An Assessment of the Impact of Mobile Payments on the Adoption of e-Government Services in Kenya:

A Case Study of eCitizen.

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Dissertation submitted in partial fulfilment of requirements for award of Degree of Masters in Business Administration at Strathmore University

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APRIL, 2018

Declaration

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made in the thesis itself.

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APPROVAL

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Abstract

In its decade of existence, mobile money has achieved higher adoption and usage rate in Kenya than any other country globally, allowing citizens to make payments for services in nearly all sectors. One such service is the e-Government platform, eCitizen, launched in 2014 by the Government of Kenya to offer centralized government services digitally. The platform has over 4 million unique registered citizens making 9 in every 10 payments through mobile money, which has nearly 8 times as many registered accounts. The government is yet to harness the opportunity mobile payments may have in driving adoption of its services, coupled with the high internet and smartphone penetration in the country. The study investigates the impact and relationship between mobile money payments and the adoption of government services offered on the eCitizen platform. Data was collected through administrative questionnaires and face to face interviews with citizens and senior managers at Government Digital Services and 3 mobile money service providers offering payments on eCitizen, who were purposively selected. The results of the study revealed that citizens do not look to mobile money payments as a reason to register onto eCitizen and use it to get government services digitally. However, they perceive mobile money to provide a positive user experience compared to other methods of payment. This was influenced by its speed, efficiency and affordability, with further positive impact created by aggressive marketing by mobile payment providers for a service that was already mandated by the government.

Key words: eCitizen, mobile money, payments, adoption, government services

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List of Abbreviations and Acronyms

MDCA   Ministries, Departments, Counties and Agencies of the government

GDP   Government Digital Payments department sits in the Executive Office of the President and is responsible for driving digital payments in Kenya

KEPSS   Kenya Electronic Payments and Settlements System

MoICT   Ministry of Information, Communication and Technologies in Kenya

TAM   Technology Acceptance Model

Acknowledgements

My deepest gratitude and thanksgiving to the Almighty God for life and strength, wisdom, knowledge and understanding.

I am grateful to Dr. Vitalis Ozianyi, my supervisor, for his patience and guidance, assistance and time, critically guiding me through the writing of this work.

Special thanks and love to my family for encouragement and support, particularly my son and best friend JJ for his patience.

To Strathmore syndicate teams, evening classmates and all professors who imparted knowledge to us – thank you for being part of this journey.

My sincere appreciation specifically to Carol Ogallo, Boniface Mungania, Cyrille Wafula, Meshack Akoko, Irene Gitonga, Allan Waititu, Carol M. Mathenge, Silas Oswe, Harry Mwangi and Joseph Mutai for their time, support, and invaluable contributions to making this work a success.

CHAPTER ONE: INTRODUCTION

1.0 Background of the Study

e-Government, a digitised form of delivering government services, was initially promoted as a means of improving management efficiency in public administration. It became an important measure for enhancing citizen access to government services and expediting the delivery of services to citizens (Seongcheol, Kim, & Lee, 2009).

In 2014, the Government of Kenya launched an integrated e-Government services portal known as eCitizen to allow for online delivery of 41 services at pilot and accept payments for these services digitally through electronic card, electronic bank transfer and mobile money. The government also launched dedicated service delivery points known as Huduma Centres at which citizens could access and pay for more than 45 services both in cash and electronically (Oduor-Engels, 2016). Making efficient payments for services became a core for the government, therefore this initiative was a show of commitment to reduce inefficiencies in service delivery brought about by resource constraints, pilferage, bureaucratic processes, and lack of accountability. The promotion of eCitizen platform facilitated ease of access to services, reduce costs while at the same time increasing revenue collection. As more citizens used the new system, long winding queues that dominated government offices became shorter or completely disappeared because services became much easier to access. By digitizing services and payments, the government gave citizens more flexibility to make payments and access services remotely. Mobile payments quickly became a popular form of making these payments compared to other digital forms of payment (Wasunna & Frydrych, 2017).

Government plays an instrumental role in strengthening a country's payments landscape and influencing the behaviour of citizens and the private sector, acting as both the influencer and catalyst in the implementation, development, and evolution of digital payment systems. Digital payments have the potential to spur social and economic impact such as lowering the cost of transactions and expanding access and uptake of financial services. Although the growth and usage of mobile money is prevalent in Kenya than other countries in the region, the number of digital government services available for citizens to make payments are limited. This was because at the time, Kenya lacked a comprehensive policy and regulatory framework on digital payments, had low rural internet penetration, low acceptance of other electronic means of

payments such as credit card and low trust levels for electronic payments among citizens and businesses (Accenture Development Partnerships, 2013).

The launch of e-Government services in 2014 was hinged on expanding the acceptance of all forms of digital payments, including electronic bank transfers, card, and mobile money payments. With time, the number of services has increase to more than 270 and mobile money became much more widely used than other forms of digital payments.

1.0.1 Mobile Money Payments in Kenya

Mobile money services are provided mostly by Mobile Network Operators (MNOs), telecommunications companies that provide payment services by enabling customers to transfer funds to each other through mobile phones. The companies use the mobile network's messaging functionality to facilitate payments, money transfer and settlement through their own established agent network (Andiva, 2018). The market drive of mobile money services in Kenya is led by T-Kash offered by Telkom Kenya, Airtel Money by Airtel Kenya, M-PESA by Safaricom, Mobikash by Sema Mobile Limited, Equitel by Finserve Limited (a subsidiary of Equity Bank Group) and Tangaza by Mobile Pay Limited. M-PESA is the market leader for mobile payments in Kenya (80.8%), followed by Equitel Money (6.8%) and Airtel Money (6.3%) (Communications Authority of Kenya, 2017).

Mobile money enables customers to convert cash to and from electronic value and use it to perform transfers and payment transactions. This has become attractive to users across the social divide, especially those who previously had little or no access to formal means of access to money and its financial services. Further, a market-led approach to deliver the services has propelled its growth and development, thereby contributing to economic growth, reducing the vulnerability of a country's financial system by lowering the risks caused by the informal economy and widespread use of cash (MoICT, 2016). Kenya has made significant steps towards extending mobile financial services to its population and is currently estimated at having one of the highest mobile penetration rates in Africa at 80% (Asiligwa, 2016).

1.0.2 eCitizen: Kenya's e-Government Platform

e-Government initiatives in Kenya started in 2005 with the implementation of the Kenya Electronic Payments and Settlements System (KEPSS). However, subsequent initiatives were highly fragmented because of poor coordination and hurried digital service launches by

government agencies. The main issues were: lack of a single payment gateway allowing for a central collection point for all government ministries, lack of consensus on the policy framework and roadmap for implementation, poor management process, and lack of proper integration of payment services into the newly launched platforms. As a result, various ministries implemented their own autonomous payment gateways while other attempts to form a central gateway such as Post Pesa failed to take off (Asiligwa, 2016).

In 2013, a presidential directive saw the formation of a taskforce to start the journey towards digitization and to implement e-Government services. eCitizen was conceived with the core objectives to reduce costs of pilferage, increase collections, centralize services, improve monitoring, accounting, reconciliation and reporting of revenue collections, reduce cash handling risks and associated costs, consolidate government information on services and payments across the country, and improve decision making on service delivery processes. Some of the eCitizen services that were made available at launch were: passport, driving license, business permit, marriage and birth certificate registration services. In order to access these services, citizens needed to create an eCitizen account which was linked to their unique national ID and email address. By 2017, there were more than 4 million registered accounts on eCitizen platform and twice as many online requests for services (Mwangi, 2017).

1.0.3 Mobile Money Payments for Services on eCitizen

Early use of mobile money for government payments started with M-PESA's integration to government parastatals and agencies such as National Hospital Insurance Fund (NHIF), Kenya Power and Lighting Company (KPLC) in 2009, Kenya Revenue Authority (KRA), and Nairobi Water and Sewerage Company (NWSC) in later years. Most of these government agencies had already started experiencing the benefits of accepting remote payments leading to a complete overhaul of their business models. The uptake of payments via mobile money rose significantly as citizens saw the benefits of making remote payments for these services. This was a shift from the inefficiencies in over-the-counter type of services such as long, winding queues and delayed provision of services. On the government side, high operational costs and pilferage of collected funds were some of the issues that threatened potential adoption of digital services at inception.

Government Digital Payments (GDP) department identified two main forms of digital payments used in Kenya: mobile money and payment cards such as Visa and MasterCard provided by most banks. 90 per cent of all digital payments processed on behalf of Ministries, Departments, Counties and Agencies (MDCAs) on eCitizen are through mobile money. The high prevalence of mobile money payments can be attributed to higher adoption of mobile money services in Kenya relative to credit and debit cards - compared to 31.3 million registered mobile money users, there are only 12.9 million payment cards in Kenya (Central Bank of Kenya , 2017). Mobile money providers have also been driving this uptake through aggressive advertisements and campaigns through social media, radio, television, fliers, and posters at government ministry offices. Providers like Safaricom offer additional services to government to host data in their servers as well as provide internet link to facilitate online presence for the platform (Wasunna & Frydrych, 2017).

1.1 Research Problem

The Government of Kenya may not be realizing the full potential of digital payments, which have the ability to increase the volume and value of payments made for government services. There is an opportunity to harness the power of mobile phones, particularly mobile payments, in driving the uptake, acceptance and continues access to services offered on eCitizen. There is high internet penetration especially in urban areas, high adoption and usage of mobile money (Communications Authority of Kenya, 2017) and a youthful digital society in Kenya (Kenya Bureau of Statistics, 2018).

Mobile service providers have invested much in driving awareness and education on how to make payments for services on eCitizen. This is with the hope that there would be a resultant uptake of eCitizen accounts that would guarantee a sustained growth in payments. Without information about whether their strategies are effective, it is unlikely that mobile payment providers will be able to optimize their revenues through government payments, perhaps until the number eCitizen users become as many as the number of mobile money accounts capable of making government payments through this channel. This can possibly be achieved once it is clear how mobile money can play a role in driving the universal adoption of e-Government services. Thus, this study sought to explore the extent to which mobile money has impacted and influenced the uptake and usage of eCitizen services.

1.2 Research Objectives

   i. To identify the factors that lead to the adoption of e-Government services in Kenya.

  ii. To investigate the role mobile money payments on the adoption of government services offered on Kenya's eCitizen platform.

 iii. Explore the extent to which mobile money payments have directly influenced the adoption and continuous usage of services on eCitizen

1.3 Research Questions

The study sought to answer the following questions:

   i. What are they key factors that determine the adoption of e-Government services in Kenya?

  ii. What is the role of mobile money payments on the adoption of government services on eCitizen platform in Kenya?

 iii. How have mobile money payments directly influenced the adoption and usage of services on eCitizen?

1.4 Scope of Study

This research was limited to only mobile money payments made in exchange for services offered by the central government through the eCitizen platform. Services were limited to civil registrations, identification documents, business permits, driving documents, lands services and marriage certificates which are most popular. The respondents of this study are general citizens in a heterogenous setting, senior managers of mobile payment providers, and the government's Digital Payments Department who deal directly with government payments.

1.5 Significance of the Study

The findings from this study will be useful in determining the influence of mobile money payments on the demand for services offered on eCitizen. The information will help the government make informed decisions to develop, promote and position its services in ways that can influence increased adoption and usage of eCitizen services. Policy makers can examine their actions intended at supporting citizens, government agencies, mobile money providers to establish whether their priorities, strategies and focus is positive or not. Lastly, payment providers leverage opportunities to increase usage of their services by more citizens to make government payments, therefore increase their commercial gains.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

This chapter will analyse the different theoretical perspectives and frameworks that relate to demand and adoption of digital payment services such as mobile money and digital services offered on e-Government platforms. It critically analyses theories and previous literature on how citizens consume digital services offered by payment service providers and also by their governments.

2.1 Theoretical Foundations of the Study

2.1.1 Technology Acceptance Model (TAM) and the Theory of Planned Behaviour

Technology Acceptance Model (TAM) proposes scales that are used to predict the potential use and acceptance of new technology using two variables: perceived usefulness and perceived ease of use. The theory further argues that these two ultimately determine user acceptance or attitude towards the actual use of the new technology. Thus, perceived usefulness is the degree to which a person using a new technology believes that it can enhance his job performance while perceived ease of use is the degree to which he believes it to be free from effort (Davis, 1989). Figure 2.1 below shows these relationships.
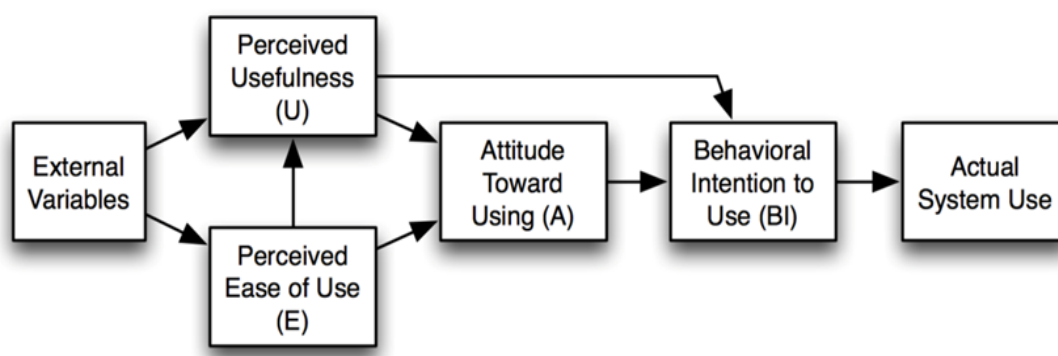
Figure 2.1: TAM Model. (Davis, 1989)

Asiligwa (2016) agrees with the use of the TAM Model and proposes additional variables that further influence acceptance such as: security concerns, cost, convenience, and satisfaction. Acceptance pattern plays an important role in e-service adoption with cognitive style, personality, demographics, and user situational variables like involvement, training, and experience being the factors most relevant to acceptance (Heijden, 2000).

TAM model was applied to this study to give insight to the adoption of e-Government services on eCitizen platform in Kenya. Factors that were considered include perceived: ease of accessibility of the mobile payment services, cost of the mobile payment services, convenience, security, support from the mobile services provider and from the government, satisfaction, and actual usage of digital government services. In the context of mobile money payment for digital government services, using TAM exclusively may have its shortcomings. First, the setting of mobile money usage is heterogenous and second, acceptance in some contexts may be mandatory rather than voluntary, as would be the case where a citizen has no other choice but to use eCitizen to get a service.

Theory of Planned Behaviour provides an additional perspective to TAM and argues that the attitudes toward a certain behaviour, subjective norms with respect to the behaviour, and perceived control over the behaviour are usually found to predict behavioural intentions with a high degree of accuracy. In turn, these intentions, in combination with perceived behavioural control, can account for a considerable proportion of variance in behaviour (Ajzen, 1991). This can be applicable in the case of mobile money payments on eCitizen, where citizens' attitudes towards adoption and usage of eCitizen services can be determined by subjective norms such as socio-cultural biases towards face to face interactions. Secondly, where it is compulsory to make digital payments and obtain certain services only from eCitizen, then compliance is likely to be higher because citizens perceive a lack of control over their choices to use other means.

2.1.2 Digital Human Capital Framework

In understanding e-Government, it is important to also look at how the society interacts with the Internet as a critical tool in everyday life, enhancing citizen ability to be productive, informed, and critically engaged members of society. The existence of a digital divide is more than a problem of mere connectivity, as it is entangled in other forms of social and economic exclusion. The Digital Human Capital framework gives a more rigorous and grounded response to the digital divide to ensure communities not only have quality access, but also possess skills and tools to use the Internet for social change (Bach, Gwen, & Wolfson, 2013). Graff (1991) argues, on the contrary, that increasing levels of literacy within a society do not correlate with social mobility, nor does literacy erase patterns of inequality, including digital and stratification by origins, class, sex, race, or age. Thus, social hierarchy is ordered more by the dominance of social ascription than by the acquisition of new, achieved characteristics such as literacy.

2.2 Empirical Literature

A study of the American government adoption of mobile payments in Michigan revealed that mobile modes of payment resulted in a higher demand for e-Government services. Mobile payments had an impact on e-Government service adoption by increasing perceived demand through user perception of ease as mobile payments were convenient and the modes of delivery were regarded as simpler (Alford , 2015). This means that citizens can find usefulness in the system if they find it easy to use and will therefore demand more services in future. This may, however, not always be the case if the is a direct push of the services toward the citizens rather than a natural pull.

Chadwick and May (2003) see the adoption of e-Government is an improvement of any technology by changing the existing manual processes to a digital format, while the thinking and operations of Government remains the same. e-Government is therefore a push model of information dissemination in which the state places information in accessible forums for the user to access it. The audience members in this case are passive recipients, rather than speakers. State produced information is a passive resource to be transferred between nodes in the information network. And while citizens are inescapably part of the e-Government networks, their role is not as important as that of the state, which manages the activity. Both argue further that governments implement a 'pull' model by using new ICT to facilitate the communication of citizen opinion to government, only allowing those opinions that are supportive of a certain policy agenda. Through e-Government platforms, governments use technology to enhance access to and delivery of government services to benefit citizen, business partners, and employees (Silcock, 2001).

Although it may be true that the government is an active an initiator of interactions with citizens through e-Government platforms, the arguments by these scholars may not hold true. In country contexts where citizens initiate, control, and drive huge reforms themselves, such action can lead to calls for referendum or changes in policy and drive the government to use the platform to collect and share views such that information flow is both ways. In any case, citizens will naturally resist any calls to adopt a system under compulsion or force. Thus, adoption of e-Government services can only happen when majority of citizens perceive it to be useful and governments also look to important factors that make such platforms easy to use to increase adoption.

2.2.1 Factors Driving the Adoption of e-Government Services

Four key factors influence the adoption of e-government services in Kenya: ICT infrastructure, government policy, security, and social-cultural factors (Muraya, 2015).

ICT infrastructure consists of electronic devices, equipment, tools, or gadgets used for the collection, processing, transmission, storage, retrieval or transfer of information and related services. It is made up of the hardware components and software applications (Egoeze, Misra, Akman, & Colomo-Palacio, 2014). ICT infrastructure is a complex ICT environment upon which information systems are built to run and provide users with the required functionalities. A typical infrastructure can have components such as the infrastructure solutions, end-user devises and platforms, server infrastructure, data networks and data centres (Unicorn Systems, 2015). Adoption of government services depends on having the right infrastructure in place, which enhances and provides an additional advantage of saving time and effort by fostering collaboration, defining performance measures, facilitating data transformation and storage of e-Government services. Citizen will more readily adopt a service if they perceive it to be both useful and easy to use hinged on the ICT infrastructure (Borras, 2004).

A running ICT infrastructure is key prior to implementation of e-Government platforms. This includes the availability of end-to-end digital services and reliable internet services to bring access to the end-users (Ebrahim & Irani, 2005). In Kenya, even after the launch of eCitizen, there was no foresight on the right infrastructure to use to ensure the successful running of eCitizen. There was need for central payment gateway allowing integrations interfaces, central connectivity, end-to-end digital services, seamless collection of payments for multiple MDCAs and data formats that facilitated seamless messaging securely and fast. However, there were several payments systems which were implemented in silos to meet the needs of individual MDCAs. This proved not to be convenient to citizens who had to learn how to use each one of the systems to access their specific services. Once a policy framework was agreed and a roadmap for implementation mandated, an e-Government infrastructure was implement taking into consideration all stakeholders' needs and concerns leading to a rapid increase in adoption (Asiligwa, 2016). The Kenya Ministry of Information Communications and Technology (MoICT) recognises that appropriate infrastructure is required to enable social and economic growth especially in the advent of increased uptake of ICT and internet related services (MoICT, 2016).

Kenya's ICT further advocates for infrastructure-related policy that puts it at the core foundation of an integrated ICT ecosystem, without which all components would fail or would not exist. Thus, effective development and management of the infrastructure can guarantee quicker adoption, usage, and scale of services at a lower cost. The Kenya National ICT Policy is based on ten guiding principles: constitutional policies and values, technology and convergence, universal service, open access, competition, innovation, quality standards, global connectivity, privacy, and security (MoICT, 2016).

Policy is not enough without proper governance and political goodwill to support that policy and drive forward to implementation, giving the right focus on building solutions while tackling the challenges that may come along the way (Wasunna & Frydrych, 2017).

In developing countries, e-Government is relatively new and citizens are yet to find comfort in providing personal information for fear of how it may be used. Universal studies on e-Government adoption identify security as the most important concern in the online world. Therefore, the continued expansion and extension of technology into the everyday lives of citizens will continue to elicit the demand for accuracy and reliability of e-Government services. Dourish and Anderson (2006) give a perspective of how security is not only a technical phenomenon when it comes to e-Government, but also a social and cultural one. In their view security issues get broadly perceived together with risk, danger, morality, secrecy, identity among other socio-cultural phenomena. Hence there is need to embrace holistic views to issues of privacy and considering social factors as elements in the collective rather than individual trade-offs between cost and benefits.

Where there are potential questions around security, trust becomes an important ingredient for all stakeholders for adoption to happen. France and Lemuria (2008) explore the disposition to trust, trust of the Internet, trust of the government and perceived risk in a model of e-Government adoption, asserting that as government agencies should put aside budgets aimed at trust-building strategies. As technology continues to become ingrained in society, citizens' perceptions of the accuracy and reliability of e-services will increase in importance.

The Ministry of ICT in Kenya sees the internet at the core of delivery of services, making the implementation of e-Government systems a priority for any government to protect its technologies, systems, and users from external cyber risks. Because of the global nature of the Internet, new types of needs, rights and vulnerabilities arise, increasing the need to create and

sustain an environment of trust. To ensure this is managed effectively, the Kenyan Government have created cyber laws and regulations to provide citizens with the assurance of their safety (MoICT, 2016).

IT security is an extremely important concern since e-Government services are offered online to the public (Noelly & Saleh, 1989). Citizens only endorse e-Government initiatives if they believe government agencies possess the astuteness and technical resources necessary to implement and secure these systems. Further, non-fraudulent interaction with e-Government service providers will enhance citizen trust and acceptance of e-Government services (Glover, Planesh, Sunil, & Nishat, 2010)France and Lemuria (2008) agree with this argument stating that if government agencies expect citizens to provide sensitive information and complete personal transactions online, they must acknowledge and enhance citizens' views concerning the credibility of e-government services and act fast in responding to negative perceptions.

Previous research acknowledges national culture as the source of behaviours and attitudes that influence the way people think or act toward the adoption of e-Government services. Among the several frameworks that have been used, Hofstede et al. (2010) formulated a cultural classification that carries the most influence. He defines culture as "the collective programming of the mind that distinguishes the members of one group or category of people from others" and uses 6 cultural dimensions to define a nation. These are: Power distance (PWD) – "the extent to which the less powerful members of institutions and organizations within a country except that power is distributed unequally; collectivism versus individualism (INV) – "the degree to which individuals maintain interdependence among the members of the same society or group"; femininity versus masculinity (MAS) – "the difference between a competition, ambition, performance focus society (masculinity) and a solidarity, equality, consensus seeking and social relationships caring culture (femininity)"; uncertainty avoidance (UAI) – "the extent to which the members of a society feel threatened by ambiguous or unknown situations"; long-term versus short-term orientation (LTO) – "how every society has to preserve its traditional while dealing with the challenges from the present and future"; and indulgence versus restraint (IVR) – "a bipolar dimension with allowing basic and human desires related to happiness, joyful in one side and controlling, restricting that such gratification by strict social norm in another side" (Hofstede, Hofstede, & Minkov, 2010).

According to the Hofstede Insights website, Kenya measures highly on Power Distance at 70, meaning that culturally, the citizen's perceptions skew towards hierarchical orders. Thus, in the context of adoption of e-Citizen services, citizens would expect a central command to give directive and the citizens would follow. This is true, given that eCitizen services only started to record success following an Executive order was issued in 2014 for all MDCAs to comply. As suggested in the Theory of Planned Behaviour, the perceived control by government can prelude a vast response to adoption of services. The second highest measure is on Masculinity at 60, meaning that generally the citizens strive to be the best that they can be and pursue a win at all costs. A low score of 25 on individualism indicates that Kenyans prefer a long-term commitment to groups, move as a pack and tend to be loyal, at the expense of overriding rules and regulations. While the survey shows that Kenyans are indifferent about uncertainty avoidance, there is no score on the dimensions of long-term orientation and indulgence (Hofstede Insights , 2018).

The relationship between national culture and information system adoption level is acknowledged in previous studies, originating from anthropology and sociology. In studying the relationship between culture and technology, narrowing down to e-Government culture is a key determinant in the acceptance of technology (Leidner & Kayworth, June 2006). If a technology is successful in one cultural setting then transferred to another, there is a likelihood that it will not be embraced in the same way and for the same use. Individuals may or may not adopt or use a new technology that is introduced to them because of their attitudes, beliefs, values, and cultural biases, which influence their perceptions. Therefore, there is a high chance that if cultures are better understood and communication designed to suite their preferences, it would be easier to successfully transfer new technology systems to citizens (Straub, Loch, & Hill, 2001).

2.2.2 Enablers and Barriers of Adoption of e-Government Service

Wescott (2001) studied the adoption of e-Government services in Asia, providing a review of the potential benefits of e-Government services in public sector reform and poverty reduction. Asia Pacific governments have fallen behind in adopting ICT and issues such as high cost on ICT, lack of trust and security concerns by citizens, obsolete ICT regulations and laws, lack of technical knowledge, and change resistance are some major factors affecting the adoption of e-Government services. This contrasts with United States, where the rapid growth of online payments on e-Government applications enables government to render services to its citizens

effectively and efficiently. However, hindrances and challenges that are experienced in adoption of these applications are similar to what Wescott found in Asia Pacific, including high cost, lack of political support through legislation and citizen resistance among others (Sachdiva, 2005).

Gichoya (2005) analyses the key factors that contribute to implementation of ICT projects in government such as eCitizen. He lists factors of success in two categories. The first are the drivers – which are the factors that reinforce success such as 'vision and strategy, government support, external pressure and donor support, rising consumer expectations, technological change, modernization, and globalization. The second are the enablers which 'are the active elements present in society, which help overcome the potential barriers such as effective project, coordination and change management and good practice'.

Some of the dynamic stages through which governments will pass as electronic services evolves both inside the organisation have a resultant impact on the public activities and interactions with e-Government platforms. First, there is the one-way medium where information is disseminated by government departments and agencies setting up their own web-sites to post information about themselves, the constituency, the range of services available and contacts. Second, they evolve to a two-way transaction where citizens can submit new information about themselves, such as a change of address, instead of writing a physical letter. It might be renewing a television license, paying a parking ticket, filing a tax return, or making a claim for benefit. Citizens must be able to trust that the government's ability to keep their information private and confidential. At a third and more advanced level, multi-purpose portals which converge citizen needs across department boundaries, allowing citizens to use a single point of entry to send and receive information and to process monetary transactions across multiple departments, acting as a gateway to its agencies and related governments, including bill payments, personal stock brokering and bank account management (Deloitte Research, 2000). Deloitte (2000) further explains that governments can personalize their access portal, allowing citizens to customize the portals with their desired features, giving the government a more accurate view of citizen preference for digital payments vs non-digital. Lastly, they can cluster common services leading to full integration and enterprise transformation.

Ronaghan (2001) and Wescott (2001) extended this argument by stating that in some governments in developing countries, the internet is introduced as a very primitive tool with little need-to-know kind of information such as where contacts, policies, instructions, and types of services can be found. This gives governments the ability to progress to a second stage where more information is availed to citizens, allowing some interaction with the citizens. Rather than integration, Ronaghan (2001) suggests seamlessness which involves 'both the horizontal and vertical integration of governmental information and services, and it is a condition that permits citizens to access such services regardless of the type or level of government in which the information or services are located'. Similarly, Wescott (2001) found that the 'exchange of value' incorporates information provision, interactivity, and transactions. At a third stage, this is followed by digital democracy, and finally seamless government as suggested by Ronaghan.

It is a requirement that government services are available 24 hours a day and 7 days in a week. Thus, the development and availability of e-Government services provides citizens with flexibility and convenience as they can process transactions anytime anywhere outside government office hours. However, in some cases, government institutions lack the capacity to provide these services throughout thus compromising availability. The ICT hardware used to run these applications lack the capability of ensuring full time service availability that is desired by government service users (Abanumy, Al-Badi, & Mayhew, 2005).

Ebrahim and Irani (2005) propose that for a e-Government service adoption to succeed physical and logical infrastructures, items that constitute electricity, telecommunications, and Internet access, plus some computer hardware and software must be available. Borras (2004) found that accessibility barriers further cover other aspects like lack of Internet connection, shortage of reliable networks and inadequate network capacity. Available bandwidths determine the processing of large data and allow multiple accesses especially when deadlines must be met like in the filing of tax returns. Other barriers identified by Borras (2004) are the existence of legacy systems that are incompatible with new applications are an accessibility barrier as information from old systems cannot easily be merged or exported to another system.

Kamal (2009) identified shortage of computer skills as another factor that affects the way e government services are adopted. The author specified that it is the lack of human resources skills and uncertainty of the benefits of online services that slows down e-Government adoption. Both citizens and the drivers of e-Government require adequate skills and

competencies on usage of existing e-Government services. For any e-Government endeavour to thrive, regular training and education need to be given the importance that they deserve due to the emerging trends in the ICT sector. If citizens are not able to use the new technologies, they cannot support and adopt its usage. When users are not competent with the technical knowledge used to work a computer or mobile application it cause's confusion leading to poor adoption of government services (Glover, Planesh, Sunil, & Nishat, 2010).

2.2.3 Role and Impact of Mobile Payments in e-Government Payments in Kenya

There are 3 million registered users to the eCitizen platform. This represents only 0.097 per cent of the approximately 31 million registered mobile money users. The disparity could be attributed to some factors that limit adoption of internet-based services (Mwangi, 2017). Kenyans lack awareness, locally relevant Internet content, digital literacy, and skills especially in rural areas where there is relatively low broadband where more than 75 percent of the population resides (GSMA Connected Society, 2016). Formal literacy rate in Kenya by 2014 was 81 per cent men and 75 per cent women, which is below the world average of 90 per cent and 82 per cent respectively (UNESCO, 2017). Other barriers were affordability – 25 per cent, lack of network coverage – 4 per cent and security and trust – 2 per cent (Lucini, 2016). There still is not much study done to link mobile payments directly with adoption of government payments. However, a few enabler and barriers have been studied.

According to the Bill and Melinda Gates Foundation (2014), when government payments are digitized, the many benefits are extended to individuals, intermediaries, and the government and this outweighs the cost of digitization over time. The longer-term success of Kenya's digitization initiative depends on the government's concerted efforts to ensure systems security and stability, sustained awareness campaigns, continuous improvements to the user experience, and cooperation through partnerships with the private sector and multilateral development organizations (Oduor-Engels, 2016). However, the benefits of the e-Government system have not been passed to the rural community of citizens in counties further away from any broadband connectivity (Nyambura, 2015).

Silcock (2001), attributes three factors to determine the extent to which an e-Government will make a difference: 'strong leadership, to ensure that the public-sector work-force is ready to meet the challenges ahead; management of the 'digital divide', to ensure that already excluded groups do not become further disadvantaged; and well-managed innovation' (Silcock, 2001).

Wasunna and Frydrych (2017) attribute strong leadership as a factor in driving the success of digital payments especially when there is goodwill from the country's Executive. Secondly, where there is end-to-end digitization of services, including payments, there is increased accessibility and therefore voluntary compliance by citizens to take up government services. Although cost of services is a driver of demand, where such services are complex, citizens will tend to revert to assisted services and cash rather than use digital means provided by the e-Government portal.

However, Welch et al., (2005) disagree. They found that the extent to which citizens recognize and are satisfied with e-Government strategies is not clear, nor is there a connection between satisfaction with e-Government and trust. They concluded that e-Government systems introduce no change to the demand for services and that citizens expect that e-Government, just like regular old government before it, must attend to issues of transaction, transparency, and interactivity to engender trust (Welch, Hinnant, & Moon, Jul 2005).

2.2.4 Extent to which Mobile Money Influences e-Government Payments in Kenya

Only 60 per cent of Nairobi citizens comprising of young, tech-savvy, entrepreneurs and professionals with access to computers use eCitizen services. The rest have not tried the platform because they were unaware of it, lack access to a computer/network, or have slow connectivity (Nyambura, 2015). This raises questions as to whether prevalence of digital payments can assist in driving the universal adoption of e-Government services or whether it skews the demand towards only a certain demographic. Thus, this is a problem for the government to address the issue of effectiveness and reach to all citizens equally and also a challenge to learn from how mobile money providers have done it.

Sound policy, regulatory framework and political goodwill are critical ingredients to the adoption of digital government services in developing countries, but the adoption of eCitizen digital services is not as high as would be expected. In Kenya, citizens still rely on assistance by agents at service centres to access government services rather than obtaining these services online (Wasunna & Frydrych, 2017). The government launched Huduma service centres to increase reach in the rural areas, but these services seem to compete directly with the self-services which the same government tries to promote. The fact that citizens do not need to have an account to be served at Huduma, the centres predominantly accept cash rather than digital payments, they cost more to maintain because of the operating expenses and are still exposed

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to the challenges that the government previously tried to avoid such as pilferage and high costs, all seem to counteract the purpose of eCitizen.

As the government tries to drive a digital transformation of its services as well policies that are hinged on ICT, questions rise as to why only less than a tenth of the population have registered accounts on the eCitizen platform. The high uptake of mobile money services, itself a digital payment service offered on mobile phones, may provide clues not only to what the drivers and opportunities can be, but also the gaps and challenges to adoption of e-Government services.

Mobile operators have also invested a lot in marketing communication about eCitizen services and promote the use of mobile money to make government payments. In Kenya, the use of mobile money requires basic knowledge of how to use a mobile phone. A large proportion of citizens have embraced mobile money use in their daily operations and consequently carry out various transactions using their mobile phones. Therefore, one would conclude that once citizens are made aware of a new service that was easy to pay using mobile money, they would quickly or automatically adopt it. However, studies are yet to determine whether that is the case and if there is a clear relationship between the prevalence of mobile money use and the adoption of e-Government service especially in a developing country like Kenya. This study therefore sought to fill in this gap by investigating the extent to which mobile payments have influenced the adoption of digital government services in Kenya.
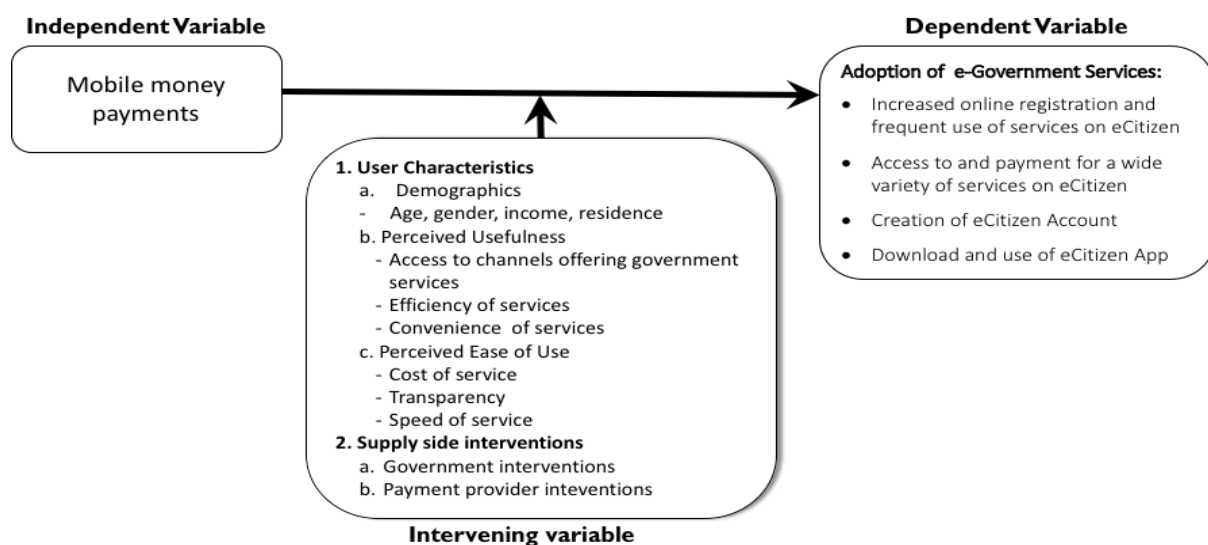
2.3 Conceptual Framework

Figure 2.2 : Conceptual Framework   Source: Author

The independent variable in this study is mobile money payments, which was studied as the influence to the adoption to e-Government services (dependent variable). The indicators for the e-Government service adoption included: increased account registration, frequency of use of services on eCitizen and variety of services that are assessible and easily paid using mobile money.

The intervening variables in this research were user characteristics as defines by demographics, perceived usefulness and perceived ease of use, and government policies that influence adoption of eCitizen services. The researcher measured and analysed the independent variables through secondary information obtained from reports, journals and publications related to eCitizen platform. The results were tested by compiling and comparing the information from various sources on how payment options were implemented. Face-to-face interviews were conducted with a selected number of senior government officials and payment providers.

The dependent variables were measured and analysed using qualitative information collected through face-to-face interviews from both the supply side (payment providers and government officials) and demand side (citizens). The intervening variables were obtained by analysing the citizens preferences and drivers to adoption of digital government services in relation to availability of digital payment options for services on eCitizen.

2.4 Summary

Although there are a few positions that are held by different scholars and authors with regard to the use of digital government services, little has been said about the ability of mobile money payments to drive the demand and therefore adoption for government services. There seems to be lack of clarity on how the intervening variables drives citizen adoption and demand for government services. However, some user characteristics such as demographics, their perceptions and attitudes can determine whether or not they will adopt digital services in general and digital government services in the case of this study.

Mobile money adoption in Kenya in high and nearly represents the entire adult population that is eligible to request for government services on eCitizen. Adoption on eCitizen by registered accounts only represents 15% of this number, yet more than 90% of payments on the platform are made using mobile money.

Citizens are separated digitally due to demographic factors as well as their own perceptions of whether they can find use of eCitizen services and whether it is easy to use. Knowledge of this perceptions is essential to understand why and how they adopt government services. For example, although digital literacy is important, it does not completely erase the patterns of inequality. Culture also plays a critical role in determining the adoption of technology meaning that citizen's attitudes and beliefs must be considered in adoption of e-Government services. Whenever digital services are introduced, it is impractical to claim to offer services that are also manual in part and expect full adoption of services. Governments may seem to have their own agenda and are likely to facilitate only those digital services that are supportive of their policy and not necessarily driven by citizen demand. Citizens on the other hand can respond to directives that are mandatory and may comply or not depending on how much control they perceive themselves to have.

In the context of digital payments in Kenya, citizen adoption of the different forms of digital payments is high. However, this is based on over ten years of development of digital payments services (the most recent being mobile money in 2007) compared to digital government payments which have only been in existence for only three years. Secondly, the high adoption of digital payments has been better coordinated by the companies driving the agenda for their services and rollout. This contrasts with the Government, whose implementation approach is traditionally complex, bureaucratic, and fragmented. Third, Kenya has had conducive regulatory and policy frameworks to support digital payments. It emerges that Government strategy to use technology to offer services to customers is still very different from citizen expectations. Considering technology push is unlikely to slow down in the years to come and that this will be driven by demands from the people, it may be a defeatist initiative to implement e-Government solutions without considering the pace of change in the social scene. Much as the Government will push for the services, a similar and equal amount of pull for the services in terms of demand would be a good indicator that citizen expectations are being met through technology. This may be evident once we reach an apparent equilibrium between the number of mobile money account and eCitizen registrations.

This research therefore sought to explore the role that is played by citizens' ubiquitous use of digital payments such as mobile money in driving the adoption of government services via eCitizen platform. It discussed this from the perspective of citizens and providers' perceptions of benefits and barriers to digital government services against those of digital payment services.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methodology that was used in this study, detailing the steps that were followed to understand the impact of mobile money payments on the demand for eCitizen services. It is organized in the following structure: research design, population and sample design, data sources, data analysis methods, research quality and ethical considerations.

3.2 Research Design

Descriptive design was used to analyse the impact of the adoption of government services by citizens on eCitizen platform because of the use of mobile money to make payments. It was also applied to help understand the perspective of citizens perceptions of benefits and barriers to digital government services against those of mobile money payment services, access to both types of services, technical and digital literacy and level of education and employment. Qualitative analysis was done to capture the user characteristics and insights on the level of influence that digital payments have on the adoption of digital services offered on eCitizen. This method is preferred because it gives an accurate profile of events, persons, and situations within a natural context (Saunders, Lewis, & Thornhill, 2016). The researcher did not introduce any change or manipulation but only describes phenomena as they occur.

3.3 Total Population

The population of this study was Kenyan adult citizens who would potentially use government services in Kenya and who use mobile money services, senior employees from mobile money service in Kenya and the Government Digital Payments Department who manage integrations of MDCAs to eCitizen.

3.3.1 Target Population

In determining the target population for this study, three distinct populations are considered from the supply side and the demand side. On the supply side, the study targeted the 6 senior managers from the mobile payment providers Safaricom, Equitel and Airtel. Another 4 senior managers from the government Digital Payments Department were also targeted because their various positions provided relevant information for this study. On the demand side, approximately 4.4 million eCitizen subscribers (Mwangi, 2017) and 28 million mobile money registered customers (Communications Authority of Kenya, 2017). These users provided their perspectives of how they use of mobile money influences their adoption of eCitizen services.

3.3.2 Sample Design

A good sample size should be a true representative of the target population and is viable in the context of funds available and results from the sample study can be replicated (Merriam, 2014).

Purposive sampling technique was used to target a group of people believed to be reliable for the sharing of relevant information for the study. This method was used to conduct in-depth qualitative interviews with senior managers who were selected because they have both institutional memory, access to relevant data and strategic view of the digital payment performance for government services.

The researcher also used convenience sampling to select citizens based on availability, accessibility, and ease of recruitment. The population of eCitizen users and mobile money subscribers is quite large, making it almost impossible to include every individual. Thus, a quick, cheap, and easy technique was required (Saunders, Lewis, & Thornhill, 2016). Interviewees were approached in natural setting environments within public places.

3.3.3 Sample Size

This study focused on key themes and an in-depth exploration of concepts in the provision of mobile money and person to government payments, within a heterogenous group. Therefore, since the sample needed not to proportionally represent the population, a heterogenous purposive sampling was used. According to Saunders (2003), sampling is a strategic process that is sometimes mathematical and involves using the most practical procedures possible for gathering a sample that best represents a larger population. The sample size of eCitizen users was calculated using the formula below given by Saunders et al. (2016):

$$s = \frac{X^2 NP(1-P)}{D^2(N-1) + X^2(1-P)}$$

X = 1.96, N = Population, s= Sample size, P = sample proportion 0.5, D=degree of accuracy = 0.05

Using 4,400,000 as the population size, with a 5 per cent margin of error, and 95 percent confidence level, a sample size of 384 was determined.

3.3.4 Key Informant Interview Guide

The study only collected data from senior managers who deal specifically with government payments. In this case study there was no need for sampling due to the small number. Face-to-face technique that was used to conduct the key informant interviews with senior digital payment managers at Safaricom PLC and the senior digital payment officials at Government Digital Payment department. The interviewees provided free exchange of ideas and enabled asking of complex questions on the impact of mobile payments on the adoption of government services, and also gave more detailed responses on the enablers and barriers of mobile payments in the successful implementation of eCitizen service in Kenya.

3.4 Data Collection Method

Qualitative data was collected by conducting face to face interviews with senior officials from mobile money providers (Appendix 1). and Government Digital Payments Departments (Appendix 2). The interviews gave a subjective assessment of the level of benefits, success, demand, and attitudes of citizens towards digital payments. They also queried the officials' perspectives on the impact of mobile money payments on usage of eCitizen services and what factors enable further adoption. Primary data for quantitative measurement was collected by administering questionnaires to the selected sample of citizens (Appendix 3). The questionnaires collected data on citizens demographics such as age, gender, income, and further on the access to eCitizen services, frequency and recency of usage, payments channels used and how all these are related to their perceptions of mobile money payments on their adoption and frequent usage of e-Government services. Secondary data was collected from government reports and ministerial annual reports as well as reports from payment service providers since the launch of eCitizen platform in 2014.

3.5 Data Analysis

Data analysis was done to bring order of structure and meaning to the data collected in this study by making deductions and inferences (Mugenda & Mugenda, 2012). Quantitative data was organized, coded and analysed using the Statistical Package for the Social Sciences (SPSS) software, which has a wide spectrum for statistical procedures purposefully designed for social science thus very reliable in the analysis of data. Quantitative data was classified based on the common subject of mobile payments against government services, then analysed using descriptive statistics including; frequencies, percentages, mean, median and mode. Data was

presented in tables, graphs and charts on which basis interpretation and discussions were based. The results from this analysis helped to explore the correlation between digital payment for government services and demand for those services by citizens.

Qualitative data generated from in-depth interviews with the key informants was classified into distinctive categories based on their common qualitative themes on which basis interpretation was made. This helped to examine whether the uptake of government services is driven by the perceived benefits of digital payments of government services. A correlational test will be done to ascertain relationship between variables. Further, multiple regression model will be used to enforce the measure of positive or negative relationship between independent (digital payments) and dependent variables (adoption).

Table 3.1: Summary of Research Design

Research Objective	Research design & purpose	Samples and Data sources	Data collection and analysis technique
Identifying factors that lead to the adoption of e-Government services in Kenya.	**Mixed** (concurrent embedded) design with a mix of qualitative and quantitative questions to **describe** profiles and events **Qualitative design** to **explore** and discover what these factors are and gain insights	• 10 Senior Managers (GDP and PSP) as KIIs • 384 citizen interviews • Secondary sources e.g. reports	**Data collection** • KII data collected using structured and semi-structured interviews • Citizen data: Online and face to face structured questionnaires **Data Analysis:** • Thematic narrative analysis – descriptive based on recurrence and frequency of themes • Correlation • Inducive approach
Investigating the role of mobile money payments in driving the adoption of government services offered on Kenya's eCitizen platform.	**Mixed** (concurrent embedded) design with a mix of qualitative and quantitative questions to **evaluate** the actual impact		
Exploring the extent to which mobile money payments have influenced the adoption and continuous usage of services on eCitizen	**Exploratory method** to establish **causal relationship** between the variables.		

3.6 Research Quality

To ensure that this study conforms to research quality standards internal validity was maintained by ensuring that the research instruments are accurate and collect relevant data which measured and answered the key research questions.

To ensure reliability, standardised questionnaire and in-depth interview questions guide was used and the criteria that dictates the kind of judgements made was identified through coding

of responses. Interview were conducted during similar times each day and having the same interviewer.

A pre-test study was also conducted from a small survey sample which was representative of the target population (Saunders, Lewis, & Thornhill, 2016) to help in identifying any challenges/problems that may be present in our questionnaire and minimize bias. The pre-test was done on 10 citizens who were not eligible for the main study but the feedback received helped in adjusting some aspects of the main study and preparation of the final questionnaires.

Multiple methods (triangulation) were used to collect data through interviews, surveys and use of secondary data from stakeholders such as government and payment providers.

External validity will be achieved by collecting data from a representative sample using the sampling methods discussed under the sampling techniques section. Sampling was done based on demographics rather than usage patterns since strictly using usage may present biases.

3.7 Ethical Considerations

This research conforms to ethical standards by protecting the respondents (citizens), respecting their autonomy as respondents, avoiding deception, and ensuring confidentiality and anonymity to ensure their privacy.

Participants in this research were required to give consent of their willingness to participate in the study based on the consent letter in Appendix A. They were also informed in advance of the objectives of the study and anonymity was maintained because they were not required to disclose their names. The data collected in this research is presented in confidence to ensure that there is no linkage between specific data and individual respondents.

All secondary data will be referenced and presented accurately i.e. no fabrication of data and misquoting of authors' views.

3.8 Summary

In this chapter the methodology used in the research design, measuring instrument, sampling process, data collection method and data planning process were described as aligned with the specific objectives of the study. The chapter also described the total population, the target population, sample to be selected, the sampling method, the instruments used, pre-testing and ethical considerations. The following chapter will give an analysis of the research findings as well a presentation and interpretation of the data.

CHAPTER FOUR: PRESENTATION OF RESEARCH FINDINGS

4.1 Introduction

This chapter presents the analysis and interpretation of the research findings. The data collected was analysed to determine the impact and influence of mobile money payments on the adoption of eCitizen services in Kenya.

4.2 Data Analysis

The researcher used both qualitative and quantitative data to analyse the information using Microsoft Excel and the Statistical Package for Social Sciences (SPSS) and presented in tables, figures, frequency distribution and percentages.

4.3 Response Rate

The researcher targeted a sample size of 384 eCitizen users, and to achieve this, the researcher distributed 400 questionnaires. Out of the total questionnaires distributed, 334 were returned with 327 correctly filled and 3 questionnaires spoilt. The research, therefore, analysed the data based on the 327 questionnaires. This comprised of 85.2% of the sample target 384 which is acceptable because a minimum of 50% response rate is sufficient for statistical analysis (Mugenda & Mugenda, 2003).
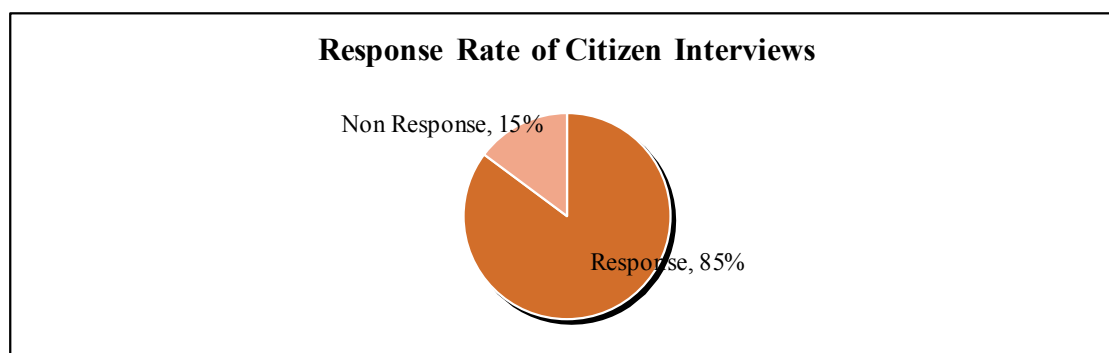
Figure 4.1: Response rate of Citizen Interviews

Eight of the ten targeted key informant interviews responded as shown on Table 4.1. The key respondents were senior managers from Government Digital Payments department within the Executive Office of the President and from top three mobile money payment providers in Kenya. They gave in-depth information about the services and how mobile payments impact these services.

Table 4.1: Key Informant Interview respondents

Category	Organisation	Target	Respondents
Government Digital Payments Department	Official representing government ministry, department, corporation or agency (MDCA)	4	3
Digital Payment Providers	Safaricom M-PESA	2	2
	Equitel Money	2	2
	Airtel Money	2	1
	Total	10	8

4.4 Demographic Information for Citizens

This section presents the general characteristics of the respondents. The personal data helped contextualize the findings and the formulation of appropriate recommendations on mobile payments and e-Government service adoption. The demographic information included in this study were age, gender, income and place of residence as discussed in the subsequent sections.

4.4.1   Age of the Respondents

The age of citizens was important in this study to determine the frequency of users of both mobile money and eCitizen platforms. Respondents age distribution was as follows:
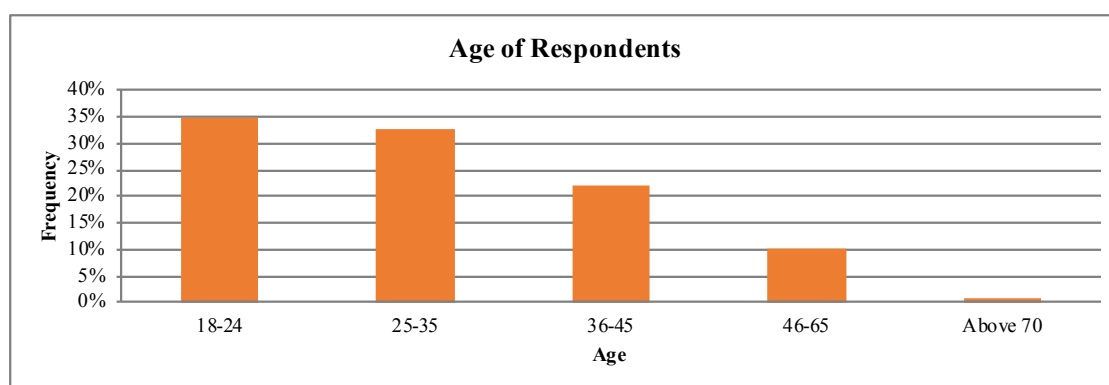
Figure 4.2: Age of Respondents

The results on Table 4.2 show that many respondents who were willing to participate in the study were youthful, with majority between ages 18 to 24 years at 34.6% (113), and 25 to 35 years who comprised 32.7% (107). There was a steep decline in number of respondents as the age got higher with only two respondents above 70 years old. These findings are consistent with the population distribution in Kenya which is wider among the lower ages (Kenya Bureau of Statistics, 2018).

4.4.2 Gender Distribution

The research sought to find out the gender distribution of the respondents to determine if gender is a determinant of the likelihood of a citizen to adopt eCitizen services and if there are barriers and enabler that lead to gender gaps in adoption. There were more female respondents at 56.3% (184) compared to male respondents at 43.7 % (143).

Gender of the respondents

Female
56%

Male
44%
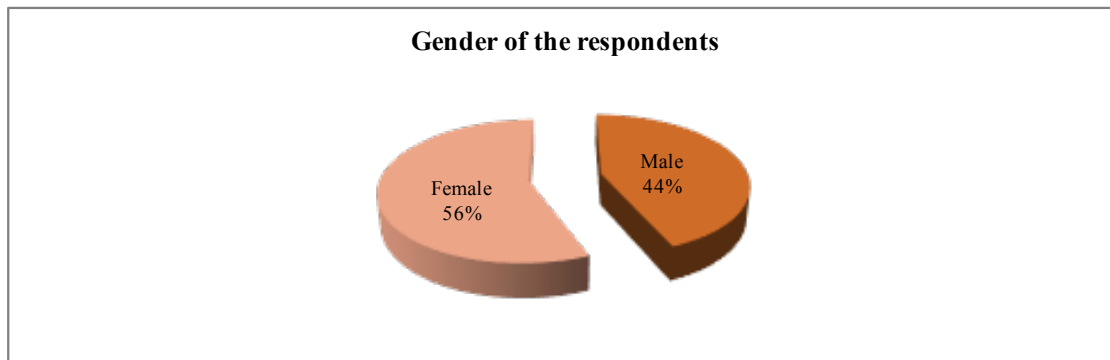
Figure 4.3: Gender of the respondents

This response rate is, however, inconsistent with the feedback that was provided by a GDP officials, who indicated that men are twice as likely to register on eCitizen than women. This can be attributed to predominant male headship (67.6%) of households in Kenya (Kenya Bureau of Statistics, 2018). Men are therefore more likely to perform government services including payments on behalf of the female household members even if they include adults.

4.4.3 Monthly Household Income

The respondents were asked to indicate their monthly income to understand if their income influenced the method of payment, frequency of payment and likelihood of payment using mobile money. Further, it helped to determine if income is a determinant of adoption of eCitizen services. Majority of respondents earned a lower income of less than KES 50,000 with 113 respondents (40.7%) indicating that they earned less than KES 25,000. Only 18 respondents earned more than KES 100,000 with the least number earning more than KES 250,000. These findings are consistent with the FinAccess (2016) data which indicate that a 90.2 per cent of Kenyan adults (18.1 million) earn less than KES 30,000 monthly. Kenya Bureau of Statistics (2018) also reports a 19.3 million active labour force in Kenya.

Table 4.1: Average household income

Household Income	Frequency	Percent
Below KES 25,000	133	40.7
KES 25,000 - 50,000	121	37.0
KES 50,001 – 100,000	55	16.8
KES 100,001 – 250,000	14	4.3
KES 250,001 and above	4	1.2
Total	327	100.0

4.4.4 Place of Residence

The respondents gave their place of residence in peri-urban, urban, or rural areas. This question sought to understand how far the respondents needed to travel for services and if their residential environment improved the chances of access to government services.
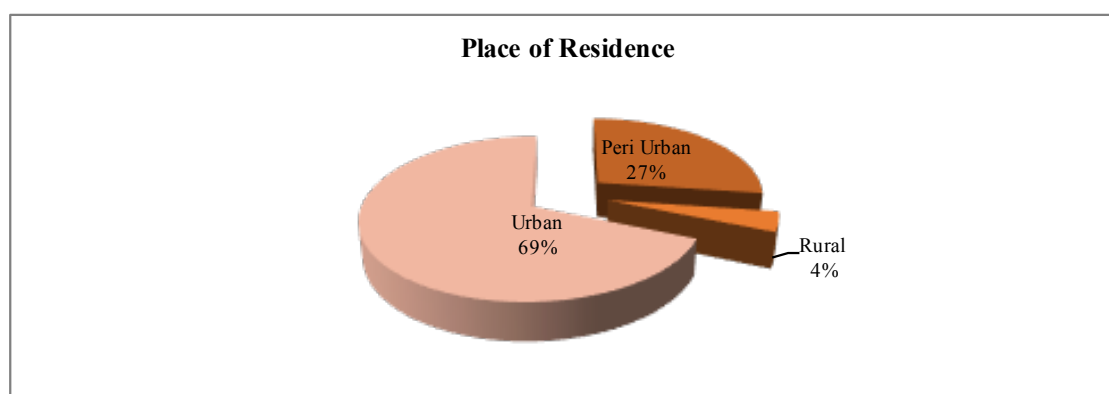
Figure 4.4: Place of Residence

The figure 4.4 above shows that most of the respondents at 69% reside in urban areas, followed by 27% of the respondents who reside in peri-urban areas, while only 4% reside in rural areas. As the capital city, Nairobi has a higher concentration of financial service providers as well as a variety of options to access government services including Huduma centres, cyber cafes, government offices and from offices with computers, printers, and internet connection. This increases the likelihood of respondents to access services easily as suggested by Nyambura (2015).

4.5 Factors Influencing Adoption of eCitizen Services

In line with the first objective of this study which sought to investigate the key factors influencing the adoption of eCitizen services in Kenya. The respondents were asked a variety of questions whether they had requested for and accessed government services, which government services they had accessed and what influenced their request and usage of these services.

4.5.1   Demand for Government Services on eCitizen

The respondents were asked if they accessed any government services in the recent past which they need. Access in this case means that they recently sought any kind of service without consideration of which channel or specificity of the service itself. Their responses were as follows:
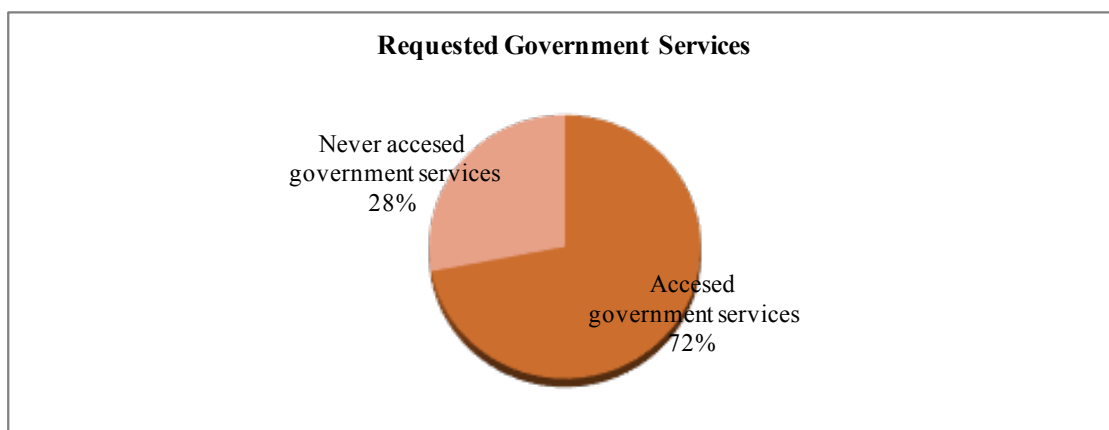
Figure 4.5: Respondents' recent access of Government Services

72% (235) had recently accessed government services. This high response is driven by the fact that there is a perpetual demand for more than 3,000 government services and documents which every citizen will require at any one time in their life. At more youthful ages, this need is higher to comply with statutory requirements such as national identity cards, driving licence, passport, birth, marriage and death certificates, business permits and so on. According to a respondent from the Government Digital Payments:

> *"There is a high demand for government services in Kenya, based on the fact that almost every individual will require a government-based document within their lifecycle from the time they are born, to the moment they pass on."*

Gichoya (2005) in his study agrees with these findings and further explains that the population in Kenya is consistently rising every year, thus demand for e-Citizen services is likely to rise with the introduction of new services.

4.5.2 Types of Services Offered on eCitizen and Frequency of Access

The 235 respondents who had recently accessed government services were asked to further identify the category of government services that they recently requested. This information was necessary to define the kinds of services that drive demand for government services. Their responses are as follows.

Table 4.3: Government services sought by citizens

Government services	Sought government service		Did not seek government service	
	Frequency	%	Frequency	%
Business e.g. business registration, business search	121	51.4	114	48.6
Marriage e.g. notice or issuance of marriage certificate	87	37.0	148	63.0
Driving e.g. driving license renewal, driving test booking	107	45.5	128	54.5
Lands e.g. land rent clearance, land search	103	43.8	132	56.2
Immigration e.g. application for visa, passport, or ID	207	88.1	28	11.9
Civil registration e.g. birth certificate or death certificate	128	54.5	107	45.5

The services selected were based on the frequently accessed services as provided by the Government Digital Payments. Identity documents were most requested with a higher number of respondents 88.1% (201) making requests for visa, ID, and passport application. This is consistent with the higher number of respondents who were seeking national identity cards for the first time or to keep current with the document to vote in 2017.

54.5% (128) seeking civil registration which includes requests for birth certificates for new born children and death certificates for the deceased. FinAccess (2016) reports that most urban dwellers use their money respond financially to the shocks brought about by death of a family member. The report also reports that within the age groups 18 and 45 years, most citizens use money to start a new business, which can explain the ranking of business registrations as the third most requested service with 51.4% of respondents (121). Requests for driving licences (45.5%), marriage certificates (37%) and land documents (43%), though important, were less frequent. This was explained by a key informant from GDP as due to the tendency of citizens

to marry later in life and placing less importance to get marriage certificates. He further explained that at the time of research, land services were undergoing a full digitization, therefore less requests were recorded.

4.5.3 Demand Side Perceptions

The respondents were asked how they viewed the entire end-to-end payment process on eCitizen and the delivery of service requested based on transparency, efficiency, speed of delivery and cost to access the service. A four-point Likert scale was used, with 1 being strongly disagree, 2-disagree, 3-agree and 4 being strongly agree.

Transparency (64.8%, 212) was also rated highly with the perception by citizens that they are clear about what they pay for and at what cost. These findings are affirmed by a key informant and senior official at the GDP, who explained that mobile money users can receive an instant confirmation of payments that can be validated by both the mobile provider and eCitizen. In the past receipts could be forged leading to manipulation and diversion of funds. Similar rating was given to cost (64.8%, 212) with perception that in costs less to use eCitizen that before. This is consistent with a response by a key informant from GDP who reported that it now costs less for the government to manage digital services because it is able to save costs of printing, time and human resources. It also costs citizens less for transport to services, cost of time sent queuing, cost of service, and other miscellaneous costs that existed as a result of manual government services. This is also consistent with report by Wasunna and Frydrych (2017).

Respondents either agreed and strongly agreed that by accessing services on eCitizen they did not have to que for long to get services therefore got services delivered with speed (68.2% 223). This was rated as the most important aspect that factors that drove citizens to access services on eCitizen. Citizens reported that they were happy that they are now able to make payments remotely and get documents instantly. This is in contrast to previous experiences when they had to wait in long queues outside government offices and wait for days, weeks or even months to get the services they requested.

Table 4.4: Citizen perception of payment process on delivery of service

Statement	Strongly agree		Agree		Disagree		Strongly disagree	
	F	%	F	%	F	%	F	%
Transparency	102	31.2	110	33.6	43	13.1	72	22.0
Efficiency	111	33.9	71	21.7	102	31.2	43	13.1
Speed of delivery	106	32.4	117	35.8	72	22.0	32	9.8
Cost to access the service	102	31.2	110	33.6	43	13.1	72	22.0
Access to more services	58	17.7	82	25.1	95	29.1	92	28.1

Efficiency was positively rated at 55.6% (182) as the respondents agreed that after making the mobile payment the government service is delivered smoothly. However, a senior manager at the GDP explained that eCitizen in the past faced some challenges in regards to mobile payments. Some payment authorization, wrong reversal of payments, and hanging payment systems directly influenced the end users experience. To overcome this issue the government set up backup systems and worked closely with mobile money providers providers to ensure payment processes are easier and more efficient.

Respondents disagreed and strongly disagreed that they have access to more services for which they can make payments on eCitizen (57%, 187). This might explain why most citizens opt to use cyber cafes and Huduma centres to get assistance to access services. A key respondent also reported that service on eCitizen are available on alternative channels, thus citizens are able to access the services through their preferred channels.

4.5.4 Supply Side Perceptions

The key informants were asked to identify some of the key factors that have led to the adoption of e-government services in Kenya.

Consistent with the findings on the demand side, cost was unanimously ranked as the most important factor that has driven the adoption of eCitizen services.

The key informants ranked access to internet, transparency, and efficiency with equal and high importance. While efficiency was ranked fourth most important factor by citizens, the key informants ranked it second, perhaps based on the government drive to drive efficiency in government services. This is also linked to the drive for more transparency in order to win

citizens' trust. For example, a key informant at the GDP explained that cases of reported fake receipts at have been reduced with the introduction of e-government services, where payment validation can be done at service points. The government is also able to easily trace payment information with the introduction of digital payments.

Table 4.5: Service providers' perception of factors influencing adoption of eCitizen

Key Factors	Frequency	Percentage
Access to internet	4	44.4
Political goodwill	2	22.2
Transparency	4	44.4
Efficiency	4	44.4
Reduced costs	5	55.6
High penetration of mobile phones/digital services	2	22.2
Aggressive marketing	2	22.2

Political goodwill and aggressive marketing ranked lower but inconsistent with findings by Wasunna and Frydrych (2017), which indicated that this were critical factors driving the adoption of eCitizen services. This may be because the political goodwill already exists, therefore was more important at the launch of eCitizen in 2014 than it is now when systems are already in place. Secondly, it is likely that aggressive marketing could be giving diminishing returns especially if the roll out of new services on eCitizen have plateaued. A citizen can only request for as many services as they need and not more. Lastly, high mobile phone penetration is not less important. As one key informant from a mobile money company explains:

> *"The high penetration of mobile phones in Kenya is one of the key factors that has resulted in high adoption and usage of mobile money. Proven and successful experience with mobile money in delivering key ecosystem use-cases such as utility payments has also attested to the reliability and convenience of the service via remote payments."*

4.5.5 Proximity to Government Services

The respondents were asked about their proximity to government service, and whether proximity influenced their frequency of demand for government services. Proximity in this case means how far a citizen has to travel to get government services. The researcher used cross tabulation to analyse if distance from a government service influenced the frequency of seeking it. The findings were as follows.

Table 4.6: Cross-tabulation of the impact of recent access and proximity to government services

Recency in accessing government service	What influences access to government services?			
	Proximity influenced		Proximity did not influence	
	F	%	F	%
More than 2 years ago	22	6.7	18	5.5
1 ½ - 2 years ago	30	9.2	16	4.9
1 - 1 ½ years ago	41	12.5	19	5.8
6 months – 1 year ago	52	15.9	27	8.3
Within the last 6 months	65	19.9	37	11.3
Total	210	64.2	117	35.8

The findings in table 4.3 show that proximity to government services influenced a higher frequency of access over a shorter period. Thus, 64.2% of the respondents who accessed government services within the last 6 months did so because proximity to government services made it easier. Those who took longer to access services indicated that it was because of the non-proximity. This is important and shows the importance of bringing services closer to the people and the need to prioritize access to alternative channels rather than a centralised office.

4.5.6 Access to Mobile Payments

The respondents were asked whether they had access to mobile payments through a mobile money account from which they can make payments.
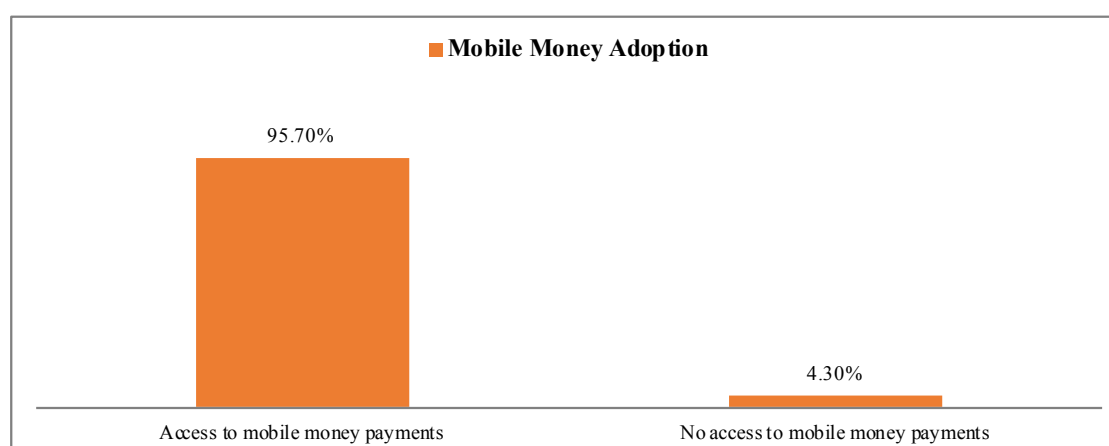

Figure 4.6: Respondents' response to access to mobile payments

95.7% (313) of the respondents indicated that they have access to mobile payments, compared to 4.3% (14) who did not. These findings are consistent with the high penetration, usage and adoption of mobile money reported by the Communications Authority of Kenya (2017) that nearly 88% of the population in Kenya have access to mobile payments and key informants who indicated that 90% of eCitizen payments are through mobile money.

The researcher also asked the respondents which mobile service provider they used to make payments for services on eCitizen. This information was important to confirm if there was any preference for any provider, and to confirm the accuracy of the feedback by some key informants on the reason for success of some providers over others. Figure 4.7 illustrates the mobile payment service providers that are used by the respondents.
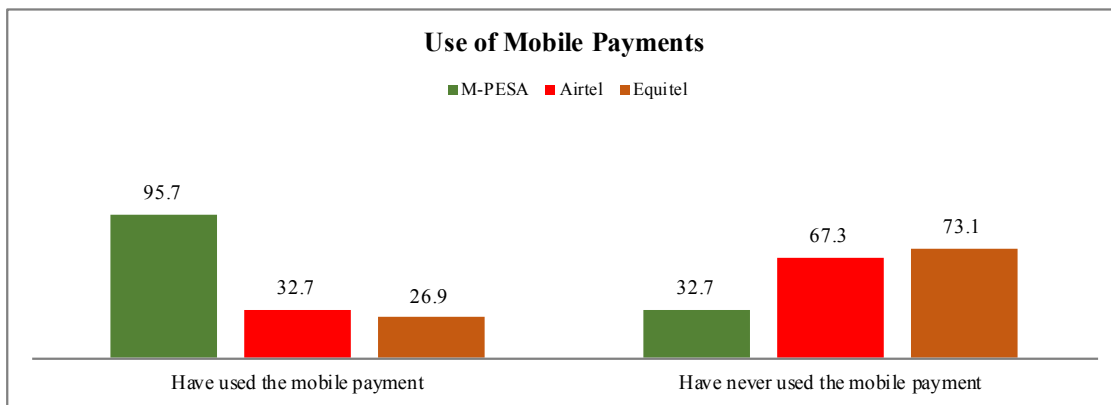
Figure 4.7: Use of mobile payment platforms

95.7% (313) of the respondents use Safaricom M-PESA services, 32.7% use Airtel Money and 26.9% (88) use Equitel. These findings are consistent with the CAK (2017) report on the market share of mobile operators in Kenya.

M-PESA's success in capturing majority of the payments on eCitizen are consistent with the aggressive marketing, a wide variety of service offering and ubiquity of the services. Equitel, though a late entrant in eCitizen in mid 2017, had a larger market share of payments to eCitizen. This is because the user experience was smooth and convenient, as a mobile money service that can be directly linked to 9 million bank accounts.

4.5.7 Challenges/Barriers of Mobile Payments on the Adoption of eCitizen Services

Key informants identified the following barriers to adoption were through interviews at the government digital payments department:

i. When government services are only partially digital and there is no end to end digital connectivity, this results in poor user experience and long service processes. This is also linked to system unavailability and poor integration of systems with no appropriate system back-ups. The government has recorded losses in revenue due to system failures.

ii. Resource and administration challenges are due to resistance from MDCAs, lack of transparency by government officials, lack of proper training, poor information dissemination and fear of loss of opportunities to earn income through unscrupulous means.

iii. Security barriers exist when fake accounts are created using stolen or fake documents which cannot easily be traced or reconciled. Users also fear the invasion of their privacy when they place their information on a public platform which they fear can easily be accessible to third parties, especially criminals and law-breakers.

iv. Low digital literacy and system usability widely affects access to eCitizen by a clear majority of citizens, especially in rural communities. To the Government created Huduma centres to cater to citizens who lack access to self-services.

v. Mobile money transactions are currently set at maximum limit of KES 70,000 per transaction, which poses as a challenge for payments above this limit. Users cannot make split payments for services e.g. land rates which makes this even more complex. This is because each session has a unique token/reference number and payment invoice.

vi. Reputation risk due to system failure is a challenge for mobile money payment providers, especially as mobile money is increasingly becoming the face of payment for government services. This is a liability when services are not delivered properly, even if the problem is not related to the provider. Facilitation fee of KES 50, which is charged by the government for every transaction, is perceived as a mobile money cost.

vii. Connectivity failures which is a barrier that leads to timeout of mobile payment transactions and bureaucracy of reversing wrong transactions creates a negative customer experience. Reversing transactions as well as other customer service issues are difficult to address and require close coordination.

The key informants gave their perceptions of the challenges and barriers. System and process failure raked highest followed by technology failure and payment reconciliation challenges.

Table 4.7: Challenge and barriers of eCitizen adoption

Challenge /Barrier	Frequency	Percentage
System or process failure	5	33.5
Mobile payment reconciliation challenges	3	33.3
Low user literacy	1	11.1
High cost of marketing and awareness	1	11.1
MCDA resistance to e-services	2	22.2
Technology failure (end user device)	4	44.4
Mobile transaction limits	2	11.1
Security/fake accounts	1	11.1
End to End digitalization	2	22.2

4.5.8   Enablers of Mobile Payments on the Adoption of eCitizen Services

Some of the enablers to adoption mentioned by the key informants are:

i.   Aggressive marketing by MDCAs and mobile payment providers who disseminate information to users by encouraging them to access government services online.

ii.   A user-friendly customer journey on the eCitizen portal. For example, formal validation of transactions allows users to verify payments, receive exact amounts and references.

iii.   High penetration of internet via a wide variety of options such as mobile phones, computers and cyber cafes has enabled increased adoption of eCitizen services.

iv.   Continuous government enforcement of digital payments as the only channel for paying to access some popular government services on eCitizen.

v.   A variety of digital payment options such as cards, mobile money and bank transfers allow citizens the freedom and flexibility to choose which method they want to use.

vi.   A well-structured ID system in Kenya makes it both easy to register to an eCitizen account as well as a mobile money account. Without this, it would be impossible to use both services since they are both linked to customer information that is verifiable.

vii.   Government goodwill and sound ICT policy framework supported and contributed to the immense growth of mobile money payments and adoption of eCitizen services.

The table below shows the ranking of these challenges and barriers by the key informants.

Table 4.8: Success factors of eCitizen adoption

Success Factors	Frequency	Percentage
Convenient /user friendly payment process	4	44.4
High penetration of mobile phones/internet	2	22.2
Government support and awareness	3	33.3
Mobile money has reduced citizens cost	2	22.2
Positive cultural attitude to innovation	1	11.1
Aggressive marketing from mobile service providers	3	33.3
High demand for government services	1	11.1

4.6 Role of Mobile Payments in Driving the Adoption of e-Citizen Services

This section analyses whether mobile money payments have had any positive or negative impact on the perceptions of citizens and key informants. The responses were based on qualitative assessments from the questionnaires administered to both categories.

4.6.1   Choice of Channel Used

Respondents were asked how they accessed the government services most recently.

Table 4.9: Method used to access government services

Statement	Used this method to access government service		Did not use this method to government service	
	Frequency	Percentage	Frequency	Percentage
Access to eCitizen via web	231	70.6	96	40.5
Access to eCitizen via app	141	43.1	186	56.9
Over counter at Government office	291	89.0	36	11.0
Access Huduma centre	246	75.2	81	24.8

Table 4.5 shows that 89% (291) of the respondents still access government services over the counter at government premises. This is likely to be true for services which require physical documents such as national business license, driving license, ID, passport, birth and death certificates and marriage certificates. 75.2% (246) of respondents accessed government service through Huduma centres which is higher relative to the 70.6% (231) who had accessed government services via eCitizen on the web.

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In the Technology Acceptance Model, perceived usefulness of a technology and the perceived ease of its use are important factors that guide users' attitudes towards usage of the technology, their behavioral intention to use it and the resultant actual use of the system. On eCitizen perceived usefulness is derived from citizens' perceived speed of service, perceived low cost of service and perceived transparency of the services. Perceived ease of use is in the perspective of accessibility and efficiency.

While the general attitude of citizens towards eCitizen is positive, there is a divergence in behavioral intention to use the platform. Theory of Planned Behavior can be used to explain that while the intention and desire to use eCitizen platform may be exist strongly, most citizens may take up assisted services by default when they realize that they have lost their control and ability to access the platform due to limitations, particularly access. Such limitations were reported as inability to make remote payments, requirement to appear in person to get services, lack of computer or internet devise and lack of computer literacy or the skills to navigate through the eCitizen portal. This further explains the relatively high footfall at government offices and at Huduma. eCitizen app had the lowest access rate indicating that its ease of use and usefulness is still not significant enough to motivate citizens to use it. Citizens explained that they experienced difficulties navigating through the app and making payments for the services. This is because the two processes are not linked onto one seamless platform.

Thus, although mobile money payments have had an impact on decisions by citizens to use the eCitizen platform themselves, the challenges that they still experience while navigating the platform itself may encourage them to seek assistance from physical channels in spite of the ability to make payments remotely.

4.6.2 Role of Mobile Money in Convenience and Ease of Access

The key informants reported that mobile money payments do have an impact on adoption of eCitizen services particularly on convenience of payment, access to the platform services and reducing the cost of services.

Convenience of payment was attributed to the ability to make remote payments for government services using mobile money, while ease of access to platform services was the number of services that are made possible through mobile money payments. This means that from a

provider's perspective, citizens are aware that they can access these services because they can pay for them using mobile money and at a lower cost than before.

Table 4.10: Role of Mobile Money Payments on eCitizen Services

Role of mobile money payments	Frequency	Percentage
Increased user activity	1	11.1
Mobile money facilitates easy access to the platform services	5	55.6
Awareness through aggressive marketing by mobile providers	1	11.1
Increased transactions	2	22.2
Reduced service costs	3	33.3
Increased convenience through mobile money	6	66.7

4.7 Extent to which Mobile Money Payments Influence Decisions to use eCitizen

4.7.1 Influence of Use of Mobile Money on Decision to Use eCitizen

The respondents were asked if they believe that use of mobile money for payments influences their decision to use the platform eCitizen. Their response were as follows.
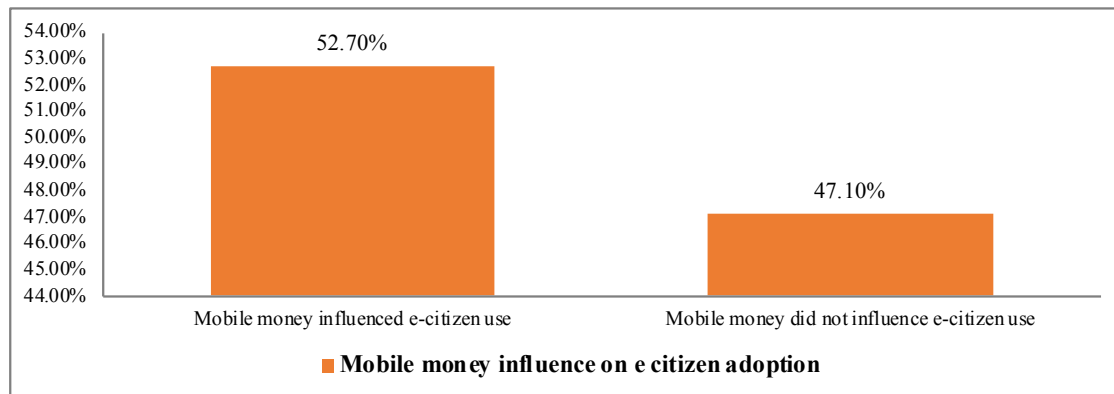
Figure 4.8: Mobile money influence on e-citizen adoption

52.7% of the respondents agree that mobile money had influenced their decision to use eCitizen, though this is by a small margin of 5.6% against those who did not agree.

Key informants from GDP and mobile money providers attributed the perception of influence of mobile money to drive eCitizen services to its convenience and strong marketing to create awareness campaigns. These two factors have the power to drive perceptions described in TAM. For example, if one user described the convenience of eCitizen in terms of the ease of

payments using mobile money, it is likely that this will use eCitizen in future. A mobile money service provider attributed this trend further to influence of their active user base, who they found to be active on eCitizen. Their active user base was derived from mobile voice and internet users who bring the highest average revenue per user.

In contrast, a key informant explained that mobile money payment processes play a smaller but important role as that of an accelerator to e-Citizen service adoption. He explains that:

> *"Mobile penetration in Kenya is high and therefore it is the most convenient mode of payment for many users. However, many government services offered online are free and therefore payment providers would not influence the adoption of such services."*

He further attributed MDCA's role as the most critical in influencing e-Government service adoption by creating awareness on the ground level.

4.7.2 Correlation Test between Mobile Money Payments and Adoption of e-Citizen

The researcher further did a correlation tests between mobile money payments and the likelihood of citizens to adopt and continuously use eCitizen services. The correlation of mobile payments was against eCitizen website visits, eCitizen app downloads, access to the eCitizen including a payment transactions and new account creations.

Values of independent variables closer to $r=1$ have a strong positive correlation while those close to $r=-1$ then the independent variable has a strong negative correlation with the dependent variable. Therefore, in this study an increase in the number mobile money payments would cause an increase in the number of eCitizen applications and usage.

However, of the four variables tested, account creation ($r = 0.059$) was the most likely correlation if at all a citizen found mobile money as a reason to adopt eCitizen services. This was followed by the dual action of account creation and payment transactions at $r = 0.040$.

Further, the researcher found that there was a strong statistically significant correlation between visiting the eCitizen website to accessing services and make a payment ($r=0.976$) and to create an eCitizen account ($r=0.891$).

Table 4.11: Extent to which mobile payments influence adoption

		Access to mobile money payment service	Downloaded and used eCitizen mobile app	Visited the eCitizen website	Accessed govt services on eCitizen and paid	Created an eCitizen account
Access to mobile money payment service	Pearson Correlation	1	.008	.015	.040	.059
	Sig. (2-tailed)		.891	.788	.471	.291
	N	327	327	327	327	327
Downloaded and used eCitizen mobile app	Pearson Correlation	.008	1	.664**	.636**	.613**
	Sig. (2-tailed)	.891		.000	.000	.000
	N	327	327	327	327	327
Visited the eCitizen website	Pearson Correlation	.015	.664**	1	.976**	.891**
	Sig. (2-tailed)	.788	.000		.000	.000
	N	327	327	327	327	327
Accessed govt services on eCitizen and paid	Pearson Correlation	.040	.636**	.976**	1	.868**
	Sig. (2-tailed)	.471	.000	.000		.000
	N	327	327	327	327	327
Created an eCitizen account	Pearson Correlation	.059	.613**	.891**	.868**	1
	Sig. (2-tailed)	.291	.000	.000	.000	
	N	327	327	327	327	327

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

There is a statistically significant correlation between downloading a mobile app and re-visiting it for eCitizen services. However, the significance drops on access and payment and account creation, which is attributed to user experience for these two services. These findings are partly consistent with comments by a key informant at GDP who stated that:

> "Users of eCitizen platform accessing it from computers at 67% and 37% using mobile devices. We are actively pushing for less use of the mobile app because of the barriers it creates in terms of printing documents. However, we will try to allow more acceptance of digital documents before we resume the push for eCitizen mobile app."

4.8 Summary of the Chapter

In this chapter, the researcher analysed data that was collected from both the demand side (citizens) and supply side (eCitizen and payment service providers) to establish answers to the key research questions. The results were analysed and categorised according to the specific research objectives as outlined in Chapter 2.

Further discussion, conclusions and recommendations are outlined in the chapter that follows.

CHAPTER FIVE: DISCUSSIONS, RECOMMENDATIONS AND CONCLUSIONS

5.1 Introduction

This chapter presents the discussion of key data findings, conclusion drawn from the findings highlighted and recommendation made. Having fulfilled the objectives of the research, the researcher can draw some conclusions and provide recommendations by answering the research questions to determining if mobile money payments have any influence on the adoption of government services offered on eCitizen.

5.2 Discussion of Key Findings

5.2.1   What factors determine the adoption of eCitizen services in Kenya?

First, the researcher found that the adoption of services on eCitizen would not happen if there were no demand for those government services in general. The higher the need for the service, the higher the likelihood of citizens to take them up if it is offered digitally on the platform. However, for services that are available both at physical points such as Huduma Centres and digitally, citizen will have less motivation to register on eCitizen to access them. Such services include requests for national ID cards and passports, business registration, birth and death certificate and marriage certificates. Services like driving license which are fully digitised require one to access through the eCitizen platform and have played a major role in driving adoption. Thus adoption is driven partly by the types of services that have the highest demand and that are also available digitally.

Secondly, perceptions of citizens and of government officials and payment service providers both contribute to the outcome of adoption. Citizen on the one hand are driven by their perceptions of cost savings, convenience, speed and transparency. On the other hand, are driven by cost savings, transparency, efficiency and availability of internet services through channels that give access to the platform. TAM model was proven to be true and acceptable to determine the perceptions of citizens on their perceived usefulness of digital payments and also acceptance of digital services offered by the government, and eventual use.

There was strong evidence on the importance of proximity to government services in determining which channel citizens use to access government services. Where citizens feel that they are near enough to a physical service point, it minimizes the need to want to go online for the services, even if they are able to make the payments digitally. It was also found that services

offered via Huduma centres and cyber cafes, offered a complementary alternative to online access to eCitizen because of the perception of trust in these channels.

Aggressive marketing by MDCAs and mobile payment providers, high penetration of mobile phones and internet access, high adoption and usage of mobile money, aggressive marketing from MDCAs and mobile payment providers, and supportive legislation that promotes digital payments. These findings are consistent with studies by Ebrahim and Irani (2005) who stated that the availability Internet must be considered when evaluating the adoption of government services as it provides an opportunity for users to easily access government information and services from anywhere and anytime. Since the study was carried out in Nairobi, which is the capital city of Kenya where most government offices reside, there is better internet penetration and majority of citizens have better access to computers, it leaves more room for interpretation of results in a different locality, especially in the rural areas where proximity is lower (GSMA Connected Society, 2016).

5.2.2 What is the role of mobile money payments on the adoption of services on eCitizen platform?

The finding revealed that mobile money plays an important part in enhancing the experience of users while using the eCitizen platform. It provides convenience for citizens to make government payments possible because of its low cost, convenience, and ease of access when making payments remotely compared to other channels of payment. However, this this is slowed down where services that require high value payments cannot be made via mobile money due to transaction limits. Further, as identified by Borra (2004), where connectivity fails it further create a negative customer experience.

In the Technology Acceptance Model, perceived usefulness of a technology and the perceived ease of its use are important factors that guide users' attitudes towards usage of the technology, their behavioral intention to use it and the resultant actual use of the system. Citizens' perceived speed of service, low cost of service and transparency of the services comprises the usefulness of the eCitizen platform. Perceived ease of use is in the perspective of accessibility and efficiency.

While the general attitude of citizens towards eCitizen is positive, the findings here show a divergence in behavioral intention to use the platform. Theory of Planned Behavior can be used to explain that while the intention and desire to use eCitizen platform may be exist strongly,

most citizens may fall to assisted services as a default when they realize that they have lost their control and ability to access the platform due to limitations. Such limitations were reported as inability to make remote payments, requirement to appear in person to get services, lack of computer or internet devise and lack of computer literacy or the skills to navigate through the eCitizen portal. This further explains the relatively high footfall at government offices and at Huduma.

There are other external factors also support the use of mobile money. For example, MDCAs play a role in actively driving their services through eCitizen and encourage users to use the channel to make payments in order to increase their revenue collections. This also increases registrations to the platform by creating awareness at physical offices. Mobile money providers have also provided both integration and marketing support for e-Government services through creation of awareness of the availability of the service and the mechanics.

5.2.3 How have mobile money payments directly influenced the adoption and usage of services on eCitizen?

This research assumed that because there is a high adoption of mobile money services in Kenya and that more than 90% of eCitizen payments are via mobile money, then it would be likely that mobile money is the main driver of adoption of eCitizen accounts. It also assumed that it was likely that people were driven to use eCitizen because of mobile money rather than the reverse.

However, the research found a weak statistically significant correlation between access to mobile payments and the adoption and continuous usage of eCitizen for government services. This means that even though mobile money is widely used for majority of the payments on eCitizen platform, it is not the key driver for citizens to register on eCitizen to get personal accounts from which they can request government services directly.

The research further revealed that users create eCitizen accounts and they find that in the process of requesting for government services, they find it much easier to make payments via mobile money than any other means. Mobile money is therefore a facilitator of easy access to services rather than the driver.

While citizens trust mobile money, this is also not a driver for eCitizen usage because citizens can also easily opt for assisted services. These services are offered at physical points such as Huduma centres and cyber cafes which offer direct services without the need to open an

account. The challenge with most citizens is actually in the process of requesting for the services, nor the demand for government services, but in the usage of the online channel through the internet. A digital divide exists where majority of citizens either lack access to computers or internet services, or lack the literacy to use them, or cannot afford to use them.

Some services that are fully digitized are only be available on eCitizen and cannot be accessed through any other means other that from eCitizen accounts themselves. This means that unless a citizen has an eCitizen account, they cannot for instance get a driving licence or be able to renew it. In such cases, intermediary businesses such as cyber cafes have emerged to fill the gap and offer assisted services to those with no ability to access eCitizen due to the challenges earlier highlighted. However, even in such cases, the use of digital payments, particularly mobile money is still prevalent. This is driven by the need for citizens to receive notifications for payments made as proof that payments were indeed made.

5.3 Recommendations

The research found that there are more youthful users of eCitizen, who mostly dwell in urban areas. This leaves out rural older people who may lack both computer literacy, internet access and ability to afford the services, therefore remaining disadvantaged. Stakeholders should profile all users in order to understand how best to bring services to them, first for the government to increase reach and secondly for mobile providers to create the right products that can guarantee wider acceptance.

According to the Communications Authority of Kenya, there are 19.92 million users of the internet in Kenya, of whom 19.81 million access internet from there phones. Because of this opportunity, mobile providers can focus on mobile payments integration to mobile applications on smart phones in order to give a seamless experience for customers using this channel. For example, in the current set up, users need to leave a session on the eCitizen portal in order to make a payment for a service before going back to complete the request.

Government and mobile payment providers can collaborate to provide both internet access and improve digital literacy to stimulate internet usage to access complex services. They can also subsidise the cost of devices such as laptops, tablets and smartphones to increase access and adoption of internet. While using these devices, they can also make access to eCitizen services free of charge to increase uptake of services poor communities.

Policies should focus on increasing the usage of mobile money to enable the government to revenue collection. For example, one policy that can be changed is on acceptance of digital receipts. Payment notifications produced from mobile money payments can be acknowledged widely as digital receipts by government and engrained as official proof of payments. If this is done, it is likely that citizens would associate government services with mobile money payments because they can widely be accepted.

Elimination of physical documents can also help further adoption of eCitizen services especially if these can be generated and displayed on a mobile device when required without having to print them. A good way to do this is to acknowledge mobile telephone numbers as digital identity accounts from which multiple documents and information can be retrieved. Stakeholders should actively observe the ICT trends both locally and globally to tap on the advanced technologies that could be more beneficial and less costly.

Service delivery gaps found on eCitizen can also be filled by Huduma Centres where training and set up of eCitizen accounts can be done on behalf of citizens. For example, where there are many citizens with less digital knowledge, Huduma Centres can step in to not only offer the services, but also teach citizens how to carry out step by step processes on the platform. This way, the adoption of eCitizen accounts would grow faster and citizens would be encouraged to use the platform in future.

More adoption can happen if the government increases the number of live services available on the platform. There are currently only 300 such services available against a possible 5,000 as reported by the GDP officials. This not only requires these services live on the platform, but also providing end-to-end digitization of those services.

5.4 Conclusion

The analysis reveals that citizens between ages 18 and 45 are the most likely users of mobile money services especially those offered by Safaricom's mobile money service, M-PESA. This is because they perceive mobile money to be more cost effective, reliable, efficient and fast way of paying for government services compared to other means. The prevalent use of mobile money in Kenya does not, however, lead to further likelihood of citizens to use eCitizen platform to get the government services that they need. This is because they can easily opt for assisted services offered at physical centres Huduma centres and cyber cafes much less than

they would for self-services available on eCitizen platform. However, once they access the eCitizen account, citizen are more likely than not to use mobile money.

The adoption of eCitizen and the eventual use of the platform to access government services should therefore be considered from the perspective of a multiplicity of factors rather that the prevalent use of mobile money. These factors include, but are not limited to citizens' perceptions, accessibility to channels by which they can connect to the internet and therefore eCitizen, full end-to-end digitization of services and elimination of manual processes. These factors were not fully discussed in this research but an understanding of these other factors by both the government and its stakeholders can help them to develop initiatives to drive for mass adoption of eCitizen accounts to offer its services. Further studies are required to provide a deeper understanding of the key ingredients to successful adoption of eCitizen services in order for the government to offer its services more effectively and efficiently and also for service providers to maximise the gains by engaging in facilitating part of these services.

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APPENDIX A: Sample Letters of Introduction and Consent for Research

[*Strathmore Business School letterhead*]

OUR REF: YOUR REF:

(Date)
[*Title of Principal Official*],
[*Name of Organization*],
P.O. Box _____
NAIROBI

Dear _____,

RE: INTRODUCTION LETTER

Nicholas Wasunna, a final year post graduate student of **Strathmore Business School** is conducting a survey for his research project. The research is an assessment of role of digital payments in the adoption of government services in Kenya, using eCitizen as a case study. The findings in this research will provide new knowledge that will be useful in informing the strategy to be used in increasing adoption of eCitizen services.

Your participation in the study is therefore very important. The responses given in the survey will remain confidential.

The survey should take no more than **20 minutes** to complete. Any facilitation and assistance you give in the study will be highly appreciated.

In the event that you have any queries or that you require any independent clarification about this study, please do not hesitate to contact the writer and/or **the Administrator at Strathmore**
Business School on **+254 703 034 414**.

Yours faithfully,
For: **STRATHMORE BUSINESS SCHOOL**
DEAN, SCHOOL OF GRADUATE STUDIES

___@strathmore.edu

RE: CONSENT TO PARTICIPATE IN A QUALITATIVE STUDY ON THE ROLE OF DIGITAL PAYMENTS IN THE ADOPTION OF GOVERNMENT SERVICES IN KENYA, USING ECITIZEN AS A CASE STUDY

Nicholas Wasunna, a final year post graduate student of **Strathmore Business School**, is conducting a survey for his research project. The research is an assessment of role of digital payments in the adoption of government services in Kenya, using eCitizen as a case study.

This questionnaire is strictly to provide vital information regarding this research work and will be treated with strict confidentiality. Your response will help in understanding the current status of eCitizen services in Kenya and help in recommending improvements to the stakeholders.

The questionnaire should take no more than **20 minutes** to complete. Participating in this study is voluntary. Therefore you should not incur any financial costs, neither will you be reimbursed. You will be free to withdraw from participating at any time, and will not suffer negative consequences any kind for making that choice.

Should you have any queries or require any independent clarification about this study, please do not hesitate to contact **the Administrator at Strathmore Business School** on **+254 703 034 414**. You will receive a signed copy of this consent form for your records.

YOUR SIGNATURE ON THIS CONSENT FORM INDICATES THAT YOU HAVE VOLUNTARILY AGREED TO PARTICIPATE IN THIS RESEARCH STUDY, THAT YOU HAVE READ AND UNDERSTAND THE INFORMATION GIVEN ABOVE AND ALL ISSUES RELATING TO THE STUDY HAVE BEEN CLEARLY EXPLAINED TO YOU.

Name of Participant _____

Signature of Participant _____

Signatures of Student Researchers _____

□ Check box if you wish to have the results of this study mailed to you. Include a mailing address: _____

APPENDIX B: Research Instruments

Sample Questionnaire: Mobile Payment Providers of Government Services on eCitizen

Thank you for agreeing and making time to participate in this study.

As part of the MBA course work at **Strathmore Business School**, I am conducting a research study on the impact of digital payments on the demand for government services in Kenya.

Your response will help to understand if digital payments have been beneficial and if this has made the use government services more since the launch as well as understand what barriers have been faced in the past and at present when accessing government payments.

PART A: ADOPTION OF E-GOVERNMENT SERVICES

1. What would you say are the key factors that have led to the adoption of e-Government services in Kenya?

PART B: IMPACT OF MOBILE PAYMENT PLATFORMS ON ECITIZEN

2. Do you believe that your organization (M-PESA/Airtel Money/Equitel) has played a key role in the adoption of government services on eCitizen platform in Kenya? If so how?

3. What impact on transaction volumes has your organization faced as a result of eCitizen?

4. Are there any measures that have been put in place by your organization to assist in promoting mobile payments on eCitizen in Kenya?

PART C: STAKEHOLDER BENEFITS AND BARRIERS

5. From a provider's perspective, what factors have led to the success of mobile payments at e-Citizen?

6. What are benefits of mobile payments to eCitizen and which ones are not?

7. What can you say are the main challenges in mobile payments on eCitizen?

8. What would you attribute the challenges and barriers to?

9. What strategies can you recommend to overcome these barriers?

PART D: SERVICES OFFERED AND DEMAND

10. Which digital payment services are you currently offering for government services?

11. What measures can your organization put in place to address adoption gaps in the future?

   THANK YOU FOR PARTICIPATING IN THE RESEARCH.

Sample Questionnaire: Government Digital Payments Departments, eCitizen

Thank you for agreeing and making time to participate in this study.

As part of the MBA course work at Strathmore Business School, I am conducting a research study on the impact of mobile payments on the adoption for government services in Kenya.

Your response will help to understand if digital payments have been beneficial and if this has made the use government services more since the launch as well as understand what barriers have been faced in the past and at present when accessing government payments.

PART A: ADOPTION OF E-GOVERNMENT SERVICES

1. What mobile payments services are you currently offering at eCitizen?

2. What would you say are the key factors that have led to the adoption of e-Government services in Kenya?

PART B: IMPACT OF MOBILE PAYMENTS ON ADOPTION OF ECITIZEN

3. Do you believe that mobile payment platforms have played a key role in the adoption of government services on eCitizen platform in Kenya? If so kindly explain?

4. What impact has mobile payments had on the following factors listed below at eCitizen (varied according to respondent)?
   - User activity   - Transaction volumes
   - Profitability   - App downloads   - User registration

PART C: STAKEHOLDER BENEFITS

5. From a provider's perspective, what factors have led to the success of mobile payments at e- citizen?

6. What can you say are the main challenges in mobile payment systems on eCitizen?

7. What would you attribute the challenges and barriers to?

8. What strategies can you recommend to overcome these barriers?

PART D: SERVICES OFFERED AND DEMAND

9. What measures have been put in place to increase the adoption of eCitizen services in Kenya?

10. How do you plan to address adoption gaps in future?

THANK YOU FOR PARTICIPATING IN THE RESEARCH.

Sample Questionnaire: Government Services User (Citizen)

SECTION A: GENERAL INFORMATION

1. **What is your age group:** (Please tick one answer)

[ ]18 – 24   [ ] 25 – 35   [ ] 36 – 45   [ ] 46 – 65   [ ] Above 70

2. **What is your gender:** [ ] Male   [ ] Female

3. **What is the net monthly income level in your household?** (Please tick one answer)

[ ] Below KES 25,000   [ ] KES 25,000 - 50,000   [ ] KES 50,001 – 100,000

[ ] KES 100,001 – 250,000   [ ] KES 250,001 - 500,000   [ ] Above KES 500,000

4. **How would you classify your usual place of residence?**

[ ] Rural   [ ] Peri-Urban   [ ] Urban

SECTION B: GOVERNMENT SERVICES AND DIGITAL PAYMENT ACCESS

(Please tick or circle one or more answers as appropriate)

5. **Have you accessed any government services in the recent past?**

Yes [ ]   No [ ]

If yes, which category of service(s) were you seeking?

[ ] Business e.g. business registration, business search

[ ] Marriage e.g. notice of marriage, issuance of marriage certificate

[ ] Driving e.g. driving license renewal/endorsement of class/duplicate, driving test booking

[ ] Lands e.g. land rent clearance, land search

[ ] Immigration e.g. visa application, application for passport or ID,

[ ] Civil registration e.g. birth certificate or death certificate

6. **How recently did you access the service(s) selected in 11 above?**

[ ] more than 2 years ago   [ ] 1 ½ - 2 years ago [ ] 1 - 1 ½ years ago

[ ] 6 months – 1 year ago   [ ] within the last 6 months

7. **How far do you need to travel to access any payable government services?**

[ ] more than 100km   [ ] 75 – 99km   [ ] 50 – 74km   [ ] 25 – 49km

[ ] within 25km

8. **Does proximity to the government service centre determine if and how frequently you seek government services?** Yes [ ]   No [ ]

9. **How did you access the government services when you last did?**

[ ] via eCitizen on the web   [ ] via eCitizen using mobile app

[ ] via Huduma Centre or other centres [ ] via government office over the counter

10. **Do you have access to any kind of Mobile payment?** Yes [ ] [ ] No

 If yes, please indicate the type of payment?

 [ ] M-PESA [ ] Airtel Money [ ] Equitel [ ] Other (specify)_____

11. **Please rate the payment process and the delivery of service(s) you requested in terms of the following parameters:** (please rate your response using the scale in the table by circling the appropriate response)

Please rate each of the following sessions: *Scale: 1= strongly disagree 2 = Disagree 3 = Agree 4 = Strongly agree*				
Transparency – I know how much I am supposed to pay and pay exactly that	1	2	3	4
Efficiency – after making the payment the service(s) is delivered smoothly	1	2	3	4
Speed of delivery – I did not have to que long as a result of efficient payment	1	2	3	4
Cost to access the service – it costs less than before	1	2	3	4
Accessibility – making digital payments gives me more access to services	1	2	3	4

12. Have you ever used the government service eCitizen? [ ] Yes   [ ] No

13. Do you believe that use of mobile money has played a part in your decision to use the platform eCitizen? [ ] Yes   [ ] No

14. Kindly indicate whether mobile money has influenced your decision to use eCitizen on the following parameters:

 a. I have downloaded the e citizen app because it allows Mobile payments

  [ ] Yes   [ ] No

 b. I have visited the eCitizen website because it allows Mobile payments

  [ ] Yes   [ ] No

 c. I have accessed services from eCitizen and made payments through mobile money

  [ ] Yes   [ ] No

 d. I have created an eCitizen account because I can use mobile money for payments

  [ ] Yes   [ ] No

THANK YOU FOR PARTICIPATING IN THE RESEARCH.