common complaint among courier firms was loss of parcels and the firms should adopt corrective mechanisms to minimize the chances of pilferage of parcels during delivery.

FIGURE 3

Level of Recording Service Complaints in Regards to Courier Services



4.5 Adoption of ICT on Postal and Courier Services Delivery

The first objective of the study sought to explore the extent to which ICT has been incorporated in service delivery in postal and courier service organizations in Murang'a County. To achieve this, the respondents rated the ICT perceived adoption by postal and courier firms, the ICT facilities they have used, rating of employees in regard to use of ICT and comparison of services before and after ICT adoption.

Results in Table 11 revealed that 22.7% of the postal and courier firms often used ICT on mail and parcel services followed 21.7% who regularly used it. Secondly, 54.1% of both courier and postal services never used utility bills payment services. Thirdly, 55.9% of postal and courier services never used internet services. This implies that there

were lower levels of ICT adoption in both courier and postal corporation in Murang'a County.

TABLE 11
Rating on Use of ICT by Postal and Courier Service Providers

		Often	Regularly	Occasional	Rarely	Never
Mail and parcel services	frequency	50	47	48	34	41
	Percent	22.7	21.4	21.8	15.5	18.6
Utility bill payment service	frequency	30	25	8	38	119
	Percent	13.6	11.4	3.6	17.3	54.1
Internet service	frequency	17	21	9	50	123
	Percent	7.7	9.5	4.1	22.7	55.9

Results in Table 12 show the extent of using ICT facilities by customers in the postal corporation. Although 25.9% of the respondents rarely used computers 28.6% often used them. 35% have never used the telephone services provided by postal and courier firms. Even though there were lower level of internet adoption by both postal corporation and courier firms, those whom provided internet services 77% often used it. In addition, 51.4% often benefited from mobile phones facilities in postal and courier firms. This implies that those firms which had adapted ICT served as hubs from which the respondents benefited from, thus they ought to be encouraged to invest on these facilities and consequently generate more revenue and improve the quality of services they are currently offering.

TABLE 12**ICT Facilities the Customer Have Used in Postal and Courier Service Providers**

		Often	Regularly	Occasional	Rarely	Never
Computers	frequency	63	33	30	57	37
	Percent	28.6	15	13.6	25.9	16.8
Telephones	frequency	30	42	34	37	77
	Percent	13.6	19.1	15.5	16.8	35
Internet facility	frequency	171	8	41		
	Percent	77.7	3.6	18.6		
Mobile phones	frequency	113	74	33		
	Percent	51.4	33.6	15		

Further the study sought to examine the adoption of tracking facilities by both postal corporation and courier firms. Using a three point Lickert scale, 50.9% of the respondents argued that there was very small extent of parcel tracking. 53.2% reported that there was very small secure packaging and 52.7% reported small extent of constant communication with recipient. This implies that there is need to sensitize on the adoption of parcel tracking, improve packing and embrace continuous communication with the parcel recipient.

TABLE 13**Level of Incorporation of Tracking Facilities by Postal and Courier Services****Providers**

		Very small extent	Small extent	Neutral
Parcel tracking	frequency	112	45	63
	Percent	50.9	20.5	28.6
Secure packaging	frequency	117	14	89
	Percent	53.2	6.4	40.5
Constant communication with recipient	frequency	95	116	9
	Percent	43.2	52.7	4.1

Moreover, the study sought to compare the service delivery before and after the adoption of ICT facilities in an organization. Results in Table 14 show that 45.9% were least satisfied with service provided by courier and postal corporation prior to the adoption of ICT. In contrast, 56.8% of the respondents were less satisfied with the service delivery upon the adoption of ICT services.

TABLE 14**Service Delivery Before and After ICT Adoption**

		Least satisfactory	Less satisfactory	Neutral	Satisfactory	Highly satisfactory
Service delivery before ICT adoption	frequency	101	47	50	22	
	Percent	45.9	21.4	22.7	10	
Service Delivery after ICT adoption	frequency	16	125	24	34	21
	Percent	7.3	56.8	10.9	15.5	9.5

4.5.1 Impact of E-commerce on Courier and Services Delivery in Murang'a County

The second objective of the study sought to establish in what ways e-commerce has impacted on performance in postal and courier service organizations in Murang'a County. To achieve this, the respondents were required to indicate their levels of perception in regard to a five point Lickert Scale. 21.8% rated the use of emails to have a very small impact on services delivery and 48.2% argued that it had neutral impact on services provided. 27.7% of the respondents argued that use of internet had a large extent on service delivery. In contrast majority 38.6% of the respondents argued that use of intranet had very small impact on service delivery. It was important to note that 22.7% of the respondents perceived use of social media to have a very large extent on service delivery. There is need for both courier and postal corporation to incorporate social media in their plat forms as such to increase the quality of services they offer to their clients, both internet and intranet services should be incorporated in all office and consequently benefit from their improved communication.

TABLE 15**Impact of E-commerce on Courier and Services Delivery**

		Very small extent	Small extent	Neutral	Large extent	Very large extent
Email use	frequency	48	21	106	17	28
	Percent	21.8	9.5	48.2	7.7	12.7
Internet use	frequency	48	5	41	61	65
	Percent	21.8	2.3	18.6	27.7	29.5
Intranet	frequency	85	68	55	12	
	Percent	38.6	30.9	25	5.5	
Social media	frequency	29	62	54	25	50
	Percent	13.2	28.2	24.5	11.4	22.7

4.5.2 Mobile Phone and Service Delivery

The third objective of the study sought to determine how the use of mobile phones has impacted on performance in the postal and courier service organizations in Murang'a County. To achieve this, the researcher examined the rating on the use of mobile phone in regard to use of mobile phones on postal and courier services. Results of the study revealed that 26.8% regularly used mobile to transfer or withdraw money as such to effect postal and courier services and 35% reported that they have never used the service. 42.3% reported that they often used mobile phone services such as short messaging systems to effect the service delivery in both postal corporation and courier service firms.

TABLE 16**Rating on Use of Mobile Phone on Postal and Courier Services**

		Often	Regularly	Occasional	Rarely	Never
Mobile money transfer and withdrawals	frequency	20	59	29	35	77
	Percent	9.1	26.8	13.2	15.9	35
Mobile phone services	frequency	93	20	18	49	40
	Percent	42.3	9.1	8.2	22.3	18.2

Further the study sought to examine the extent in which mobile phones were used in both postal corporation and courier services firms. 37.7% of the respondents reported that mobile phones was used to a large extent while 23.6% reported that it was used to a small extent. There is need to sensitize both service providers and customers to embrace the use of mobile phones as such to benefit fully from quality service delivery provided by the postal corporation and courier firms.

TABLE 17**Extent on the Use of Mobile Phone Services on Postal and Courier Services**

		Very small extent	Small extent	Neutral	Large extent
Mobile phone	frequency	48	52	37	83
	Percent	21.8	23.6	16.8	37.7

4.6 Correlation and Regression Analyses

The study hypothesised that the postal corporation has to a large extent incorporated ICT applications into its service provision. The E-commerce incorporated by postal corporation has impacted service delivery positively. The use of mobile phone application by postal corporation has a positive impact on service delivery. To test this

hypotheses both correlation and regression analyses were carried. A correlation analysis was carried out to examine the strength of the relationship between quality service delivery and ICT adoption, E-commerce and usage of mobile phones. A regression analysis was carried out to examine the nature of the relationship between dependent and independent variables.

Result in Table 18; show that there is negative significant relationship between quality of service delivery and ICT adoption. This implies that a unit increase in ICT adoption decrease the quality of service delivery by 0.271. Secondly, there is a positive significant relationship between E commerce and quality of service. This implies that a unit increases in E commerce increases the quality of service by 0.505. Thirdly, there was a negative significant between use of mobile phones and quality of service delivery. This implies that a unit increase in usage of mobile decreases quality of service by 0.409.

TABLE 18

Correlation Analyses

	Quality of Service	ICT adoption	E commerce	Mobile phones
Quality of Service	1			
ICT adoption	-.271** 0.000	1		
E commerce	.505** 0.000	-.392** 0.000	1	
Mobile phones	-.409** 0.000	.624** 0.000	-.563** 0.000	1

** Correlation is significant at the 0.01 level (2-tailed).

Coefficient of determination shows that 27.9% of the changes in quality service delivery can be explained by adoption of ICT, E commerce and mobile phones. The remaining percentage can be explained other factors excluded in the model.

TABLE 19

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.528a	0.279	0.269	0.855107

a Predictors: (Constant), Mobile phones , E commerce , ICT adoption

Results in Table 20 shows that ICT adoption, E commerce and use of mobile phones was significant (F=26.732, p value =0.000) shows that there is a significant relationship between quality of service delivery and ICT adoption, E commerce and use of mobile phones and at least one of the slope (β coefficient) is none zero.

TABLE 20

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	58.64	3	19.547	26.732	.000b
	Residual	151.36	207	0.731		
	Total	210	210			

a Dependent Variable: Quality of Service

b Predictors: (Constant), Mobile phones , E commerce , ICT adoption

Results Table 21 shows the regression coefficients. Multicollinearity test, it was found that all the independent variables were uncorrelated because none of them had VIF (variance inflation factor) greater than 10.

The study showed that there was a negative insignificant relationship between quality of service delivery and adoption of ICT, ($\beta=-0.008$, p value >0.05). Since the p value > 0.05 there was no enough evidence to reject the null hypothesis thus we conclude that there is no significant relationship between ICT adoption and improvement of the quality of service delivery.

Secondly, the study showed a positive significant relationship between E commerce and quality of service delivery ($\beta=0.396$, p value <0.05). Since the P value <0.05 we reject the null hypothesis. This implies that a unit increase E commerce leads to 0.396 increases in quality of service delivery.

Thirdly, there was a negative significant relationship between use of mobile phones and quality of service delivery ($\beta=-0.113$, p value <0.05). Since the p value <0.05 we reject the null hypothesis. This implies that a unit increase in usage of mobile phones leads to 0.113 decrease in quality of service delivery.

TABLE 21

Regression Coefficients

Mo del		Unstandardized Coefficients		Standardized Coefficients		Sig.	Collinearity Statistics	
		B	Std. Error	Beta	T		Toler ance	VIF
1	(Constant)	0.318	0.149		2.129	0.034		
	ICT adoption	-0.008	0.074	-0.008	-0.101	0.919	0.627	1.596
	E commerce	0.396	0.07	0.401	5.656	.000	0.692	1.446
	Mobile phones	-0.113	0.051	-0.182	-2.204	0.029	0.508	1.968

a Dependent Variable: Quality of Service

CHAPTER FIVE

SUMMARY CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The current chapter presents the summary of the study findings, conclusions, recommendations and suggestion further study. First, summary of the study according to back ground information and research objectives; followed by conclusions and recommendation drawn from the findings and conclusions respectively.

5.2 Summary of Findings

The general purpose of this study was examine the impact of adoption of information communication technology applications on service delivery on postal and courier services in rural Kenya a case of Murang'a County.

The study argued that ICT adoption, adoption of E commerce and use of mobile phones all jointly impacted the quality of service delivery among users of both postal and courier services. The study was guided by domestication model, development theory and time efficiency theory. Further the study adopted descriptive survey design while purposive sampling technique was used to select the target population consisting of those who had sought the services of courier services and were actively operating a postal corporation box. Primary data was collected through the use of questionnaires. Both descriptive and inferential statistics were used to analyse the data. The study found almost an equal number of respondents between males and females, the modal mobile phone service provider were safaricom followed by Airtel. Majority had attained secondary education as their highest level. Most of the respondent were accessing internet through the use of their mobile phones. Both postal corporation and courier

services firms provided quality services since there were minimal complaints in regard to services the customer from both postal and courier services. It was important to notes that almost 28% of changes in quality of service delivery were explained by adoption of ICT, use of mobile phone and Ecommerce in rural areas among users of postal and courier services.

There was an inverse but non-significant relationship between adoption of ICT and quality of service delivery among postal and courier services users in Murang'a County. The results of the study were in disagreement with Fadun (2013) who found a positive and significant relationship between ICT adoption and quality of service delivery which influenced profitability levels among insurance companies. In addition, the results contrasted Nchunge et al (2013) who reported a positive and significant relationship between service delivery and ICT adoption among public secondary schools in Kiambu County.

Secondly there was a positive significant relationship between E commerce and quality of service delivery among postal and courier services users in Murang'a County. The results of the study were in agreement with lee and Lin (2013) who found a positive and significant relationship between e commerce and quality of service delivery in the service industry. Moreover, the results supported Sobihah *et al* (2015) who found a positive and significant relationship between e commerce and service delivery.

Thirdly, there was an inverse significant relationship between use of mobile phone and quality of service delivery among postal and courier services users in Murang'a County. The results contrasted the findings by Adewoye (2013) who found a

positive and significant relationship between use of mobile phone and service delivery in the banking sector. In addition, results contrasted Salim and Rashid (2011) who found a positive and significant relationship though they recommended on the need for more innovative measures on security to enhance adoption of mobile phone in the service industry.

5.3 Conclusion

The study assessed the impact of the adoption of ICT on services delivery in postal and courier services in rural areas. The dependent variable was the quality of service delivery while adoption of ICT, use of E commerce and use of mobile phones were the independent variables. From the findings it can be concluded an increase in ICT adoption decreased the quality of service delivery. This can be attributed with the fact that being a rural set there is minimal levels of electricity penetration and since ICT and electricity are dependent then there are chances that the respondent may perceive adoption of ICT negatively because rural electrification programs has not penetrated fully in the rural areas.

In regard to E commerce the study concludes that if both postal corporation and courier service providers are to attain quality service delivery then they must embrace the use of internet and intranet.

Finally, the study concludes that there is need for monitored adoption of mobile phone usage in regard to service delivery in postal and courier services.

5.4 Recommendations

From the study the use of E commerce impacted the quality of service delivery positively. The management of both postal and courier firms should embrace the use of internet, emails, intranet as key pillars for service delivery. Since safaricom was the most preferred mobile phone service providers there is need to form strategic alliances with the users of postal and courier firms as such to ensure they can access the E commerce facilities aimed at deepening the services sought in postal and courier firms.

Since there was a negative and significant relationship between use of mobile phones and quality service delivery among postal corporation and courier firms there is need to devise measures to minimize the cost associated with use of mobile phones in relation to quality service delivery between postal corporation and courier firms.

Although ICT use impacted negatively on the quality of service delivery there is need to provide other facilities which are used jointly with ICT plat forms as such to minimize the erosion of benefits associated with the usage of ICT facilities in an organization.

5.5 Suggestion for Further Studies

The study has made significant contribution both theoretically and empirically through the provision of the evidence on the impact of ICT adoption on quality service delivery in rural areas. The study used primary data which was collected from the beneficially of both postal corporation and courier services. However, the study was limited to rural areas thus a similar study ought to be carried out in an urban and or semi-arid or arid

County. Moreover, a comparative analyses ought to be carried out between rural and urban users of postal and courier services. Since the current study used primary data a similar study ought to be carried using secondary data. In addition, there are advanced development of having a common market in East Africa there is need to examine impact of ICT facilities in such a set up.

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APPENDIX I

Letter of Introduction

Peterson Nyaga Njeru,
P.O. Box,
Nairobi.

Date

Name of Respondent-----

Company Name and address-----

Dear Sir/ Madam,

RE; REQUEST FOR RESEARCH DATA

My name is **Peterson Nyaga** and currently I'm a student at Kenya College of Accountancy (KCA) University pursuing Masters in Business Administration. I am conducting a study focusing on Impact of application of Information Communication Technology on postal and courier service delivery in Kenya: A case study of Murang'a County. In this study, I intend to have interviews with public users, postal and courier users. The interview will request for information on key aspects of factors affecting developments in ICT on postal and courier service delivery, with a specific focus on Murang'a-based postal and courier service providers. The intended interview may take about 15-20 minutes to complete.

The research is being carried out as part of the requirements of obtaining the degree. You have been selected to form part of this study and are kindly requested to assist in data collection by responding to questions in the questionnaire. The information provided will exclusively be used for academic purposes only and will be treated with utmost confidentiality. As a participant, you are free to request for a soft copy which can be sent to you via email. Your cooperation and assistance will be highly appreciated.

Yours faithfully,

Peter Nyaga Njeru

Dr. Alice Njugua

APPENDIX II Questionnaire

IMPACT OF ADOPTION OF INFORMATION COMMUNICATION TECHNOLOGY APPLICATIONS ON SERVICE DELIVERY ON POSTAL AND COURIER SERVICES IN RURAL KENYA- A CASE OF MURANG'A COUNTY			
QUESTIONS	RESPONSES	INSTRUCTIONS	
1.0 INTRODUCTION			
1.1	DATE OF INTERVIEW	_____ / _____ / 2015	DD/MM/YY
1.2	INTERVIEWER ID	_____ / _____ / _____	INT/REG/RES
1.3	GENDER	<input type="checkbox"/> Male <input type="checkbox"/> Female	TICK THE MOST APPROPRIATE BOX
1.4	What is your highest education level?	<input type="checkbox"/> No formal education <input type="checkbox"/> Primary <input type="checkbox"/> Secondary <input type="checkbox"/> Diploma/ Certificate <input type="checkbox"/> Undergraduate degree <input type="checkbox"/> Postgraduate degree	
1.5	Which mobile operator do you dominantly use?	<input type="checkbox"/> Safaricom <input type="checkbox"/> Airtel <input type="checkbox"/> Orange <input type="checkbox"/> Yu Mobile	
1.6	Do you have access to internet services on your mobile phone?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	
1.7	How often do you use internet service provision through a computer or your phone?	<input type="checkbox"/> Often <input type="checkbox"/> Regular <input type="checkbox"/> Occasional <input type="checkbox"/> Rarely <input type="checkbox"/> Exceptional	
1.8	How would you rate the internet speed of your service provider?	<input type="checkbox"/> Adequate <input type="checkbox"/> Inadequate <input type="checkbox"/> Very inadequate	TICK THE MOST APPROPRIATE BOX
2.0 Service delivery in postal and courier service			
2.1	How often do you send and/or receive any letters or send any letters through the post?	<input type="checkbox"/> Often <input type="checkbox"/> Regular <input type="checkbox"/> Occasional <input type="checkbox"/> Rarely	TICK THE MOST APPROPRIATE BOX
2.2	How often do you send and/or receive any letters or send any letters through courier services?	<input type="checkbox"/> Often <input type="checkbox"/> Regular <input type="checkbox"/> Occasional <input type="checkbox"/> Rarely	

2.3 How would you rate the services offered by the postal / courier service on a 5 point scale?
 Postal _____
 Courier _____

RATE ON A 5 POINT SCALE WHERE 1 IS POOR AND 5 IS EXCELLENT

2.4 How would you rate the geographical reach on postal and courier services providers in your locality on a 5 point scale where 1 is poor and 5 is excellent?
 Postal _____
 Courier _____

RATE ON A 5 POINT SCALE WHERE 1 IS POOR AND 5 IS EXCELLENT

2.5 How would you rate the speed of your service provider on a 5 point scale where 1 is poor and 5 is excellent?
 Postal _____
 Courier _____

RATE ON A 5 POINT SCALE WHERE 1 IS POOR AND 5 IS EXCELLENT

2.6 How would you rate your postal and courier provider on the following services?

	Postal	Courier
Mail sorting/ delivery to the right place		
Mail delivery time		
On line tracking of mail status		
Speed of service		
	Postal	Courier
Yes		
No		

RATE ON A 5 POINT SCALE WHERE 1 IS POOR AND 5 IS EXCELLENT

2.7 Have you reported a complaint to postal and courier service providers in the past 3 months?

TICK THE MOST APPROPRIATE BOX

2.8 If yes to 2.10 above, indicate the extent to which you have recorded service complaints in the following:

Parcel sorting
 Delivery to right place
 Parcel damage
 Loss of parcel
 1 2 3 4 5

USE THE GRID BELOW:
 5: Very large extent
 4: Large extent
 3: Neutral
 2: Small extent
 1: Very small extent

2.9 Indicate the extent to which the following developments in ICT have been used in postal and courier services:

Email use
 Internet use
 Intranet
 Mobile phone
 Social media

3.0 Incorporation of ICT in postal services

3.1 How do you rank your use of the following services at postal and courier service operators?

Mail and parcel services _____
 Financial banking service _____
 Mobile money transfer and withdrawals _____
 Utility bill payment service _____
 Internet service _____
 E-government service (Huduma service) _____
 E-commerce service _____
 Computers _____
 Telephones _____
 Mobile phone services _____

Rank on a 4 point scale:

- 1. Often
- 2. Regularly
- 3. Occasional
- 4. Rare
- 5. Never

3.2 What ICT resources have you interacted with at postal and courier service centres?

Internet facility _____
 Mobile phones _____
 Others _____

3.3 In your opinion, are staff at postal and courier service centres conversant with the

Yes
 No

TICK THE MOST APPROPRIATE

3.4	use of the ICT resources mentioned in 3.3 above. Are you aware of any parcel tracking mechanism employed by postal and courier service operators?	<input type="checkbox"/> Don't know <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	BOX
3.5	If yes to Q 3.4, indicate to what extent each of the following services are incorporated in your institution:	<div style="display: flex; justify-content: space-around; margin-bottom: 5px;"> 12345 </div> Parcel tracking Secure packaging Constant communication with recipient <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	USE THE GRID BELOW: 5: Very large extent 4: Large extent 3: Neutral 2: Small extent 1: Very small extent
3.6	Do postal and courier service operators have power back-up options within their reach?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know Explain _____ _____	
3.7	In your opinion, are postal and courier service operators connected on the online/internet platform?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	
3.8	Have you utilized internet services on offer at postal and courier service centres?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know Explain _____ _____	
3.9	In your opinion, to what extent have postal and courier service met your service expectation before adoption of ICT resources	<input type="checkbox"/> Highly satisfactory <input type="checkbox"/> Satisfactory <input type="checkbox"/> Neutral <input type="checkbox"/> Less satisfactory <input type="checkbox"/> Least satisfactory	TICK THE MOST APPROPRIATE BOX
3.10	In your opinion, to what extent have postal and courier service met your service expectation after adoption of ICT resources	<input type="checkbox"/> Highly satisfactory <input type="checkbox"/> Satisfactory <input type="checkbox"/> Neutral <input type="checkbox"/> Less satisfactory <input type="checkbox"/> Least satisfactory	
3.11	Do you feel postal and courier services are experiencing any ICT gaps at the moment?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know Explain _____ _____	

THANK YOU