

**Diffusion of Innovation Theory and adoption of e - Government by Medium
Business Enterprises in Kenya: A case of Nairobi City County.**

By

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University of Nairobi

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DECLARATION

CANDIDATE

This research is my original work. It has not been presented for an award of a degree in any other university.

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DEDICATION

I would like to dedicate this research project to Almighty God (Allah) and secondly, my two parents (MR. Abdi Ali and MRS. Magala Lohos), to my lovely wife Khadija and finally, my children Abdi Rahman, Amir, Khalid, Sumeya and Aisha.

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OPERATIONAL DEFINITION OF TERMS

- Innovation** - The introduction of new things, ideas or ways of doing something that is perceived as new by members of the social system (oxford dictionary, 2015)
- Technological Innovation** - The process of introduction of something new or a new idea, method or device which is science, technology and system based (Letangule & Letting, 2012).
- Innovation Diffusion** - The process by which innovation is passed from the innovator to members of social systems through certain channels of communication (Okiro & Ndungu, 2013)
- Adoption** - Decision to start using something such as an idea, a plan or a name. For instance, adoption of new technology. It starts with the first knowledge when the individual learns the existence of an innovation. The individual then forms an attitude of whether to adopt or not adopt and finally implementation of the new idea and to confirmation of this decision (Kundu & Roy, 2010).
- E-Government** - utilizing ICTs to positively change governments' operations and provide services, information and knowledge to all government clientele

LIST OF ABBREVIATIONS AND ACRONYMS

| | |
|-------|---|
| ASPA | American Society for Public Administration |
| CBD | Central Business District |
| CIC | Commission for the Implementation of the Constitution |
| CoG | Council of Governors |
| EG | E- Government |
| G2B | Government to Business |
| G2C | Government to Citizen |
| G2G | Government to Government |
| HOD | Head of Department |
| ICT | Information Communication Technology |
| ICTA | Information Communication Technology Authority |
| IDT | Innovation Diffusion Theory |
| IFMIS | Integrated Financial Management Information System |
| IRS | Internal Revenue Service |
| KODN | Kenya Open Data Network |
| NCC | Nairobi City County |
| OECD | Organization for Economic Development and Cooperation |
| PEOU | Perceived Ease of Use |
| PU | Perceived Usefulness |
| TAM | Technology Acceptance Model |
| UN | United Nations |
| OECD | Organization for Economic Corporation and development |

ABSTRACT

This study set to carry out research on the adoption of e government among the medium business enterprises in Nairobi County. The need for the study was conceptualised due to the trend of research findings in most developing countries that point to failures in the implementation of e government, despite the government having put in place plans to implement e government in Kenya, the process has been slow and superficial and therefore the need for the study. The Objectives of the study was to find out the adoption level of medium Business enterprises, it also sought to find out the factors affecting adoption of e government while also trying to establish the challenges facing adoption of e government. It considers theoretical foundations from the Diffusion of Innovation Theory and Technology Acceptance Model to understand the adoption level of medium business enterprises in Nairobi County. The study employed descriptive research design by use of survey of medium business enterprises to portray their adoption characteristics in Nairobi County. It used quantitative method in gathering data from a sample of 50 respondents selected purposively. Analysis of the data was descriptive and involved frequencies and percentages. The findings revealed low adoption of Nairobi City County portal by the medium businesses in Nairobi. The research also revealed that various factors led to the low adoption of Nairobi City County portal, these factors include Compatibility, Complexity, Trialability, Observability and Lack of knowledge and Trust in the system. The study proposed various recommendations based on the objectives, key among them include; publicity campaigns in order to create awareness of the e government innovation, Public/private partnership between NCC and commercial Cyber cafes on how to provide assistance to users seeking to acquire e government services. The other recommendations include the need for a system generated automatic change password process without going through an agent to avoid delays in access.

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter presents the study background and also the statement of the problem. It also presents the overall objective, the research questions and the limitations concerning the adoption of E government innovation using diffusion of innovation theory framework. The theory of diffusion of innovation is used to guide the research that will be accomplished via a survey method.

1.2 Background

E-government constitutes utilizing ICTs to positively change governments' operations and provide services, information and knowledge to all government clientele. Government clients include the general citizens, businesses enterprises, government workers and other government entities. It involves the integration of different information technology innovations, such as the networking devices, Internet and other modern devices like mobile phones to change government functions in order to improve service delivery and to also promote democracy (Kelvin J.2009)

Globally, there has been a change from traditional way of government operations of using paper-and-file approaches to e government approach where governments are conscious of e government innovation as a way of improving service delivery (Mehrtens et al., 2001).

E-government can be divided into key areas of operation that involves government and her citizens (G2C), relationship between government entities and private business enterprises (G2B) and inter-governmental organizations (G2G). Generally, e-Government Strategy is aimed at achieving some important goals and objectives that improves service delivery and efficiency, better communication of Government information to the citizens, enhancing productivity among government employees and achieving maximum participation of citizens.

Overtime, various governments both developed and developing countries have gained awareness of the importance of e-government integration in government activities through the use of modern Technologies (ICT) which have ability to change positively how government functions are carried out. Here in Kenya, the government has drawn a strategic plan to achieve integration of ICT in her vision 2030 goals (Stiftung, 2002).

With the new constitutional dispensation in 2010, Kenya has embraced devolution system with 47 County governments distinct from the national government. Just like the national government, Counties need to embrace e governance in order to improve service delivery and enhance timely information flow and to reinforce their commitments to adopt ICT in to the physical way of service delivery which is characterized by high level of in efficiency. The main aim of this research is to find out the adoption level of the medium Business Operators/Owners towards e government initiatives implemented by the Nairobi City County government.

The Kenya Cabinet approved e government strategy in 2004 with three key objectives namely; to improve service delivery using ICT, make government more transparent and improve citizen participation in policy making.

On 19th February 2007, the Kenya ICT Board also came into being as a state corporation with the Minister and top civil servant in the Ministry of Information and Communication serving on the board. It has an advisory and capacity building function with a vision of making Kenya a global ICT hub. The Information and Communication Ministry in collaboration with the ICT Board also launched the Open Data Initiative to make government data more accessible to the public. This constitutes an important effort to increase access to information collected by the central government and sends a new signal of openness in line with right to information clauses in the new constitution. In spite of these efforts, some argue that the Government of Kenya is still “ill-prepared” to handle the implementation of a national ICT infrastructure; the existence of both a Ministry and a Directorate of e-Government, which is meant to coordinate government integration, raises questions of fragmentation and duplication of efforts within the government (Klopp J.M et.al, 2005)

The current regime was elected on the promise of transforming the government from analogue to digital way of service delivery. Towards these, the government has issued a directive for all government agencies to adopt e-procurement of tenders in order to curb corruption. County governments like all other national government entities who have faced myriad of challenges ranging from waste of resources, little impact on service delivery, lack of accountability, duplication of efforts, scattered systems, lack of joint planning in government, competition for funds and lack of overall strategy have been reluctant to embrace technology especially e procurement and IFMIS system. The Council of Governors (CoG) has threatened to move to

court to block the use of e-procurement and the Integrated Financial Management Information System (IFMIS) in counties if the Treasury declined to withdraw (Barissa, Hassan, Standard 28th Sept. 2015)

The Nairobi City County online portal www.nairobi.go.ke was launched in June 2015. The services available in the portal include parking fess payment, Rents payment service, Single business permits, and land rates etc. Other earmarked for transformation are market rates, application for building permits and advertisements payments.

The system also has links to various social media like Face book and Twitter. This was necessitated by calls from some Nairobi-based interest groups that demanded the improvement of the service deliveries and also the increased work as a result of the functions devolved to the county government following the promulgation of the new constitution.

This transformation plan was started in 2013 and the aim was to improve service delivery and administration by putting up a web portal and the e-payment solution.

1.3 Problem statement

A UN survey carried out in 2008 reported that Kenya ranks very low with an index of 0.04 on citizen adoption of e-Government. The survey ranked Kenya position 146 out of the 189 countries covered by the survey globally, Where low adoption in this case was attributed to Usefulness, Social and Cultural Issues, Content Accessibility, Inadequate Infrastructure, Inadequate Delivery of Services and luck of Trust and Confidentiality. That is why Abeid, et.al (2015) comes to the conclusion of acceptance problem as the biggest challenge facing e government projects in many developing countries is acceptance problem. Equally, Carter &Belanger (2014) finds that the accomplishment of e government is tethered upon citizen's willingness to adapt to innovation. Therefore the study seeks to carry out a survey of Medium businesses in Nairobi County to find their adoption level using DOI.

Heeks (2003) observed that, 85% of e-government projects in developing countries are either total failures or partial failures while only 15% are successes. These are worrying figures that calls for further scrutiny to identify the overriding challenges hindering the successful implementation of e-government projects. Here in Kenya various researches conducted such as that of Njuru, (2011) on the Implications of e-Government on Public Policy and Technology adoption in Kenya proves that the Kenyan government has not succeeded in dispersing or

spreading widely e-government information and creating awareness of the public on the use of e government innovation for improved services.

Kenya embraced devolution system as a result of the constitutional change in 2010. This new constitution recognizes the right to public information under article 35, which guarantees every citizen the right of access to information held by the State. (The constitution of Kenya 2010)For instance, section 95 of the County Governments Act, 2012 provides mechanisms to make public communication and access to information easier. Such access includes interactive Web sites and online portals that enable citizens to capture and filter relevant information and acquire services (CIC 2014).

In their study IBP (2014) found no evidence of an online forum or blog on various county Governments' websites to facilitate public participation. Similarly, a national opinion poll conducted by Transparency International Kenya (2014) that focused on devolution and governance reported untimely dissemination of information and lack of regular update of county government websites that poses a big obstacle to the access of county government services. The poll further found very low awareness among Kenyans about online services, indicating possible breakdown of communication between the government and the citizens. On the same note Penina Serisar (2015) recommend further studies to be done to fill the research gap on the progress and effectiveness of county governments in delivering web based public service and public adoption of the same since her study found very limited utilization level of e government services in Narok County. This research will therefore go a long way in establishing the level of diffusion of web based innovation in Nairobi City County.

In 2014, The World Bank has approved a Sh2.5 billion loan to the government to finance ICT programs in the 47 counties to enhance accountability in revenue management and also develop long term plans to increase the usage of Information and Communication Technologies (ICT) to enhance accountability in the management of public resources (Okuttah Mark Business Daily Wed. Apr 2 2014) Despite this, the acceptance of e government has been very slow and superficial across the levels of government. In fact only 6 departments have their presence in the e citizen platform which is supposed to be a gateway to all government services, evidently therefore there is need to evaluate the adoption level of e government services.

This study will be a continuation of this line of research to further find out how diffusion of innovation theory can be used as a guiding principle to measure the level and reasons for low adoption of innovations among the medium business enterprises in Nairobi County.

1.4 Objective of the study

The main purpose of this study was to establish the adoption level of Medium Businesses to e government innovation in Kenya.

1.4.1 Specific Objectives

1. To establish the extent to which the medium business enterprises have adopted to the Nairobi County e government service.
2. To establish the factors that influence adoption of the Nairobi County e government service among the medium business enterprises
3. To determine the Challenges hindering adoption of the Nairobi County e government service among the medium business enterprises.

1.5 Research Questions

1. To what extent has the Medium businesses adopted to e government services in Nairobi City County?
2. What factors influence the adoption of e government services by the medium business in Nairobi County.?
3. What are the Challenges facing adoption of e government among medium business enterprises?

1.6 Significance of the study

Innovation has been strongly and positively linked to the performance of organizations. The findings of the study will be significant to the following stakeholders;

1.6.1 Nairobi City County

The findings will provide the County with useful information as to the factors that influence the adoption of technologies introduced by the county. The information will be critical in making strategic decisions for the County.

1.6.2 Medium Business operators

From the study, medium Business operators will understand more about those factors with the greatest impact on their adoption of technologies. This is a valuable information in coming up with measures to deepen the use of technology for organizational success

1.6.3 Academicians

The findings will be a reference point for other scholars interested in understanding factors that affect adoption of technology especially among medium business operators. The findings will also go a long way in beefing up empirical evidence on the subject.

1.7 Justification

There are many challenges faced by developing nations in the whole world on how to accomplish e government initiatives to solve bad governance and inefficiencies. This study is necessary as part of the many efforts to understand some of these challenges from the users point of view of e government in Kenya. It will also go a long way in recommending to the government on what needs to be done in creating awareness among the citizen on the maximum utilization of the e government platform. Considering the fact that, the successful acceptance of e government is tethered upon citizen's willingness to adapt to innovation. This study will therefore act as a guide on how to identify and address adoption and acceptance level and how to solve.

1.8 Limitations of the study

This study faced certain limitations during the collection of data and some of them discussed below;

First, there were time constraints where some respondents were preoccupied with daily routine work and were busy to respond to the questionnaires. This was coupled by the short duration of the study that was undertaken with strict deadlines. The researcher was involved with frequent follow ups in order to get maximum response and that is why the study focused on only Nairobi City County Central Business District.

Second, there was lack of cooperation from the respondents. Some respondents either delayed or never responded to our questionnaires. The data collectors made frequent visits and phone calls to ensure maximum responses were received.

The research faced several challenges in the collection of data. Issues like confidentiality of the data collected affected some respondents who may have withheld crucial information despite assurances that there will be utmost confidentiality.

1.9 Chapter Summary

Chapter one presented the concept of technological innovation. It has also highlighted the processes of technological innovation diffusion and the factors that affect the innovation diffusion from other studies. The chapter further highlighted the knowledge gap and presented the scope and terminologies used in this study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Overview

This section consists of evolution of e-government, diffusion of innovation, Factors that Affect Innovation Adoption, Theoretical framework; diffusion of innovation theory and technology acceptance model (TAM), summary of literature review in relation to the diffusion of innovation and adoption of e-government from a local, regional and global perspective.

2.2 Evolution of E-government

According to UN and ASPA (2001, 1) e government can be defined as; the use of technology innovation for delivering government information and services to citizens. It can virtually include various ICT devices and applications.

Yonazi, J.J (2010) defines citizen adoption of e-Government as the level/extent to which citizens accept, and internalize the use of Government electronic initiatives. (Shafi Al-Shafi and V. Weerakkody, 2009) posit that, with the coming in to view of e-government initiatives, government services globally have come to know the significance of making their services more efficient and easily accessible. They further conclude that, governments need to appreciate citizens' preferences, be conscious of their perceptions in order to successfully communicate and pass e-government services and further use this knowledge to develop citizen centric electronic services.

(UN and ASPA (2001, 1), posits that the overriding goal in many e government long term goals revolves around achievement of efficiency and effectiveness, open communication, accountability and transparency, democratic enhancement and governance, public participation that provides citizens with new choices.

Zafiroopoulos, K Karavasilis, L and Vrana, V (2012) recommends that, e governments should be citizen centric by prioritizing user needs and benchmarking of established marketing practices to create awareness of e government services. He further posits that in order to make the systems more attractive to the users, training should be given to the users. They further state that the design of public online services should be guided by technological developments and citizen's needs. Gajendra et.al (2014) are of the view that public organizations and the government should try to encourage the general public to utilize e-government services and attract their trust through upgrading e-service providing systems, effort to train and enhance

citizens' awareness of such services, marketing and advertisement so that citizens feel secure and at ease having access to useful services with easy access and in attractive, user-friendly websites, which is followed by their increased satisfaction.

(Bwoma and Huang, 2003) Stress the benefits of e-government since it creates virtual systems that will eliminate more physical premises costs and also provide government services to citizens with ease and convenience. In this context, e-government systems can save the governments costs and provides all round operation 24/7 devoid of fixed timelines in government services. Moreover, e-government will ensure better communication and interaction between governments, stakeholders and its citizens (Kostopoulos, 2003). Equally, e-government will also enable an environment where public entities can operate with efficiency. (Bwoma & Huang, 2003). The success of E-government accomplishment is dependent on government willingness to allocate resources and expertise towards putting up a robust system as well as creating awareness and proving system knowledge to citizens for easy adoption of e-government services (AL Awadhi, S. and Morris, A 2009) and according to Kumar et al. (2007), adoption involves a decision to use or reject online services and the decision can be enhanced through training and awareness.

E government systems promote better governance and administration, which has raised consciousness of the contemporary world towards e government usage in place of traditional approaches (OECD, 2003). E-Government helps reduce red tape in service delivery through provision of effective and efficient services as much as possible (Mutula, 2008). Furthermore, e-government initiatives are also aimed at improving government service delivery and citizen participation. In addition, the desire for e-government initiatives is driven by a country's need for cutting on cost by reducing the number of people needed to do certain work and convenience in service delivery . It is for this reason that Heeks (2006) talks about uninterrupted service delivery 24/7 in any moment and anywhere. This is important, as Mutula (2008) points to cumbersome and inconvenient transactions in traditional government systems that involve manual physical filing activities that is time consuming and causes delay in retrieval of correspondences not mentioning loss of data and general inefficiency of operations.

By using the e Government structure, both citizens and government can get a competitive advantage. Citizens can receive effective, efficient, and better quality service whereas governments can reduce operation and management costs, increase transparency, and fulfill

political commitment to establish good governance. In the USA, the Internal Revenue Service (IRS) saves significant amount of government costs on printing, sorting, and mailing tax materials by offering web access to citizens and business organizations to tax return forms and publications (Warkentin et al., 2002). However, despite the obvious advantages of e-government, the accomplishment of e-government projects in developing countries have not been successes as reported by Heeks (2003), where 75% of e-government projects in developing countries are failures, while only 15% are successes. These figures show that there is a need for intervention research to establish the overriding issues towards the successful implementation of e-government initiatives (Dada, 2006; Kaaya, 2004; Peters et al., 2004) Furthermore, Almarabeh and AbuAli (2010), have also found the same failures expressed by Heeks (2006) since they have established a large proportion of e-government initiatives that have failed to achieve promised goals. According to Mutula (2008), e-government initiatives in Sub-Saharan African countries face several challenges and bottlenecks and are far from reaching and attaining the purpose for which they are undertaken.

Penina Serisar (2015) recommends further studies to fill the research gap on the progress and effectiveness of county governments in delivering web based public service and public adoption of the same since her study found very limited utilization level of e government services in Narok County. This research will therefore go a long way in tackling the level of diffusion of web based innovation in other counties such as Nairobi City County.

2.3 Diffusion of Innovation

Innovation diffusion theory (IDT) was established by Rogers in 1962, (Rogers 1995)

IDT is defined as the process by which an innovation is passed by use of channels of communication among members of a social system (Rogers 1995). Tolba and Mourad (2011) points to failures in accomplishment and acceptance of e government services which has raised concern among the researchers in the field and industry practitioners. They relate this concern to the inappropriate application of innovation diffusion theories and the difficulty to assess the factors associated with accelerating the rate of diffusion.

(Tolba & Mourad, 2011) recommends prioritizing the better understanding of the factors that affect diffusion of innovation by researchers and managers.

Difficulties are always experienced in the adoption of new ideas even when it has obvious advantages because many innovations usually require a long period of time, often of many years from the time they become available to the time they are widely adopted. Across many

individuals and organizations, the challenge that arises is how to speed up the rate of diffusion of an innovation (Rogers E 1995)

In their study Bayer and Melone found that different users and organizations may have different adoption characteristics and depth and therefore the need to understand the dynamics and the environment where the e government system is being implemented is very important (Bayer et al.1989) he further states that technological issues are not the only issues in the introduction of e-Government systems and their adoption by citizens but also social ones, and the factors are diverse and varied. However, most efforts of governments' investment in electronic services is usually based on their understanding of what citizens, businesses, employees and customers of Government need without proper evaluation of what increases their willingness to adopt e-Government services (Kostas Zafiropoulos et.al 2012) Tat-Kei Ho (2002) explains that growth of Internet usage and experience and the rapid implementation of e-commerce in private sector have increased the urge by the public sector to improve service delivery to citizens by use of technology developments.

E government has become a basic necessity for any focused government that needs to achieve competitive advantage in the world in the face of rising demands from demographic, economic, social, and global trends and not just a mere option of communication with citizens (Stiftung, 2002).

2.4 Technological innovation factors that Affect Innovation Adoption

The high level of innovation underperformance and low adoption of innovations by most of the intended users has created a course for concern to researchers and practitioners (Tolba and Mourad 2011) he further attribute this to lack of appropriate use of diffusion of innovation models and problems associated with challenges in evaluating factors that accelerate the rate of diffusion. Therefore, the need to prioritize the factors influencing innovation diffusion becomes a high priority for researchers and managers. Diffusion of innovation theory brings forward four characteristics that determine innovations rate of adoption (Rogers 1995)

2.4.1 Relative Advantage

Robinson (2012) explains relative advantage of an innovation as the degree to which an innovation is seen as more advantageous than the idea it supersedes by a particular group of users in terms of economic advantage, social prestige, convenience, or satisfaction. He stresses that the rate of adoption is positively correlated with the perceived relative advantage of an innovation.

The general understanding according to Mndzebele (2013) is that organizations need to understand that adoption of innovation provides solutions to inefficient traditional systems and presents new opportunities in the form of increased productivity and operational efficiency. This is in line with point of view by Al-Jabri and Sohail (2012) that indicated that a system which is perceived to provide increased efficiency, economic benefits and enhanced status positively leads to high rate of adoption. NTV Khahn (2014) agrees that positive perceived relative advantage leads to higher levels of adoption of e-government services.

Mndzebele (2013) further argues that innovation adoption process involves a logical decision in an organization, where one is supposed to evaluate the advantage of the new technology to the business. Organizations only adapt to a technology when they are confident that a certain technology will add value to their existing state. This means that when a user perceives relative advantage or usefulness of a new technology over an old one, they tend to adopt it (Al-Jabri & Sohail, 2012).

2.4.3 Complexity

Several researchers attempted to define Complexity in innovations, notably (Al-Jabri & Sohail, 2012) who define it as the extent to which an innovation is considered cumbersome to learn and use. Similarly (Rogers 1995; Zaltman, Duncan, and Holbek 1973) defines complexity as the degree to which the innovation is difficult to understand and use. Finally (Lee, Hsieh and Hsu, 2011) calls it the degree to which an innovation is considered as being in tandem with the end-users' existing values, prior experiences, and beliefs.

Lee, Hsieh and Hsu (2011) further posit that new ideas that are easy to learn are accepted faster than innovations that require the adopter to develop new knowledge and skills. According to Dzugbenuku (2013), a number of studies reported complexity in use and technical infrastructure as individual barriers that inhibit use of technology innovation since it requires new skills, consumes more time and frustrating.

(Khanh 2014, and Sahin, 2006) posit that perceived complexity affects adoption of negatively e-government services

Moghavvemi, Hakimian and Feissal (2012) posit that high complexity of technological innovation leads to decreased adoption and usage of the technology. In other words, a technological innovation might pose challenges where the innovations are complex to the users; however user friendly hardware and software will lead to successful adoption (Sahin, 2006).

An empirical study by Lee, Hsieh and Hsu (2011) to determine the factors that influence employees' intentions to use technology in form of electronic learning systems found out that complexity significantly affected employees' behavioural intention of use electronic learning systems. A study by Mndzebele (2013) to determine the effects of system complexity in the adoption of electronic commerce in the Hotel industry also indicated that, the extent of adoption is positively related with manager's perception about the system complexity in the electronic commerce technology. The correlation analysis indicated that there is a positive association between the extent of adoption of electronic commerce and the manager's perception of the innovation's complexity. Hence, in order to promote the intention to use a technological innovation, designers should pay attention to the development of innovative characteristics and content of the systems to make them easier to use by the potential users (Lee, Hsieh, & Hsu, 2011). A study in Vietnam by

Therefore, given the well-established rationale and empirical support for an effect of complexity on technological adoption, in this study it is hypothesized that ease of use of technological innovation is easy creates a higher intention to adopt and use the technological innovation. This means that it is assumed that the intention of the adoption of e government portal technology by the medium business operators in Nairobi is influenced by the extent to which the users perceive the ease of use of the technology.

2.4.5 Observability

Observability is defined as the degree to which the results of the innovation are visible to others (Moghavvemi, Hakimian, & Feissal, 2012). Al-Jabri and Sohail (2012) expanded this definition to describe the extent to which an innovation is visible to the members of a social system, and the benefits can be easily observed and communicated. The attribute of observability is divided into two constructs; result demonstrability (the tangibility of the results of using an innovation); and visibility which refers to the extent to which potential adopters see the innovation as being visible in the adoption context (Moghavvemi, Hakimian, & Feissal, 2012).

Chigona and Licker (2008) posit that it is easy for others to see the outcome of adoptions from those who have already accepted the technology. They indicate that the rate of adoption of an innovation is affected by observability for instance, Chigona and Licker (2008) further

explains that innovations with low observability are affected by language and culture e.g. abstract or ambiguous innovations are generally difficult to observe and therefore slow adoption rate due to its ambiguity.

Empirical study by Al-Jabri and Sohail (2012) to determine how mobile banking is adopted by banks in Saudi Arabia reported positive effect on mobile banking adoption as a result of beneficial results from the customers point of view for instance convenience and efficiency in how to manage a customer's financial transactions as it is easily accessible 24/7.

2.4.6 Compatibility

Compatibility is “the extent to which an innovation is considered as being consistent with the existing principles and standards of behavior, past experiences and need of potential adopters” (Rogers, 2003: 15)

Equally, Lee Hsieh and Hsu (2011) defines compatibility as the extent to which innovation is consistent with the potential end-users' existing principles and standards of behavior, prior experiences, and needs.

(Khanh 2014) posits that higher levels of perceived compatibility will be positively related to higher levels of intention to use e-government services while (Rokhman, A., 2011) concludes that, the higher the compatibility, the higher the intention to use e-government services. Equally, (Mndzebele, 2013) concludes that, the more users regard the system compatible with the felt needs, the greater the diffusion rate.

2.4.7 Trust in the system

(Alomari, M et.al) defines trust in e-government as the belief that governments will implement an e-government where issues of security and privacy are taken care of. He further concludes that assurance of trust positively affects trust of internet (TOI) and believes in e government security and privacy which in turn influences intentions to use an e-government service. Security is considered one of the important predictors of the use of e-government services since it protects the e-government Web site users from deception and risk of loss (Sujeet Kumar Sharma, 2015). Suha AL Awadhi and Anne Morris (2009) argue that, faith in the Internet is more likely to affect the adoption of e-government services.

2.5 Other Factors that Affect Innovation Adoption

The factors comprise the structure, climate, and culture that will influence the adoption of innovation (Zailani, et. al., 2014). Therefore, there is need to develop some facilitators, so that

workers do not perceive any threat but rather assume the innovation as their own (Kundu & Roy, 2010).

According to Talukder (2012), there is a general concurrence among many researchers that organizations need to ensure facilitating conditions in the form of positive training, support by the management and incentives will impact on the awareness towards a technological innovation in terms of its usefulness and suitability with the job which leads to adoption. He concludes that positive influence by organizations impact positively on employee's adoption of an innovation.

2.5.1 Training

To understand better the significance of training on adoption of new e government innovation, Kundu and Roy (2010) uses an example where Company X buys computers and accessories but it is not utilized by the people. On the other hand, Company Y buys the same but provides training for the users about the technology innovation and the positive result of the training seen in the rate of usage of the computers. They posit that the difference in adoption is due to the fact that company Y managed an attitude change through training towards the technology while company X lacks training and hence poor adoption.

NTV Khanh (2014) agrees that Training is a strong element in the adoption of e government technology.

Talukder (2012) agrees with the idea by concluding that positive training creates positive change and transformation towards an innovation which increases adoption. He further explains that, if the right training and awareness are provided, it will reduce some of the obstacles that have the potential to slow down adoption and guarantees the necessary help to employees when they face difficulties in technology innovation use. Therefore, he concludes that, acceptance of innovation is highly influenced by the amount of training provided to employees since it promotes employees attitude, awareness, skills and knowledge that increases better work performance(Talukder, 2012).

Zafiroopoulos, K et.al (2012) recommends that, user education programs should focus on the importance of e Government innovations and should be able to make users understand the benefits of the e government compared to the bureaucratic systems and its relevance to the job.

2.5.2 Management Support

(Alshehri, M. and Drew, Steve 2010) explains management support as the dedication from top management to help provide a favorable environment that encourages accomplishment and use of e-government innovations. While (Weng & Lin, 2011) posits that management support can be measured by the degree at which an organization's management assist employees using an particular technology innovation or system. Both (Weng and Lin 2011 and Wen, Zailani and Fernando 2009) posits that the pivotal role played by the top management is to provide resources and formulate policies in a way that enhances the adoption of the new innovation and that the degree of resource allocation and effective management control affects the use of e government

Further, in a study carried out to determine the factors that affect adoption of iTax technology innovation in Kenya Revenue Authority, Mwambia, E (2015) established that management's support and commitment to adoption of technology are significant in positively influencing adoption of iTax technology. She further posits that the more the top management supports and show commitment to adoption of the technology, the more likely the organization will adopt the system as a way of filing their taxes.

Ahmer (2013) explains that new innovations should first try to change top management attitude and understanding of the system since they can influence others when they positively involve in the adoption process because they have control of the resources and can provide a favorable climate in order to implement a new technology.

Damanpour and Schneid(2009) concludes that the age and period of time served by a manager in a particular organization affects innovation adoption because managers new to an organization have the energy for bringing change to the new environment compared to managers who have stayed long in one position and are not receptive to new innovations.

2.6 Theoretical framework

This study uses the Diffusion of Innovation Theory (DOI) (Rogers 1983) as theoretical framework to study the adoption level, factors that influence the adoption and diffusion of e-government in Nairobi City County.

2.6.1 Diffusion of innovation theory

(Rogers 1983, p.11) explains Innovation as the process of translating an idea that is perceived as new by an individual or other unit of adoption. Many researchers studying the adoption of

new innovations have used the Diffusion of Innovation Theory (DOI) to discuss adoption characteristics. (Rogers 1983) identifies five characteristics for successful adoption within the theory of DOI: These attributes are; relative advantage, complexity, compatibility, triability, observability.

(Tornatzky and Klein, 1982) singles out Relative advantage, Compatibility and complexity to have consistent significance in technology adoption. (Rogers 1983) further defines, Relative advantage as “the extent to which a new idea is seen as better than the idea in use before its introduction” (Rogers 1983, p. 213)

He also defines Compatibility as “the extent to which an innovation is seen as being compatible with the existing values, past experience, and needs of potential adopters” (Rogers 1983, p. 223)

Finally, he defined Complexity as “the extent to which an innovation is seen as difficult to understand and use” (Rogers 1983, p. 230).

various researches conducted by communication scholars has appreciated the significance of adoption characteristics i.e. Relative advantage, Compatibility, and Complexity in the adoption of different technological innovations such as e-government (Carter and Belanger, 2005; Ojha et al., 2009; Schaupp and Carter, 2005; Van Slyke et al., 2004).

E-government services in Nairobi City County Government have been launched but still in tender stages that makes this service a new innovation.

Further, this theory is suitable because it focuses on individual’s uptake of e government innovation in Nairobi County which made this study also recognize this framework suitable for this research study.

2.6.2 Technology Acceptance Model (TAM)

The TAM was initially proposed by Davis (1989) and theorized that; TAM involves two beliefs that relate to attitude towards a certain technology, which are perceived usefulness and perceived ease of use (Ralf Wagner, 2009) Davis further defines:

Perceived usefulness as the extent to which a positive attitude by an individual makes him believes that utilizing a system enhances ones job performance.

Perceived ease of use as the extent to which an individual's attitude makes him/her believes that use of a system frees ones physical and mental effort.

The Technology Acceptance Model (TAM) is an upgrade of Ajzen and Fishbein's (1980) Theory of Reasoned Action (TRA) (Norazah & Ramayah, 2010)

(Bandura 1982) posits that when a system is more user friendly, it increases the user's sense of efficacy. (Chutter, M 2009) concludes that there are many models that have been proposed by scholars to explain the use of a system; however TAM remains the most accepted model within the information system community. TAM has been tested in many studies and has been used overtime to evaluate different technologies such as email, voice mail, and many others (Jaegar, P and Matteson, M 2009)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Overview

This chapter discusses the methodology used in this study, in particular it presents the population, sample size, Sampling design, data gathering instruments and analysis

3.2 Research design

This study applied descriptive research design. According to Kothari (2004); a descriptive study seeks to portray the characteristics of a particular situation or a group (Kothari, 2004). In this case the study will seek to portray the characteristics of respondents regarding the adoption of e government.

Descriptive data are typically collected through a questionnaire survey (Mugenda, 2003). Therefore this study undertook a survey of Medium Business Owners/Managers (Those with between 5 to 10 Employees). The survey involved licensed medium businesses in Nairobi City County in five major streets/Avenues purposively selected from within Nairobi CBD considering the nearness of the location to the researcher and the concentration of the business categories that will be sampled.

In this study, quantitative method research was used to study the adoption characteristics of Medium Business enterprises.

3.2.2 Target Population

According to Nairobi County local authority integrated financial operations management system, business activity Summary, There are **34,775** Medium business enterprises licensed by the Nairobi City County in Nairobi CBD. The breakdown is presented in the table below.

Table 3.1: Study Population

| Sector | Sample frame (Total No. of Medium Business Operators/Owners, Other informal (Individual) Clients & Employees of NCC). | Total Percentage |
|---|--|-------------------------|
| Catering | 4,466 | 12.84% |
| Professional and Technical Services | 1,954 | 5.6% |
| Private Education, Health & Entertainment | 1,328 | 3.8% |
| Commercial and Trade | 27,027 | 77.7% |
| TOTAL | 34,775 | 100% |

Source: Nairobi City County

NB/

- Commercial and trade category Businesses, include medium trader shop/retail services like Boutiques, electronic shops, salons, Barber shops etc.
- Catering services category include medium high standard Lodging house/Hotel D, Lodging House with Restaurant and/ or bar B/C class, Lodging house B/C class, Restaurant with Bar/membership club, eating house, snack bar, tea house “hotel”, Bar/ Traditional beer seller and Night club/Casino.
- Private Education, Health & Entertainment include businesses like medium private education institution, medium private health facility, medium entertainment facility, Cinema operator.
- Professional and Technical Services category include professional services firm, Independent technical operator, and medium Cyber cafes/Bureaus

3.2.2 Sample Size and Procedure

Garson (2012) indicates that a sample size represents a subset of sampling units from a population. Medium Businesses in Nairobi City County is a large population and hence not practicable to collect data using the entire population.

Blanche, Durrheim and Painter (2008) who provided that for small populations of up to 1,000 a sample size of 30% is sufficient while for populations between 1,000 and 10,000 a sample

size of 10% is sufficient while 1% for populations of up to 150,000 and 0.025% for large populations such as 10 million. Therefore, the accessible population for the study would be 347 businesses. Mugenda (2003) provides that for descriptive research, ten percent of the accessible population is enough for such study. Likewise (Kothari, 2014) provides that a consideration of such factors as time and cost involved as long as requirements of efficiency, representativeness, reliability and flexibility are taken care of, it is acceptable to select a smaller sample. In this regard considering the above factors, the research sampled 50 respondents. Businesses will be grouped in 4 strata namely Catering, Professional & Technical services, (private education, health and entertainment) and Commercial and trade. Thereafter, from the 5 streets purposively selected considering their nearness to the researcher's location and the concentration of the business categories in this area, the researcher will select medium businesses purposively from each of the 5 streets. The manager/owner of every business was then selected again. See the table below.

3.2.3 Sample Selection

Table 3.2: Sample Selection

| Category Sample Frame | Street/Avenue | | | | | Total Sample Size | Sample Size Percentage of Total Population |
|---|------------------------|--------------------|-------------------|--------------------|---------------|-------------------------|--|
| | Tom Mboya Street | Kenyatta Avenue | Kimathi Street | Harambee Avenue | Moi Avenue | | |
| Catering | 1 | 1 | 1 | 1 | 2 | 6 | 12.84% |
| Professional and Technical Services | 1 | 1 | 1 | 0 | 0 | 3 | 5.6% |
| Private Education, Health & Entertainment | 0 | 0 | 0 | 1 | 1 | 2 | 3.8% |
| Commercial and Trade | 8 | 8 | 8 | 8 | 7 | 39 | 77.7% |
| TOTAL | 10 | 10 | 10 | 10 | 10 | 50 | 100% |

3.3 Data Collection Methods

3.3.1 Questionnaire

The research sought to administer open –ended and closed - ended questionnaires to 50 Medium Business Managers/Owners in four categories of Businesses classified by NCC as Catering, Education Health and Entertainment, Commercial and trade and Other Services (see appendix B). In this study the researcher will distribute questionnaires to the sampled respondents and the duly filed forms will be collected after 2 days.

3.2.4 Validity of instruments

According to Kombo and Tromp (2006) validity is a measure of how well a test measures what it is supposed to measure. To enhance content validity, the researcher will first appraise the instrument (Orodho 2004). A pilot study of four Medium Business Managers/Owners purposively selected was used. The pilot study helps in identifying items in the instrument which are ambiguous and inappropriate in order to improve its quality and validity.

3.2.5 Reliability of the instrument

Kombo and Tromp (2006) define reliability as a way of ensuring consistency of the results from a test. An instrument is reliable if it can ensure a factor that is liable to vary accurately and consistently and get the same results under the same conditions over a period of time. To test reliability of the instrument test-retest technique was used. It involved applying the same technique twice to the same group of subjects. The second administration was done after a period of one week after the first test to same population.

3.3 Data collection procedures

An introduction letter was obtained from the University of Nairobi that was used to show to the people from various categories of participating parties. There was a reconnaissance visit to the venues that will take part in the study for introduction and establishing time for administration of the instrument. The questionnaire was used to establish the adoption level and the perception of the medium businesses towards e Government services and also help to identify the factors and challenges facing e Government adoption.

3.4 Data interpretation and analysis

According to Cooper and Schindler (2008), data analysis involves putting together and organizing collected data to a size that can be managed, creating summaries and seeking for results using statistical methods. The data collected was coded and organized in to tables and entered into Statistical Package for Social Sciences [SPSS] for analysis. The data was checked for completeness, consistence and reliability before analysis.

The analysis was descriptive and involved statistical computations in form of frequencies and percentages. Findings were presented using graphs and charts.

3.5 Ethical Consideration

The study observed various ethical considerations in order to promote values that are essential to the work as discussed below; such as protection, accountability, mutual respect, and fairness among others.

First, the research assistant took in to consideration the welfare of the individuals and groups with whom the research sought to extract data and upheld ethical standard of discipline.

Second, the study treated information from respondents with confidence and anonymity of the respondents was well clarified in the questionnaire as an option to withhold once identity as shown in appendix A (Cover letter) and appendix B (Questionnaire).

The study acquired the required authorization from the University of Nairobi as per appendix C in appendices section of this document.

Third, acknowledgement of works of other authors used in any part of the dissertation with the use of APA referencing system was prioritized as declared in the declaration of originality form(See appendix D) and the plagiarism report (see appendix E).

Finally, all corrections suggested during the board of examiners defense were done as shown in appendix F.

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND PRESENTATION

4.1 Introductions

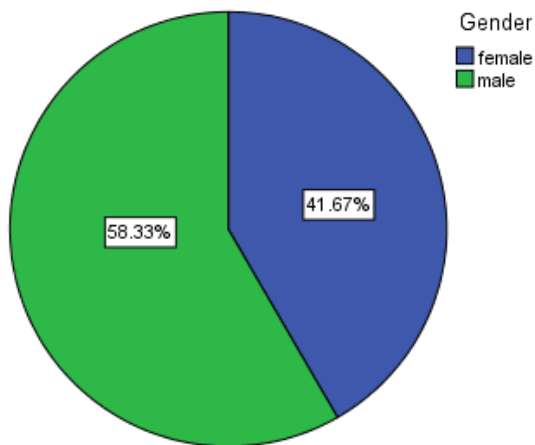
This chapter talks about the analysis, interpretation and presentation of the study findings. Descriptive statistics, Charts and Graphs were used to present the findings of the study.

The study targeted 50 respondents, out of these, 48 attempted and handed in the questionnaires which translate to 98% response rate. It was considered satisfactory and representative to draw a judgement of the study findings. According to Mugenda and Mugenda (2003), 50% response rate is enough for making conclusion of a study, and response rate of 70% and over is excellent. The response of the study obtained was considered excellent. Based on the study's objectives, the following are the findings.

4.2 Respondents demographic information

4.2.1 Gender category

Figure 4.1 gender category



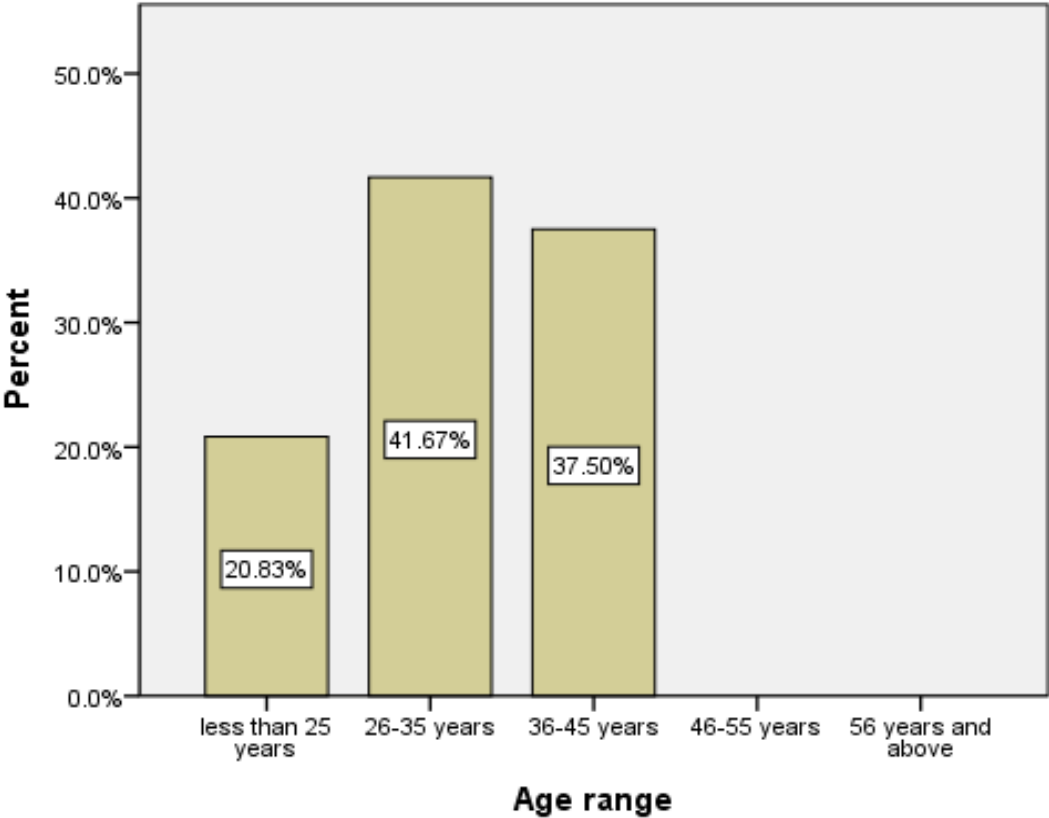
Source: author (2016)

The gender composition of the respondents indicated that majority of the respondents about 6 in every 10 were males while 4 in every 10 were females as shown in figure 4.1, this is an indication that both Male and Female were represented in this study and that there was no either of the gender over or under represented.

4.2.2 Age range

The research sought to establish the age of the respondents for the study as summarized in figure 4.2 below

Figure 4.2 Age range category



Sources: Author (2016)

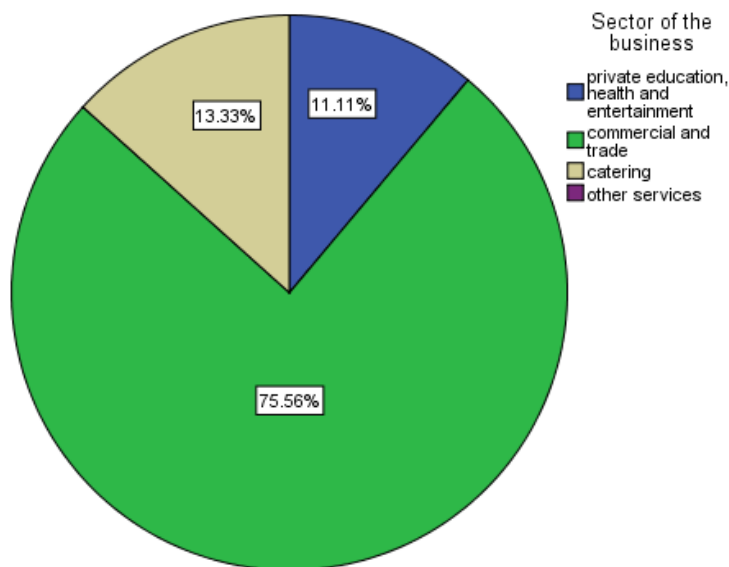
From the findings, all the respondents were of the age of 46 and below as shown in figure 4.2. One may then infer that, businesses in Nairobi area are run by young people of below 46 years and therefore these groups are the productive people driving the economy of Nairobi. The reason

for the dominance of this group in the business operations in Nairobi could be due to that fact that there was a lot of focus on youth empowerment as an affirmative action by the government. A good example is the government policy of Youth access to Government Procurement Opportunities (YAGPO) that could have increased youth opportunities in the business world. Likewise, the absence of the older generation of above 46 years in the businesses could probably be explained by the fact that, the younger generation act as a stewardship by providing the day to day operations of the businesses while the older generation who could be the owners of some businesses provide policy directions and are not involved in the daily running of businesses.

4.2.3 Sector category

The study sought to determine the sectors of different businesses that the respondents represented as shown in figure 4.3 below

Figure 4.3 Sector category



Source: author (2016)

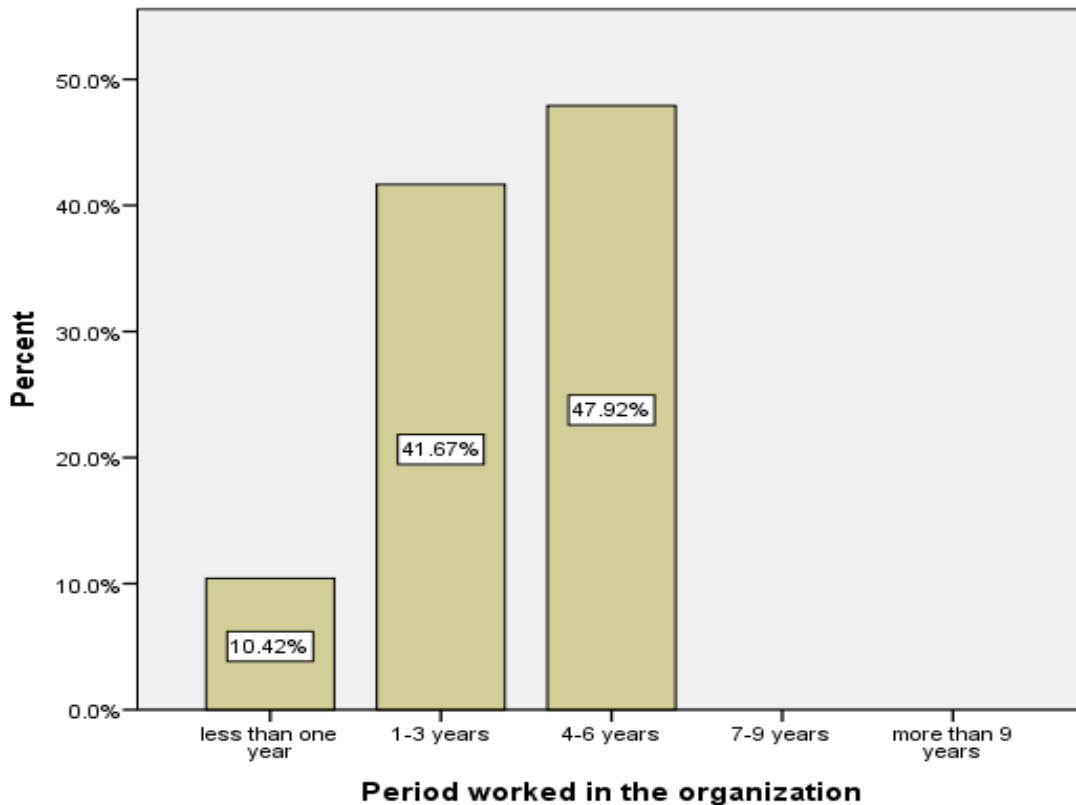
From the findings the respondents showed that more than 7 in every 10 (70%) of the businesses visited were commercial and trade (*See section 3.2.2*) as shown in figure 4.3. This was followed by catering sector with 13%, while the private education, health and entertainment had 11% response value from the respondents. A probable explanation is that it requires less expertise to carry on such business as compared to other complex businesses like professional and technical

businesses that require expertise. Secondly the category is popular probably because of less cost involved in the startup of the business category.

4.2.3 Period of services

The research sought to determine the period which the respondent had served for the organization being studied as summarized in figure 4.4

Figure 4.4 Period of service in the organization



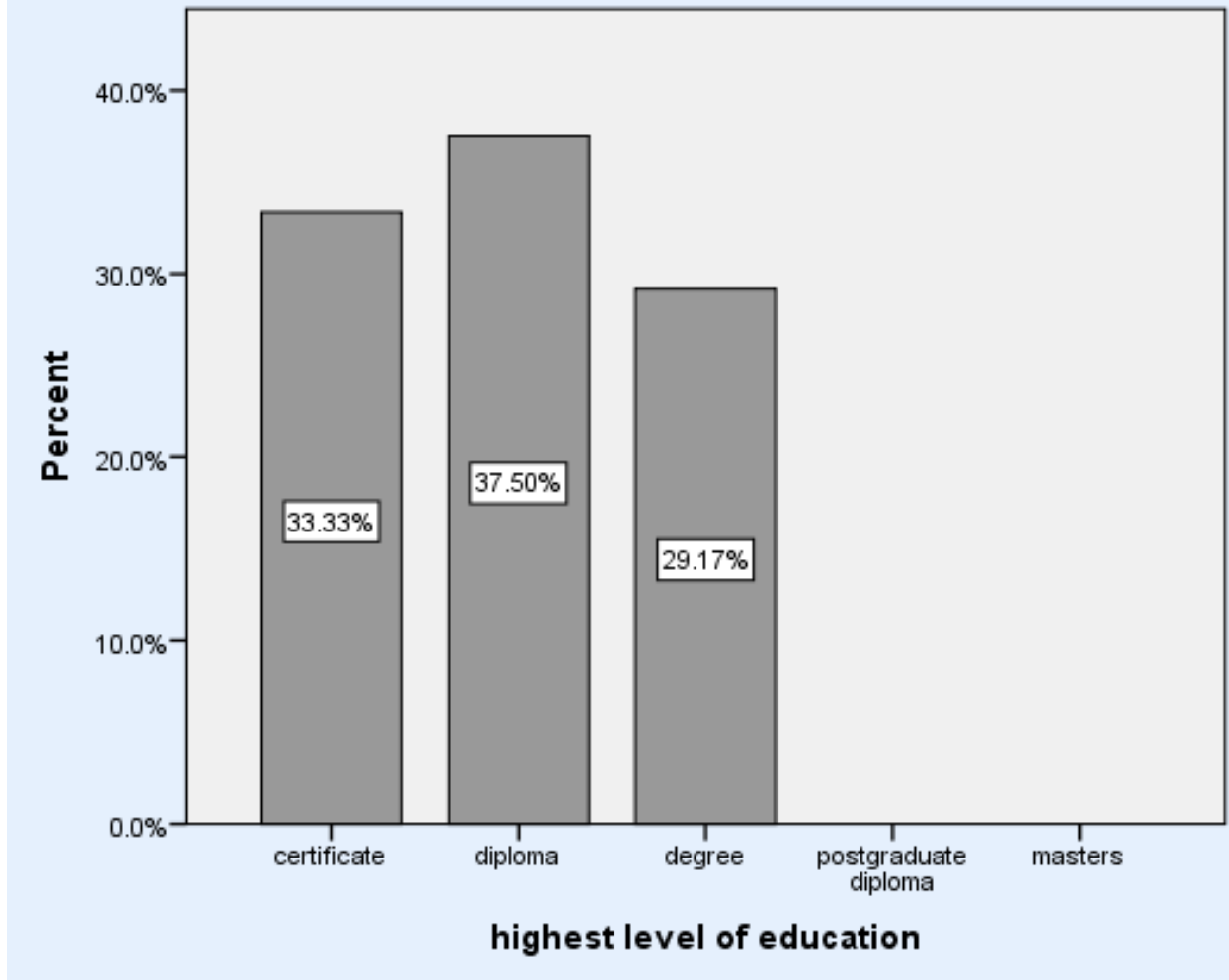
Source: author (2016)

From the research findings, most respondents had worked for a period of 4 to 6 years in their various organizations shown by a value of 48%, while this was followed by respondents who have served for a period of 1 to 3 years at 41%. Those who worked less than 1 year were at 10%. This is an indication that most of the respondents had stayed in their current business for a considerable period of time to provide credible information.

4.2.4 Education level

The study requested the respondents to indicate their level of education and the result is shown in figure 4.5 below.

Figure 4.5 highest level of education



Source: author (2016)

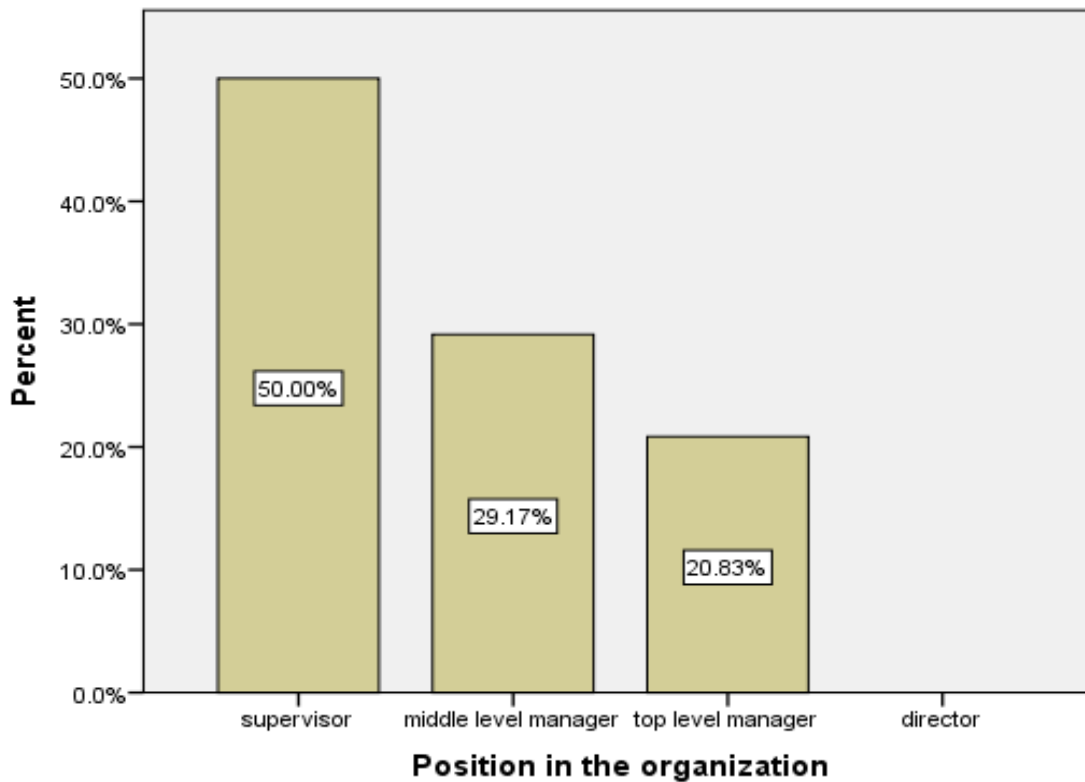
From the findings indicate about 4 in every 10(37.5%) have diploma and below while only 3 in every 10(29.17%) have basic degree and none of the respondents have postgraduate degree as shown by the figure 4.6. This can be interpreted to mean that most of the respondents did not have high formal education that could inhibit their ability to apply complex technical knowledge according to the theory of Diffusion of innovation for them to adapt to the e government innovation with the shortest time possible. This could be a reason for the low adoption of e

government among the businesses in Nairobi. This finding is consistent with (Sujeet Kumar, 2015) who found that education is key to the use of e-government services.

4.2.5 Position in the organization

The research sought to establish the positions of the respondents in the organization they served as shown in figure 4.6 below.

Figure 4.6 Position in the organization



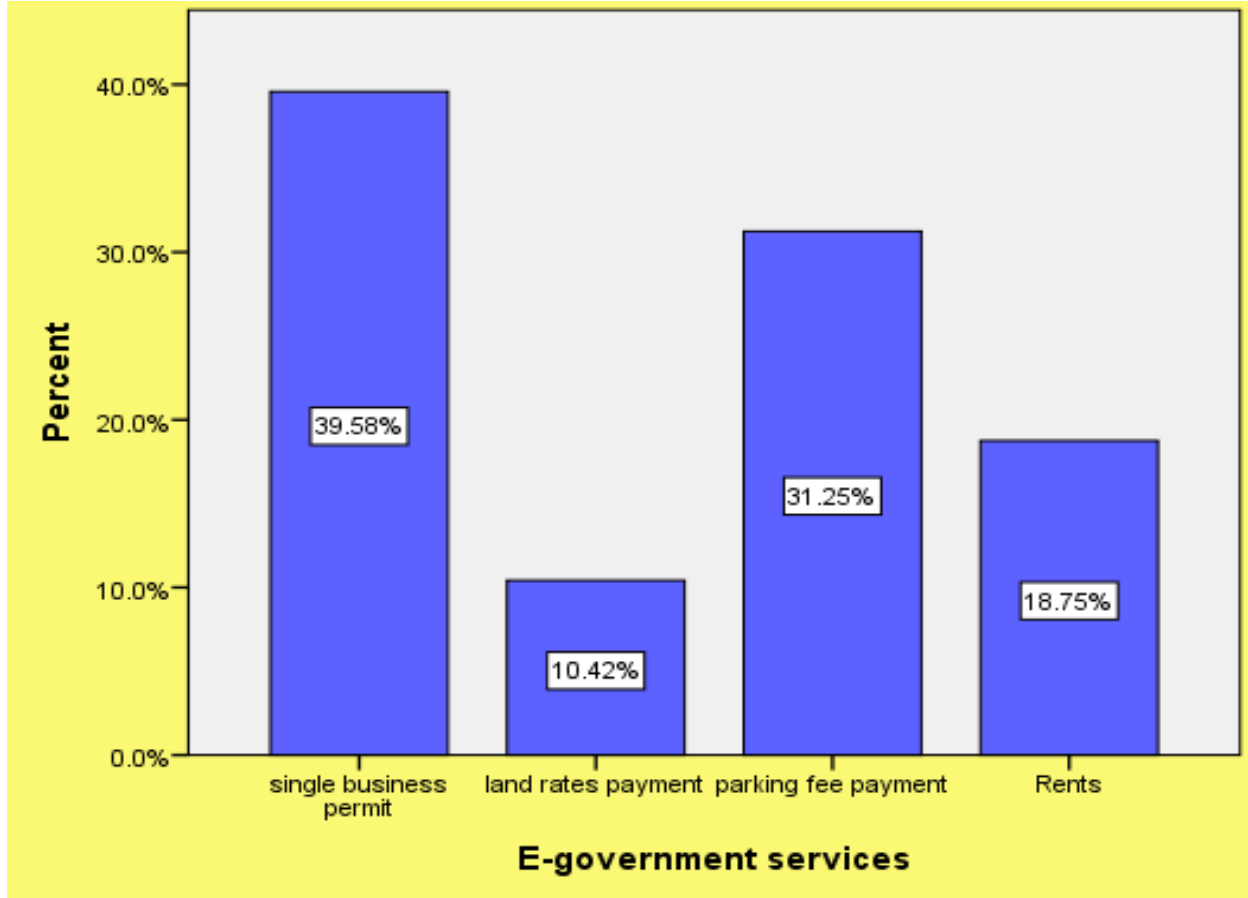
Source: Author (2016)

From the findings we find that majority of the respondents were supervisors (Junior managers) as shown in figure 4.7 with a value of 58% responses, this was followed by both middle level managers and top level managers each having 22% and 18% responses respectively. While directors did not have any responses as most of them tend to delegate most of their activities to their middle level and supervisors.

4.2.6 Types of e-government services accessed

The research sought to find out the different types of services accessed by the respondents on e-government service portal offered by NCC as shown in figure 4.8 below.

Figure 4.7 e-government Services



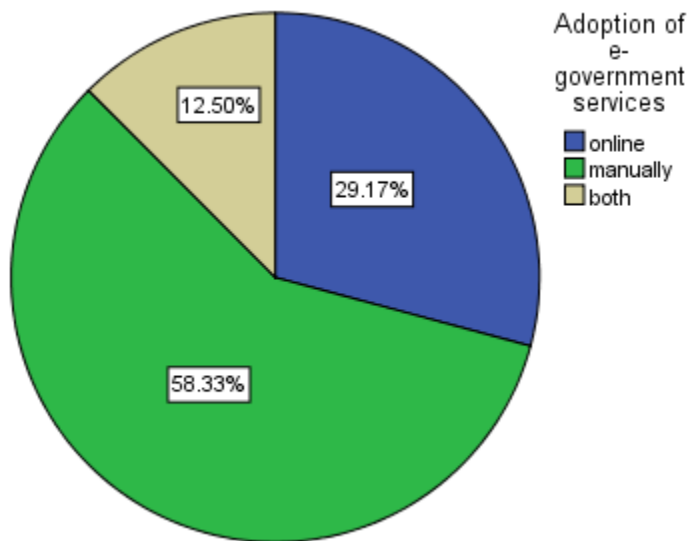
Sources: Author (2016)

from the findings we note that about 4 in every 10(39.58%) of the respondents use the e-government service portal for business permit renewal shown by the graph above, while 3 in every 10 (31.25%) of the respondents said that they use the e-government service portal for parking fee payment. Similarly about 2 in every 10(18.75%) uses the portal for rents while only 10.42% use it for land rates payment.

4.3 Adoption of e-government services

The main objective of the study was to establish the adoption level of the respondents regarding e-government services. Respondents were asked to state how they access NCC services. This particular query was meant to get to know the general level of adoption of the available e-Government services and the summary of the result is shown in figure 4.9 below.

Figure 4.8 adoptions of e-government services



Source: Author (2016)

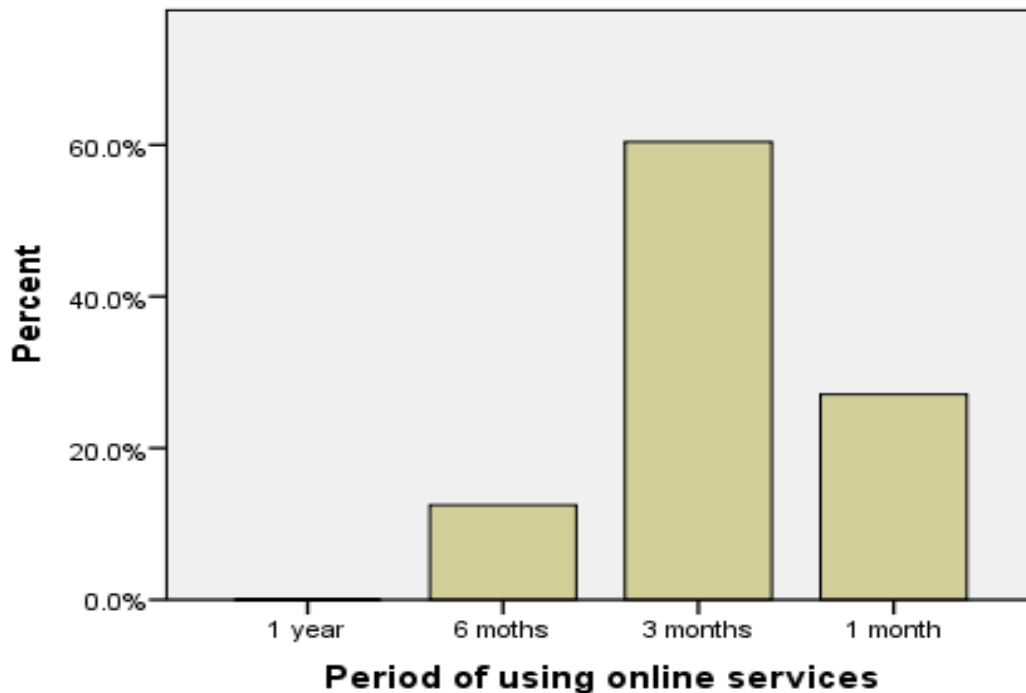
From the findings, about 6 in every 10 respondents indicated to have accessed the e-government services portal manually, while 3 in every 10 respondents indicated to have accessed the services online and 1 in every 10 using both the manual and online system as shown in figure 4.8. This is an indication of low adoption of e government services. The low adoption could probably as a result of the short time span since the e government innovation was launched in June 2015. This is in agreement with the theory of diffusion of innovation that theorizes that, Innovations take time to be adopted and that not all the adopters adopt at the same time. The low adoption could also be due to lack of adequate knowledge of the e government innovation by the Business enterprises as seen by the low level of education of the respondents in figure 4.5 above given the

short period since the innovation was started. The low adoption could also be due to the many challenges facing the system adoption in section 4.3.8 in *figure 4.1.6*.

4.3.1 Period of using online services

The research sought to determine the period of time respondents use online services

Figure: 4.9 Period of using online services



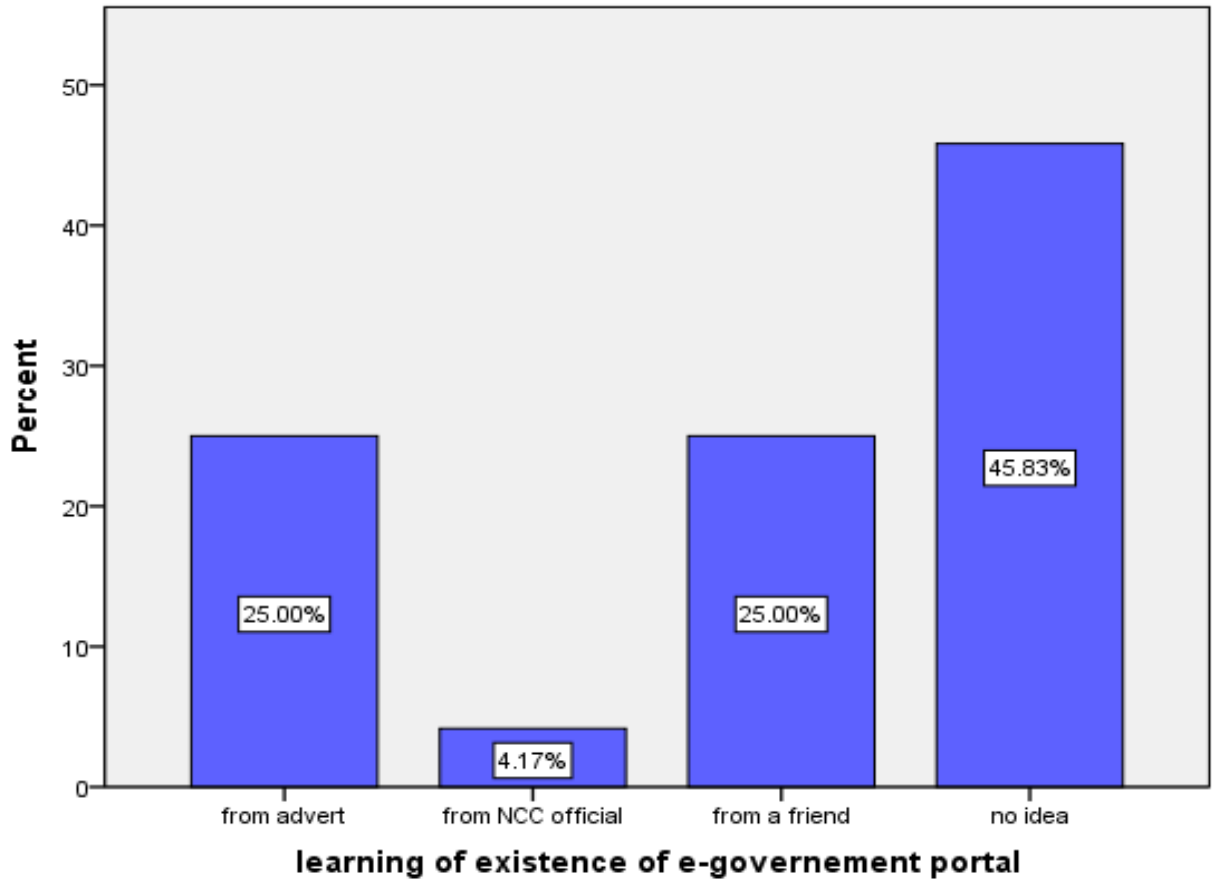
Source: Author (2016)

The findings shows that most of the respondents have accessed online service for a period of three months, this is indicated by figure 4.10 6 months having about 2 in every 10 while more than 2 in every 10 represents users who have accessed the e government portal for a period of a3 months and finally the highest number of users of about 6 in every 10 having used the system for a period of a month. This is an indication that despite the low adoption, users are embracing the new innovation gradually. The slow adoption is caused by low awareness, challenges in the online usage among other factors discussed in the section on factors affecting adoption like complexity of the system, trial ability, compatibility etc.

4.3.2 Learning of the existence of e-government services portal

The research sought to establish respondent's awareness about the e government portal. Awareness-knowledge represents the knowledge or awareness of the existing e-Government initiatives and the associated benefit

Figure: 4.10 Existence of e-government services portal



Source: Author (2016)

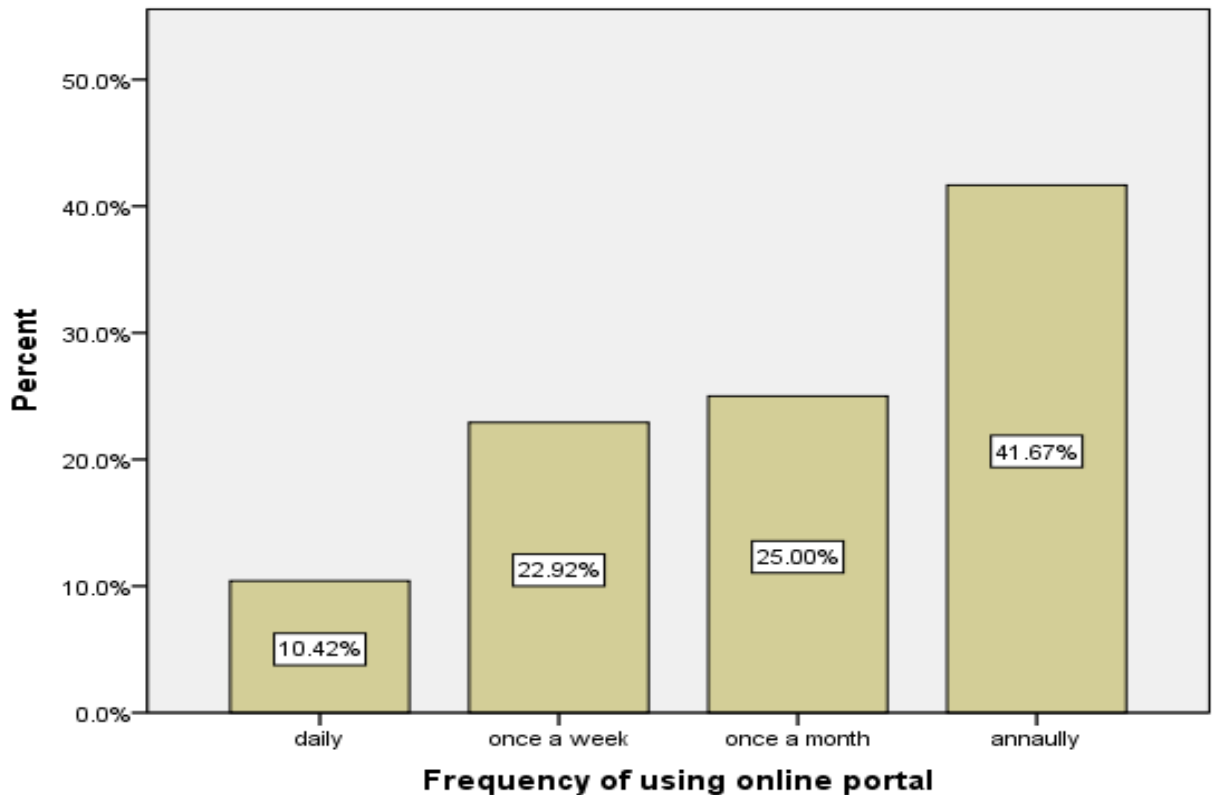
Form the findings; more than 4 in every 10 people have no awareness knowledge about the existence of the e government innovation. The results show that the businesses are less aware about the e government portal and this contributes to the preparedness of the businesses to seek and use e government initiatives. Curiously, of those who have awareness knowledge, only less than 5% received such knowledge from NCC officials either through workshop or consultation

or any other interpersonal means. These points to laxity from those entrusted with driving the e government innovation implementation

4.3.3 The frequency of using online portal

The study sought to find out how frequent respondents use the online portal and the results presented in figure 4.1.2 below.

Figure: 4.11 frequency of using online portal



Source: Author (2016)

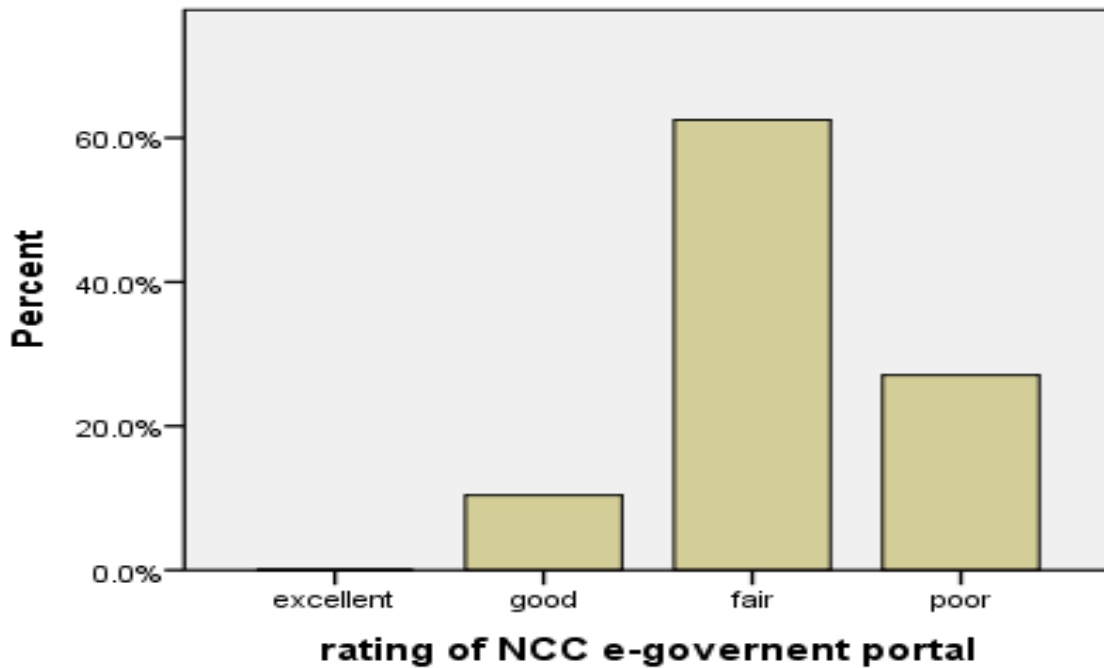
From the findings it was revealed that most respondents about 4 in every 10 use the e government portal annually probably because of annual single business permit renewals, seasonal parking renewal and payment of land rates which is annual. About 2 in every 10 say that they access the portal monthly which could be due to access of monthly rental payments,

monthly parking fees etc. While 2 in every 10 and 1 in every 10 use the portal services once a week and daily respectively as shown by figure 4.11.

4.3.4 Rating of e-government portal

The study sought to establish how respondents rate the e-government portal.

Figure: 4.12 rating of e-government portal



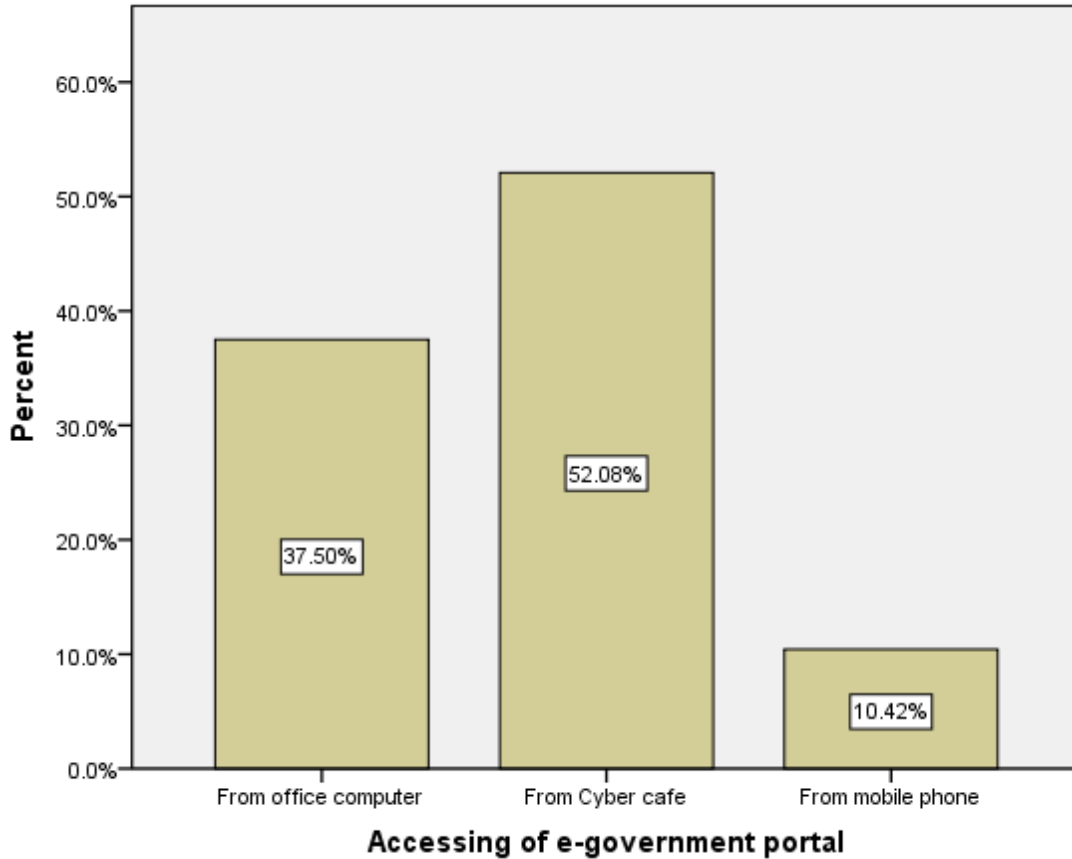
Source: Author (2016)

From the findings in figure 4.12 above, about 6 in every 10 rate the e government portal as fair (which in a scale of A-D, fair is C), while more than 2 in every 10 rate the portal as poor with only less than 2 in every 10 rating the portal as good. These points to poor service quality offered by the NCC that impacts on satisfaction and ultimately affecting adoption. This finding is in agreement with Bloemer and Kasper, 1995 who concluded that, low customer satisfaction level will impact negatively on e-Government adoption. One can therefore infer that, the low adoption of e government can be attributed to low satisfaction level of the businesses.

4.3.5 Where the respondents access the e-government portal

The research sought to establish where the respondents access their services of the e-government portal.

Figure: 4.13 accessing of e-government portal



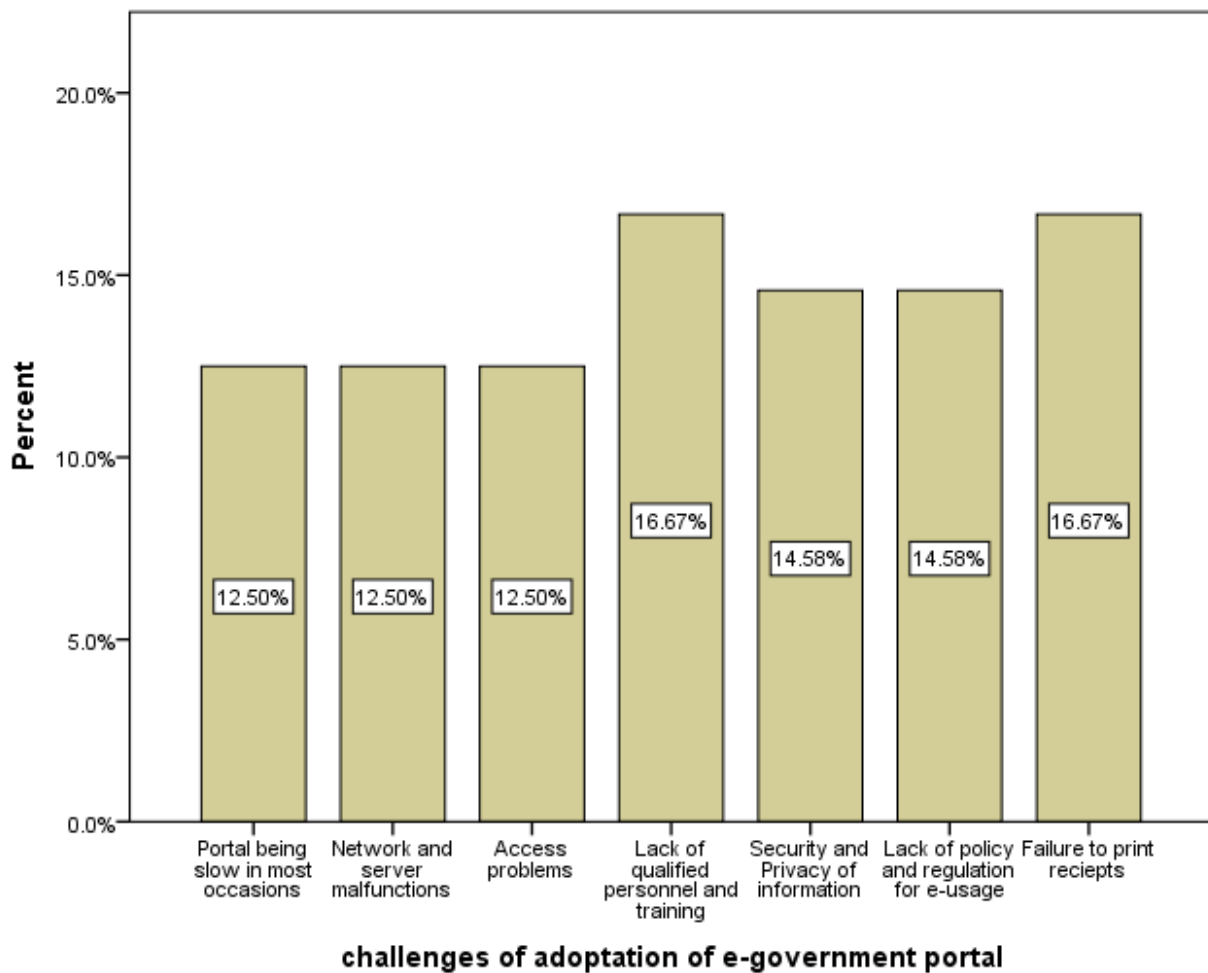
Source: Author (2016)

From the findings more than 5 in every 10 respondents access their services from cyber café while about 3 in every 10 access the online portal from office computer and less than 1 in every 10 from mobile device. This is an indication that more people access the online portal from cyber café probably due to poor technology infrastructure in the business environment. Lack of reliable internet and modern machines in most businesses could probably be the reason for the high usage of cyber café for e government access.

4.4 Challenges of accessing e-government services

This was the second objective of the study that sought to establish the challenges faced by the users when accessing the e-government portal. The study found that 83.33% of the respondents admit to facing challenges. This is an indication that adoption to e government innovation is hampered by various challenges. The respondents indicated the following challenges as a hindrance to adoption as per figure 4.14

Figure 4.4.1 challenges



Source: Author (2016)

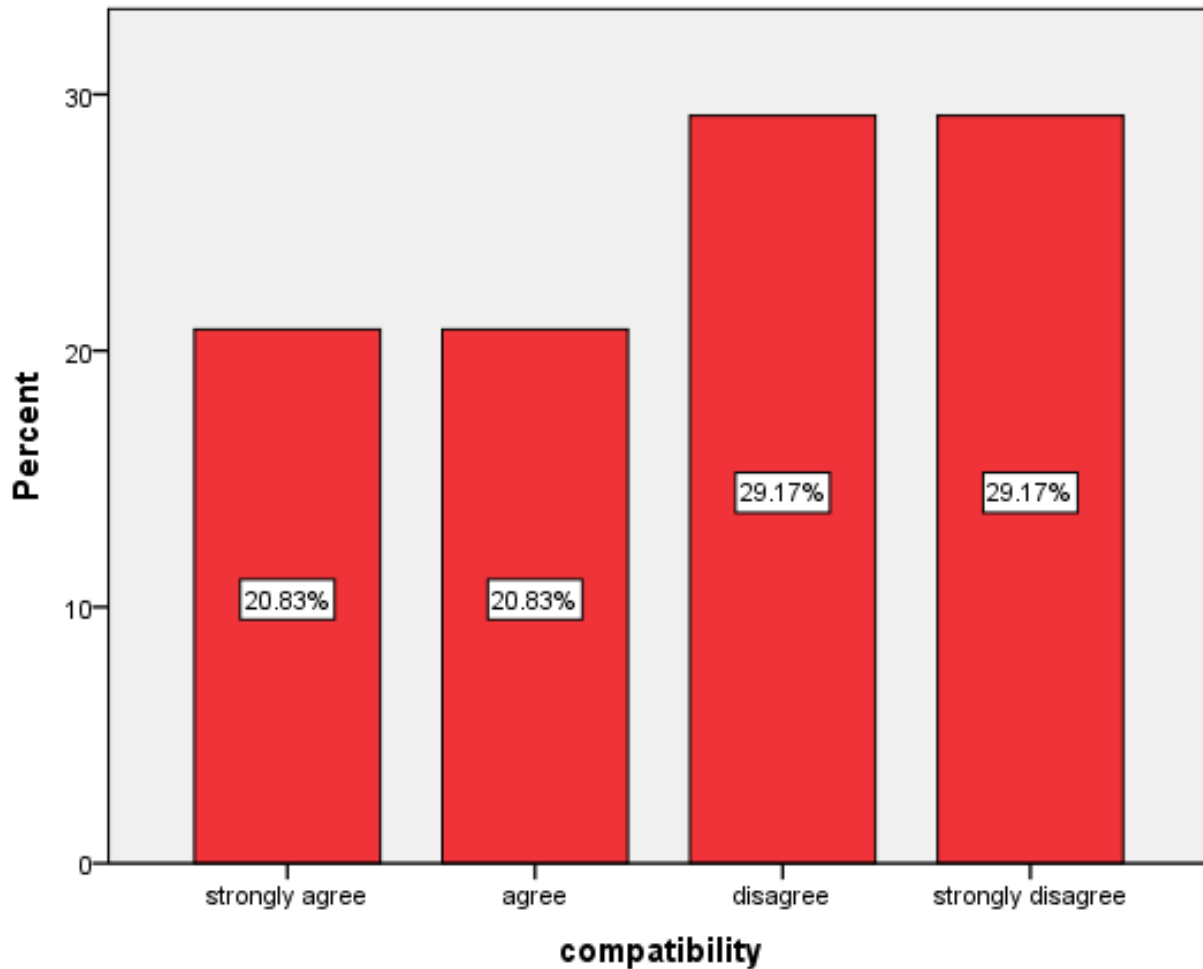
The findings revealed the following challenges i) slow portal ii) Network and server malfunctions iii) Access problems iv) Lack of qualified personnel and training v) Security and privacy of information vi) lack of policy and regulation for e usage vii) failure by the portal to print receipts. Lack of qualified personnel and training and failure by the portal to print receipts tops the list of challenges with close to 2 in every 10 having the feeling that it is a challenge. Slow portal, network and server malfunctions and access problems have been experienced by about 12 Percent of the respondents. While security and privacy of information and lack of policy and regulations for e usage is a concern for about 14 Percent of the respondents.

4.5 Factors affecting adoption of e-government

The study also sought to determine the factors that affect adoption of e government innovations. To establish this objective, respondents were asked the extent to which they agreed with statements relating to factors affecting adoption of e-government and the analysis shown below

4.5.1 Compatibility

Figure 4.5.1 compatibility



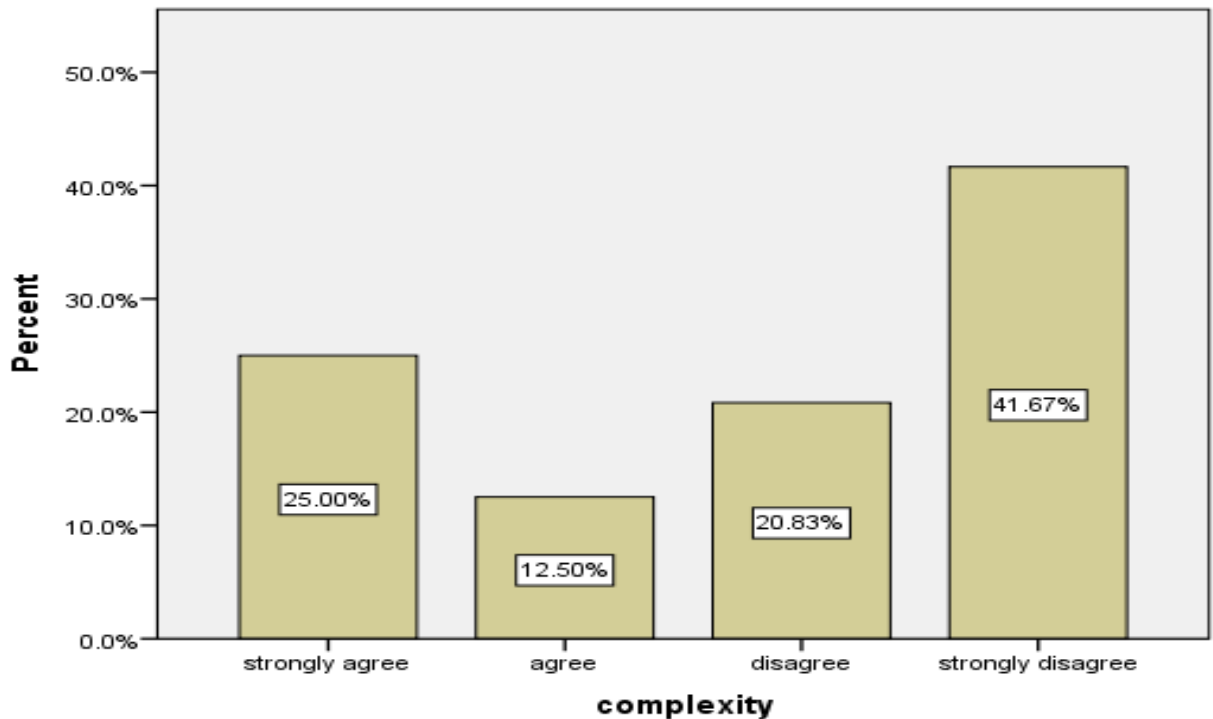
Source: Author (2016)

Compatibility of a system means the extent to which the attitude among the potential adopters influences their perception about the system compatibility with their existing principles and standards of behavior, past experiences, and needs. If the innovation is not capable of existing or performing in harmonious or agreeable combination with the principles and standards of behavior and norms of a social group, it is bound not be adopted as compared to an innovation that can exist or occur together.

In this study about 6 in every 10 people disagree that the e government system is compatible with their existing values and beliefs. However about 4 in every 10 agree with the idea that this innovation is compatible. It shows that this idea is incompatible with a good number of the businesses and hence the low adoption. However, the adopter categories have no problem with adoptability since their norms are consistent with the new innovation.

4.5.2 Complexity

Figure 4.5.2 Complexity



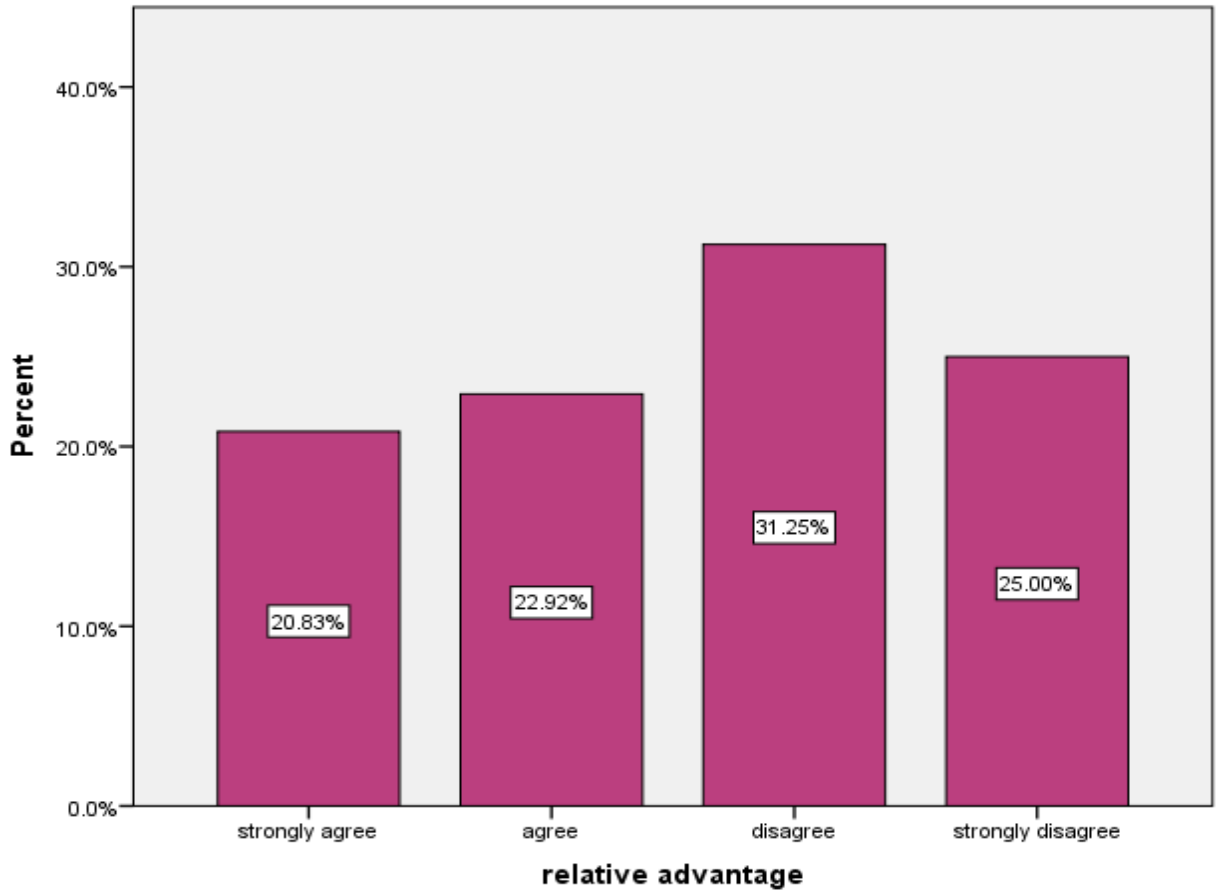
Source: Author (2016)

Complexity is the extent to which a system is considered difficult to learn and use. In this study the result of the findings indicate that 6 in every 10 disagree that the system is user friendly which points to complexity of the system that affects adoption of the Nairobi City County negatively. This is in line with Technology Acceptance Model where Perceived usefulness (PU) and perceived ease of use (PEOU) has the capacity to have an effect on the intention towards use of a system that in turn affects the individual's behavioral attitude to use the NCC portal system, and finally determines the existing system usage. This finding is in agreement with Gajendra ,

Subarna and Purushottam 2014 who concluded that citizens' perceptions of the usefulness of the system would affect their acceptance of e-government.

4.5.3 Relative advantage

Figure 4.5.3 Relative advantage

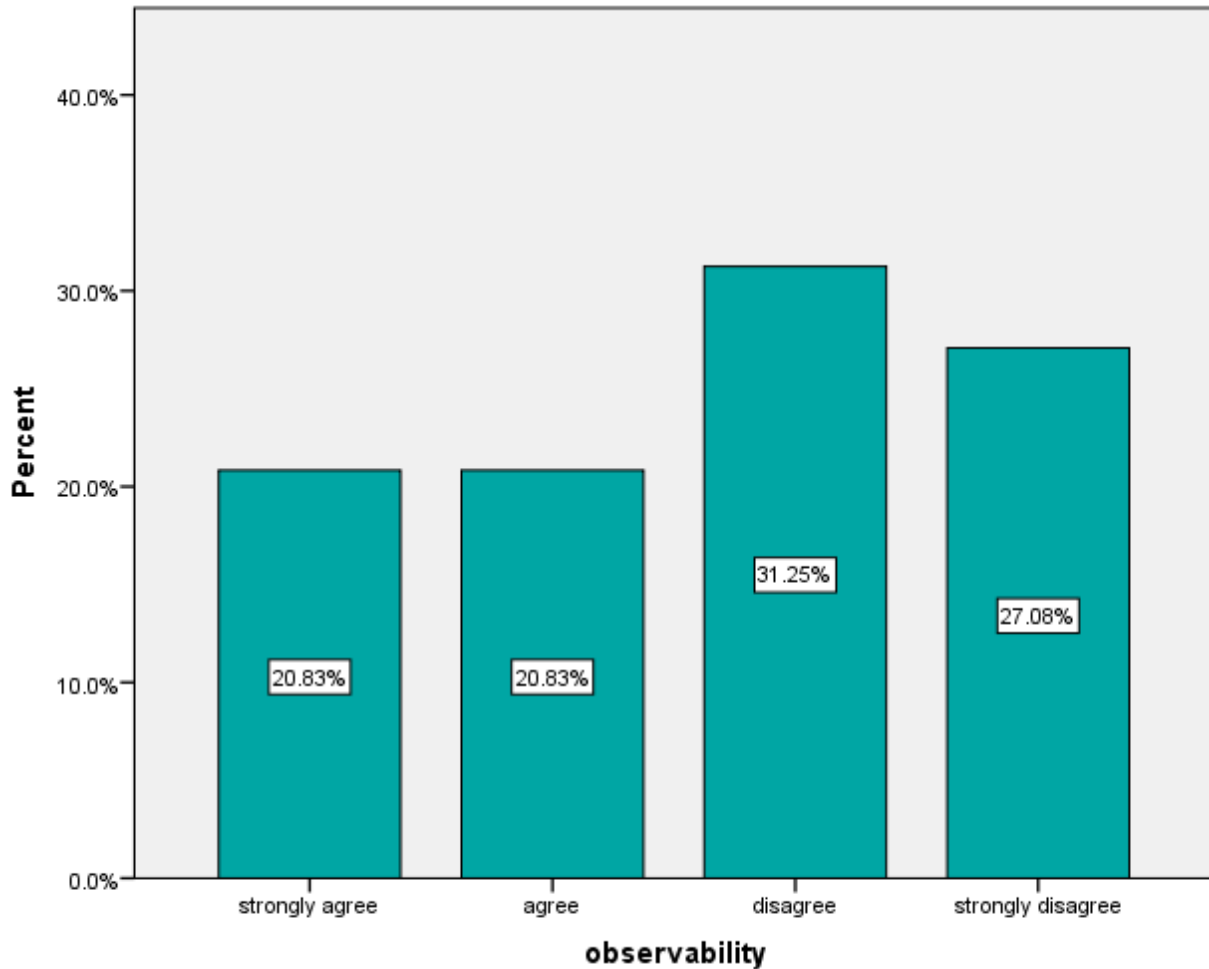


Source: Author (2016)

Relative advantage is the extent to which an idea is considered more beneficial than the idea it seeks to change. About 6 in every 10 believe that the portal is not effective than the manual system. This is an indication that the potential user sees no advantage in using the innovation and the 42 percent that agree to the system usefulness represents the early adopters. An innovation that has a clear benefit over the status quo will be more easily adopted and implemented.

4.5.4 Observability

Figure 4.5.4 Observability



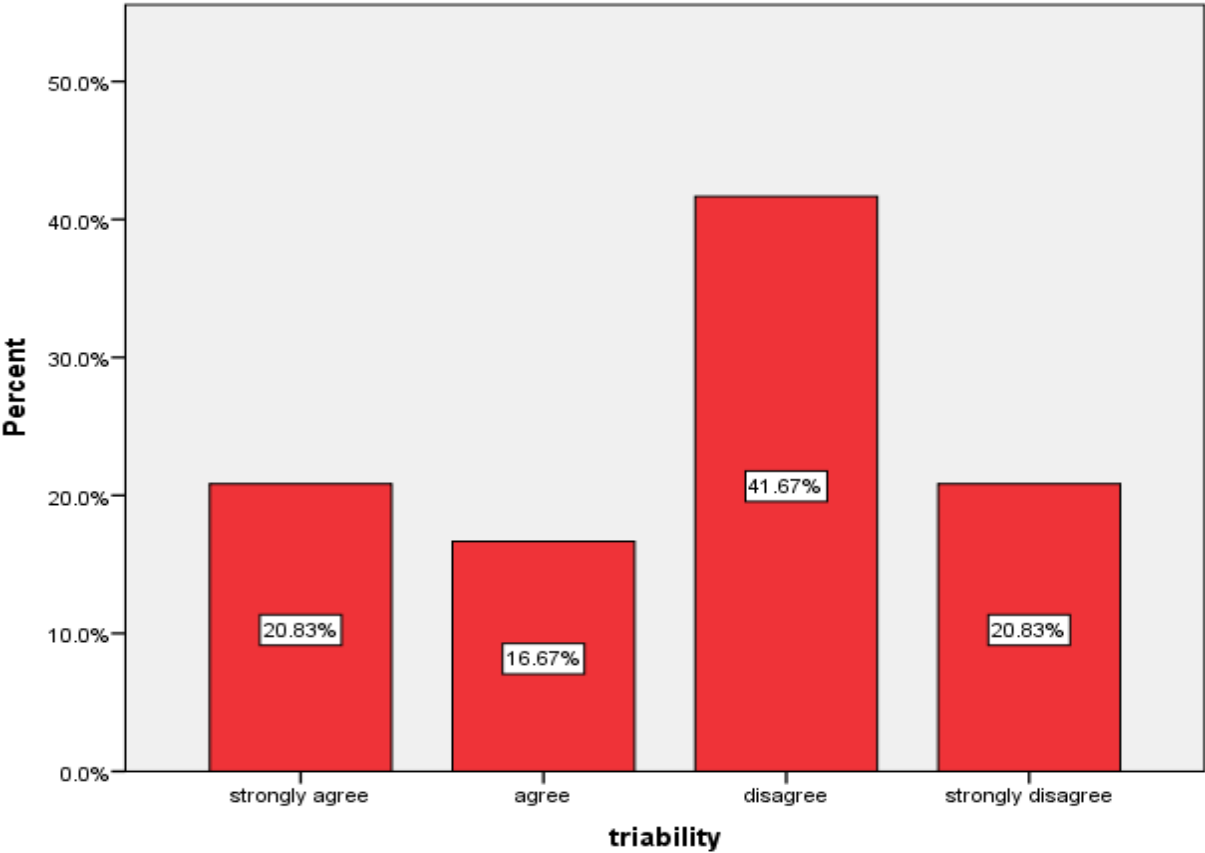
Source: Author (2016)

Observability is the extent to which the result of an innovation can be seen by others and therefore, the easier for individuals to notice the results of innovations the easier for them to adopt. From the findings, the results of the e government innovation are not visible to about six (6) in every ten (10) of the respondents. This can explain the laxity in adoption of the e government system. However, the positive results of the e government innovation are visible to about 4 in every 10 of the respondents that represents those who have already adopted. This is in line with Chigona and Licker (2008) who posit that it is easy for others to see the outcome of

adoptions from those who have already accepted the technology. They indicate that the rate of adoption of an innovation is affected by observability.

4.5.6 Trialability

Figure 4.5.5 Trial ability

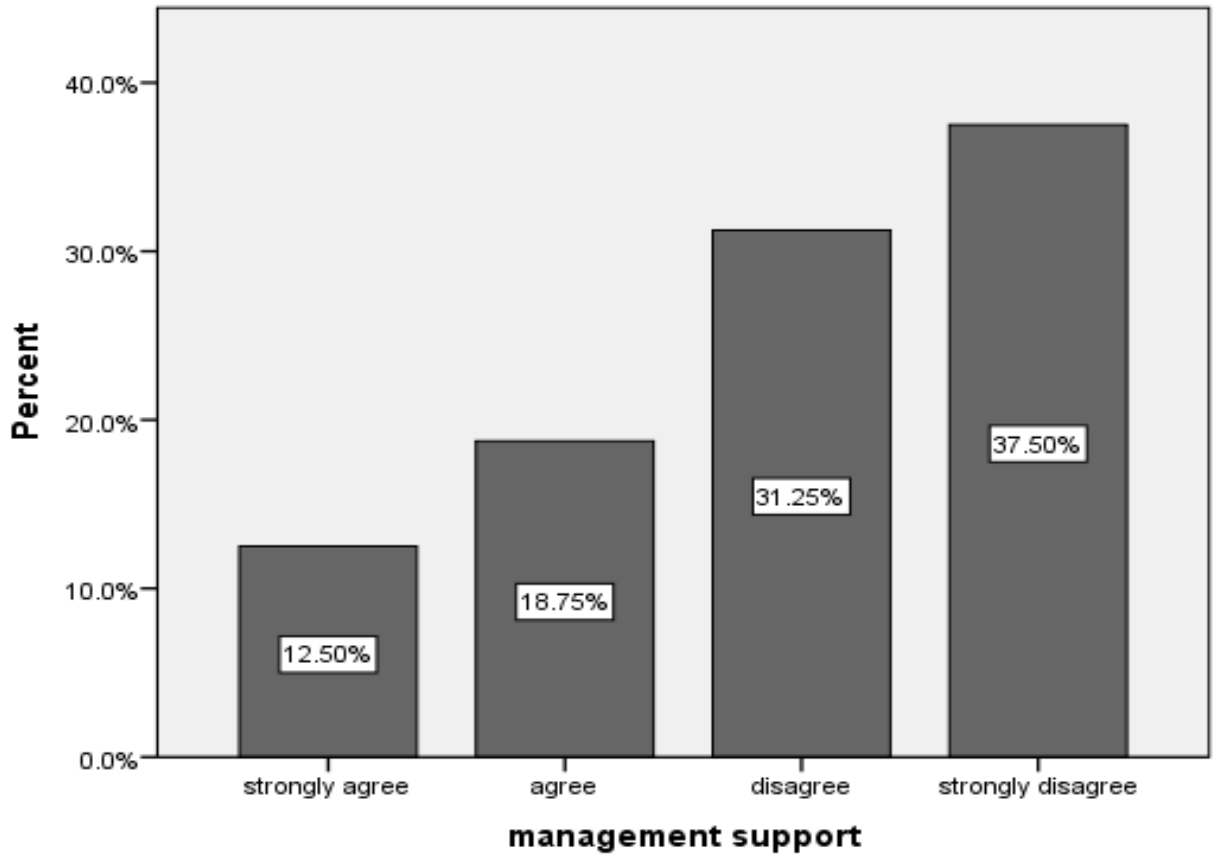


Source: Author (2016)

More than 6 in every 10 disagree that the system can be adopted or modified to suit their own needs after a trial. The inference that we can draw from this result is that many businesses are reluctant to adapt to the e government system pointing to a possible cause for the current low adoption experienced.

4.5.7 Management Support

Figure 4.5.6 Management support



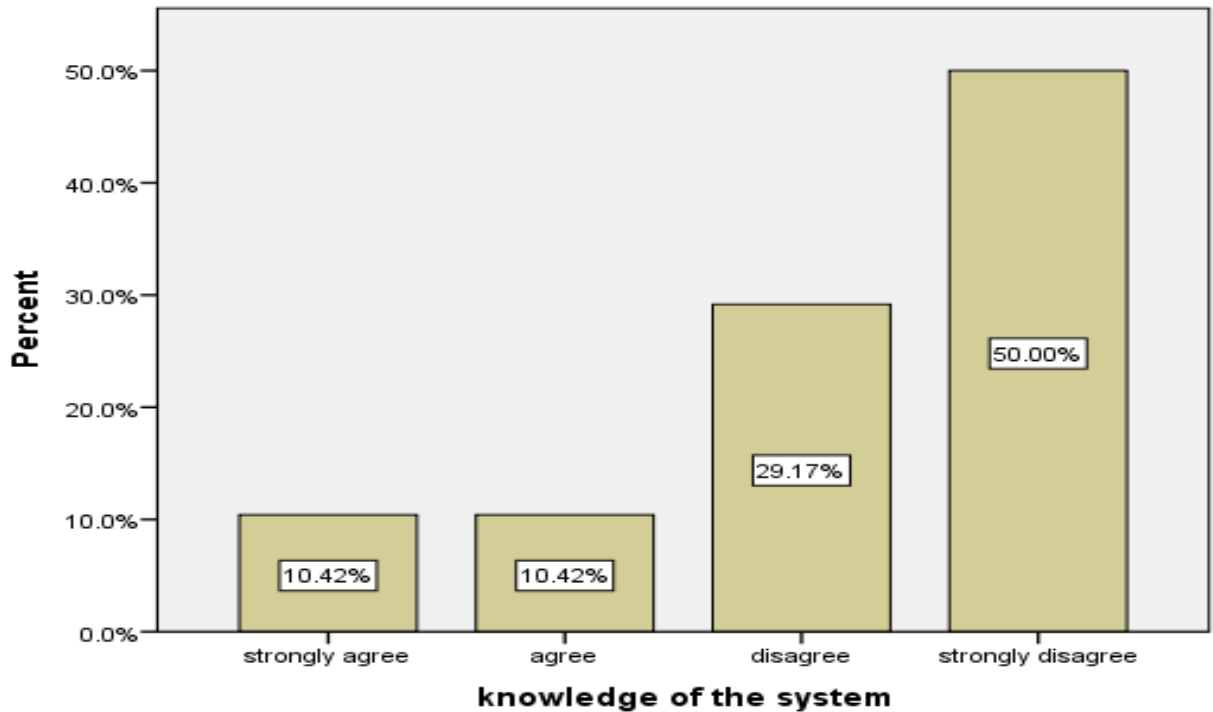
Source: Author (2016)

The study also sought to establish what employees perceive about top management support of the e government portal. And the findings reveal that top management in most businesses sampled has negative perception and attitudes towards adoption of new technologies. The respondents disagreed with the statement asking them whether the top management supports the initiative to the extent of 6 in every 10 saying that there was lack of management support in their businesses adoption to e government. This could be the reason for low adoption of the Nairobi City County e government portal by medium businesses in Nairobi. About 4 in every 10 acknowledged management support in e government adoption. The results show that the lack of commitment from the top management has negatively affected adoption of e government in

Nairobi City County. The top management should be willing to allocate resources and provide the necessary communication and decision to allow adoption of their respective businesses.

4.5.8 Knowledge of the system

Figure 4.5.7 Knowledge of the system

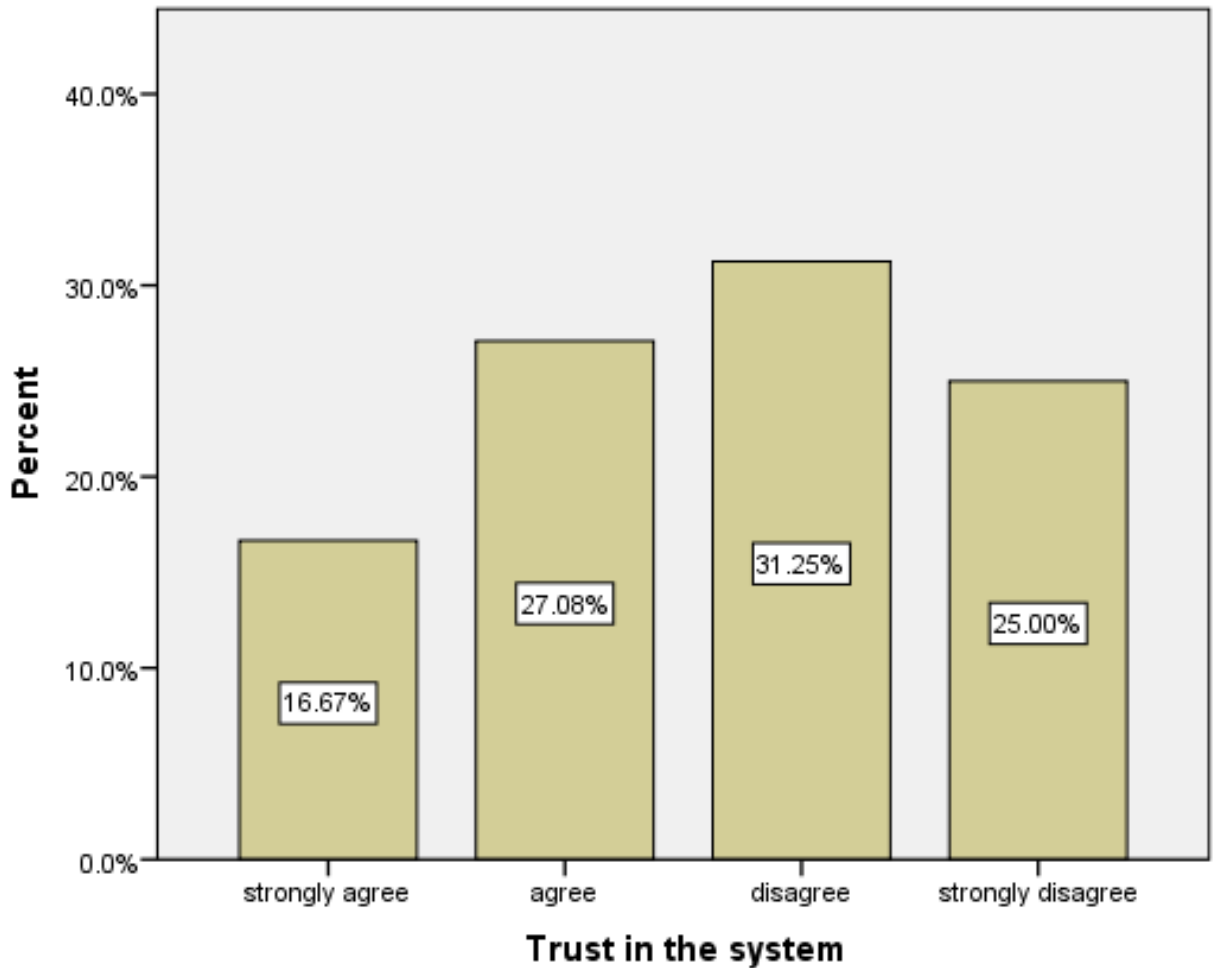


Source: Author (2016)

From the findings, about 8 in every 10 agree that they lack knowledge about the e government system while only 2 in every 10 having knowledge about the system. According to diffusion of innovation theory, knowledge of the innovation is the first stage in the innovation adoption decision process. This particular question tested the level of how-to knowledge. It is clear that users lack knowledge of how to use the innovation correctly that will have negative effect on the expected level usage of the e government innovation. This makes it clear that knowledge is an important element in diffusing innovation. Therefore, to increase the level of adoption of the e government innovation, the users should be trained on how to use the innovation.

4.5.9 Trust in the System

Figure 4.5.8 Trust in the system



Source: Author (2016)

Majority of the respondents have a disapproving attitude with around six in every ten people showing lack of trust for personal sensitive data and information that could be altered or misused by hackers if the e government services were not secure enough. These perceptions could probably be about hacker attacks and theft of e wallet balances (a digital online credit transfer for payment of services).

This can have negative effect on the adoption of the e government innovation for most of businesses in Nairobi and this could be why despite the introduction of the e government system we still have about 6 in every 10 people accessing the services manually.

4.6 Summary of Findings and Interpretation

The study investigated the diffusion of innovation and adoption of e-government in Kenya a case study of Nairobi City County.

The study generally revealed low adoption of the NCC e government portal with only about 3 in every 10 having adapted to the e government portal.

The study revealed that younger people of below 46 years are the highest in terms of adoption to the e government innovation compared to older generation of the range of 50 and above years. The explanation for this finding could be that, younger people have more access to technology than the older generation and hence the early adoption characteristic.

Further, the study also sought to establish where the users access the services from, and the findings indicate that most users access the portal from cyber cafe compared to office personal computer and mobile device which is an indication of poor technological infrastructure in the businesses and hence the need to employ information technology expertise in the businesses.

Further, the findings also revealed lack of stable technology infrastructure among the businesses in Nairobi like poor internet connectivity and lack of superior equipment that is a prerequisite for e government adoption. Other challenges ranging from Lack of qualified personnel and failure by the portal to print receipts, slow portal, network and server malfunctions and access problems that has affected and slowed down adoption to Nairobi City County has also being revealed.

The study established lack of management support that is necessary for adoption to e government initiative that should provide resources and the necessary policies and decisions to allow adoption. The findings revealed poor attitude of the top managements in the businesses sampled which has negative effect on the adoption of NCC.

In addition the study found out that there is both lack of awareness knowledge and knowledge about the correct way to use the innovation which has negative effect on the expected usage level of the e government innovation.

The study also revealed lack of trust for personal sensitive data and information that could be altered or misused by hackers if the e government services were not secure enough. Fears about data security and trust in the system from hacking and loss of credit (e wallet) balances affected negatively adoption to NCC e government portal.

The findings also revealed that, the results of the e government innovation are not visible to more than half of the respondents from those who have already adopted it. This can explain the laxity in adoption of the e government system.

The study also revealed that the users perceive that there no relative advantage of the e government compared to the manual system. The respondents believe that the portal is not effective than the manual system which is an indication that there is likelihood that the e government system adoption will be slowed.

From the findings, the study also revealed that the system is complex in nature and hence not easy to use. This influences user's perception of e government system usage, which further will have an effect on the intention to utilize the innovation.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

From the analysis and data collection, the following conclusions and recommendations were made. The responses were based on the objectives of the study. The study sought to establish diffusion of innovation theory and adoption of e government in Kenya: a case of Nairobi City County.

5.2 Conclusions

The findings in the study lead to the conclusion that there is low adoption of Nairobi City County e government services by the medium businesses mainly due to a number of challenges and factors that affects adoption. The research also concludes that there is low awareness of the NCC e government portal among the businesses in Nairobi. There is total laxity by those entrusted to drive the e government innovation with about 6 in every 10 still queuing for services right under their nose without positive influence. Therefore the research concludes that there is need to sensitize and train users of e government by use of interpersonal channels.

The research also concludes that the system features are complex and hence not user friendly. There is need to improve the system by making the portal user friendly through integration of easy to use features. In addition the NCC should make sure the e-government system is fully compatible with different businesses systems, this will enhance its versatility across different business sectors.

The research also concludes that the low adoption is caused by overriding challenges facing the e government adoption. These challenges have the potential to slow adoption and cause the adopters to discontinue if not salvaged on time.

5.3 Recommendations

The study recommends the following based on its objectives. For objective one, which was to establish the extent to which the medium business enterprises have adapted to the Nairobi County e government services have made three recommendations.

First, it recommends publicity campaigns like advertisement through the media, interpersonal channels for example workshops in order to create awareness of the e government portal.

Secondly, mechanisms should be put in place to enhance the level of involvement of the NCC employees on the e government innovation for example creation of champions of e government office as drivers of the new innovation where specific matters of e government can be channeled.

Thirdly, NCC should set a strict timeline for all businesses to adapt to use e government portal in order to pressure the ‘Laggards’ of the e government innovation to come on board.

For Objective two, which was to establish the factors that affect adoption of the Nairobi County e government service among the medium business enterprises, made the following recommendations;

First, there is need for Public/Private partnership between Nairobi City County and commercial Cyber cafes on how they can collaborate to provide knowledge centers to users seeking to acquire e government services.

Secondly, there should be mandatory trainings for businesses that shall form part of the requirements for business permit renewals in order to enhance skills of e government portal users.

Thirdly, NCC should introduce measures to make technology infrastructure a requirement for new business set ups and also encourage existing businesses to improve on their technology infrastructure.

For Objective Three, which was to determine the Challenges hindering adoption of the Nairobi County e government service among the medium business enterprises made three recommendations as follows;

First, the study recommends a system generated automatic change password process without going through an agent to avoid delays and inconvenience in access. At the moment, it involves

making a call to an agent who should facilitate change of system password for access incase a user forgets his/her password. It happens that the agents are most of the times engaged and involves a lot of delay.

Finally, the study recommends provision of effective online support and help for online problem solving.

5.4 Recommendation for Further Studies

The findings in this study focused on the adoption level of Medium Business Enterprises located in the Nairobi City County. Future studies in this area should focus on respondents belonging to large organizations so as to compare results of adoption of the innovation and e-government service technology.

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APPENDICES

Appendix A: Cover Letter



UNIVERSITY OF NAIROBI

SCHOOL OF JOURNALISM AND MASS COMMUNICATION

P.O BOX 35616-00100

NAIROBI

Respondent,

Dear Sir/Madam,

RESEARCH QUESTIONNAIRE

I am a post graduate student at Nairobi University pursuing Master of Arts in Communication Studies (Dev. Communication). I am conducting a research on Diffusion of Innovation Theory and adoption of E Government by medium business enterprises in Kenya: My study uses the Nairobi City County as a case study and seeks to carry out a survey of Medium Business Operators/Managers in Nairobi CBD. The findings of this study will provide both management of Nairobi City County, Government and the Citizen with an understanding on the adoption level of E Government innovations. The information will be important for these organizations in making decisions on the best strategies to use to enhance the innovation adoption process.

The information provided will be held in confidence and for academic purpose only. The questionnaire takes approximately 20 minutes to complete.

Yours faithfully,

ABDULLAHI A. Ali

Appendix B: Questionnaire

Answer the following questions by ticking or marking the boxes using X or √ or by filling the empty boxes.

PART I: GENERAL DEMOGRAPHICS.

1. What is your gender?
Male Female

2. What is your age range?
Less than 25 years 26-35 years 36-45 years 46-55 years 56 years and above

3. Under which sector do you operate your Business?
Private Education, Health & Entertainment Commercial and Trade
Catering Other Services

Please specify.....

4. How long have you been with your organization?
Less than one year 1-3 years 4-6 years

7-9 years More than 9 years

5. What is your highest education level?
Certificate Diploma Degree Post graduate Diploma Masters

6. What is your position at your business?
Supervisor Middle level Manager Top level Manager Director

PART II

1. Do you use NCC services?

Yes No

2. If yes, please list the services of NCC that you use for the operation and growth of your business

- i) Business permit renewal
- ii) Land rates payment
- iii) Parking fees payment
- iv) Others please specify.....
.....
.....
.....

3. How do you get the above services?

- i) Online
- ii) Manually
- iii) Both

4. If online, how long have you used the online services?

- i) 1 Year
- ii) 6 Months
- iii) 3 months
- iv) 1 month
- v) Any Other please specify
.....

5. How did you learn the existence of the NCC e government Portal?

- i) From a friend
- ii) From NCC official
- iii) From advert

iv) Any other way please specify.....

6. How frequent do you use the online portal

- iv) Daily
- v) Once a week
- vi) Once a month
- vii) Annually

7. What is your rating of the NCC e -government portal?

- viii) Excellent
- ix) Good
- x) Fair
- xi)** Poor

8. Where do you access from the e- government portal of the NCC?

- i) From Office Computer
- ii) From Cyber Café
- iii) From Mobile phone
- iv) Any other way please specify

.....

9. Do you face challenges accessing the e government services?

- Yes
- NO

10. If yes please list the challenges in order of ranking

- i)
- ii)

- iii)
- iv)
- v)
- vi)
- vii)
- viii)
- ix)

11. Please indicate the degree to which you agree or disagree with the following statements. Use a scale of 1-4 where; [1] is strongly disagree [2] disagree; [3] agree; and [4] strongly agree.

| Factor | Measurement | Strongly Disagree [1] | Disagree (2) | Agree[3] | Strongly Agree[4] | Brief Reason for the choice of your answer. |
|----------------------|---|------------------------------|---------------------|-----------------|--------------------------|--|
| 1.Compatibility | The NCC e government Portal systems is fully compatible with my personal beliefs and values | [] | [] | [] | [] | |
| | I consider NCC e government online services to be very useful | [] | [] | [] | [] | |
| | | | | | | |
| 2.Relative advantage | Using e government portal is more effective than the manual system | [] | [] | [] | [] | |
| | | | | | | |
| 3. Complexity | The NCC e government Portal system is user friendly | [] | [] | [] | [] | |

| | | | | | | |
|----------------------------|--|--------------------------|--------------------------|--------------------------|--------------------------|--|
| | | | | | | |
| 4. Observability | The positive results of using the NCC e government Portal is clearly visible | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | The NCC e government Portal is more advantageous to use than the manual system | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4. Trialability | The e government service can be adapted or modified to suit my own needs | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5. Management Support | In my organization, top management encourages employees to use NCC e government Portal | | | | | |
| | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 6. Knowledge of the system | I have been trained on how use NCC e government portal | | | | | |
| | I find using online Government services easy due to my previous experience | | | | | |
| 7. Trust in the system | The Nairobi City County e government Portal is secure | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

THANK YOU FOR YOUR TIME.

Appendix C: Certificate of Field Work



**UNIVERSITY OF NAIROBI
COLLEGE OF HUMANITIES & SOCIAL SCIENCES
SCHOOL OF JOURNALISM & MASS COMMUNICATION**

Telegram: Journalism Varsity Nairobi
Telephone: 254-02-3318262, Ext. 28080, 28061
Director's Office: 254-02-2314201 (Direct Line)
Telex: 22095 Fax: 254-02-245566
Email: director-soj@uonbi.ac.ke

P.O. Box 30197-00100
Nairobi, GPO
Kenya

REF: CERTIFICATE OF FIELDWORK

This is to certify that all corrections proposed at the Board of Examiners meeting held on 16/06/2016 in respect of M.A/PhD. Project/Thesis Proposal defence have been effected to my/our satisfaction and the project can be allowed to proceed for fieldwork.

Reg. No: KS0175319/2014

Name: ABDULLAHI ABDI ALI

Title: DIFFUSION OF INNOVATION THEORY AND ADOPTION OF EGOVERNMENT IN KENYA;

A CASE OF NAIROBI COUNTY

DR. KAMAU MWANGI
SUPERVISOR

[Signature]
SIGNATURE

16-6-2016
DATE

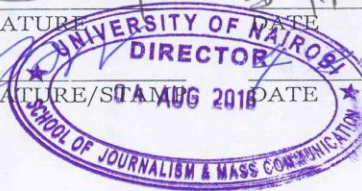
Dr Samuel Sirigu
ASSOCIATE DIRECTOR

[Signature]
SIGNATURE

20/7/2016
DATE

Dr. Nleti Nleti
DIRECTOR

[Signature]
SIGNATURE/SUBSTITUTE
DATE



Appendix D: Declaration of originality form

Appendix I Declaration Form for Students

UNIVERSITY OF NAIROBI Declaration of Originality Form

This form must be completed and signed for all works submitted to the University for examination.

| | |
|--------------------------|---|
| Name of Student | ABDULLAH ABDI ALI |
| Registration Number | K50/75319/2014 |
| College | HUMANITIES & SOCIAL SCIENCES |
| Faculty/School/Institute | JOURNALISM AND MASS COMMUNICATION |
| Department | |
| Course Name | M.A COMMUNICATION STUDIES |
| Title of the work | Difusion of innovation theory and adoption of e-egait by medium business enterprises in Kenya: a Case of Nairobi County |

DECLARATION

1. I understand what Plagiarism is and I am aware of the University's policy in this regard
2. I declare that this PROJECT (Thesis, project, essay, assignment, paper, report, etc) is my original work and has not been submitted elsewhere for examination, award of a degree or publication. Where other people's work, or my own work has been used, this has properly been acknowledged and referenced in accordance with the University of Nairobi's requirements.
3. I have not sought or used the services of any professional agencies to produce this work
4. I have not allowed, and shall not allow anyone to copy my work with the intention of passing it off as his/her own work
5. I understand that any false claim in respect of this work shall result in disciplinary action, in accordance with University Plagiarism Policy.

Signature _____

Date 10/11/2016

8



Appendix E: Plagiarism Report

11/10/2016

Turnitin Originality Report

Turnitin Originality Report

Diffusion of Innovation Theory and adoption of e - Government by Medium Business Enterprises in Kenya: A case of Nairobi City County. by Abdullahi Abdi Ali K50/75319/2014

From Mass media and Technology (MA Communication theory)

- Processed on 31-Oct-2016 17:29 EAT
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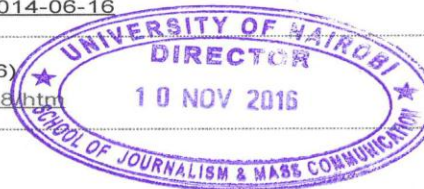
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- 4 1% match (publications)
[Al-Shafi, Shafi Homoud\(Fitzgerald, G and Weerakkody, V\). "Factors affecting e-Government implementation and adoption in the State of Qatar". Brunel University, School of Information Systems, Computing and Mathematics, 2012.](#)
- 5 1% match (publications)
[Altameem, Torki Abdulaziz\(Alshawi, S and Zairi, M\). "The critical factors of e-government adoption: An empirical study in the Saudi Arabia public sectors". Brunel University, School of Information Systems, Computing and Mathematics, 2011.](#)
- 6 < 1% match (student papers from 16-Jun-2014)
[Submitted to Saint Paul University on 2014-06-16](#)
- 7 < 1% match (Internet from 12-Mar-2016)
<http://www.mdpi.com/1999-5903/4/2/528/html>



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Appendix F: Certificate of Corrections



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P.O. Box 30197-00100
Nairobi, GPO
Kenya

REF: CERTIFICATE OF CORRECTIONS

This is to certify that all corrections proposed at the Board of Examiners meeting held on 25/10/2016 in respect of M.A/PhD. Project/Thesis Proposal defence have been effected to my/our satisfaction and the project can now be prepared for binding.

Reg. No: K50/75319/2014

Name: ABDULLAH ABDI ALI

Title: Difusion of innovation theory and adoption of e.govt by medium business enterprises in Kenya: A Case of Nairobi City County

Dr Michael Mwangi
SUPERVISOR

[Signature]
SIGNATURE

10-11-2016
DATE

Dr Samuel Sirugi
ASSOCIATE DIRECTOR

[Signature]
SIGNATURE

10-11-2016
DATE

Dr. Ndetei Ndetei
DIRECTOR

[Signature]
SIGNATURE/STAMP

10-11-2016
DATE

