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**ADOPTION OF M-GOVERNMENT SERVICES IN THE MINISTRY OF INTERIOR AND
COORDINATION OF NATIONAL GOVERNMENT**

BY:

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ABSTRACT

The Government of Kenya, like any other governments around the globe, has started moving towards m-government as a next step to improve its interaction with citizens and enhance the quality and delivery of services. However, the success of these efforts depends on how well the targeted users for such services make use of them. For this reason, the prime motivation of this research was to provide a useful instrument to policy makers in the Ministry of Interior and Coordination of National Government (MICNG) in Kenya, which demonstrate possible drivers of adoption of m-government services, and that can form basis for evaluating the likelihood of success of m-government projects. Moreover, such knowledge could assist policy makers to proactively devise mechanisms aimed at stemming possible resistance to m-government. The study's objectives were to understand the adoption level of m-government services in MICNG, analyze the challenges that confront m-government adoption in MICNG, propose a model guiding intensions of adoption of m-government services in MICNG and finally, validate the proposed model with the data collected in MICNG.

This study uses Unified Theory of Adoption and Use of Technology (UTAUT). The researcher targeted the one thousand five hundred and eighty five (1585) staff in the Ministry of Interior and Coordination of National government. The respondents were gotten using Simple random sampling method, while discussions with colleagues and the supervisor ensure the reliability of the questionnaire. This assisted to make appropriate adjustment to the questionnaire. The five-point Likert scale with endpoints of "strongly agree" and "strongly disagree" was used to measure each question. The questionnaire was administered to two hundred and forty (240) members of staff at MICNG out of which one hundred and seventy two (172) responded. The study used both correlation and multiple regression methods to carry out data analysis, whereas data presentation was in descriptive and inferential forms. The research findings showed that performance expectancy, social influence, compatibility, awareness and internet experience and mobile device significantly contribute to the prediction of the intention to use m-government services whereas time and effort, ease of use and trust insignificantly contribute to the prediction of the intention to use m-government services.

Keywords: Adoption, m-government, policy makers, Unified Theory of Adoption and Use of Technology, performance expectancy, social influence compatibility, awareness, internet experience, ease of use, time and effort, trust

DECLARATION

I Mwamboni Ali Rashid hereby declare that:-

The research project is my own original work;

The research has not been submitted for the award of a degree in any University.

Signature: Date:

Registration Number P56/73068/2012

This research has been submitted in partial fulfillment of the requirement for the MSc (Information Systems) of the University of Nairobi with my approval as university supervisor.

Signature: Date:

Dr. Christopher Chepken

University of Nairobi

DEDICATION

*To my wife
Mwanaidi Zingizi*

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Table of Contents

Chapter 1: Introduction	1
1.0 Background of the Study	1
1.1 Statement of the Problem.....	1
1.2 Research Motivation & Objective	2
1.3 Research question	3
1.4 Rationale of the study	3
1.5 Scope of the Study	3
1.6 Delimitations of the Study	3
Chapter 2: Literature review	4
2.0 Introduction	4
2.1 What is m-government	4
2.2 Previous Studies	4
2.3 History of e-government in Kenya	5
2.4 The Ministry e-government services	7
2.5 Technology Adoption	8
2.5.1 Theory of Reasoned Action (TRA)	8
2.5.2 Technology Adoption Model (TAM).....	8
2.5.3 Diffusion of Innovation (DOI)	8
2.5.4 The Unified Theory of Adoption and Use of Technology (UTAUT)	9
2.5.4.1 Performance Expectancy.....	9
2.5.4.2 Effort Expectancy	9
2.5.4.3 Social Influence	9
2.5.4.4 Facilitating Conditions	9
2.6 Research Conceptual Model	10
Chapter 3: Methodology	12
3.0 Introduction	12
3.1 Research Design	12
3.2 Population and Sampling.....	12
3.3 Questionnaire Development	12
3.4 Data Validation.....	13
3.5 Data Reliability.....	13
3.5 Data Collection Procedure	14
3.6 Data Analysis and presentation	14
Chapter 4: Results	15

4.0 Introduction	15
4.1 Demographic data.....	15
4.1.1 Respondent’s gender	15
4.1.2 Respondents age.....	16
4.1.3 Highest level of education	17
4.1.4 Monthly income	18
4.1.5 Mobile devices	19
4.1.6 Internet	20
4.2 Reliability and Validity.....	21
4.3 Collinearity	23
4.4 Multiple Regression.....	23
4.4.1 Determining how well the model fits	24
4.4.2 Hypotheses testing.....	24
Chapter 5: Discussion.....	26
5.0 Discussion of Results.....	26
5.1 Implications for policy makers	28
5.2 Implications for academician.....	28
5.3 Limitations and future research directions	28
Chapter 6: Conclusion.....	30
Reference	31
Appendix	35
Appendix 1: Questionnaire.....	35
Appendix 2: University letter	40
Appendix 3: Letter to respondents	41

List of Tables

Table 1. Ministry’s e-government services.....	7
Table 2. Constructs	11
Table 3. Gender distribution	15
Table 4. Age distribution	16
Table 5. Education.....	17
Table 6. Monthly income distribution	18
Table 7. Internet usage.....	20
Table 8. Reliability analysis	21
Table 9. Average extracted variance.....	22
Table 10. Inter –correlation of variables.....	22
Table 11. Multicollinearity	23
Table 12. Model summary	24
Table 13. ANOVA.....	24
Table 14. Hypotheses testing.....	25

List of figures

Figure 1: Gender	16
Figure 2: Age	17
Figure 3: Education	18
Figure 4: Monthly income	19
Figure 5: Mobile usage	20
Figure 6: Internet usage	21

List of abbreviations

M-government	: Mobile government
AVE	: Average variance extracted
MICNG	: Ministry of Interior & Coordination of National Government
MDAs	: Ministries, Departments and Agencies
SAGA	: Semi-Autonomous Government Agency
IS	: Information System
PE	: Performance expectancy
EU	: Ease of use
TE	: Time and effort
SI	: Social influence
CO	: Compatibility
AW	: Awareness
TR	: Trust
IM	: Internet experience & Mobile device
BI	: Behavior intention
DEG	: Directorate of e-government
ICTA	: Information communication Technology Authority
SMS	: Short Message Service
TRA	: Theory of Reasoned Action
TAM	: Technology Acceptance Model
DOI	: Diffusion of Innovation
PC	: Personal Computer
UTAUT	: Unified Theory of Acceptance and Use of Technology
MMS	: Multimedia Message Service
G2C	: Government to Citizen
C2G	: Citizen to Government
G2B	: Government to Business
G2E	: Government to Employees
G2G	: Government to Government

Chapter 1: Introduction

1.0 Background of the Study

The Government of Kenya, like any other governments around the globe, has started moving towards m-government as a next step to improve its interaction with citizens and enhance the quality and delivery of services. The main forces that influences the move are mobile device penetration; emergence of mobile internet and mobile net applications and services (Farshid and Kushchu, 2004).

The mobility of people and use of mobile devices necessitated the provision of anytime, anywhere access to government services. As such, the government was encouraged to move to m-government. However, little was known about factors and conditions surrounding m-government adoption in Kenya. Consequently, policy makers were faced with a dilemma of determining the success levels of m-government projects before the actual introduction. This study attempted to bridge that gap by studying the factors and conditions required for successful adoption of m-government services in the context of Ministry of Interior and coordination of national government (MICNG), Kenya.

The MICNG was unique in that, it was the only ministry in Kenya mandated to provide security to persons and properties within Kenya, national government coordination at counties, internal state functions, national cohesion and reconciliation management, disasters and emergency response coordination, policy on training of security personnel, citizenship and immigration policy and services, border control point management, registration of persons services, registration of births and deaths services, management of refugee policy, security of airstrips and roads, small arms and light weapons management, Kenya prisons service, criminal investigation departments, civilian oversight over police, management of correctional services (Supervision, reintegration and rehabilitation of offenders), management of boundaries, and control and regulation of the gaming industry (Executive order, 2013). The MICNG also had a department dedicated to print government documents that were used by all MDAs. It also had a semi-autonomous government agency (SAGA) that campaigned against alcohol and substance abuse. MICNG was the only ministry that reached common Mwananchi through its wide spread field administrative offices at the grassroots, i.e. had offices up to Locations & Sub-Locations levels.

The adoption of m-government services by the ministry was not only enhancing better service provision to citizens but also was to act as a catalyst for the rest of MDAs to follow suit. Thus, rapid adoption of m-government services to be achieved by all MDAs.

1.1 Statement of the Problem

Over the years, government agencies have been offering services to its citizens using manual systems that were characterized by inefficiency, time-consuming, and often prone to errors (Mansoor and Rohan, 2010). As a result, Government service levels rarely met the set standards, thus lowering confidence of citizens towards government services (Mansoor and Rohan, 2010). Citizens used to travel for long distances in order to access service centers, in addition to coping with the inherent intricacies associated with obtaining the services such as

high costs, corruption and delay (Bassara et al, 2005). To avoid poor reputation in the level of services being offered to citizens a new alternative solution was to be put in place. The growth in mobile technologies, particularly the introduction of smart phones and mobile phones that have access to the Internet and wireless networks, brought a new channel to deliver government services to the citizens in a more effective and economical way. These developments created a new avenue – m-government, which brings government services closer to the people.

According to Antoviski and Gusev (2004) m-government is defined as a subset or a complement to the e-government through the utilization of different mobile and wireless technologies, services, applications and devices to provide information and services to citizens, businesses and all government units thus creating better opportunities for public to participate and communicate with the government.

Studies have shown that governments have used Short Message Service (SMS) to deliver vital information to citizens while members of the public have used Multimedia Message Service (MMS) to send photos of criminals to authorities (Ghyasi and kushchu, 2004). Equally, m-government has demonstrated significant improvement in the communication between Government and Citizen (G2C) or Citizen to Government (C2G), in addition to improved operations among government agencies (G2G) and and Government to Employees (G2E) as well as Government to Business(G2B) (Ghyasi and kushchu,2004). As a result, this has enhanced participation of citizens in public affairs and governance issues, hence improving democracy and accountability in the public sector.

It was certain that m-government was an essential element for socio economic improvement in Kenya. Studies have shown that social economic development of countries is dependent on the citizens' access to government information and services (Miller et al, 2013). By adopting m-government, access to government information and services was to be anytime anywhere. However, unless there was a clear understanding of perspectives and factors related to how MDAs perceived and adopted m-government (Avgerou, 2002); this important technology would remain speculative, and therefore, alien to the populace in MICNG. It was for this reason, that the study was undertaken.

1.2 Research Motivation & Objective

The prime motivation of the research was to provide a useful instrument to policy makers in the Ministry of interior and coordination of National Government, which exemplifies possible drivers of adoption of m-government services, and that could form basis for assessing the likelihood of success of m-government projects prior to implementation. Moreover, such knowledge could assist policy makers to proactively devise mechanisms aimed at stemming possible resistance to m-government.

The main objectives of the research were:

- I. Understand the level of m-government adoption in the ministry,
- II. Analyze the challenges that confront m-government adoption
- III. Propose a conceptual model guiding intentions of adoption of m-government services
- IV. Validate the proposed model with data collected in the ministry

1.3 Research question

1. What is the level of m-government adoption in the ministry?
2. What are the challenges of m-government in the ministry?
3. How are intentions towards the adoption of m-government formed?

1.4 Rationale of the study

The research findings were to assist policy makers in the ministry in forming a basis for assessing the likelihood of success of m-government projects prior to implementation. Moreover, such findings were to assist policy makers to proactively devise mechanisms aimed at stemming possible resistance to m-government.

The research findings were also to assist the government in implementing m-government services across other government agencies.

Hopefully other researchers studying the field of m-government in MDAs may be able to use some of the findings in their research.

1.5 Scope of the Study

The ministry had staff across the country through its wide spread administrative offices at the grassroots. Due to time bound, the study targeted staff in the ministry headquarters located in Haile Selassie Avenue, Harambee House in Nairobi, Kenya. It also had offices in Jogoo House A, Vigilance house, Bruce house, Nyayo House and Government Press. The staff works in various departments as Immigration and registration of persons, National Administration, National police service, Correctional services, Peace building and conflict management, Government Press, and betting control among others.

1.6 Delimitations of the Study

The research was intended to be carried out to all staff in the ministry headquarters. However, this was not possible due to time and cost constraints and random sampling therefore was used.

Chapter 2: Literature review

2.0 Introduction

This chapter will explore the literature that is relevant to understanding the adoption of m-government services in Kenya. It covers definition of m-government, previous studies, history of e-government in Kenya, technology adoption and research model.

2.1 What is m-government

Maumbe and Vesper (2006) perceive m-government as the delivery of government services and information via mobile technology which includes wireless network (WAN, Wifi, WiMax, etc.). They distinguish between mobile devices such as regular cell-phones, smart phones and personal digital assistants (PDAs) from lap-tops that can be plugged from one spot to the other which is more about “portable government” than specific mobile government. Mobile government is synonymous with “unplugged government” (Maumbe and Vesper, 2006).

Kushchu and Kuscü (2003) define m-government as the strategy and its implementation involving the utilization of all kinds of wireless and mobile technology, services, applications and devices for improving benefits to the parties involved in e-government including citizens, businesses and all government units.

M-government is established on the foundation of three interconnected inventions: developments in mobile and wireless technologies, the broader public reception of the technologies and the advancements of government mobile applications and services (Mtingwi and Belle, 2013)

2.2 Previous Studies

Maumbe and Vesper (2006), on their study of adoption of m-government in South Africa noted that m-government was over-shadowed by an over-emphasis on e-government and lack of clarity on what value-added services it was to bring. Of concern was the fact that m-government was now being implemented in some developed countries while developing countries are still pondering on what to do and how (Maumbe and Vesper, 2006). They suggested that m-government should not be designed to replace e-government but should instead target new or additional services unavailable under e-government. Both e-government and m-government should be used to maximize service delivery to citizens.

Mobile government initiatives in developing countries were in early stages, nevertheless, there was an increasing interest and acknowledgement that m-government had a potential to overcome the shortcomings of e-government such as mobility and reachability (Gilbert, 2012) and therefore, it was poised to provide public services in a more efficient and effective way. However, like any other innovation and despite the proclaimed benefits, m-government has not been widely accepted (Gilbert, 2012), and therefore, it had remained a “potential technology” only to be marveled at while its actual implementation in MDAs remains a mirage. To this end, it was the responsibility of the researchers to investigate the drivers of adoption of m-government in MDAs if successful deployment was to be achieved. This study investigated the drivers of m-government adoption in MICNG.

Most of the previous studies that studied factors that determine adoption and usage of information systems such as Davis, (1989); Mathieson, (1991); Thomson et al., (1994); Oroko, (2008); Venkatesh and Davis, (2000), focused on usage behavior after the systems had already been implemented (Karahana and Straub, 1998). According to Lu et al. (2005), the beliefs and motivation identified by those studies are mostly suitable for studying continued –use behavior. They noted however much initial adoption is the first step in the long-term usage, the factors that affect the usage may not be the same for initial adoption, or the magnitude of outcome may be different.

Few studies have addressed the subject of behavior intention that encompasses pre-adoption criteria of information systems which remains a critical issue in IS research (Lu et al., 2005). In the context of this study, pre-adoption criteria are important aspect for adoption of m-government in Kenya, which is still in its infant stages of implementation.

In addition, Hung et al. (2006) highlighted reasons contributing to failure of m-government to garner sufficient understanding. They noted that, past studies on IS adoption focused on business and profitable organizations with few studying public organizations and other government agencies. According to the them, government differ from private sector in that governments have less exposure to the markets, more legal and formal, bureaucratic, and more complex constraints for information systems. Moreover, studying the literature shows that there is a gap regarding investigating the factors that affect citizens' adoption of using m-government services in government agencies of developing countries and Kenya was not spared. Many studies covered the adoption towards e-government but not the m-government services (Al-adawi et al., 2005). To this end, there was absolute necessity to investigate the factors attributed to adoption of m-government in the Ministry of Interior and Coordination of National Government, in Kenya.

2.3 History of e-government in Kenya

The government of Kenya in recognition of the power of technology established the Directorate of E-government (DeG) and mandated it to oversee and coordinate e-government service delivery in the public sector. Its main functions were to provide and implement e-government strategy, provide technological advice and policy framework, develop and facilitate access to e-services, build the capacity of technical staff, public servants and citizens to ensure successful implementation of e-Government (E-gov, 2013). This paved way for the formation of ICT units within all government ministries to fast track and spearhead e-services delivery to Kenyans. However, since its inception, minimal gains have been achieved with only limited online services available where citizens could log in and access services. Moreover, the accessibility of the portals was further hampered by low Internet penetration to all parts of the country.

The government recently established an ICT authority, a successor to Directorate of E-government, with a mission of delivering innovative and value added solutions to deliver government services to citizens and business with efficiency, effectiveness and value for money (GOK Legal notice, 2013). However, the authority was yet to take off.

In Kenya, there was existence of many m-services offered via mobile devices by private sector. The transfer of money through mobile phone was a successful story of m-services by private sectors. This service was launched by Safaricom and dubbed Mpesa. Other mobile subscribers in Kenya came up with other products such as Airtel money; Yucash among others. Through these services one could pay bills anytime anywhere via mobile phone. However, on the side of government, there were limited services offered through mobile devices such as sending and receiving national examination results information, notification of voter registration, tracking of passports and national Identity card among others. Although, these m-government services were facing the following challenges:

1. Piloted services, some of m-services were only available in the capital city while others were not fully implemented. This means services served only a few people. The judiciary was accepting fines via mobile phone. This service was dubbed “faini chap chap” and it only served traffic offenders and was available in Nairobi (Judiciary, 2012). The m-service for checking Information on progress of identity card and status of passport was to be expanded to cover other key areas of service delivery such as Lands and Health (Hellstorm, 2008)
2. Existing m-services were not integrated and organized in a single portal, there was no a single number for all services. There was a need to have an integration of all SMS’s services into a single number and integrated them with internet/web based e-government services so citizens have options whether accessing via sending SMS to one number or through the internet at one web address (Chete et al ,2012).
3. Not user friendly, the success of mobile government depended largely on the number of its users, the citizens. Governments needed to offer easy access to information using m-government in alternative forms, possibly, using text, video and voice communications, in order to increase citizen participation and provide citizen-oriented services (Kushchu and Kuscu, 2003).
4. Privacy and Security - citizens had a great concern about the privacy and security in m-government. The general issue was the convincement that their mobile phone numbers might be traced, when they send their opinions and inquiries to the government (Chete et al, 2012). The government needed to overcome the mistrust, and assure mobile users that people’s privacy was protected and the information was not to be sold to third parties.
5. Poor infrastructure. Available systems such as the National examination registration and results and the Kenya revenue authority systems were unable to handle large traffic (Mwita, 2013; Miaterfix website, 2009). There was need to look on the infrastrure and be upgraded to handle many users at the same time.
6. Awareness, the users were not carefully educated in order to feel comfortable with m-government. Mwairumba (2013) noted that most Kenyan innovators do not carry out effective branding thus causing low awareness of their technological innovations. The government needed to carry out a massive campaign in educating the public on availability and use of m-services.

7. Compatibility. The government portals had many online services which were yet to be placed on mobile platform. There was a need of looking on the available online services and transform them to m-services.

2.4 The Ministry e-government services

The following table shows the ministry e-government services

Table 1. Ministry's e-government services

No.	Service	Description	Remarks	Reference
1.	Short code 2032	Tracking progress of passport Processing accessible by sending the 9 digit tracking number issued to them on application to 2032	Was not functioning	(E-gov,2014)
2.	Short code 2031	Tracking progress of ID Processing accessible by sending the 9 digit serial number issued to them on application to 2031	Was not functioning	(E-gov,2014)
3.	Short code Rais 5556	Used by Human resource personnel to receive and answer staff issues	Was not functioning	(Pais,2010)
4.	Twitter and face book pages(Social Media)	Almost all departments had face book and twitter accounts	Was offering up to date information	(Social media,2014)
5.	website	Almost all departments had website presence	Offer information to the public, always was not up to date	(E-gov,2014) (Immigration, 2014)
6.	Online tracking of Passports and ID's	Used to track the application status of your ID and/or passport online	The service was not only in Nairobi but also not functioning	(E-gov,2014) (Immigration, 2014)
7.	Short code 108	Used by National Steering Committee response centre on peace building and conflict management	Was functioning	(CCK,2012)
8.	Short code 112 &999	Used by police, emergency and SoS	Was functioning	(CCK,2012)

2.5 Technology Adoption

Technology adoption means different things to different people (Bridges, 2005). Viewing technology adoption as a consistent process is the key to enabling hesitant users to successfully adopt and use technology (Bridges, 2005).

Technology adoption is the vehicle that allows most people to participate in a rapidly changing world where technology has become central to our lives (Bridges, 2005). Understanding the factors influencing technology adoption helps us predict and manage who adopts, when, and under what conditions (Bridges, 2005). There are various theories discussing technology adoption. This study focused on Theory of Reasoned Action, Technology Adoption Model, Diffusion of Innovation and Unified Technology Adoption Theory.

2.5.1 Theory of Reasoned Action (TRA)

The TRA is a model that finds its origins in the field of social psychology (Edutech wiki, 2013). This model developed by Fishbein and Ajzen (1975) defines the links between beliefs, attitudes, norms, intentions, and behaviors of individuals. According to this model, a person's behavior is determined by its behavioral intention to perform it. This intention is itself determined by the person's attitudes and his subjective norms towards the behavior. Fishbein and Ajzen (1975) define the subjective norms as the person's perception that most people who are important to him think he should or should not perform the behavior in question (Fishbein and Ajzen, 1975).

2.5.2 Technology Adoption Model (TAM)

TAM is an adaptation of the Theory of Reasoned Action (TRA) to the field of information system (York & Appalachian, 2006). TAM posits that perceived usefulness and perceived ease of use determine an individual's intention to use a system with intention to use serving as a mediator of actual system use (York & Appalachian, 2006).

2.5.3 Diffusion of Innovation (DOI)

DOI theory sees innovations as being communicated through certain channels over time and within a particular social system (Rogers, 1995). Individuals are seen as possessing different degrees of willingness to adopt innovations and thus it is generally observed that the portion of the population adopting an innovation is approximately normally distributed over time (Rogers, 1995). Breaking this normal distribution into segments leads to the segregation of individuals into the following five categories of individual innovativeness (from earliest to latest adopters): innovators, early adopters, early majority, late majority, laggards (Rogers, 1995).

The rate of adoption of innovations is impacted by five factors: relative advantage, compatibility, trialability, observability, and complexity (Rogers, 1995). Carter and Belanger (2004) have noticed that the TAM and DOI models have overlapping factors. For example, the complexity factor in the DOI model is similar to the perceived ease of use in the TAM model. The same goes for the perceived usefulness in the TAM model where it is similar to the relative advantage in the DOI.

2.5.4 The Unified Theory of Adoption and Use of Technology (UTAUT)

The UTAUT is based on different theoretical models which are, TRA, TAM, motivational model, the theory of planned behavior, a model combining the TAM and the theory of planned behavior, model of PC utilization, DOI, and finally the social cognitive theory (Venkatesh et al., 2003). It consists of several independent factors (performance expectancy, effort expectancy, social influence, and facilitating conditions). The section below provides a detailed definition and description of independent factors included in the model.

2.5.4.1 Performance Expectancy

The degree to which an individual believes that using a particular system would improve his or her job performance (Al-adawi et al, 2005). Based on this definition, we posit the following hypothesis:

H1: Performance expectancy significantly influences the intention to use m-government services.

2.5.4.2 Effort Expectancy

This is the degree to which a person believes that using a particular system would be free of effort (Al-adawi et al, 2005). Based on this construct, we propose the following hypothesis:

H2: Ease of use significantly influences the intention to use m-government services

H3: Time and effort use significantly influences the intention to use m-government services

2.5.4.3 Social Influence

This is the degree to which an individual perceives that others believe he or she should use a particular system. Based on this construct, we propose the following hypothesis:

H5: Social influence significantly influences the intention to use m-government services.

2.5.4.4 Facilitating Conditions

This is the degree to which an individual believes that an organizational and technical infrastructure exists to support the use of a particular system. Based on this construct, we propose the following hypothesis:

H5: Compatibility significantly influences the intention to use m-government services

H6: Awareness significantly influences the intention to use m-government services.

H7: Trust significantly influences the intention to use e-government services.

H8: Internet experience significantly influences the intention to use e-government services

2.6 Research Conceptual Model

The conceptual model of the study was derived from the UTAUT theory.

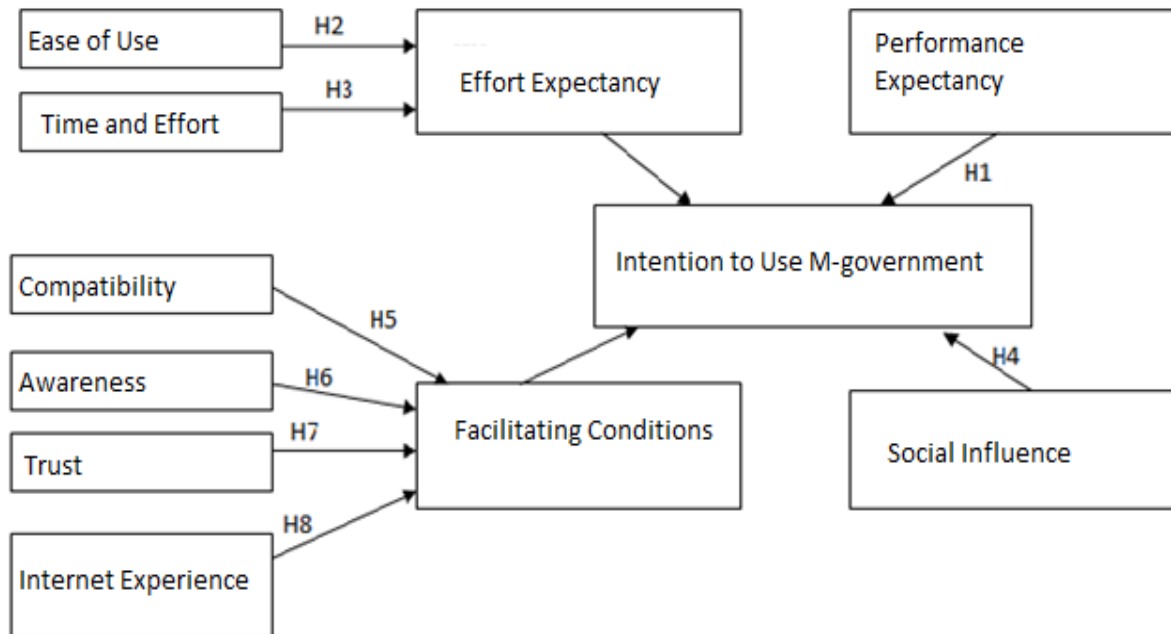


Figure 1: Research model

The table below (table 2) shows definitions of constructs used in the model

Constructs	Definition	Source
Performance expectancy	This is the degree to which a person believes that using the system will help him or her to attain gains in job performance.	Al-adawi et al.(2005); Venkatesh et al. (2003); Hung et al. (2006); Lu et al.(2005)
Ease of Use	The degree to which a person believes that using a particular system would be free of effort	Al-adawi et al.(2005); Venkatesh et al. (2003); Hung et al. (2006)
Time and effort	This is the degree to which an individual perceives that the service will reduce the time spent and effort to go to the public service office or to use another channel	Al-adawi et al. (2005), Chete et al.(2012)
Social influence	The individual belief of other people around him/her concerning the importance of using a certain technology	Hung et al.(2006); Venkatesh et al (2003); Lu et al 2005
Compatibility	The degree to which a citizen perceives that the service is consistent with the existing public service channels and the popular communication media	Chete et al. (2012); Carter & Belangar (2005); Mofleh & Wanous (2008)

Awareness	People's knowledge of technology and the availability of electronic services.	Chete et al.(2012); Al-adawi et al.(2005); Venkatesh et al (2003); Mofleh and Wanous (2008)
Trust	The degree to which a citizen believes that using an m-government channel is safe and will not initiate any problems for him or her.	Chete et al 2012; Al-shafi & Weerakkody 2009, Al-khamayseh et al.(2006)
Internet Experience	This is the confidence that users gain as they increasingly use their mobile devices and the Internet	Fagan et al (2003); Aladawi et al. (2005); Mofleh and Wanous (2008)
Intention to use M-government:	This signifies an individual's intent to use m-government if it were to be deployed.	Venkatesh et al 2003, Hung et al 2006

Table 2. Constructs

Chapter 3: Methodology

3.0 Introduction

This chapter presents an overview of the methods and procedures applied to this study. It provides details of the research design, the sampling method employed, questionnaire development as well as the manner in which the data was collected and analyzed for this study. The techniques used to enhance validity and reliability of the research outcome was also covered.

3.1 Research Design

A research design is the conceptual structure within which research is conducted. It is the Overall strategy that one chooses to integrate the different components of a study in a coherent and logical way, thereby, ensuring one effectively address the research problem; it constitutes the blueprint for the collection, measurement and analysis of data. This study has adopted a survey research design that seeks to investigate the study variables without manipulating any of them or tampering with them in an attempt to understand, describe and explain the adoption of m-government services in MICNG.

3.2 Population and Sampling

Polit and Hungler (1999) refer to the population as an aggregate or totality of all the objects, subjects or members that conform to a set of specifications. In this study the population was staff of the MICNG with ages ranging from 20 to 60, males and female with different levels of education. The total population of MICNG at headquarter was one thousand five hundred and eighty five (1585).

Sampling is the process of selecting a group of subjects for a study in such a way that the individuals represent the larger group from which they were selected. This representative portion of a population is called a sample. The targeted sample was calculated using online Raosoft sample size calculator. According to Raosoft (2014), a confidence level 90%, margin of error 5%, and a response of 50% yields a sample size of two hundred and thirty two (232).

The minimum number of participants required was two hundred and thirty two (232). However, where time and resources allow, a study should take as big a sample as possible. Since this would ensure reliability of the results. Hence forth, our study targeted a sample size of two hundred and forty (240).

The researcher used a probability of random sampling method. This is a method of selecting a sample in which all the elements of the target population are given an equal chance to be selected as a sample.

3.3 Questionnaire Development

Because the findings of the survey often may be the only source of information on an issue available to the public, survey questions must be carefully constructed and ordered to elicit accurate data. The questionnaire must translate the objectives into specific questions which will provide the data for meeting the overall objective

of the study. The questions must therefore be able to motivate the respondent to provide information being sought. The major considerations involved in formulating questions are their content, structure, format and sequence (Nachmias, 2005).

Our survey questions were concerned with facts, attitudes and opinions and level of familiarity with m-government in MICNG. The questions in our questionnaire were unambiguous and easy for respondents to complete. Our research adopted a 5-point Likert type of questions with endpoints of “strongly agree” and “strongly disagree”. Likert type questions are used to assess perceptions and they have the advantage of yielding continuous data that lends itself to many statistical analysis.

3.4 Data Validation

Validity is defined as the extent to which the data collection method or methods accurately measure what they were intended. Cooper and Schindler (2003) believe that validity refers to the extent to which a test measures what we actually wish to measure. There are two types of validity: external and internal. The external validity of research findings refers to the data ability to be generalized across persons, settings and times. Internal validity is the ability of a research instrument to measure what is purposed to measure .The following are measures that were taken to ensure validity:

- I. Data was collected from reliable sources, from staff working in MICNG
- II. Survey questions were made based on literature review to ensure the validity of the results
- III. The questionnaire was pre-tested for meanings and semantics against the definitions of the constructs by experts. Based on their comments changes were made to the questionnaire before administering it.

3.5 Data Reliability

Reliability is an assessment of the degree of consistency between multiple measurements of a variable. It demonstrates to which extent the operations of a study, such as data collection can be repeated with similar results. A measure is said to be reliable if a person’s score on the same test given twice is similar.

One way to test reliability of a test is known as test-retest method. In this method a questionnaire is given out to the intended participants and data is collected. The same questionnaire is administered again after sometime to the same participants or the same kind of participants. If the questionnaire is reliable, the data collected for the first and second instances should correlate perfectly. This method is expensive since the questionnaire has to be administered twice. It also takes long, since there has to be a time lapse between to two data collection times.

Another way to do this is to use split half reliability. This method randomly splits the data set into two. A score for each participant is then calculated based on each half of the scale. If the scale is very reliable a persons’ score on one half of the scale should be the same to their score on the other half, therefore, across several participants scores from the two halves of the questionnaire should correlate perfectly. The correlation between the two halves is the statistic computed in the split half method, with large correlations being a sign of reliability. The problem with this method is that there are several ways in which a set of data can be split into two and so the results could be a product of the way in which the data were split. To overcome this problem,

Cronbach (1951) came up with a measure that is loosely equivalent to splitting data into two in every possible way and computing the correlation coefficient for each split. The average of these values is equivalent to Cronbach's alpha, which is the most common measure of the scale of reliability.

This was the reliability measure that was employed in this study. Apart from the reason given above for the superiority of Cronbach's alpha over split half method, we have used it because it is the most common reliability measure used in related work (Colesca and Dobrica, 2005; Davis 1989).

3.5 Data Collection Procedure

Data was collected by way of administering a questionnaire conveniently to the randomly selected staff of the MICNG. All respondents read and understood the questions and filled in the reply in the spaces provided for the purpose in the questionnaire itself. The study used closed questionnaires to gather data. The questionnaires were distributed and collected by using both hand deliveries by the researcher and by use of e-mail. An embedded link to the online questionnaire was sent to respondents email accounts. A letter of approval to conduct the study and a covering letter were attached to the questionnaires.

Prior to responding to the questionnaire, respondents were requested to thoroughly understand the concept of m-government technology. Furthermore, the respondents were informed that the survey was voluntary and information provided would be used only for the purpose of the study and would be treated in the strictest confidence, we believe this assurance helped foster honesty on the part of the respondents while completing the survey.

3.6 Data Analysis and presentation

The questionnaires were collected from respondents; data captured and coded accurately to enable accurate analysis of the information so as to come up with comprehensive findings. SPSS version 20, analytical program, was used for the data analysis. The SPSS program is a powerful tool used to analyze data collected from surveys, tests observations, etc (CSU, 2013). The program can perform a variety of data analysis and presentation functions including statistical analysis and graphical presentation (CSU, 2013). Among its features are modules for statistical data analysis which include: a) descriptive statistics such as frequencies, central tendency, plots, charts and lists; b) sophisticated inferential and multivariate statistical process such as analysis of variance, factor analysis and categorical data analysis (CSU, 2013).

The results were presented using graphs, charts and tables. According to CSU (2013), the purpose of putting results of a study into graphs, charts and tables is two-fold. First, it is a visual way to look at the data and see what happened and make interpretations. Second, it is usually the best way to show the data to others as reading lots of numbers in the text puts people to sleep and does little to convey information.

Chapter 4: Results

4.0 Introduction

This chapter presents the results of the study. It describes basic information derived from analysis of each variable through descriptive statistics. Then, it represents the results derived from analysis using regression and correlation analysis.

Out of 240 participants selected randomly, a valid response of 172 respondents was recorded which accounted for 72% response rate; a rate that falls within the acceptable norm of between 40 and 80 percent response rate for academic studies involving convectional population (Baruch, 1999).

4.1 Demographic data

This section of the questionnaire covered the respondent's gender, age, highest level of education, monthly income, and years of using both mobile devices and internet. Though not central to the study, the personal data helped contextualize the findings and the formulation of appropriate recommendations to enable adoption of m-government services in the Ministry of Interior and Coordination of National Government.

4.1.1 Respondent's gender

Table 3 shows that 51.2% of the respondents were females while 48.8% were males. This result indicated no big difference between male and female respondents. We can conclude that the intention to use m-government services is irrespective of their gender.

Table 3. Gender distribution

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	84	48.8	48.8	48.8
Female	88	51.2	51.2	100.0
Total	172	100.0	100.0	

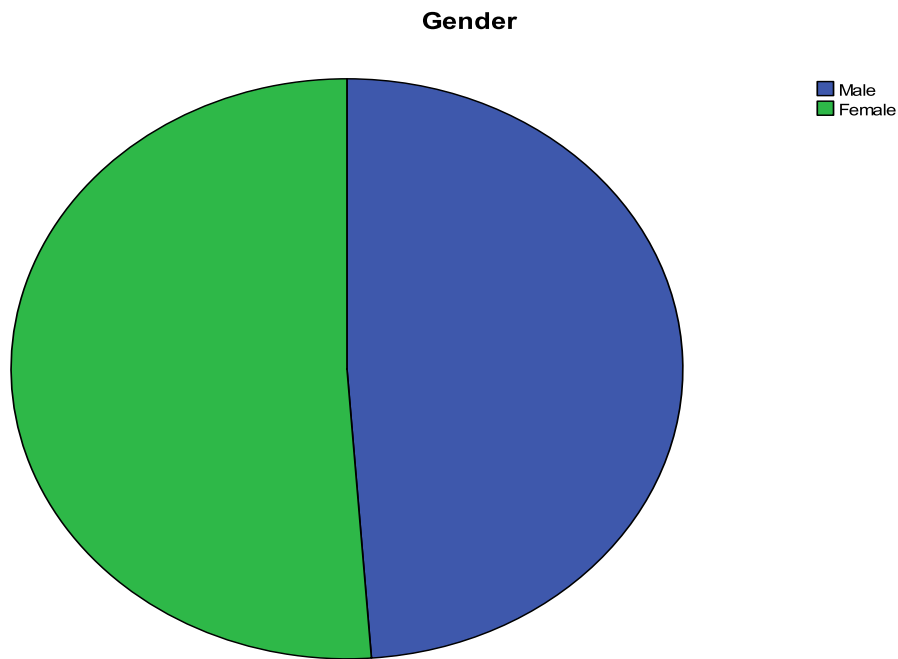


Figure 1: Gender

4.1.2 Respondents age

Table 4 below indicates that most respondents were between 26-35 years totaling to 33.9% of the respondents. The second bracket of age was between 36-45 years amounting to 27.3% of age. Over 55 years, 46-55 years, 18-25 years and missing respondents were 5.8%, 24.6% 5.8% and 0.6% respectively. We can conclude that users aged 26-35 have the highest intention to use m-government services followed by aged 36-45 years.

Table 4. Age distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	14	8.1	8.2	8.2
	26-35	58	33.7	33.9	42.1
	36-45	47	27.3	27.5	69.6
	46-55	42	24.4	24.6	94.2
	Over 55	10	5.8	5.8	100.0
	Total	171	99.4	100.0	
Missing	System	1	.6		
Total		172	100.0		

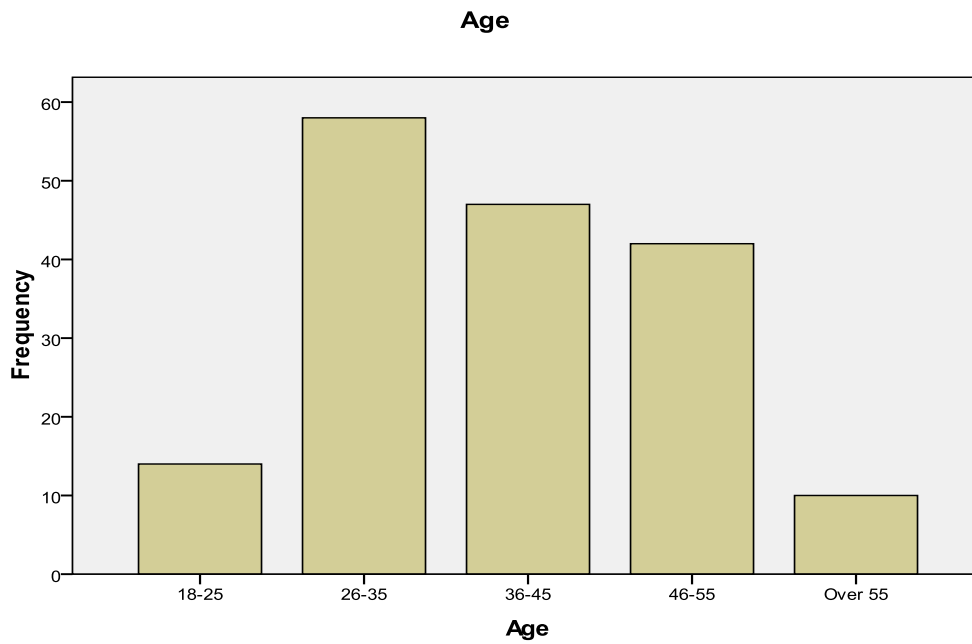


Figure 2: Age

4.1.3 Highest level of education

Respondents having College diploma or degree were the highest recording 65.1% while basic education , postgraduate and missing were 12.8%, 20.9% and 1.2% respectively. We can conclude that users with College diploma or degree have the highest intention to use m-government services.

Table 5. Education

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Basic education	22	12.8	12.9	12.9
Diploma	58	33.7	34.1	47.1
Degree	54	31.4	31.8	78.8
Master	35	20.3	20.6	99.4
PHD	1	.6	.6	100.0
Total	170	98.8	100.0	
Missing System	2	1.2		
Total	172	100.0		

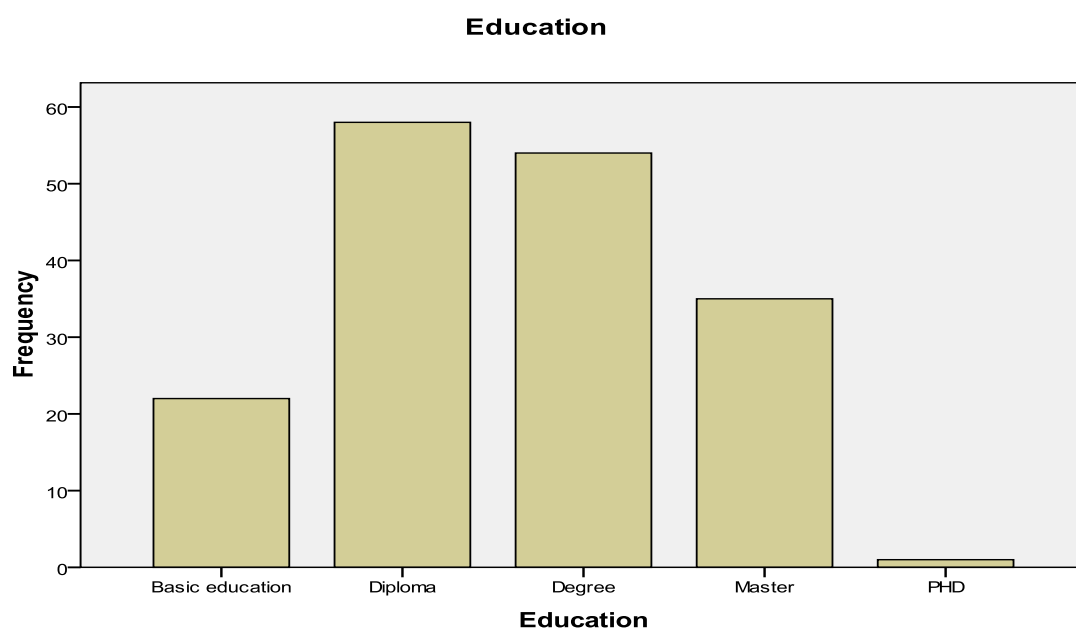


Figure 3: Education

4.1.4 Monthly income

Monthly income levels of the respondents did not influence much on the number of respondents, meaning respondents were evenly distributed at all levels of income as shown in the table 6 below signifying that the intention to use m-government services is irrespective of income levels.

Table 6. Monthly income distribution

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0-30000	52	30.2	30.8	30.8
	30001-40000	35	20.3	20.7	51.5
	40001-50000	34	19.8	20.1	71.6
	Over 50000	48	27.9	28.4	100.0
	Total	169	98.3	100.0	
Missing	System	3	1.7		
	Total	172	100.0		

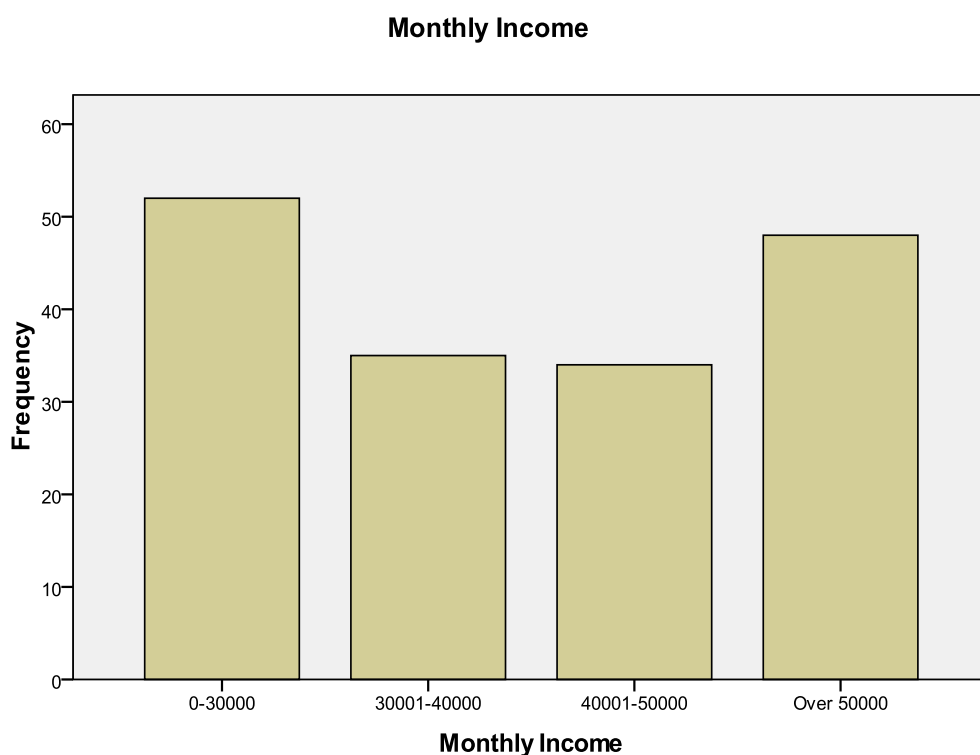


Figure 4: Monthly income

4.1.5 Mobile devices

Regarding the usage of mobile devices, respondents who had used the devices for over a period of 8 years and above was recorded at 73.3%, followed by 5-7 years standing at 22.1%.

Implying that most of our respondents have used mobile devices such as mobile phones for a long period hence the intention to use m-government services is directly proportional to the mobile devices usage.

Table 7. Mobile usage

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0-2 years	1	0.6	0.6	0.6
Valid 3-4 years	6	3.5	3.5	4.1
Valid 5-7 years	38	22.1	22.2	26.3
Valid 8 years and above	126	73.3	73.7	100
Total	171	99.4	100	
Missing System	1	0.6		
Total	172	100		

Mobile Usage

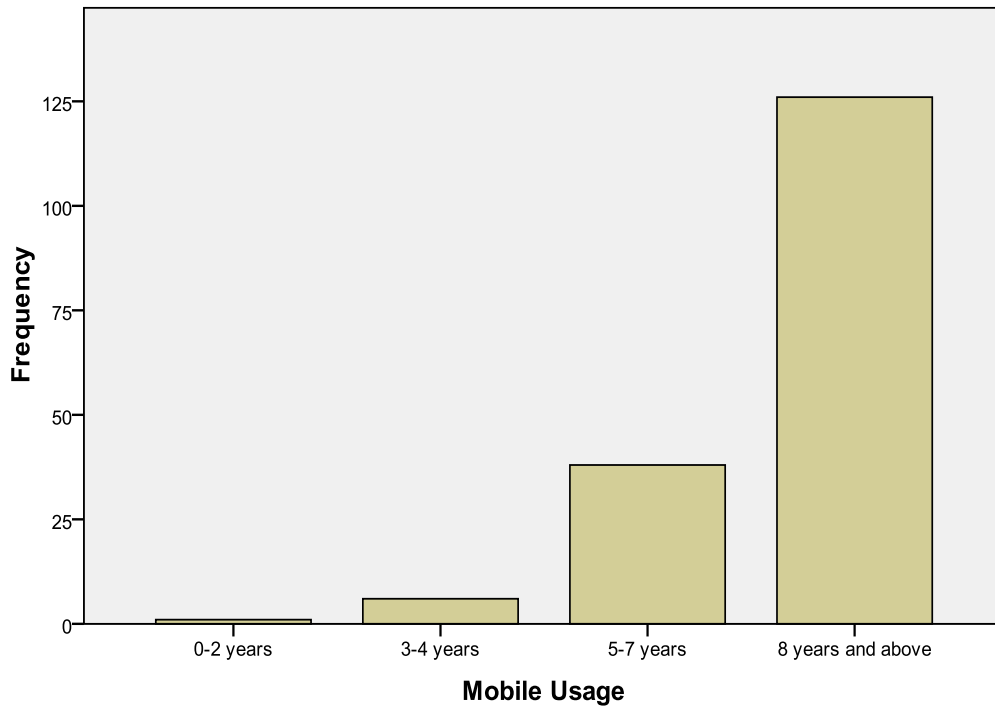


Figure 5: Mobile usage

4.1.6 Internet

On the internet usage, respondents who had used it for over 8 years and above were the highest at 49.4%, whereas 5-7 years recorded 30.2%. The least recording were 14% and 5.8 for 3-4 years and 0-2 years respectively. This implied that majority of our respondents had been using internet for a long period signifying that the intention to use m-government services is highly attached to the internet usage.

Table 7. Internet usage

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0-2 years	10	5.8	5.8	5.8
3-4 years	24	14	14	19.9
5-7 years	52	30.2	30.4	50.3
8 years and above	85	49.4	49.7	100
Total	171	99.4	100	
Missing System	1	0.6		
Total	172	100		

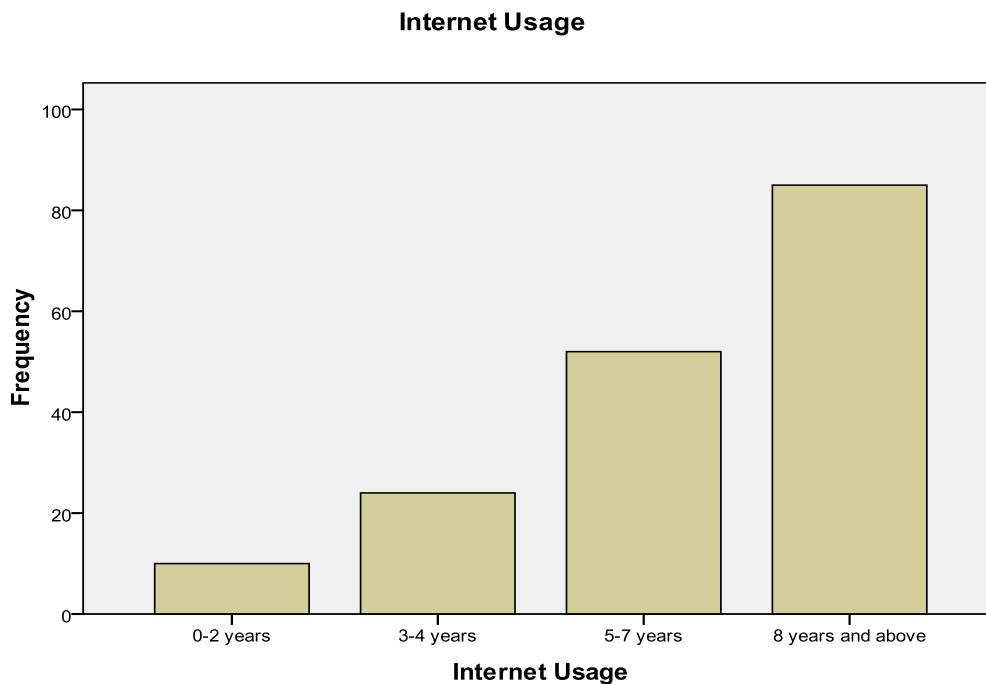


Figure 6: Internet usage

4.2 Reliability and Validity

Reliability is an assessment of the degree of consistency between multiple measurements of a variable. A reliable measuring instrument is one which gives you the same measurements when you repeatedly measure the same variable. The reliability of each construct was assessed using Crombach's alpha. A reliability coefficient of 0.70 is marked as the lowest acceptable limit for Crombach's alpha (Robinson et al, 1991; Nunnally, 1978). Findings show that values ranged from 0.712 to 0.903 (table 9 below) which is acceptable

Table 8. Reliability analysis		
Constructs	Items	Cromabach's alpha
Performance expectancy (PE)	6	0.826
Ease of use (EU)	7	0.712
Time and effort (TE)	4	0.721
Social influence (SI)	8	0.891
Compatibility (CO)	3	0.749
Awareness (AW)	5	0.776
Trust (TR)	6	0.781
Internet experience & Mobile device (IM)	6	0.903
Behavior intention (BI)	3	0.99

Convergent validity is used to find out if our instrument was well correlated with measures of other constructs to which it should, theoretically, be related. Convergent Validity was assessed in terms of factor loadings onto the underlying construct and Average Variance Extracted (AVE) (Fornel C and Larker D, 1981). Convergent validity, which measures the amount of variance captured by the construct in relation to the amount of variance attributable to measurement error, requires a factor loading greater than 0.50, an AVE no less than 0.50 and a Crombach's alpha which is greater than AVE. Findings show that all items had a significant factor loading which are higher than 0.50, AVE greater than 0.50 and Crombach's alpha which are greater than AVE (table 9 below).

Table 9. Average extracted variance

Constructs	Items	Cromabach's alpha	Average Variance Extracted (AVE)
Performance expectancy (PE)	6	0.826	0.667
Ease of use (EU)	7	0.712	0.575
Time and effort (TE)	4	0.721	0.582
Social influence (SI)	8	0.891	0.72
Compatibility (CO)	3	0.749	0.605
Awareness (AW)	5	0.776	0.627
Trust (TR)	6	0.781	0.631
Internet experience & Mobile device (IM)	6	0.903	0.729
Behavior intention (BI)	3	0.99	0.800

Table 10. Inter –correlation of variables

	PE	EU	TE	SI	CO	AW	TR	IM	BI
Performance expectancy (PE)	0.803								
Ease of use (EU)	-0.330	0.853							
Time and effort (TE)	-0.103	-0.125	0.885						
Social influence (SI)	0.049	-0.193	-0.079	0.829					
Compatibility (CO)	0.093	-0.125	-0.118	-0.274	0.799				
Awareness (AW)	-0.162	-0.078	-0.263	-0.070	-0.350	0.852			
Trust (TR)	-0.134	-0.122	-0.053	-0.128	0.024	-0.007	0.879		
Internet experience & Mobile device (IM)	-0.075	-0.025	-0.178	0.103	-0.147	-0.101	0.018	0.647	
Behavior intention (BI)	0.061	0.001	0.080	-0.087	0.137	-0.008	-0.100	-0.754	0.573

Discriminant validity is used to find out if our instrument was not well correlated with measures of other constructs to which it should not be related. Discriminant validity is assessed to measure the extent to which constructs are different. To evaluate discriminant validity, the AVE is used. All constructs have an AVE of at least 0.5 (Fornel C and Larker D, 1981) and all the square roots of AVE for all constructs (diagonal values) are higher than the off-diagonal correlation elements (table 10 above).

4.3 Collinearity

Collinearity (multicollinearity) is the undesirable situation where the correlations among independent variables are strong. Collinearity inflates standard errors of the coefficients, thus, making some variables statistically insignificant while they should be otherwise be significant.

Since multicollinearity might exist in regression analysis and negatively affects the predictive ability, computing the various inflation factor (VIF) of each variable might help to detect multicollinearity (Myers, 1986). If the VIF of an explanatory variable exceeds 10, the variable is considered to be highly collinear and it can be treated as a candidate for exclusion from the regression model (Kleinbaum, 1988). Findings show that VIF range from 1.271 to 1.944 suggesting that multicollinearity was not an issue with our data set.

Table 11. Multicollinearity		
Variable	Collinearity Statistics	
	Tolerance	VIF
Performance expectancy (PE)	.702	1.424
Ease of use (EU)	.596	1.677
Time and effort (TE)	.600	1.668
Social influence (SI)	.710	1.408
Compatibility (CO)	.574	1.741
Awareness (AW)	.514	1.944
Trust (TR)	.851	1.174
Internet experience & Mobile device (IM)	.787	1.271

4.4 Multiple Regression

Multiple regression is an extension of simple linear regression. It is used when we want to predict the value of a variable based on the value of two or more other variables. The variable we want to predict is called the dependent variable (or sometimes, the outcome, target or criterion variable). The variables we are using to predict the value of the dependent variable are called the independent variables (or sometimes, the predictor, explanatory or regressor variables).

Multiple regression analysis also allows you to determine the overall fit (variance explained) of the model and the relative contribution of each of the predictors to the total variance explained.

4.4.1 Determining how well the model fits

The first table of interest is the **Model Summary** table. This table provides the R , R^2 , adjusted R^2 , and the standard error of the estimate, which can be used to determine how well a regression model fits the data:

Table 12. Model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.78	0.609	0.589	0.46517

The "R" column represents the value of R , the multiple correlation coefficient. R can be considered to be one measure of the quality of the prediction of the dependent variable; in this case, Behavior Intension (BI). A value of 0.780 indicates a good level of prediction. The "R Square" column represents the R^2 value (also called the coefficient of determination), which is the proportion of variance in the dependent variable that can be explained by the independent variables (technically, it is the proportion of variation accounted for by the regression model above and beyond the mean model). You can see from our value of 0.609 that our independent variables explain 60.9% of the variability of our dependent variable, BI. This demonstrated a strong support for the research model, and affords a high explicatory capacity for behavior intention to use m-government in MICNG. The results compares with previous studies such as Hung et al.,(2006), whose variance explained was 72 %, Venkatesh et al., (2003), whose model explained a variance of 70%, Mathieson (1991), a variance of 62%, Taylor and Toddy 1995 ad Lu et al.,(2005), whose models accounted for 60% and 57% respectively.

The F -ratio in the ANOVA table (see below) tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically significantly predict the dependent variable, $F(8, 158) = 30.731, P < 0.0005$ (i.e., the regression model is a good fit of the data).

Table 13. ANOVA

ANOVA ^b						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53.197	8	6.65	30.731	.000
	Residual	34.189	158	0.216		
	Total	87.385	166			

4.4.2 Hypotheses testing

The multiple regression analysis is used to test the hypotheses. The purpose of the regression analysis is to relate the dependent variable to a set of independent variables. To determine the relationships among the variables, β is very important as it compares the contribution of each independent variable for explaining the dependent variable.

Table 14. Hypotheses testing

Hypotheses	Variable	R ²	β	Significance	Support
H1	Performance expectancy (PE)	0.575	.159*	0.078	Yes
H2	Ease of Use (EU)	0.033	-0.001	0.992	No
H3	Time & Effort (TE)	0.045	-0.079	0.312	No
H4	Social Influence (SI)	0.533	.176**	0.049	Yes
H5	Compatibility (CO)	0.517	-.127*	0.084	Yes
H6	Awareness (AW)	0.601	.185*	0.072	Yes
H7	Trust (TR)	0.037	0.07	0.209	No
H8	Internet Experience & Mobile device	0.587	.819**	0.000	Yes

* denotes significance at $p < 0.10$ and ** denotes significance at $p < 0.05$

It was found that performance expectancy (PE), social influence (SI), compatibility (CO), awareness (AW) and internet experience and mobile device (IM) significantly contributes to the prediction of the intention to use m-government services whereas time and effort (TE), ease of use (EU) and trust (TR) insignificantly contribute to the prediction of the intention to use m-government services.

Chapter 5: Discussion

5.0 Discussion of Results

Results revealed that many respondents are aware of m-government and also that it is a more accessible way of public interaction with government for delivery of services. The study also revealed that majority of the respondents has mobile phones and mobile network available on them. The respondents also know what an SMS is and can use it. They can use their mobile devices for several functions such as writing or checking mails, online chatting and even downloading files.

The study found that increasing the users awareness ($H6=AW$, $\beta=0.185$, $p<0.10$) significantly affects the users intentions to use m-government services. The variance of 60% for awareness provides ample support for the hypothesized impact of awareness on dependent variable behavior intention. Awareness is the first step for users to know that e-government delivers its services via mobile internet. 88% of the respondents agree that media can play a great role in creating awareness. It is for this reason that the policy makers can not only use this channel but also other methods deemed necessary in creating awareness. To improve the effectiveness of advertising, MICNG should involve families and friends of the target users and use opinion leaders such as experts, public figures and government officials.

Awareness of the services should be combined with performance expectancy ($H1=PE$, $\beta=0.159$, $p<0.10$). A variance of 57.5% for performance expectancy on dependent variable behavior intention was recorded signifying good prediction of our independent variable on dependent variable. Increasing performance expectation directly affects the user intentions to use m-government services. Performance expectation is the feeling that there are perceived usefulness and users will benefit from using such services. According to the results, the majority of participants (85%) thought that m-government services would be useful to them. The usefulness of the m-government services can be achieved through providing high impact m-services. 81% of the respondents believed that m-government service will increase their productivity, competence and effectiveness therefore prevent them from encountering stressful situations, such as travelling to service centers, waiting in long queues, and dealing with uncooperative employees. These findings confirm the results of performance expectancy of a study done by ALAwadhi and Morris (2008). The findings suggest that the intention to use e-government services is likely to increase if citizens perceive the services to be useful. These results are in accordance with those reported in a number of studies, for example, Carter and Belangar (2004) and Dmitrova and Chen (2006), but they contradict results reported in Carter and Belangar (2005).

Findings showed that ease of use ($H2=EU$, $\beta=0.01$, $p>0.10$) and time and effort ($H3=TE$, $\beta=0.079$, $p>0.10$) hypotheses are insignificant. A variance of 3.3% for ease use and a variance of 4.5% on time and effort on dependent variable behavior intention were recorded signifying a low prediction to use m-government. An explanation could be that the users are more concerned with how they will benefit from the services delivered regardless the website or application usability. They are also less concerned by about time and effort. These findings are not surprising as they are similar to those reported by Carter and Belangar (2004), who found that

complexity and ease of use were not significant in the intention to use e-government services of undergraduate students.

Social influence (H4=SI, $\beta=0.176$, $p<0.05$) had a great contribution to the users intention to use m-government services. A variance of 53% for social influence on dependent variable behavior was recorded implying good prediction on intentions to use m-government. The reason is that, Kenyans are widely affected by their families and friends. If they noticed more people conduct online m-government transactions successfully then they will be encouraged to use it. However, other participants, without online service experience, thought that a number of factors might influence their online use and behavior. For example, 65% of participants indicated that they would be more inclined to use online services if other members of their families, peers colleagues or associates had used them. 71% of all participants also mentioned that peers might influence their views about using m-government services if their peers are ready to show them how to use them. While 65% of participants (23%) were influenced by the peers using the services, others said they would adopt m-government technologies if it makes them feel closer to the peers, colleagues or associates. These findings suggested that users' experience with m-government services would determine whether there would be any social influence on the adoption of e-government services, since good experience was likely to encourage users to recommend the services to others. This finding confirm to previous research such as Abdelghafar and Magdy (2012) and Venkatesh et al. (2003) that found social influence had a positive direct influence on behavior intention to technology adoption.

Not only social influence, but also the compatibility to the life style has a significant impact on the m-government usage (H5=CO, $\beta=0.127$, $p<0.10$). A variance of 52% for compatibility on our dependent variable behavior intention was seen signifying good prediction to user's intentions to use m-government. The compatibility hypotheses proved that users do prefer to transact and interact with a m-government system that complies with their culture and level of experience.

The internet experience (H8=IM, $\beta=0.070$, $p<0.05$) was supported. A variance of 58.7% for internet experience on our dependent variable behavior intention was registered implying good prediction to user's intentions to use m-government. In accordance with the results presented previously 79.6% of the sample has an internet experience of more than five years. Also 96% of all participants have mobile experience of more than five years. The overall perception of the participants was that online services are easy to learn and use, especially when support is provided. Majority of the respondents were able to use internet on their mobile devices to write and check mail. 81% said that they were able to use their mobile devices for online chatting whereas 87% of all respondents said their past performance with internet was good. This indicates that the internet experience and mobile device contribute significantly towards intention to use e-government services and consequently m-government. Finally trust (H7=TR, $\beta=0.070$, $p>0.1$) was not supported. A variance of 3.7% for trust on the dependent variable behavior intention was recorded signifying a low prediction to user's intentions to use m-government. The explanation for this is that users have to request services from the government regardless of the degree of trust. Therefore, it is more important for the government to focus on providing more useful services to users rather than focusing on increasing trust between users. When users use their services, they will trust them later on.

Finally, these findings provide preliminary insights into the factors that are possible drivers of adoption of m-government in the Ministry of interior and Coordination of National Government and that can be used to assist policy makers to plan and proactively devise interventions aimed at users that may be less willing to accept m-government services. Consequently, users will start using these services.

5.1 Implications for policy makers

The study provides two contributions for policy makers responsible for development and implementation of strategies for rolling out m-government services in Kenya. First, the results of this study confirmed that individuals with high performance expectation and confidence in their ability to accomplish a task using mobile application have the likelihood of exhibiting behavior intention to use m-government. Therefore, policy makers should devise proactive measures such as training and awareness campaigns to increase users' confidence and perceived usefulness of m-government.

Finally, this study provides policy makers with significant factors that are responsible for adoption of m-government in developing countries. Thus, to successfully implement m-government given limitations of resources in MDAs, government policy makers can prioritize based on these factors. Moreover, the model provides useful tool for understanding the drivers of adoption and thus, facilitates proactive interventions aimed at users that may be less willing to adopt m-government.

5.2 Implications for academician

From a research perspective, this study made two important contributions: first, the study proposed and validated a theoretical framework that explicates determinants of behavior intention to use m-government services in MICNG. This is a contribution towards advancing technology adoption research in Kenya.

Second, the research model in this study was tested using MICNG. Consequently, caution should be exercised when generalizing results that were tested in the context of MICNG on other MDAs, private sectors and general public on the assumption that technology adoption behaviors are similar for civil service, private sector and general public.

5.3 Limitations and future research directions

Despite the general support for the research model, this study has some limitations. First, the research model was validated by data collected from one ministry (Ministry of Interior and Coordination of National Government) therefore caution should be exercised when generalizing the results. Therefore, future research should be undertaken to collect data from different government MDAs that would provide a more representative sample to validate the findings of this study. In addition, due to diversity and complexity of technology adoption in developing countries (Donnor,2008; P. Datta,2010), a research that explores other dimensions of m-government adoption such as communities, cultures, religions, and other contexts merit attention in the future study.

Second, the data used to validate our model was self-reported and therefore, the typical limitations related to self-reported measures need to be acknowledged when interpreting the results of this study. This study sets the stage for future study on factors behind adoption of m-government in Kenya. Therefore, a longitudinal study can be conducted with a view of scrutinizing the interaction among the identified variables, and thus, may serve to extend this study. Lastly, the findings of this study cannot be exhaustive, therefore, more studies should be undertaken to find out additional determinants of m-government adoption in Kenya.

Chapter 6: Conclusion

6.0 Conclusion

This study investigated adoption of m-government services in MICNG in Kenya. A proposed model has been identified through reviewing different models and theories of technology adoption and users behavior towards technology. In order to test the proposed model, a survey was conducted targeting staff under the Ministry of Interior and Coordination of National Government in Kenya. It was found that performance expectancy, compatibility, awareness, social influence and internet experience significantly contribute to the prediction of the intention to use m-government whereas time and effort, trust and ease of use insignificantly contribute to the prediction of the intention to use m-government.

The study found that mass media is the most effective means of informing and influencing users about the existence and benefits m-government services. To improve the effectiveness of advertising, government should involve families and friends of the target users and use opinion leaders such as experts, public figures and government officials.

In order to increase the adoption rate of m-government services, MICNG should address the eight (8) perceptions about m-government services which are: performance expectancy, compatibility, awareness, social influence and internet experience, time and effort, trust and ease of use. This should give users positive attitudes towards using the services which will lead to intention to use of m-government services.

Overall, by way of understanding user's behavior, policy makers in MICNG can plan and proactively devise interventions aimed at persuading users that may be less willing to adopt m-government.

There is confidence that this study is a step in the right course and aids to progress the research on technology adoption in MICNG in particular and all MDAs in general.

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Appendix

Appendix 1: Questionnaire

Part 1: Respondent's Basic Demographic Information.

1. Gender:

Male Female

2. Age:

18– 25 26– 35 36– 45 46– 55 Over 55

3. Highest Level of Education:

Basic education Diploma Degree Masters PhD

4. Income per month in Kenya shillings

0 – 30,000 30,001– 40,000 40,001 – 50,000 50,001 and above

5. How long have you been using mobile devices?

0 – 2 years 3-4 years 5-7 years 8 years and above

6. How long have you been using the Internet?

0 – 2 years 3 - 4 years 5 - 7 years 8 years and above

Part 2: The Questionnaire

Performance expectancy: This is the degree to which a person believes that using the system will help him or her to attain gains in job performance.					
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
1. I believe that using m-government technologies will increase my productivity in transacting with the government.					
2. I believe that using m-government technologies will save me money by reducing costs.					
3. I believe that using m-government technologies will hasten social development.					
4. I believe that using m-government technologies will increase my effectiveness.					
5. I believe that using m-government technologies will increase my competence.					

6. I believe that using m-government technologies will help me to find useful information about the government.					
Ease of Use: The degree to which a person believes that using a particular system would be free of effort					
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
7. I could complete a task using m-government application if there was no one around to tell me what to do					
8. I could complete a task using m-government application if I had seen someone else using it before I tried it myself.					
9. I could complete a task using m-government application if someone showed me how to do it first.					
10. I could complete a task using m-government application if I had used similar application before this one to do the same task.					
11. I believe I have the ability to locate information on a government website using an m-government application.					
12. I believe I have the ability to access, complete, and submit forms using m-government application.					
13. I believe that I can use different m-government applications to receive m-government services.					
Time and effort: This is the degree to which an individual perceives that the service will reduce the time spent and effort to go to the public service office or to use another channel					
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
14. I could use m-government application if it saves time					
15. I believe can get information on real time					
16. I believe there is no need to travel to service centers					
17. I could use m-government application if effort required is minimal					
Social influence: The individual belief of other people around him/her concerning the importance of using a certain technology					
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>

18. I will adopt m-government technologies if my peers, colleagues or associates offer to help me on how to use it.					
19. I will adopt m-government technologies if am asked to by my peers, colleagues or associates.					
20. I will adopt m-government technologies if I am required to by my peers, colleagues or associates.					
21. I will adopt m-government technologies if rewarded by my peers, colleagues or associates.					
22. I will adopt m-government technologies if my peers, colleagues or associates already use the same.					
23. I will adopt m-government technologies if my peers, colleagues or associates intend to use the same.					
24. I will adopt m-government technologies if it makes me feel closer to my peers, colleagues or associates					
Compatibility: The degree to which a citizen perceives that the service is consistent with the existing public service channels and the popular communication media					
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
25. I will adopt m-government application if its doesn't require an upgrade of my mobile device					
26. I will adopt m-government technologies if adequate policies are put in place					
27. I will adopt m-government technologies if hardware and software is readily available					
Awareness: People's knowledge of technology and the availability of electronic services.					
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
28. I am aware of m-government applications in my ministry (e.g SMS based and mobile web service)					
29. I believe I have the appropriate skills to use m-government applications					
30. I believe I have the willingness to learn new m-government application					
31. I believe I have interest in finding out about new m-government application					
32. I will adopt m-government technologies if there is good availability of training					

33. I believe media can play an important role of creating awareness of m-government services					
Trust: The degree to which a citizen believes that using an m-government channel is safe and will not initiate any problems for him or her.					
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
34. The m-government technologies are trustworthy					
35. I believe that data sent is confidential					
36. I get immediate confirmation of the transaction on m-government service					
37. Nobody else can accept the m-government applications as me					
38. I have no privacy concerns using the m-government technology					
39. It is easy to recover from theft or loss of the device					
Internet Experience: This is the confidence that users gain as they increasingly use their mobile devices and the Internet					
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>
40. I can use mobile devices for writing /checking mail					
41. I can use mobile devices for online chatting					
42. I have been using internet to find needed information					
43. My past performance with internet has been good					
44. I can use mobile devices to send and receive SMS's					
45. I have been using mobile devices to download files					
Behavior Intention to use M-government: This signifies an individual's intent to use m-government if it were to be deployed.					
	<i>Strongly Disagree</i>	<i>Disagree</i>	<i>Neutral</i>	<i>Agree</i>	<i>Strongly Agree</i>

46. Whenever possible, I intend to use m-government services					
47. I plan to use m-government services					
48. I will use m-government in future					

End of Questionnaire

Thank you for your time and contribution in completing this questionnaire. May Allah bless you.

Appendix 2: University letter



**UNIVERSITY OF NAIROBI
COLLEGE OF BIOLOGICAL AND PHYSICAL SCIENCES
SCHOOL OF COMPUTING AND INFORMATICS**

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P. O. Box 30197
00100 GPO
Nairobi, Kenya

Our Ref: UON/SCI/MSC/IS/2012

11/4/2014

To Whom It May Concern

Dear Sir/Madam

ALI RASHID MWAMBONI – REG. NO. P56/73068/2012

The above named is a bona fide student pursuing a M.Sc in Information System degree at the School of Computing and Informatics, University of Nairobi. As part of the course, students are required to undertake research. Hence, Mr. Mwamboni is currently carrying out his research entitled: ***“Adoption of M - government Services in Kenya: Ministry of Interior and Co-ordination of National Government.”*** under the supervision of Dr. C.K. Chepken.

We would be grateful if you could assist Mr. Mwamboni as he gathers data for his research. If you have any queries about the exercise please do not hesitate to contact us.

Yours faithfully

**School of Computing & Informatics
University of NAIROBI
P. O. Box 30197
NAIROBI**


**PROF. W. OKELO-ODONGO
DIRECTOR
SCHOOL OF COMPUTING AND INFORMATICS**

WOO/jsn

Appendix 3: Letter to respondents

UNIVERSITY OF NAIROBI

SCHOOL OF COMPUTING & INFORMATICS

A Survey Questionnaire on Adoption of M-government Services In Kenya

APRIL 2014

Dear respondent,

I am a student at the University of Nairobi, School of Computing and Informatics, undertaking a Master of Science Degree in Information Systems.

My research pertains to implementation of mobile government (m-government is defined as the delivery of government services and information via mobile devices such as regular cell-phones, smart phones, ipads etc) as a complimentary service to e-government in public service delivery in the ministry of Interior and Coordination of National Government. To this end therefore, I am conducting a survey in order to establish the factors that would influence the ministry towards a successful adoption of m-government.

I will be grateful if you would take part in this survey because I feel that your opinion will contribute greatly towards understanding of the drivers of acceptance of m-government in the Ministry.

Participation in this survey is voluntary and information provided will be used only for the purpose of this study and will be treated with utmost confidentiality. The survey will take not more than 15 minutes of your time.

For any queries/comments kindly contact me on: binrashid21@yahoo.com or 0723 775521

Thank you for the courtesy of your assistance.

Yours



Ali Rashid