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**Master's Dissertation in Engineering**

**A Study on the Determinant  
Factors in mGovernment Adoption:  
Case of Kenya**

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케냐 사례를 중심으로

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# **A Study on the Determinant Factors in mGovernment Adoption: Case of Kenya**

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이 논문을 공학사 학위논문으로 제출함

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## **Abstract**

# **A Study on the Determinant Factors in mGovernment Adoption: Case of Kenya**

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Mobility is becoming essential in extending the government's ability to create benefits and administer results to other government bodies, citizens and organizations which in turn affects the overall economic national growth. eGovernment has been implemented at a slower rate and faces many challenges in most developing countries. The concept of mGovernment tries to bring mobility to the eGovernment processes. This is mostly important especially for developing countries because they have been faced with poor infrastructure in terms of communication and in the long run have had negative effects on their economic and social development. Due to the rapid penetration of mobile technologies including; wireless networks, it is essential

for the public administration to offer services using mobile platforms which will in the long run address many of the challenges faced by eGovernment. The goal for this study is to establish distinguished determinant variables towards a distinct mGovernment adoption in Kenya. A modified UTAUT model is used. Through an online survey technique 230 responses were gathered, of which 212 were finally used in data evaluation. The data was analyzed utilizing structural equation model - SEM, and the findings exhibit Effort Expectancy, Facilitating Conditions, and Performance Expectancy being robust determinant variables affecting behavior intention to use mGovernment within Kenya. Social Influence and Perceived Awareness only show significance with the education level as a moderating factor. Perceived Transparency did not show any significance on behavior intention to use mGovernment. This study provides implications for government policy makers and practitioners by highlighting important factors to consider in terms of investment in mGovernment and also complements the previous studies on the subject of eGovernment and mGovernment.

**Keywords: mGovernment, eGovernment, determinant factors, Kenya**

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# **Chapter 1. Introduction**

## **1.1 Research background**

Mobility (Alrazooqi & De Silva, 2010) is becoming essential in extending the government's capability of creating benefits and administering results to other government bodies, residents and organizations, which in turns affect the overall national growth, both socially and economically (Mwirigi, Zo, Rho, & Park, 2017). To introduce mobility to eGovernment processes (Zefferer, 2011) suggested that mobile government (mGovernment) is best suited and further elaborated that mGovernment in simple terms is just combining the concept of eGovernment and the concept of mobility. This is important especially in developing countries which are facing poor infrastructure regarding communication and ultimately have experienced negative effects on the economic and social development (Co-operation & Development, 2011).

Most governments around the world have been trying to enhance public service access by using eGovernment. In the past decades the citizens' demand for eGovernment services has massively increased, and as this demand continues to increase, governments are forced to move towards mGovernment to ensure that all citizens have equal access. For this reason, mobile technology often acts as a driver towards mGovernment. This is evident by the increasing mobile devices penetration rates, and the ever

increasing availability and use of wireless technologies and wireless internet networks (Yfantis, Vassilopoulou, Pateli, & Usoro, 2013).

It has also been shown by (Roggenkamp, 2004) that mGovernment is not only about mobile devices, but also mobile users and mobile services. In terms of mobile devices, he defines it as the continuous access of services using a device as one moves, mobility of users refers to the location as well as the device self-determining service reach separated from the mobility excluding physical limits, while mobility of services is defined as being able to provide services irrespective of the users and the devices. There is also a clear distinction between mobile and wireless, whereby mobile means capability to communicate at anyplace, any moment, whilst on the other hand wireless refers to devices that do not have wires. Perfect example of this difference is the use of a PC connected to a wireless network, which does not impart the identical mobility as a smartphone. In this case, the smartphone has a higher degree of mobility.

Currently mGovernment is progressing in different beneficial dimensions. Changing the government services to a mobile platform helps to provide ease of reach of mobile technologies as well as applications for officers in the public administration, especially those working in the field. A mobile platform also, enables flexible working and ensures that citizens can access

the services anywhere and anytime. mGovernment has been considered beneficial in different ways. First, it allows minimization of expenses regarding travelling, staff prerequisites and making provision of services faster. Second, mGovernment will ensure that there is a transformation in the public administrations in terms of services offered to the residents.

Third, mGovernment ensures that there is flexibility and convenience (Co-operation & Development, 2011), resulting in users no longer being restricted to a geographical location. In addition, the use of mobile devices reduces the digital divide, which has been a critical factor affecting eGovernment, particularly in emerging economies. Improvement is achieved by changes in government applications and administrations. mGovernment manages an effective and transformational ability to stretch out access to existing administrations especially the eGovernment, to extend the conveyance of new administrations, to expand dynamic participation of residents in government tasks, and also to transforming the general working style of the government (Co-operation & Development, 2011), (Yelton, 2012).

The four main aspects of mGovernment used by public administrations have been discussed by (Zalesak, 2003) and (Nava & Dávila, 2005) as follows: Mobile communication promotes two way communication among administrations and residents. Mobile services consist of mobile businesses

and payments using mobile devices. Mobile democracy supports in improving the independent participation of residents through the use of mobile devices. The last aspect is mobile administration, whose goal is to advance in-house governmental tasks in and among public establishments as well as agencies.

mGovernment has been defined in different ways. (Carroll, 2005) and (Kushchu & Kuscu, 2003) defined it as involving the provision of public administration services by using mobile technologies as an approach and its execution which involves various non-wired and portable technologies, applications, devices and services for enhancing the well-being of the parties included in eGovernment, i.e., residents, enterprises and all administration bodies. On the other hand, eGovernment has been defined by (Yong & Koon, 2003) and (Heeks, 2008) as utilization of technology by the government to improve access and civil services delivery which benefit residents, industry associates and staffs. As well as using ICT in advancing civic administrations tasks to the residents.

mGovernment has been considered important to the citizens because of its distinct advantages which includes making the government services available anywhere anytime on mobile devices. This contrasts with traditional ways whereby citizens had to visit government offices or agencies to request information, fill in forms and apply for services. In many instances, these

tasks take a lot of time due to the need for travelling to the premises of the government (Almarashdeh & Alsmadi, 2017). mGovernment also improves the communication between the administration and the residents, which in turn enhances the government performance as well as help to mitigate problems (Hung, Chang, & Kuo, 2013).

An overview of three different types of governments in terms of principles, service space, service time, and service form was discussed by (Oui-Suk, 2010). These include; traditional government, electronic government (eGovernment), and mobile government (mGovernment). In terms of principles, he showed that traditional government has a bureaucratic process, while eGovernment has process reengineering using ICT (PC and Internet), and mGovernment has seamless amalgamation and association of wireless devices.

In terms of service time, service space and form, traditional government, operates 8 hours a day and 5 days a week, upon which residents make official visits to public workplaces. However, an eGovernment operates 24 hours a day, every day, as long as one is in reach of a PC which is linked to the internet in gaining entrance to the administration's web portal. mGovernment provides 24 hours a day, 365 day nonstop access to needed service (Oui-Suk, 2010).

## **1.2 An overview of eGovernment and mGovernment in Kenya**

eGovernment began in the year 2004 with the objectives of delivering information and services more efficiently, promoting employees productivity, promoting citizen participation and empowering all Kenyans in general (ICTA, [icta.go.ke](http://icta.go.ke))<sup>1</sup>. Despite this early start, it has not been fully implemented and still faces challenges as has been described by some researchers such as (Wamoto, 2015) and (Gichoya, 2005). mGovernment might be a better solution to overcome the challenges identified, which include the digital divide, poor ICT infrastructure, privacy, and security of information, bureaucracy, lack of skilled personnel, attitudes, plus design issues.

In Kenya already many mobile services (mServices) are offered via mobile devices, especially by the private sector. Some of the services include transferring money through mobile phones, which is considered as one of the success stories of private sector. This mPayment was launched by the mobile operator Safaricom under the name Mpesa. Currently, there are many other mobile payments (mPayments) platforms in Kenya such as; Airtel money,

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<sup>1</sup> ICT Authority: [www.icta.go.ke/national-ict-masterplan/](http://www.icta.go.ke/national-ict-masterplan/)

Mobikash, Equitel Money, Orange Money and Mobile Pay. Through these mPayments platforms one is able to pay bills anytime anywhere through a mobile device which enhances the use of mobile services. The SMS services currently offered by the government are still limited. They include tracking of passports, notification of voter registration, sending and receiving national examination results information and national identity cards (IDs) among others (Huduma centers)<sup>2</sup>.

Additionally, there is a high priority towards the achievement of the Vision 2030, which aims at creating a worldwide competitive and successful nation with a high quality of living by 2030 and at achieving national development goals (Ministry of Information, Communication and Technology of Kenya, MOICT)<sup>3</sup>. In terms of the literacy rate, according to World Bank data of 2016, Kenya has a high percentage of youth literacy (85.95% both sexes, young females is 85.2%, young males 86.59%). In terms of adult literacy the percentage for the overall adult population is 78.02% (adult males 81.11%, adult female 74.11%).

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<sup>2</sup> Huduma Kenya: [www.hudumakenya.go.ke](http://www.hudumakenya.go.ke)

<sup>3</sup>ICT Authority : [www.ict.go.ke](http://www.ict.go.ke)

According to the UN eGovernment Survey (2016)<sup>4</sup> Kenya has been ranked number 119 out of 193 nations in the eGovernment Development index also placed 84 out of 193 in the eParticipation index. It is ranked top 10 in Africa, where Mauritius is ranked as number 1 (global rank 58 out of 193) shows that there is room for improvement. The ranking is done as EGDI which is measured as the mean of three controlled ratings on three peak proportions of eGovernment : first, extent and attribute of online services (OSI ), second, advancement condition of telecommunication infrastructure ( TTI ) and third, intrinsic human capital ( HCI ) ((Pérez, Bolívar, & Hernández, 2010).

Some of the initiatives and systems which are currently in place and can be accessed via mobile technologies include, eCitizens<sup>5</sup>, - which is referred to as the gateway to all government services. It is a digital platform that is used in Kenya to enable the citizens or visitors to access and make payment online for government services. The eCitizens services portal is supplemented by Huduma Centers<sup>6</sup>, which are one-stop-shop citizen service centers that provide efficient Government Services at the convenience of the citizen, from

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<sup>44</sup> United nations eGovernment Survey, World Bank Report 2016

<sup>5</sup> E citizen portal: [www.ecitizen.go.ke](http://www.ecitizen.go.ke)

<sup>6</sup> Huduma Centers: [www.hudumakenya.go.ke](http://www.hudumakenya.go.ke)

a single location (icta.go.ke<sup>7</sup>). This has been made possible through the use of the government network GCCN (Government Common Core Network). It offers internet connectivity and hence, ensures that residents are able to access services online. A challenge faced by the project, is that many times internet availability is minimal and the citizens are forced to wait long times for the network to be restored. This reduces the citizens' confidence in terms of new projects. The second initiative is electronic learning (eLearning). (Sangrà, Vlachopoulos, & Cabrera, 2012) in their study showed that eLearning, has been defined in many ways. Among the definitions is, distance learning, which refers to learning with the help of ICT with the aim of creating and approving understanding or learning outlined by (Jenkins & Hanson, 2003) as using ICT as a supporting tool. In this kind of learning, students and lecturers do not necessarily have to be in the same location. Rather, what matter are the content and the availability of internet. Another service example is the online tax, a web enabled approach operated by KRA - Kenya Revenue Authority. This initiative helps the citizens to file their tax returns online without having to travel to the KRA offices in person.

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<sup>7</sup> ICT Authority: [www.icta.go.ke](http://www.icta.go.ke)

Other initiatives include the electronic procurement, i.e., the process of purchasing goods and services electronically. It helps to ensure transparency and also wise spending of the tax payers' money. In Kenya, eProcurement was launched with the aim of ensuring that the procurement processes are made online, to ensure efficiency and effectiveness. One example is doing requisition and sending quotations, tendering and awarding contracts online, specifically for registered suppliers. It also helps the suppliers to follow up payments on the goods they supplied to the government (IFMIS)<sup>8</sup>. This initiative benefits the government in avoiding price inflation by interested parties as well as the suppliers. In addition to the benefits mentioned, certain groups, especially the disadvantaged (disabled and women) get a chance to participate in government procurement. This helps to address the digital divide. eProcurement also ensures that there is items standardization in government as well as enables eTendering<sup>9</sup>.

The above initiatives have been a motivation towards this study as are the high rates of mobile cellular subscriptions and penetration as shown in the

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<sup>8</sup> IFMIS - (Integrated Financial Management Information System):

[www.ifmis.go.ke](http://www.ifmis.go.ke)

<sup>9</sup> [Www.supplier.treasury.go.ke](http://Www.supplier.treasury.go.ke)

Report of World Bank 2016 and by the Communication Authority of Kenya (CAK)<sup>10</sup>. The data shows that mobile cellular subscription in Kenya is increasing yearly and the sector statistics show that in the fourth quarter of the 2016/17 financial year, the number of mobile subscriptions had reached 40.2 million, a growth of 2.8 percent from the 39.1 million subscriptions in the third quarter. Mobile penetration also increased by 2.5 percent, reaching 88.7 percent as compared to the 86.2 per cent in the previous quarter.

In addition to the rapid growth of mPayments in Kenya, there is also an increase in mobile data subscriptions, which is attributed to the continuous decrease in the price of smartphones as well as the widespread availability of compatible handsets. According to the CAK, the number of data subscriptions has grown by 9.9 percent during the period of report (April- June 2017) as compared to the same period of the previous year (CAK, 2017<sup>11</sup>). This has enabled many more citizens to be able to access the internet using mobile devices (Karan & Khoo, 2008).

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<sup>10</sup> Communication Authority of Kenya (CAK):  
[www.ca.go.ke/images/downloads/STATISTICS/](http://www.ca.go.ke/images/downloads/STATISTICS/)

<sup>11</sup> Communication Authority of Kenya (CAK):  
[www.ca.go.ke/images/downloads/STATISTICS](http://www.ca.go.ke/images/downloads/STATISTICS)

### **1.3 Research objective and question**

In this study the goal is to establish perceived determinant aspects in attaining a distinct adoption of mGovernment in Kenya. Zefferer, (2011) portrayed that it is vital to provide mGovernment services that satisfy the user needs. Therefore, as a first step in adopting mGovernment, I intend to study the perception of the residents towards the acceptance of the technology. Once the factors have been identified, it would be the best beginning for the administration to be informed of the needs to be addressed first when it comes to countrywide adoption of mGovernment. By studying the users' perception, it helps the government in understanding the users' concerns, to better provide and deliver quality services to the residents. In a study by Abdelghaffar et al. (2012), they pointed out that after they did a review on most of the previous studies, they identify some gaps in investigating variables affecting adoption of mGovernment by residents, especially in emerging economies. In addition, they pointed out that mobile devices are the major drivers in the move from eGovernment to mGovernment. In this study I will be able to confirm these in terms of the resources that facilitate mGovernment adoption addressed in the section on facilitating conditions.

## **Chapter 2. Literature Review**

While many countries have adopted eGovernment, it has mostly been accomplished in developed countries. While the concept is being introduced also in developing countries, different researches have shown that there is a slower rate of introduction. In this study, mGovernment will be considered as a solution to the challenges faced by previous implementation of eGovernment, hence ensuring successful government services delivery. The benefits of mGovernment have been described in prior literature. (Mengistu, Zo, & Rho, 2009), (Jahanshahi, Khaksar, Yaghoobi, & Nawaser, 2011) &(Karan & Khoo, 2008) pointed out benefits of mGovernment such as enhancing the effectiveness and efficiency of residents services, enlightening the services quality, increasing the government/public sectors performance as well as increasing profitability. mGovernment also enables the extension of residents services delivery to those unable to reach and access other forms of service delivery, those who prefer using mobile devices because of a lack of wired networks or ICT infrastructures services, or those who merely prefer using mobile phones (Deep & Sahoo, 1970).

eGovernment plays a major part in the future progress of a country. Consequently many researches have been done to ascertain factors affecting its success or failure. In most of the studies, it is clearly identified that

eGovernment implementation in developing countries faces many challenges, (Heeks, 2002) categorized the problems according to their degree: infrastructure factors which include hardware, software, human factors (for example the public and the citizens) and governmental factors (for example the policies and regulations). He also pointed out that most projects in developing countries fail due to poor planning and poor management. But on the other hand, he argued that the performance of a project cannot be measured by just judging its goodness or badness without successful implementation. Different researchers have proposed different solutions for overcoming the challenges; however, divergent nations possess varied perceptions plus dissimilar context in addressing challenges.

According to (Yong & Koon, 2003), eGovernment adoption has shown a slow rate over many years in most developing countries. Despite this, citizen demands services of similar quality to those offered by commercial organizations as emerging ICTs penetrate into the society. The introduction of eGovernment has been seen as a chance to change the administration in terms of cost reduction, better service provision, open administration and improved transparency. However, this has not been the case due to several challenges (Irani, Love, & Montazemi, 2007). In brief, eGovernment has been adopted in many countries, but mostly in developed countries. In developing countries

adoption is underway, but the rate is very slow.

However, mGovernment is perceived as being a solution to the challenges facing eGovernment. The difficulty in accessing the internet on mobile devices has been outlined by (Kushchu & Kuscu, 2003) as being caused by the devices restrictions in terms of size, for example their typically small displays and keypads, as well as low storage and memory. Again, technologies are hitherto demonstrating the relation in terms of high speed and even communications excluding interruptions. Wireless standards as well as compatibilities with devices still remain as causing significant trials to world corporate applications and executions on the mobile internet hence affecting mGovernment (Trimi & Sheng, 2008) & (Kushchu & Kuscu, 2003).

Currently there is a rapid mobile penetration and wireless technologies, resulting in many people preferring them over landline or other fixed technologies. Hence, it is suitable to establish the factors guaranteeing success in mGovernment. As a result of this, there is the new challenge of mobility, where the citizens need service access anytime, anywhere (Alrazooqi & De Silva, 2010). According to ITU, 2015 ICT facts, it is shown that mobile broadband is rapidly changing segment of the telecommunications market around the world. Mobile-broadband penetration has increased 12 times since 2007. ITU, 2011 also shows that the overall worldwide mobile penetration

rate remains at 96 percent (128 percent for advanced nations and 89 percent for emerging nations). This development was fuelled by emerging nations which contributed further 80 percent of the total 660 million new mobile subscriptions in 2011 (Co-operation & Development, 2011). From this statistics of mobile phone ownership and penetration it is clear that emerging nations have a high potential in adopting mobile services and promise a greater reach.

## **2.1 mGovernment and related previous studies**

A research on influential factors affecting the mGovernment adoption in emerging economies by (Yfantis et al, 2013) displays that few studies have been carried out on mGovernment adoption especially, by emerging economies and on the influential elements that have impacted the adoption. Among the studies that have been performed, some are discussed in this section and some of the factors they discussed will be put into consideration.

Technological factors should be considered in two important perspectives i.e., the mobile device side as well as the user side, to support the transitioning of mGovernment as they act as means of transforming a society into an informative society as well as reducing digital divide. On the other side, reasoning and behavioral dimensions affecting the mGovernment adoption

should be looked into. In terms of the mobile device side, technical dimensions should consider the hardware and software that influence mGovernment adoption. In general studies pointed out that trust as well as context of use are important factors in the conceptual model and also for those involved in making policies since they are the highly influential people before coming up with a new administrative tasks in a country (Yfantis et al., 2013).

(Nava & Dávila, 2005) outlined the strength and weaknesses of mobile government (mGovernment), for example in terms of strength they considered portability and mobility, personalization, ubiquitous interaction, lower cost and location awareness. In terms of weakness they considered privacy threats, security risks, unstable connectivity, low bandwidth, electric power consumption, user interface, and inconvenience as well as data processing, and storage limitations.

(Abdelghaffar & Magdy, 2012) in their study on mGovernment in Egypt considered nine factors and their results shows that compatibility, social influence, perceived usefulness, awareness and face-to-face interactions were significant in terms of intention to use mGovernment while internet experience, trust, perceived ease of use plus personal connections happen to be in-significant. The limitation of their study is that, it only considers the

youth population. For this reason it cannot be generalized for the whole population, since different generations have different perceptions.

On the other hand (Hung et al., 2013) perform an empirical study about acceptance of mobile eGovernment services by users inside Taiwan. In the study, the following factors were considered; interactivity, facilitating condition, perceived usefulness, trust, external influence, perceived ease of use, likewise interpersonal influence, also self-efficacy, plus compatibility. Outcome shows that all factors except compatibility were significant. The limitation of the study is that it only considers those already using mGovernment services; hence, the findings cannot be applied in countries which have not yet implemented mGovernment. They also pointed out that little research has been done on the mobile communication factors in the mGovernment context. In their study they were able to ascertain and describe the factors to improve users' needs with regards to mobile services.

(Trimi & Sheng, 2008) in their study outlined the challenges that are associated with using wireless networked devices such as; issues with small screen and keypads. They also pointed out the challenges of power computation and memory issues. In connection to this, they stated that many mobile devices have a short battery life, poor display resolution and also limitations in terms of web browsing ability.

In their study on mobile diffusion and development in India, (Karan & Khoo, 2008) considered the following factors in evaluating the mGovernment; innovativeness, regulatory & political environment, security & privacy, awareness and acceptance, infrastructural investment and equitable acceptance. They also outlined that in emerging economies mobile technologies have low cost compared to Internet which has given rise to the growth of mGovernment, especially in terms of services to underserved sectors of the population. Their study also sheds light on the drivers for the growth of services, using mobile for example, mobile devices penetration, mobile payment models and mobile internet services.

A study by (Carroll, 2005) showed that in addition to increasing efficiency, effectiveness and technology capabilities mGovernment should consider the citizens preference and also that attention should be paid to the practices when it comes to accessing the government services. The study further pointed out that citizens do not just accept technologies pushed to them, but they intentionally consider a range of functions, features, media, and the devices that will best meet their local and situation needs. In conclusion, the study outlined that to achieve a long-term determined use of applications and services of mGovernment, the citizens' needs must be met.

According to (Kumar & Sinha, 2007) the most critical factors when it comes to applications using mobile devices include; accessibility, privacy, as well as security. In their study, they outlined the essential factors that should be considered in future adoption of mGovernment for example, authentication of mobile, making mobile payment and considering location aware applications.

### **2.1.1 mGovernment and variables to be considered**

From the literature review, the following factors will be discussed and considered for the proposed framework; Effort Expectancy, Perceived Awareness, Facilitating Conditions, likewise Performance Expectancy, Perceived Transparency, plus Social Influence. The variables will be measured to determine the extent to which each affects the behavioral intention to adopt mGovernment. These factors are independent aspects whilst, behavioral intention to use mGovernment being the controlled aspect. The selection of the factors is supported by previous studies on mGovernment and eGovernment.

This study will focus on user acceptance (Zefferer, 2011) because it is important to provide mGovernment services that satisfy the users' need and also meets the citizens' preference (Carroll, 2005). Additionally,

mGovernment services also process sensitive information or data which the citizens might not be willing to disclose. (Zefferer, 2011) also pointed out that most people consider mobile devices for fun and not for serious government transactions. Therefore, it will be important to carry out a survey to identify the citizens' perception towards this new technology, hence, being able to address acceptance challenges at a very early stage. By doing so, the government will be able to understand the users' concerns and in turn will be able to provide satisfactory services.

### **2.1.2 Theoretical model selection**

After reviewing different literature related to mGovernment, modified model of UTAUT (Unified Theory of Acceptance and Use of Technology) will be utilized. (Zejnnullahu & Baholli, 2017) showed that different researchers studying the user acceptance of mGovernment have adopted various types of modeling and diverse schemes, including; Technology of Acceptance Model (TAM) (Davis, 1989); Diffusion of Innovations (DOI), (Rogers, 1995); UTAUT (Venkatesh, Morris, Davis, & Davis, 2003); and last, Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975).

In this study logic behind using UTAUT is, most of the studies considering adoption of new technologies found it useful and it has been recommended by

many researchers (Venkatesh, Thong, & Xu, 2012), (Davis, 1989), (Yfantis et al, 2013). Second, the UTAUT model also merges eight previous models and its reliability, validity and suitability have been tested (Oshlyansky, Cairns, & Thimbleby, 2007). UTAUT can be calibrated to suit technology in query (Venkatesh et al, 2003).

The UTAUT gained embracement in predicting users of information technology in numerous fields, for example mobile internet, mobile banking, eGovernment and mGovernment. In the UTAUT, four (4) determining factors have been identified: PE - Performance Expectancy, SI - Social Influence, plus EE - Effort Expectancy, likewise FC - Facilitating Conditions. Venkatesh et al, (2003) study; reviewed undeviating descriptive variables towards use behavior likewise intention to use. Venkatesh referred gender; experience; age, and voluntariness as the moderators controlling the effects of the four prime variables towards intention to use additional to use behavior.

PE is defined by (Brown & Venkatesh, 2005) as the extent to applying a given technology aid one get advantages in executing some events. EE, described as the extent of simplicity regarding individuals' use of technology. SI is the point where individuals discern that since it is salient to others they trust they should utilize the technology too. Last, FC is defined as "citizens'

realization of the resources and aid obtainable in performing a behavior” (Venkatesh et al., 2012). They also emphasized that in UTAUT, Performance Expectancy, Social Influence, plus Effort Expectancy prompt to behavior intention to adopt technology. Moreover, behavior intention to use and Facilitating Condition identify the usage of technology.

Modified UTAUT will be used in the Kenyan case with additional factors and omission of some factors. The reason for these is the fact that the technology is not yet implemented and hence, Perceived Awareness will be important as well Perceived Transparency so as to be able to get to know how much the citizens know about the technology and how they perceive the government transparency with the introduction of mGovernment. Also, since the technology is new the omission of use behavior will be considered and the dependent variable will be the behavior intention to use (BITU).

# **Chapter 3. Research Model & Hypotheses**

## **3.1 Main constructs**

eGovernment technology is rapidly growing, as is evident by the many studies and researches that have been carried out on this topic. In contrast mGovernment has not yet received the same attention from researchers as eGovernment. There is especially a lack in studies on the contexts of developing countries. In most prior studies, UTAUT, TPB and TAM models have been considered in determining the users' acceptance. (Shareef, Kumar, Kumar, & Dwivedi, 2011) they emphasized that for a successful diffusion and acceptance of eGovernment initiatives the willingness of the citizens is very important. mGovernment is not an exception to this case, hence the importance of this study.

(Hung et al, 2013), in their empirical research on the user acceptance of mobile eGovernment services utilized theory of planned behavior with 331 users in Taiwan already using mGovernment and considered twelve factors. All of the hypotheses were supported and considered critical in terms of trust, interactivity, perceived ease of use, plus self-efficacy, perceived usefulness, external influence, attitude & facilitating conditions, interpersonal influence, perceived behavior, and intention to use. Only the predicted influence of

compatibility was not supported. Regarding a study by (Liu et al, 2014) investigating mGovernment adoption in rural China (Zhejiang province) employed TAM model on a dataset of 409 samples from the rural population. The factors they considered included near-term usefulness, benevolence, perceived ease of use, also long-term usefulness, integrity, social influence and image. All of the factors were positively and significantly influencing the intention to use mGovernment.

To improve the interaction among the citizens, a study conducted by (Abdelghaffar & Magdy, 2012) shows that around the world most governments have started moving towards mGovernment. However, only a few developing countries have so far realized the importance of mGovernment services. In their study, awareness, compatibility, social influence, face to face interactions and perceived usefulness showed significance relationship to intention to use mGovernment.

Research by (Shareef et al, 2011), on adoption model for eGovernment at different stages, considered awareness as one of the factors to be addressed in developing a model for the adoption of eGovernment. The same factor can be used in studies on mGovernment adoption since it can be seen as an extension of eGovernment.

## **Perceived Awareness (PA)**

This refers to the knowledge an individual has on the availability of government services which can be accessed using mobile technology. It also addresses the knowledge on the requirements to be able to access the services. It has been shown that awareness is the beginning stage in users' know-how, because users require to apprehend about the services in operation, how they are important to them, and what they really do (Abdelghaffar & Magdy, 2012). In the study by Abdelghaffar on the government adoption of mobile services, the findings show that awareness is an important determinant for mGovernment adoption. (Saif, Jasimuddin, & Mansoor); (Almuraqab & Jasimuddin, 2016) considered awareness as one of the additional factors to the UTAUT main factors in their study on the mGovernment adoption case of the United Arab Emirates and found it to be significant. Most prior eGovernment studies pointed out that lack, or low level of awareness affects the adoption of eGovernment (Khalil & Nasrallah, 2014). Therefore, in this study, it is prudent to include awareness (Perceived Awareness) as one of the constructs to be measured on mGovernment adoption. Therefore, I hypothesized the factor as:

**H1: Perceived Awareness has a positive and significant influence on the behavioral intention to use mGovernment.**

## **Social Influence (SI)**

It refers to how far friends or important people around an individual impact the technology utilization, (Venkatesh et al, 2003). The impact can either be positive or negative in citizens' lives. It is considered as an important aspect and in many dimensions, it is most influential. It is also described as the individual comprehension that being salient to others, one should use new technology. In early studies Social Influence was identified as a vital determinant factor affecting mobile technologies including; mobile internet (Zhou, 2011), (Wang & Wang, 2010), plus mobile banking.

In terms of eGovernment, previous studies have exhibited Social Influence as prime variable in adoption of technologies (Al-Hujran & Migdadi, 2013); (Saif et al.); (Althunibat & Sahari, 2011) & (Babullah, Dwivedi, & Williams, 2015). Despite these significant findings, a study by (Sultan & Ahlan, 2014) found that Social Influence does not have any influence on the adoption of mGovernment. An empirical study by (Liu et al, 2014) on mGovernment adoption in rural areas of China established a direct, remarkable relationship regarding Social Influence towards intention to use. According to (Karahanna, Straub, & Chervany, 1999), the implications of Social Influence towards behavioral intention to use appeared weak and show consistency with the

results of technology acceptance research accrediting the moderating effect of voluntariness and experience. Considering the different results from previous studies I hypothesized that:

**H2: Social Influence has a positive and significant influence on the behavioral intention to use.**

## **Performance Expectancy (PE)**

It is the scope in which residents get advantages by utilizing a technology in executing their task (Venkatesh et al, 2012). It is evident by Venkatesh that Performance Expectancy, positively impact behavioral intention to use and in succession affect use behavior. (Sultana, Ahlan, & Habibullah, 2016); (Sultana & Ahlan, 2014), in their study, found Performance Expectancy as positively impacting behavioral intention to use, therefore it is worth considering it among the aspects that affect intention to use. Most studies on mGovernment as well as eGovernment that have considered Performance Expectancy as one of their factors have established positive likewise significant effects towards intention to use mGovernment (Al-Hujran & Migdadi, 2013), (Almuraqab & Jasimuddin, 2016), (Saif et al.), (Babullah et al., 2015) & (Yong & Koon, 2003). In this research I will measure the effects on Kenyan citizens' intention to use mGovernment services and investigate whether it is consistent with previous studies or not. In general, it is important to examine how citizens perceive new technology in terms of the benefits they will achieve to ensure a success. Therefore, I hypothesized the factor as:

**H3: Performance Expectancy has a positive and significant influence on the behavioral intention to use mGovernment.**

## **Perceived Transparency (PT)**

Transparency entails all about openness of decisions and actions taken by the residents (Heeks, 2004). (Yfantis et al., 2013) pointed out that the major cause of poor mGovernment implementation in most emerging economies is the lack of technology influence and the nonexistence of political determination to stimulate transparency. Therefore, to investigate the case of Kenya, Perceived Transparency has been included as one of the independent factors. (Jun, Wang, & Wang, 2014) in their study on the Chinese local government and (Pérez et al., 2010) in their study on Latin-American municipalities showed that the introduction of eGovernment especially in emerging economies has been a valuable tool in promoting transparency as well as increasing accountability by reducing corruption and getting rid of unethical behaviors by the civil servants (Welch & Wong, 2001). (Reffat, 2003) in their study on successful eGovernment; pointed out that lack of transparency hinders the residents from actively participating in administration and also hinders them from protesting unfair decisions or raising questions. (Wamoto, 2015) in their study on eGovernment considering the case of Kenya also recommended that the government should encourage transparency, especially in the procurement and recruitment processes. I therefore, hypothesize that:

**H4: Perceived Transparency has a positive and significant influence on the behavioral intention to use mGovernment.**

### **Facilitating conditions (FC)**

This refers to the expectations in terms of existing infrastructure to facilitate the usage of mGovernment (Yfantis et al, 2013). In this research, Facilitating Condition is investigated focusing on mobile devices, wireless technologies, and mobile payments, for example Mpesa in the Kenyan case. Additionally, the skills necessary to use mGovernment services are also reflected. It has also been defined in other way, such as referring to the perception of the residents in terms of support and the resources available to aid in performing a behavior (Venkatesh et al., 2012). In a study by (Almuraqab & Jasimuddin, 2016) Facilitating Condition was considered in an attempt to uncover the factors that improve the acceptance of mGovernment services by reviewing existing literature. Their findings showed that Facilitating Condition is one of the critical factors to be addressed. Further investigating the relationship that exists between the citizens' intention to smart government adoption, Facilitating Condition was identified as one of the factors impacting behavioral intention to use (Saif et al.). Moreover, (Al-Hujran & Migdadi, 2013) in their study on public acceptance of mGovernment services shows that Facilitating Condition is a robust

determinant that influences the intention to use. However, (Sultana & Ahlan, 2014) in their study on understanding the citizens' intention to use mGovernment in Bangladesh, despite using the UTAUT model, did not include Facilitating Condition in their model. (Babullah et al., 2015) proved that Facilitating Condition is a strong aspect impacting the intention to use mGovernment in Saudi Arabia. Therefore, it is prudent to investigate the same for the case of Kenya and hence I hypothesize that:

**H5: Facilitating Condition has a positive and significant influence on the behavioral intention to use mGovernment.**

### **Effort Expectancy (EE)**

This is the scope related to residents' ease in using a technology. It is also defined as how much one trusts a specific system to effort free (Venkatesh et al, 2012). Ease of use in this research focus on mobile device usage (Abanumy & Mayhew, 2005), information finding, learning how to access services using mobile technology, mobility and the interface of the mobile device (Davis, 1989). A study about public acceptance of mobile government in emerging economies considering case of Jordan by (Al-Hujran & Migdadi, 2013) clearly showed the importance of Effort Expectancy. They showed that Effort Expectancy impacts the intention to use mGovernment. In addition to

the mention studies, other researchers who confirmed Effort Expectancy as a significant and positive factor in the adoption of mGovernment include (Sultana et al., 2016), (Almuraqab & Jasimuddin, 2016) and (Babullah et al., 2015). However, (Sultana & Ahlan, 2014) in their study on apprehending the intention to use by residents regarding mGovernment services; case of Bangladesh found Effort Expectancy non influential to intention to use mGovernment. I therefore hypothesize the factor as:

**H6: Effort Expectancy has a positive and significant influence on the behavioral intention to use mGovernment.**

Perceived Risk (PR) will be considered in the questionnaire to check on the respondent's attention, since it has both the positive and the negative questions. It is defined as the expectation of risks linked with using technology and acts as an inhibitor to behavior intention to use (Featherman & Pavlou, 2003). It includes SMS technology risks (Susanto & Goodwin, 2013), privacy & security and financial issues. (Zefferer, 2011) & (Yfantis et al., 2013) pointed out that protection of sensitive data and information of the users as they access the government services is important. (Almuraqab & Jasimuddin, 2016) in their research on mGovernment in regards to the lessons learned from the success of the smart city show that Perceived Risk was one

of the factors to be considered in the adoption of mGovernment. However, in this study it is not considered as an aspect impacting the intention but instead to capture the respondents' attention. In other studies by (Althunibat, Alrawashdeh, & Muhairat, 2014) on the case of Jordan and (Babullah et al., 2015) on the case of Saudi Arabia, considered Perceived Risk as one of the aspects in their study on mGovernment and their outcome shows robust effect on behavior intention to use mGovernment. PR considers negative consequences, the relative benefits, security of the mobile technologies as well as privacy of personal information, (Kahl, Böttcher, Tschersich, Heim, & Rannenber, 2010), correctness of the information and also the use of personal information without the user's knowledge. (Kushchu & Kuscu, 2003) showed that the low memory is a limitation of mobile devices and the challenges of screen size are also a great limitation, since it can have some negative effects on the eyes. (Trimi & Sheng, 2008) show that shorter life battery and poor displays are also part of the risk. Perceived Risk has also been considered as a moderating factor (Im, Kim, & Han, 2008) and has been found to have effects on the independent variables relationship to behavioral intention to use.

## **Behavioral intention to use (BITU)**

It has been defined as the extent one intends to accept as well as use a mobile technology in accessing government services (mGovernment). In this research, the dependent variable is behavioral intention to use mGovernment. BITU is outlined by, (Venkatesh et al, 2003) as important in examining users' acceptance and use of technology. They also recommended for further studies to enhance the understanding of this effect. Different literature reviews on previous research have presented that numerous independent factors exist impacting behavioral intention to use either directly or indirectly, and in turn affect the actual use of mGovernment (actual use is not being investigated in this study because the technology is not yet implemented ). In this research, two variables were added to previously employed variables by Venkatesh to better represent the Kenyan context. (Fishbein & Ajzen, 1975); describe behavioral intention as one's extent of power in the intention to accomplish a given performance. Table 1 shows the summary of the hypothesized construct and information on previous studies which considered the same variables.

**Table 1: Summary of hypotheses without moderating factors**

<b>Hypotheses without moderators</b>	<b>Previous Studies</b>
H1: Perceived Awareness has a positive and significant influence on the behavioral intention to use mGovernment.	(Abdelghaffar & Magdy, 2012), (Shareef et al., 2011)
H2: Social Influence has a positive and significant influence on the behavioral intention to use mGovernment.	(Sultana & Ahlan, 2014), (Alshehri et al., 2013) & (Liu et al, 2014)
H3: Performance Expectancy has a positive and significant influence on the behavioral intention to use mGovernment.	(Babullah et al., 2015), (Alshehri et al., 2013), (Yfantis et al., 2013)
H4: Perceived Transparency has a positive and significant influence on the behavioral intention to use mGovernment	(Jun et al., 2014), (Bertot, Jaeger, & Grimes, 2010)

- H5: Facilitating Condition has a positive and significant influence on the behavioral intention to use mGovernment (Sultana et al, 2016), (Yfantis et al., 2013), (Venkatesh et al, 2012)
- H6: Effort Expectancy has a positive and significant influence on the behavioral intention to use mGovernment (Sultana & Ahlan, 2014), (Yfantis et al., 2013), (Babullah et al., 2015)
-

### **3.2 Moderating variables**

In this research, the moderating factors that will be used include age, education level, eGovernment experience, gender and mobile internet. These will help in giving a clear understanding on the different groups' influence on the relationships that exist among the dependent variable and the independent variables. According to (Ahmad & Khalid, 2017), previous studies mainly on eGovernment omitted age and gender in determining the factors contributing to the intention to use (Liu et al., 2014) & (Abdelghaffar & Magdy, 2012) however, showed that separating users into different groups based on their demographics factors will provide clearer understanding of users' interaction with mGovernment.

Gender is viewed as having a psychological impact and has also been considered as a moderating aspect by prior studies (Venkatesh et al, 2012). In accordance to (Bem, 1981), gender is introduced by the fact that males and females tend to have differences when it comes to decision making. Early research using TAM2 and UTAUT showed that gender depicted important part when predicting behavior, especially in the information systems and technology areas. (Venkatesh & Davis, 1996) in their study they found that; gender impacted the perceived ease of use likewise perceived usefulness on effect towards behavioral intention to use. Also, studies by (Venkatesh et al,

2012); exhibit that gender significantly affected three factors: effort expectancy, as well as performance expectancy plus social influence. In this context, it was shown by (Venkatesh et al., 2012) that men had more impact as compared to women pertaining Performance Expectancy towards behavioral intention to use, while (Wang et al 2009), establish gender not having moderating effects in their study on electronic learning (eLearning). For these reasons, gender effects on independent variables' relationship to behavioral intention to use are put into consideration. Regarding Effort Expectancy; women had a higher impact as compared to the men's impact on the Effort Expectancy's relationship to behavioral intention to use. This was expounded in realization that women are more anxious in comparison to men in terms of new technologies; (Liu et al, 2014). Pertaining Social Influence, women were found to be highly motivated and influenced by connection and social pressure (Venkatesh, Morris, & Ackerman, 2000). A study by, (Shareef et al., 2011) showed that when studying aspects influencing online services adoption, gender should be put into consideration. Therefore, because of the inconsistencies regarding the effects of gender between males and females, my study's goal is to uncover the impact of gender especially in case of emerging economies. To predict this, I hypothesized that;

**Ha: Gender significantly moderates the independent variables' influence on the behavioral intention to use mGovernment.**

Age however, tries to compare the impact of younger groups to that of the older groups (young versus old) in mGovernment adoption. (Ahmad & Khalid, 2017) in their study on users' perspectives on mGovernment adoption in the United Arab Emirates found that age had a stronger effect on Social Influence on behavior intention. (Venkatesh et al, 2012) showed that age is very prime, especially when it comes to clarifying different behaviors in adoption of mGovernment. Age depict a strong effect on Effort Expectancy impacting behavioral intention to use. Additionally, the group of older citizens also had a higher impact pertaining to Social Influence relationship to behavior intention as compared to the younger group in a study by Wang on mobile learning. This is consistent with (Venkatesh et al, 2003) outcomes despite using diverse representations. In contrast to these findings, (Chung et al, 2010) in their study; age did not portray moderating impact pertaining to perceived usefulness likewise, perceived ease of use relationship to behavioral intention to use. Also other studies have shown that age does not have moderating effects, e.g., (Abu-Shanab & Haider, 2015). According to previous studies, age as a moderating factor has shown some inconsistencies similar to gender,

hence it represents a good area of study. In this research, I consider the effect of ages below 35 years (young) and those above 35 years (old). To predict this, I hypothesize that;

**Hb: Age significantly moderates the independent variables' influence on the behavioral intention to use mGovernment.**

Education level also as a moderating aspect is considered in this research. I divided the groups with undergraduate level and below as (low level) and those with an education at the graduate level and above (High level). These would help in identifying how the two groups affect independent variables' relationship to behavioral intention to use mGovernment. I hypothesize that:

**Hc: Education significantly moderates the independent variables' influence on the behavioral intention to use mGovernment.**

I also considered eGovernment Experience in this research as a moderating factor, and in this category grouped the rating of eGovernment by the respondents: those who rated as good and below (low experience) and those who rated very good and above (High experience). I therefore, hypothesize that:

**Hd: eGovernment experience significantly moderates the independent variables' influence on the behavioral intention to use mGovernment.**

Last moderating group is mobile internet. In this moderating factor I group respondents according to the number of hours (Hrs.) they spend on using mobile devices to access the internet in a day. Previous studies have shown that mobile internet is linked to the time a user use the internet to access online services (Yfantis et al., 2013). I therefore, hypothesize that:

**He: Mobile internet significantly moderates the independent variables' influence on the behavioral intention to use mGovernment.**

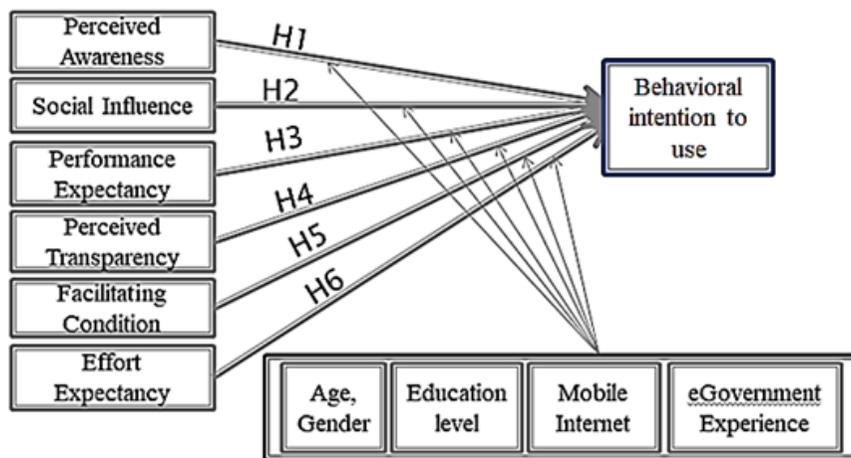
**Table 2: Hypotheses of moderating factors**

<b>Hypotheses with moderators</b>	<b>Previous Studies</b>
Ha: Gender significantly moderates the independent variables' influence on the behavioral intention to use mGovernment.	(Chung et al, 2010); (Ahmad & Khalid, 2017) ; & (Venkatesh et al, 2012); (Abu-Shanab & Haider, 2015)
Hb: Age significantly moderates the independent variables' influence on the behavioral intention to use mGovernment.	(Shareef et al., 2011); (Liu et al, 2014) & (Venkatesh et al, 2012)
Hc: Education significantly moderates the independent variables' influence on the behavioral intention to use mGovernment.	(Babullah et al, 2015); (Alshehri et al, 2013) &(Yfantis et al, 2013)
Hd: eGovExperience significantly moderates the independent variables' influence on the behavioral intention to use mGovernment.	(Venkatesh et al, 2003) & (Venkatesh et al, 2012)
He: Mobile internet significantly moderates the independent variables' influence on the behavioral intention to use mGovernment.	(Yfantis et al, 2013)

## Chapter 4. Methodology

Based on the theoretical arguments, the variables considered in this study are as follows: Effort Expectancy, Perceived Awareness, Facilitating Conditions, Performance Expectancy, Perceived Transparency, plus Social Influence. This selection is supported by previous studies on mGovernment and eGovernment. Figure 1, below, shows the modified model of UTAUT.

**Figure 1: Modified UTAUT model**



Source: (Davis, 1989); (Venkatesh et al, 2012); (Israel & Tiwari, 2011); (Yfantis et al, 2013); (Hung et al., 2013); (Featherman & Pavlou, 2003); (Ahmad & Khalid, 2017)

## **4.1 Data collection and sample representation**

This study utilized a questionnaire to acquire the information needed since; it is one of the best tools used in technology adoption research. It is also noted for its capability to use specific set of questions to cover a given topic of the study. It allows target of bigger number of respondents as well as providing a practical and an efficient way of collecting data (Jun et al, 2014); (Alshehri et al, 2013).

In this research, the questionnaire contained information about constructs measured by multiple items as well as the demographic factors questions on the respondents' characteristics. The development of the questionnaire originated from a comprehensive literature assessment of previous studies, and research. I separated the questionnaire into two sections, whereby; section A, incorporated questions to capture descriptions of the respondent such level of education, gender, occupation, and age. The second section considered the independent and dependent factors to be measured. They are scaled on a Likert scale of; 1 to 5, whereby 1 same as (=) strongly disagree, 2 same as (=) disagree, 3 same as (=) neutral, 4 same as (=) agree and 5 is same as (=) strongly agree, which is the highest level.

A pilot survey was carried out in early August 2017 with the aim of ensuring that, the questions were not ambiguous and easily understood. The

questionnaire was sent to Kenyan citizens using email and social media applications such as Whatsapp. From the pilot test, it became clear that the questions were well understood by the respondent and the questionnaire quick to complete (Ahmad & Khalid, 2017). A few minor suggestions were received and were included in the final questionnaire to fit the Kenyan case.

The final survey was carried out from September 2017 to October 2017 with an online survey targeting Kenyan citizens irrespective of gender and education. The questionnaire was shared in the form of a link with the ICT Authority officer who helped in sharing to the citizens by using citizen's database. This database contains email addresses and is normally used whenever a new system is being introduced to get the citizens' opinions or feedback. The duration for the collection of data was two months. By the end of my data collection, 230 completed questionnaires were received and considered usable for the analysis, thus accomplishing the purpose of the study.

## **4.2 Data analysis**

In this study, IBM SPSS (Statistical Packages for Social Science) version 23 was used for analyzing the data which was collected applying an online survey. For evaluating the relationships among the variables, as well as for testing the hypotheses (Kline, 2005) I used structural equation modeling (SEM) . SEM has been recommended by (Gefen, Straub, & Boudreau, 2000) to be used in information technology, information science and behavioral science research. The results were therefore interpreted according to their level of significance. The moderating factors were also incorporated in the SEM in terms of gender, age, mobile internet, eGovernment experience and education level. After the data screening, the number of valid responses was 212 and 18 responses were considered invalid due to being unengaged responses.

## **Chapter 5. Analysis results**

In this study, data analysis was conducted in five steps. First step, I used IBM SPSS 23 for exploratory factor analysis (EFA) to help in exploring the concealed factors of objects which are measurable. In the following step, I computed the underlying factor in accordance with the results of the EFA. In the third step, I presented the descriptive statistics results of the reliability test of the concealed variables as well as the correlations among these variables. In the fourth step, I applied a measurement model i.e., SEM (structural equation modeling) utilizing AMOS 23 to reaffirm factor structure and fitness of the model. Last, I tested the hypotheses in the structural equation model using AMOS 23.

### **5.1 Descriptive statistics**

In this section, the descriptions of the respondents are presented in terms of frequencies and percentage. From the outcomes, majority of the respondents are males. Regarding age, most of the respondents are between the ages of 25-34, followed by the ages of 35-44, the ages between 18-24 and the ages 45-54. The least number of respondents fell within the age group of 65 and above. I later grouped the ages into two groups: the young (below 35 years) and old (above 35 years). Regarding education level, predominance's of the

respondents hold graduate level of learning, followed by undergraduate, college, post graduate, secondary level and last primary level education. I grouped the education level into low (undergraduate and below) and high (graduate and above). Regarding sector, majority of respondents were private sector employees, second, government sector employees, third were students, fourth were the self-employed and the least number of respondents was unemployed. For the mobile plan, majority used a prepaid mobile plan, while in terms of eGovernment experience (eGovExperience) I grouped the respondents into two groups according to their rating of eGovernment, low (good and below) and high (very good and above). The majority of the respondents had a high eGovExperience. For the mobile internet access, the majority of the respondents access it five hours a day, followed by those who access it between one and five hours a day, followed by the group that uses mobile internet less than one hour a day. A small percentage of the respondents have used mobile internet all day. I later grouped the mobile internet access into two groups: less hours (less Hrs.) those who access five hours or less, and the second group, more hours (more Hrs.) access the mobile internet five hours or more.

### **5.1.1 Demographic characteristics of the respondents**

Table 3 displays Kenyan residents who participated in filling out the questionnaire. It includes their ages, gender, sector, education level, mobile plan, mobile internet access, eGovExperience.

**Table 3: Demographic characteristics of the respondents**

Variable	Option	Count	%
Age	18-24	21	9.9
	25-34	123	58
	35-44	56	26.4
	45-54	10	4.7
	55-64	1	0.45
	65 and above	1	0.45
Gender	Female	65	30.7
	Male	147	69.3
Education	Primary level	3	1.4
	Secondary level	4	1.9
	College	46	21.7
	Undergraduate	47	22.2
	Graduate	84	39.6
	Post Graduate	28	13.2
Sector	Government employee	70	33
	Private sector employee	87	41
	Self-employed	19	9
	Unemployed	15	7.1
	Student	21	9.9
Mobile plan	Pre-paid	144	75
	Post-Paid	48	25
Mobile internet Access	Less than 1 hour a day	24	11.3
	Between 1 and 5 hours a day	86	40.6
	5 hours a day	99	46.7
	Other	3	1.4
eGovExperience	Good and below	81	38.2
	Very-Good and above	131	61.8

## **5.2 Measurement model**

### **5.2.1 Reliability test**

In this study, the reliability test of variables was performed, which involves measurement of items in a single construct. This also shows how items in a given construct are consistent. The interesting thing about reliability is that it shows the way a set of items carefully chosen for a specific factors measures a similar factor. In this study, I analyzed whether a specific factor is self-determining and separately computed from the other factors, using Cronbach's alpha (Cronbach, 1951) and also the correlation matrix of inter-item.

Table 4 presents the coefficients of Cronbach's alpha in regards to the seven factors. They met the criteria of Cronbach's alpha, starting at 0.814 to 0.930 above the desired estimate of 0.7 for analysis (Cronbach, L. J. (1951). According to (Venkatesh et al., 2003) a reliability coefficient of .70 and above is normally appraised acceptable and show item level consistency within a single factor. The values for the constructs of this study were as follows: Perceived Awareness (PA) 0.866, Social Influence (SI) 0.859, and Performance Expectancy (PE) 0.908, behavioral intention to use (BITU) 0.930, Perceived Transparency (PT) 0.842, Effort Expectancy (EE) 0.829, and Facilitating Condition (FC) 0.814.

**Table 4: Cronbach's alpha coefficients**

Factors	(Cronbach's alpha) >0.7
Perceived Awareness (PA)	0.866
Social Influence (SI)	0.859
Behavior intention to use (BITU)	0.930
Performance Expectancy (PE)	0.908
Perceived Transparency (PT)	0.842
Effort Expectancy (EE )	0.829
Facilitating Condition (FC)	0.814

### **5.2.2 Exploratory factor analysis - (EFA)**

The values of measurements were borrowed from prior studies so as to meet the research requirements. To guarantee non- negative effect on study's quality, I performed an extraction of EFA with Promax and Kaiser Normalization to extract factors while using a fixed number of factors and using loading values of less than 0.30 to suppress the factors. In measuring the adequacy of sampling (MSA) Kaiser-Meyer-Olkin - (KMO), the data shows a measuring scale of 0.915, which meets the required cut-off of 0.8 in reference to (Kaiser, 1974). In terms of the Bartlett Test of Sphericity (BTS) estimated Chi-Square with 2623.088, 136 degrees of freedom (df) and ( $p < 0.000$ ) exhibit data appealing factor analysis appropriateness. This is shown in Table 5 below.

Table 6 shows factor loading values for the seven aspects from the exploratory factor analysis (EFA) extraction. The factor loadings range from 0.556 to 1.072. The seven extracted factors were: Effort Expectancy, Perceived Awareness, Facilitating Conditions, Performance Expectancy, Perceived Transparency, plus Social Influence, likewise behaviour intention to use. The seven factors had 85.32 % in terms of total variation.

**Table 5: Kaiser-Meyer-Olkin Measure of Sampling Adequacy.**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.927
Bartlett's Test of Sphericity	Approx. Chi-Square	2673.331
	Df	136
	Sig.	0.000

**Table 6: Exploratory factor loadings of items**

<b>Item</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
<b>PA2</b>				0.961			
<b>PA3</b>				0.906			
<b>EE3</b>							1.072
<b>EE4</b>							0.556
<b>PE2</b>			0.676				
<b>PE3</b>			0.970				
<b>PE4</b>			0.975				
<b>SI1</b>	0.846						
<b>SI2</b>	0.992						
<b>SI3</b>	0.821						
<b>PT2</b>					0.912		
<b>PT3</b>					0.929		
<b>FC2</b>		1.005					
<b>FC4</b>		0.759					
<b>FC5</b>		0.661					
<b>BITU2</b>						0.939	
<b>BITU3</b>						0.932	

### **5.2.3 Confirmatory factor analysis-(CFA)**

After conducting the EFA, the next step was the confirmatory factor analysis. This helps in determining the structure of the sets of data. It also shows how variables relate to each other and how the group-based inter-variables correlate. In this study, I used AMOS SPSS 23 in building a measurement model to reaffirm factor structure, and model fit. The model generated values as follows: comparative fit index - (CFI) value of 0.971; chi-square / degrees of freedom, of 1.755; standardized root mean square residual

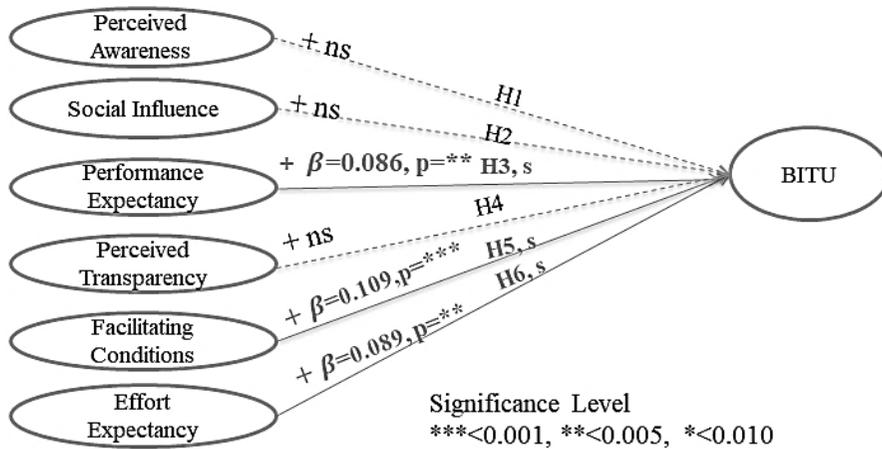
- (SRMR) of 0.042; root mean square error of approximation - (RMSEA) of 0.06; plus last close fit (PCLOSE) of 0.134 which indicates a goodness of model fit by the threshold given by (Hu & Bentler, 1999) displayed in Table 7 below. The outcomes exhibit that the model is fit as it satisfies the given threshold or the cut-off.

**Table 7: CFA Model fit measures**

<b>Fit Measures</b>	<b>Threshold</b>	<b>Research Model</b>
CMIN/DF	Between 1 and 3	1.755
CFI	> 0.95	0.971
SRMR	< 0.08	0.042
RMSEA	< 0.06	0.06
PCLOSE	> 0.05	0.134

After the CFA, I utilized SEM to scrutinize the first group of hypotheses without the moderating effects established before; Figure 2 displays values of SEM as well as the exact fit (P-values) of independent aspects in respect to implications on behavioral intention to use mGovernment. In Figure 2, solid line shows the significant paths, whereas the dotted lines indicate the non-significant (ns) paths. The standard estimates of the independent variables are also shown in the figure below using Beta ( $\beta$ ).

**Figure 2: Structural equation modeling**



### 5.2.4 Convergent and discriminant validity

Convergent Validity; used in testing whether aspects expected to be associated, are in fact really associated. (Hair, Anderson, Tatham, & Black, 2006) showed that elements within a single factor should be highly correlated and this is manifested by the factor loadings. Hair (Hair et al., 2006) also pointed that the loadings should be over 0.5, and the average of the loadings should be over 0.7 for each of the factors. In Table 8, the average variance extracted for every variable is presented, the CR is required to be exceeding 0.7, the average variance extracted over 0.5, and the outcomes met the required thresholds.

Discriminant validity, referred to as divergent validity is used in testing how unique and distinct factors are, hence, test that they have no relationships. Discriminant validity is determined using the MSV, and the AVE. Supposing the square root of average shared variance; displayed diagonally in bold in Table 9 is above the inter-construct correlations or the MSV is less than the AVE then there are no validity issues (Hair et al., 2006) . This study's data satisfy the criteria as presented in Table 8 and Table 9 and hence, no validity issues exist.

**Table 8: Average variance extracted (AVE), Composite reliability (CR), and maximum shared squared variance values (MSV)**

Factors	CR	AVE	MSV
Social Influence	0.904	0.759	0.479
Facilitating Condition	0.876	0.735	0.719
Performance Expectancy	0.903	0.756	0.546
Perceived Awareness	0.855	0.747	0.577
Perceived Transparency	0.821	0.697	0.335
Behavioral Intention To Use	0.858	0.751	0.719
Effort Expectancy	0.777	0.648	0.536

**Table 9: Square root of average variance extracted and Inter-construct correlations**

Factors	SI	FC	PE	PA	PT	BITU	EE
Social Influence	<b>0.871</b>						
Facilitating Condition	0.422	<b>0.857</b>					
Performance Expectancy	0.692	0.638	<b>0.870</b>				
Perceived Awareness	0.453	0.759	0.649	<b>0.864</b>			
Perceived Transparency	0.570	0.414	0.579	0.436	<b>0.835</b>		
Behavior Intention To Use	0.564	0.848	0.739	0.748	0.478	<b>0.867</b>	
Effort Expectancy	0.544	0.653	0.685	0.63	0.495	0.732	<b>0.805</b>

Note: Diagonally shows the square root of average shared variance

### **5.2.5 Estimation results with and without moderating factors**

Without moderating factors, three factors displayed positive; and significant relationship to behavioral intention to use mGovernment these include; Facilitating Condition (FC) with values of  $\beta=0.109$ ,  $p=***$ . This therefore shows that a unit increase of FC will increase the behavioral intention to use mGovernment by 0.109, Second is the Performance Expectancy (PE) with values of  $\beta=0.086$ ,  $p=**$ , showing that a unit increase in PE increases the behavioral intention to use by 0.086. Third is Effort Expectancy (EE), with values of  $\beta=0.089$ ,  $p=**$ , showing a 0.089 increase of behavioral intention to use by a unit increase in EE. However, Perceived Awareness (PA), Social Influence (SI) and Perceived Transparency (PT)

portrayed positive but non-significant impact on behavioral intention to use mGovernment displayed in Figure 2. Table 10 shows the supported hypotheses and a comparison with the findings of previous studies.

**Table 10: Supported hypotheses without moderating factors and comparison with previous studies**

Hypothesis without moderators	Findings	Venkatesh Babullah et al., 2012 al .2015	
H1: Perceived Awareness → Behavioral Intention to use	ns	na	na
H2: Social Influence → Behavioral Intention to use	ns	s	s
H3: Performance Expectancy → Behavioral Intention to use	s	s	s
H4: Perceived Transparency → Behavioral Intention to use	ns	na	na
H5: Facilitating Condition → Behavioral Intention to use	s	ns	s
H6: Effort Expectancy → Behavioral Intention to use	s	s	s

Note; s: supported; ns: not supported; na: not applicable.

Table 11 shows the supported hypotheses when moderating factors were introduced. Table 12 shows the coefficients and significance level of the influence of the moderating factors gender, education level, age, eGovernment experience as well as mobile internet access on the independent variables Effort Expectancy, Perceived Awareness, Perceived Transparency, Facilitating Conditions, Social Influence and Performance Expectancy. Five moderating factors had positive and significant effects on Facilitating Condition, despite the different groups. However, the old group had the

strongest effect of 0.322 (p=\*\*\*) towards behavioral intention to use mGovernment impact. Performance Expectancy is impacted positively and significantly by young group with the effect of 0.096 (p=\*\*), males with an effect of 0.105 (p=\*\*), those with low level of education with 0.103 (p=\*\*), and those with high eGovernment experience rating with 0.093(p=\*\*\*). Effort Expectancy on the other hand, was positively and significantly influenced by the young group with effect of 0.111 (p=\*\*), female with effect of 0.193 (p=\*\*), those with low level of education with 0.159 (p=\*\*) and those with less Hrs. of Mobile internet access with effect of 0.172 (p=\*\*). Social Influence and Perceived Awareness were positively and significantly influenced by a low level education, those with effect of 0.095 (p=\*\*) and 0.103 (p=\*\*) respectively. Perceived Transparency was positively but not significantly influenced by age, gender, education level, eGovernment experience and mobile internet access.

**Table 11: Supported hypotheses with moderating factors**

<b>Hypothesis with moderators</b>	<b>Findings</b>	<b>Venkatesh et al., 2012</b>
H1: Perceived Awareness → Behavioral Intention to use	s	na
H2: Social Influence → Behavioral Intention to use	s	s
H3: Performance Expectancy → Behavioral Intention to use	s	s
H4: Perceived Transparency → Behavioral Intention to use	ns	na
H5: Facilitating Condition → Behavioral Intention to use	s	ns
H6: Effort Expectancy → Behavioral Intention to use	s	s

**Table 12: Influence of the Moderating factors**

Item	Group	PA	SI	PE	PT	FC	EE
Age	young	0.085 ( ns)	0.071 ( ns)	0.096 (**)	0.070 ( ns)	0.112 (***)	0.111 (**)
	old	0.309 ( ns)	0.126 ( ns)	0.176 ( ns)	0.112 ( ns)	0.322 (***)	0.159 ( ns)
Gender	Male	0.156 ( ns)	0.077 ( ns)	0.105 (**)	0.061 ( ns)	0.144 (***)	0.105 ( ns)
	Femal e	0.113 ( ns)	0.108 ( ns)	0.192 ( ns)	0.150 ( ns)	0.259 (***)	0.193 (**)
Education	low	0.103 (**)	0.095 (**)	0.186 ( ns)	0.075 ( ns)	0.213 (***)	0.159 (**)
	High	0.156 ( ns)	0.092 ( ns)	0.103 (**)	0.85 ( ns)	0.138 (***)	0.115 ( ns)
eGovExpe rience	low	0.123 ( ns)	0.115 ( ns)	0.193 ( ns)	0.160 ( ns)	0.251 (***)	0.143 ( ns)
	High	0.216 ( ns)	0.073 ( ns)	0.093 (***)	0.061 ( ns)	0.158 (***)	0.130 ( ns)
Mobile Internet	Less Hrs.	0.150 ( ns)	0.076 ( ns)	0.143 ( ns)	0.066 ( ns)	0.166 (***)	0.172 (**)
	More Hrs.	0.108 ( ns)	0.108 ( ns)	0.111 ( ns)	0.108 ( ns)	0.161 (***)	0.104 ( ns)

**Group Comparison**

Table 12, shows the influence of different groups considering different moderating factors. The effect of each group is discussed in chapter 6.

## **Chapter 6. Conclusion**

### **6.1 Discussion**

From my results, Facilitating Condition portrayed strong and highly significant influential on the behavioral intention to use mGovernment both without and with moderating factors. This implies that Kenyan citizens are interested with the resources and availability of support to perform diverse tasks. It was significantly influenced by all the moderating factors. However, it is highly moderated by age (older population), followed by gender (females). Consistent with (Venkatesh et al., 2003) findings, it is clear that more emphasis should be placed on Facilitating Conditions in the early stages, especially among older women, since women are more focused on the effort of the magnitude. From these findings I concluded that increasing the resources, for example infrastructures, mobile devices and wireless technologies that support mGovernment will generally increase the behavioral intention to use mGovernment despite the different groups. Second, increasing the knowledge that one can get support from others is really important, especially for the older group. In previous studies by (Wamoto, 2015); (Gichoya, 2005) infrastructure was determined as a barrier to success of eGovernment and information technology projects. This has been evident by these results as an important or as a perceived determinant factor in

mGovernment adoption. mGovernment will be a solution to this previous identified limitations of infrastructure in that mobile technologies will help to ensure that each and every citizen has access to the government services anytime whenever they need, especially taking into account the rapid penetration rate of mobile devices in Kenya.

Performance Expectancy is significantly moderated by the young group, males, those with high level of education and high eGovernment experience. From these findings, I found consistency with results previously determined by; (Venkatesh et al, 2012) studies. This implies that these groups are more interested about how they will benefit from adopting mGovernment in terms of efficiency as well as their job /work performance as well as productivity. The findings interestingly are similar to that of Venkatesh despite them carrying out the research in Hong Kong. It can be drawn to close that Performance Expectancy is a vital factor which should be put into consideration during the early stages of mGovernment adoption irrespective of the country.

Effort Expectancy is significantly influenced by the young group, females, those with low education levels and those with less hours of mobile internet access. The outcomes of this study display consistency with (Venkatesh et al, 2003). It reveals that residents in these categories are more concerned with

application usability and the ease associated with using mGovernment, especially regarding time, and attempt to invest in adoption. It also shows that an increase in terms of ease of technology increases behavioral intention to use mGovernment. Therefore, there is importance in ensuring that these groups have a clear understanding of mGovernment, and to ensure that the mGovernment is easy to learn as well as easy to use. Doing so will ensure growth in the number of willing users.

Social Influence and Perceived Awareness are significantly influenced by low levels of education. This could be explained by the role played by families, friends and colleagues and for Perceived Awareness consistent with a previous study by (Abdelghaffar & Magdy, 2012) in which awareness came out as the initial step in terms of getting knowledge on eGovernment services being provided through mobile technologies. In previous studies readiness was found to be a drawback to eGovernment by Wamotho, therefore, addressing these during the early stages will ensure a smooth adoption of mGovernment. Performance Transparency had positive effects, however, was non-significant to the behavioral intention to use mGovernment services.

In conclusion, results are compared to previous studies outcomes as shown in Table 10 and Table 11. From Table 10, it became explicit that there is consistency in terms of two factors, i.e.; Effort Expectancy as well as

Performance Expectancy. For the years considered in the table, the factors are significant throughout. This means that these factors should be addressed in the early stages. Second, Facilitating Conditions have shown inconsistencies; however, in this study and Babullah study they are significant and hence should also be given attention in the early stages. Besides, Social Influence is non-significant, contrary to the results of previous studies. Perceived Awareness and Perceived Transparency were considered, however, were found to be non-significant, but in the comparable studies, the two were not applicable.

In Table 11, some unique and interesting results are shown. As the moderating factors were introduced the Social Influence and Perceived Awareness became significant and hence, three factors were consistent with the previous study by Venkatesh. Also, opposite to my expectation Perceived Transparency was insignificant in both cases.

## **6.2 Theoretical implications**

In this research, the UTAUT model is modified for determining the adoption of mGovernment by introducing two factors (Perceived Awareness and Perceived Transparency) to the original UTAUT model with five moderating factors. Performance Expectancy, Facilitating Condition,

Perceived Awareness, Effort Expectancy and Social Influence, should be considered in early phases of mGovernment adoption in Kenya.

This study shows some uniqueness in that it is the first research to combine the original UTAUT model with Perceived Awareness & Perceived Transparency as well as using all five moderating factors at the same time.

It also contributes to the growing literature on mGovernment in terms of determinant factors and moderating factors effects like gender, age, mobile internet access, eGovernment experience and education level regarding independent variables impacting behavioral intention to use.

### **6.3 Policy implications**

From the findings, the government of Kenya should pay extra attention to the strongly significant factors and the influence by the different groups so as to increase the rate of mGovernment adoption.

In terms of Facilitating Conditions, the Kenyan government should treat different groups uniquely. For example in terms of age, the older groups should be given more support since they face more difficulties in handling new technologies as compared to the younger generation who are more exposed to new technologies. An adequate policy should be in place to ensure that these groups of users are covered, which will give them confidence in

adopting mGovernment. With respect to gender, women rely more on the Facilitating Conditions as compared to men, probably because men are willing to spend extra effort in finding ways to overcome the challenges towards the goal and thus are less dependent on the Facilitating Conditions. The government should ensure that mGovernment can be adopted by everybody despite gender by ensuring that women get external support. In terms of education level and eGovExperience, those with a low level tend to depend more on Facilitating Condition. The reason for this is that these groups are less familiar with and possess little knowledge about new technologies. Therefore; the government should consider implementing training programs and specifically target these groups to ensure an improved understanding and familiarity in the adoption of mGovernment. For mobile internet access, different users exhibit different access levels. The findings of this study show that those with lower access levels depend more on Facilitating conditions. In this case, it is important to enlighten the groups on the extent they can access and also go further and find out why they only access the internet for few hours.

Putting all these groups into consideration, the government should come up with a policy which ensures that in the early stages of mGovernment adoption and new technologies different groups are treated differently. The policy

should also clearly state that those who are not familiar with the new technologies will be given additional consideration during the initial stages and that support will be provided to them.

The government should also ensure that when introducing mGovernment, residents should be informed of the benefits that they will achieve from its adoption and also on the efforts that are required of them in terms of learning and time required.

## **6.4 Limitations and future research**

Coming times studies should consider the factors that I introduced in the modified model (Perceived Transparency and Perceived Awareness) to see if there are changes over time since mGovernment is still a new area for Kenya.

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## **Appendix**

### **Questionnaire on determinant factors in mGovernment adoption: Case of Kenya.**

**Dear Participant,**

I am Joyce, a graduate student at Seoul National University (South Korea) studying International IT Policy (ITPP) in the College of Engineering, department of Technology Management, Economics and Policy Program (TEMEP).

I am carrying out a study on determinant factors in mGovernment adoption.

I kindly request you to take a few minutes in filling this questionnaire.

It is for academic research purposes and will not be used for any other purposes.

Your participation in completing the questionnaire designed in two sections (A and B) will take the least amount of time as well as effort (5 minutes), is highly appreciated.

Yours faithfully

Chemutai Joyce

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**eGovernment (electronic government):**

It involves employing ICTs (information and communication technologies) by administration in heightening access and distribution of public services to ensure that it benefits employees, citizens and business partners.

**mGovernment - mobile government:**

It is extending eGovernment to mobile platforms. It entails strategic utilization of administration services, plus applications achievable employing; wireless internet infrastructure, tablet computers, cellular mobile telephones, laptop computers. It makes public information and administration services obtainable any moment anyplace.

**Section A:**

**Background of Respondent**

1. What is your age?	18-24
	25-34
	35-44
	45-54
	55-64
	65 and above

2. What is your gender?	Female
	Male
3. Which County are you from?	Baringo, Bomet, Bungoma, Busia, Homa Bay, Isiolo, Elgeyo Marakwet, Embu, Kakamega, Kiambu, Kericho, Garissa, Kajiado, Kilifi, Kisii, Kirinyaga, Kisumu, Kwale, Kitui, Lamu, Laikipia, Machakos, Mombasa, Muranga, Nairobi, Nakuru, Nandi, Narok, Nyamira, Makueni, Mandera, Meru, Migori, Marsabit, Nyandarua, Tana River, Tharaka Nithi, Trans Nzoia, Turkana, Samburu, Nyeri, Siaya, Taita Taveta, Uasin Gishu, Wajir, Vihiga, West Pokot
4. What is your education level?	Primary level
	Secondary level
	College
	Undergraduate
	Graduate
	Post Graduate
5. Which sector are you in?	Government employee
	Self- employed
	Private sector employee
	Unemployed

	Student
5.1. What is your occupation? If not included here kindly state.	Finance and Insurance real estate industry, Human Resource and Administration, IT industry, Manufacturing, Engineering, Media and advertising industry, Procurement, Medical Industry, Education, Law, Entrepreneur, Food industry, Student, Other----- --
6. Have you ever used eGovernment services (for example eCitizen)?	( ) Yes ( ) No
6.1. If yes, how would you rate the service in question 6?	Excellent
	Very good
	Good
	Average
	Poor
6.2 Which type of electronic services have you accessed in question 6 above? Choose more than one option if applicable.	Passport application
	Business Name Registration
	Marriage certificate
	Driving License
	Driving Test Booking
	Land Search
	Civil registration services (e.g. Birth Certificate)

6.2.1 Which mobile payment did you use?	Mpesa
	Airtel Money
	Equitel Money
	Orange Money
	Mobikash
	Mobile pay
	None
7. Have you used the mobile- based Government bonds (buying government-bonds on your mobile phone) issued by the National Treasury?	( ) Yes ( ) No
7.1 If yes, how would you rate the Service in question 7?	Excellent
	Very good
	Good
	Average
	Poor
7.1.1. If poor list at least three areas of improvement.	i.
	ii.
	iii.
7.2 Which mobile money platform did you use in question 6?	Mpesa
	Airtel Money
	Equitel Money
	Orange Money
	Mobikash
	Mobile pay
	None

8. How often do you use the mobile data bundles to access internet?	Less than 1 hour a day
	Between 1 and 5 hours a day
	5 hours a day
	Never
	Other -----
8.1 Which mobile plan are you using?	I. Prepaid mobile plan
	II. Postpaid mobile plan

**Section B:**

In this section please tick on the scale level you agree with, from the scale of 1-5. Whereby,

1. Strongly Disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly Agree

Item	Description	1	2	3	4	5
1.	PA1-I am aware that mGovernment services exist.					
2.	PA2-I know benefits of using mGovernment services.					
3.	PA3-I know that mGovernment services are relevant to me.					
4.	PA4-I have seen government advertisements regarding the use of mGovernment services in Kenya.					
5.	EE1-It will be easy for me to use mGovernment services.					

6.	EE2-Learning how to use mGovernment services will be easy.					
7.	EE3-mGovernment services will be available anywhere, any time.					
8.	EE4-My interaction with mGovernment services will be clear.					

Item	Description	1	2	3	4	5
9.	PR1- I am confident of my privacy protection when using mGovernment services					
10.	PR2- While using mGovernment services my personal information may be shared with other online sites.					
11.	PR3- My financial transactions will be secure while using mGovernment services.					
12.	PR4- Using mGovernment services will lead to losing information especially when it gets to the wrong hands for example hackers.					
13.	PE1-I am confident that mGovernment Services will help me get information on time.					
14.	PE2-mGovernment services will provide me with updated information.					
15.	PE3-mGovernment services will provide me with precise information that I need.					
16.	PE4-mGovernment services will provide me with accurate information.					
17.	SI- People who are important to me recommend that I should use mGovernment services.					
18.	SI2- People who influence my behaviour recommend that I should use mGovernment services.					
19.	SI3- People whose opinions that I value, prefer I use mGovernment services.					
20.	SI4- My organization/Institution support the use of mGovernment					

<b>Item</b>	<b>Description</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
21.	PT1-mGovernment services will ensure efficiency in a bureaucratic system while communicating with government officers.					
22.	PT2 -mGovernment services will enable me give my opinion(s) to the government.					
23.	PT3- mGovernment services will enable me to raise complain(s) on unsatisfactory government services.					
24.	PT4- mGovernment services will enable me access government services with openness.					
25.	FC1-I have wireless internet network essential to use mGovernment services.					
26.	FC2-I have skills essential to use mGovernment services.					
27.	FC3-I can obtain help from others in case of any difficulties in using mGovernment services.					
28.	FC4-I have mobile devices (e.g. smartphone, tablet, laptop) to enable me use mGovernment services.					
29.	FC5-Using Mobile payments (e.g. Mpesa, Airtel money, etc.) will enhance the use of mGovernment services.					
30.	B11-I will use mGovernment services in the future.					
31.	B12-I will always try to use mGovernment services in my daily life.					
32.	B13-I plan to use mGovernment services frequently.					
33.	B14- I predict that I will use mGovernment services in the future.					
34.	B15- Given the opportunity, I will use mGovernment services.					

## **Abstract (Korean)**

오늘날, 모빌리티는 정부가 사회적 혜택을 창출하고, 이를 다른 정부 기관, 시민 및 조직에게 전달하는 능력을 증진하는데 있어 매우 핵심적인 역할을 하고 있다.

현재 대부분의 개발도상국에서 전자정부는 느린 성장세를 보이고 있고, 많은 도전에 직면하고 있다. 따라서 이를 극복하기 위한 노력의 일환으로 전자정부의 프로세스에 모빌리티를 적용한 모바일 정부가 대두되고 있다.

이는 개발도상국의 커뮤니케이션을 위한 사회 기반 시설이 열악하고, 이것이 장기적인 경제 성장 및 사회 개발에 부정적인 영향으로 이어진다는 점에서 더욱 중요한 의미를 지닌다.

무선 네트워크와 같은 모바일 기술의 확산으로 인하여, 공공기관이 장기적으로는 전자 정부의 한계를 극복할 수 있는 서비스를 모바일 플랫폼을 통해 제공하는 것이 중요해졌다.

본 연구의 목적은 케냐에서의 성공적인 모바일 정부 수용을 위해 핵심적인 인지적 결정 요인을 밝히는 것이다.

수정된 UTAUT 모형이 분석 프레임워크로 사용되었고, 데이터 수집은 온라인 설문을 통하여 이루어졌다. 총 230 개의 표본 중 212 개의 유효한 표본이 분석에 사용되었다.

데이터 분석에는 구조방정식이 사용되었다. 분석의 결과, 케냐의 모바일 정부 수용 의도에 가장 큰 영향을 미치는 결정 요소는 촉진 환경, 성과 기대 및 노력 기대 등으로 나타났다. 반면, 사회적 영향 및 인식은 교육 수준이 조절 변수로 포함될 경우에만 통계적으로 유의한 것으로 나타났다.

인지된 투명성은 모바일 정부 사용 의도에 영향을 미치지 못하는 것으로 나타났다.

본 연구는 정부 정책 제안자에게 모바일 정부의 진흥 및 투자를 위해 고려해야할 요소가 무엇이 있는가에 대한 함의를 지닌다. 또, 이는 기존의 관련 연구를 확장시킴으로써 학문적 기여를 한다.

주요어 : 모바일 정부, 전자 정부, 결정 요인, 케냐

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