Quest Journals
Journal of Research in Business and Management
Volume 10 ~ Issue 4 (2022) pp: 01-08
ISSN(Online):2347-3002
www.questjournals.org

Research Paper

Challenges Facing Digital Payment System In Kenya

Jacqueline SaisiMulinya[1], Daniel KhaoyaMuyobo[2]
1. School of Business, Kibabii University,
2. School of Computing and Informatics, Kibabii University,

ABSTRACT
In today's competitive world, the great organizations do not have the ability to compete with their global competitors in a flat world. Electronic payments are financial transactions made without the use of paper documents such as debit card, credit card, smart card, e-wallet, e-cash, electronic cheques etc. E-payment systems have received different acceptance level throughout the world; some methods of electronics payments are highly adopted while others are relativelylow. This study aimed to identify the issues and challenges of electronic payment systems and offer some solutions to improve the e-payment system quality. The study employed a survey and a desktop research design where stratified sampling, purposive sampling and random sampling was used. The study concludes that the challenges facing performance of the E-payment system in Kenya include; Lack of adequate and reliable infrastructure, inadequate skills due to low levels of computer literacy. Breakdowns and unprecedented delays, bureaucracies with respect to specimen signatures and authentication, Lack of legal and institutional frameworks in governments on E-payment s, Integration issues, Lack of knowledge and awareness on E-payments, Lack of trust in electronic payments. The study recommended that the challenges facing performance of E-payment system in Kenya as is the case of should be addressed by Guarantee a reasonable minimum level of security on the network. Security and privacy dimensions perceived by consumers as well as sellers. Introduce and maintain real-time processing and a combination of features, including integrated systems and gateways, address liquidity issues and minimize delays, while preserving online transaction integrity. Implementation of strong access control measures, regularly monitor and test networks and maintain an information security policy. Continuous training of all employees/users at all levels and enhancement of ICT manuals. The study suggested that there was need for further research on issues of diversity of Information Technology (IT) and training on E-payment usage at all levels in government ministries.

Key Words: *Performance, Digital payments, challenges of E-payment, Security money value, Trust*

***R**eceived 12 Apr, 2022; **R**evised 26 Apr, 2022; **A**ccepted 28 Apr, 2022 © The author(s) 2022.*
P**ublished with open access at **www.questjournals.org

I. INTRODUCTION

In today's competitive world, the great organizations do not have the ability to compete with their global competitors in a flat world. If you are selling jackets in winter season and it changes to summer, it is time to change your business strategy. Those who cannot adjust themselves according to requirements of flat world will be eliminated in global business arena. Thus, new technology has changed the method of customer services provision in many aspects of our lives, in how we think, work and behave. Nowadays, geographical distance has lost its meaning and service availability, convenience, and speed of service distribution has led to a competitive advantage for organizations, such as banks and small and medium enterprises. In order to compete in the complex environment business firms are forced to deliver the newest and most attractive services that their customers demand (White and Harrison, 2004). In this regard, many companies and institutions in the world have migrated to electronic services since, Paper based systems are slow, labor intensive and correspondingly expensive to maintain hence, the growth of electronic funds transfer systems (Kethi D., Kilonzo*, 2007).

The dynamism in Information and Communication Technology (ICT) as a result of emerging of computer science and telecommunication engineering brought changes in the market place and spread through the globe (Ngairah James Liguyani, 2016)including introduction of digital payment system. These services take a variety of form ranging from long-distance remittances, micropayments, and informal airtime bartering schemes—and go by various names, including mobile banking, mobile transfers, and mobile payments (Krishna Murthy M. S, 2016). Electronic Banking is defined as "the use of technology to communicate instructions and receive information from a financial institution where an account is held. This service includes the system that

enables financial institution customers, individuals or business to access accounts, transact business, or obtain information on financial products and services through a public or private network" (Prakash and Malik, 2008). E-banking is the use of electronic means to deliver banking services, mainly through the Internet. The common types of electronic banking mostly mentioned in the many literature include SMS banking, mobile (m-banking), Automated Teller Machines (ATMs), telephone banking, personal computer banking, and electronic cheque clearing systems (Abor, 2004). According to Shah and Siddiqui (2006), the provision of banking services via the electronic (e-banking) is increasing today and new channels may evolve very soon. Electronic banking services, has lower operating costs, improved customer service delivery, retain customer, reduce branch traffics, and downsize the number of branch staff (Parisa, 2006).Electronic payment is a form of financial exchange that takes place over information systems in form of digital financial instrument such as debit card, electronic Cheques, or digital cash on the other hand, a payment gateway is a system that interconnects various payment systems through the Internet and facilitates real time, fast, reliable, and secure electronic financial transactions. Therefore, a payment gateway enables e-payments. In its definition of banking business, the Banking Act (Chapter 488 Law of Kenya) only refers to the cash and cheque payment systems. The Act provides no definition and makes no reference to electronic banking. Electronic Commerce (and electronic banking) preceded the Internet. Before the advent of communication through Internet, business communication was conveyed using telex, facsimile machine, telephones, telegrams and other electronic media.

The terms m-banking, m-payments, m-transfers and m-finance refer collectively to a set of applications that enable people to use their mobile telephones to manipulate their bank accounts, store value in an account linked to their handsets, transfer funds, or even access credit or insurance products (Krishna Murthy M. S, 2016) . This has enabled many countries to witness a great growth especially in mobile-phone based money transfer, online payments and micro financing services. Mobile payment is primary choice for service providers. All the mobile operators in Kenya, Safaricom (M-Pesa), Airtel (Airtel Money), YU (Yu Cash) and Orange (Orange Money) are operating a money transfer service each, thus offering a huge growth avenue for start-ups. An estimated 29.7 million Kenyans have mobile phones, while about 14.3 million have access to the internet (Wahito, 2015). The mobile payment applications operate based on the telecommunication protocols. The protocols, though less developed are used to give users an interface on their cell phone mostly using the USSD interface,SIM card menu or some Apps such as mySafaricom App. The wire protocol is mainly SMS and SMPP. The SMS is basic text messages transmitted from one GSM device to another using the GSM network that is subscribed to and sometimes routed based on the roaming agreements (Ochomo& et.al, 2011). The SMPP protocol is used to overcome the SMS approach constraints by delivering the messages through TCP/IP packets.

- Pesapal is a payment gateway in Kenya supporting over 9 payment methods including mobile transfer services, credit cards and ATMs. Their services extend to the greater East Africa region. They support MTN Uganda's mobile money and Vodacom Tanzania's cash service (East Africa Business Times, 2015).
- KopoKopo is a subscription based Software As A Service (SAAS) mobile payment service. It allows small businesses to aggregate their mobile money accounts to one location and save on the costs for subscribing to costly corporate mobile money solutions (East Africa Business Times, 2015).
- iPay is a global mobile and internet payment solution that also connects to banks in Kenya via the Kenswitch, a financial switching network. It serves e-payment, credit card networks, and mobile and banking transactions. iPay also has a re-seller and referral program for its payment solutions (East Africa Business Times, 2015).
- 3G Direct Pay is a gateway that offers payment solutions in Kenya and East Africa. The gateway supports VISA, MasterCard, American Express, JCB, PayPal and mobile money-M-pesa and Airtel Money. 3G Direct Pay has close to 70 corporate integrations in the country (East Africa Business Times, 2015).

Generally, we can say that e-payment is a method in which a person can make Online Payments for his purchase of goods and services without physical transfer of cash and cheques, irrespective of time and location. Electronic payment system is the basis of on-line payments and on-line payment system development is a higher form of electronic payments. It makes electronic payments at any time through the internet directly to manage the e-business environment.Money and payment play a central role in commercial and financial transactions. Every working day millions of transactions are concluded involving the sale and purchase of land, goods and services, the lending and borrowing of money, and the issue and transfer of financial instruments. Every working day funds are transferred and payments made in discharge of money obligations. Save for small value transactions, payment, and banking go hand in hand.

There are seven main types of electronic payment systems according to Karamjeet&Ashutosh (2015). These payment systems include:

Credit card –A credit card can be a magnetic striped of chip based plastic card that contains a consumers information that allows them to purchase goods online and pay for them later (Knur,2012). In this case, the purchaser borrows from the credit card company like Visa and pay later at a given interval.

Debit Card- Debit card is a prepaid card and also known as ATM card. An individual has to open an account with the issuing bank that gives the debit card with a personal ID number. When he/she makes a purchase, he enters the pin number on shop pin pad (Kaur, 2012; Kumaga, 2010).This card is usually issued by financial institutions when opening an account with them.

Smart card: - It ismade of plastic with an embedded microprocessor chip that holds important financial and personal information. The microprocessor chip is loaded with the relevant information and periodically recharged. In addition to these pieces of information, systems have been developed to store cash onto the chip. The money on the card is saved in an encrypted form and is protected by a password to ensure the security of the smart card solution (Kaur, 2012).

Electronic Cheques: - Electronic Cheques are messages that contain all the information found on an ordinary Cheques but it uses digital signature for signing and endorsing and has digital certificate to authenticate bank account (Kaur, 2012; Joseph, 2009).

- **Electronic cash:** - E-cash facilitates transactions between customers without the need for banks or other third parties. When used, e-cash is transferred directly and immediately to the participating merchants and vending machines. E-cash usually operates on a smartcard, which includes an embedded microprocessor chip. The microprocessor chip stores cash value and the security features that make electronic transactions secure (Karuk, 2012 & Yang, 2009).
- **Mobile Money –**This is the use of mobile telecommunication operators to transfer money using mobile devices through sim-cards.

For government to be able to leverage on this e-payment systems, it requires a payment gateway. Payment gateways provide the platform for the utilization of these e-payment systems. A payment gateway is thus an enabler of e-payments (Ailya et al. 2011).

The following services can be paid via e-payments on the e-citizen platform in Kenya:-

i. Office of the Attorney General
   - Marriage – Registrar Certificate
   - Marriage – Special License
   - Search of Business Name
   - Registration of Business Names

ii. National Transport and Safety Authority
   - Application of Provisional Driving License
   - Booking for a Driving Test
   - Interim driver's License
   - Certificate of Competence
   - Endorsement of additional Classes
   - Renewal of driver's License
   - Amendment of driver's License Details

iii. Ministry of Interior and Coordination of National Government
   - Application for a Passport

The Following services for the Ministry of Lands and Urban Development, though on the portal, arein its prototyping stage to be activated for e-payments, official Land Search – Nairobi, Stamp Duty and Rate Clearance Certificate This portal was initially hosted on Amazon, which is outside local jurisdiction, making the data within the portal outside the Control of the Government of Kenya. This led to the requisition of hosting services at Safaricom and in December 2014, the portal was migrated to Safaricom cloud following acquisition of hosting service. However, there still existed unresolved SLA issues with Safaricom. The provisioning of the infrastructure at Safaricom hosted environment was surpassed by the service requests from the few services that were active. The MDA's on this portal frequently experienced service outages forcing them to revert to manual system. This implied that the sizing of the system was inadequate and could not service all government payment services requests. The task force then recommended an immediate upgrade of the infrastructure collocated at Safaricom datacenter

Many Researchers have indicated that when banks increase their service quality level to customers to create effective satisfaction among them increases their profitability (Zaribaf and Mahdi, 2010). There are .several operational challenges facing the implementation of e-banking by banks and others due to customer's perception, which are; failure of top management commitments, operational and reputational risks, low skilled

ICT personnel, unclear and lack of good ICT policy in the country that favour conducive environment for banks under study, perceived usefulness and ease of use of ebanking products by customers, the level of I.T literacy of the users, cost of infrastructure among others. These factors can be a challenge if not well addressed by the parties concerned and in most cases the operations department is most affected because implementation process takes place within the department. This study therefore sought to investigate the challenges facing digital payment system in Kenya.

Statement of the Problem

Information technology has rapidly shaped the mode of business operation and financial transactions in almost every aspect of life of Kenyan people. Services are being designed and delivered. Digital payment systems introduced by the mobile service to improve the operations and reduce cost has widely been embraced by all, in almost every other transaction. However despite all these efforts of developing better and easier digital payment systems, the systems remain with challenges to the customers and certainly under fraud. The Central Bank of Kenya wrote to the Ministry of Devolution inquiring about questionable payments of hundreds of millions of shillings to private companies through the National Youth Service. The then cabinet secretary to the ministry of devolution, Anne Waiguru claimed that she detected an unauthorized commitment of the amount in the Integrated Financial Management Information Systems (IFMIS), but moved with speed to prevent any loss. A suspect made damning claims about former Devolution Cabinet Secretary Anne Waiguru's involvement in the Sh791 million scam the issue is yet to be concluded (standardmedia.co.ke, 2016).The government of Kenya handles millions of financial transactions from payments made to it for services rendered, levies, duties, and taxes. The sheer volume and variety of payments government agencies must contend with, coupled with a heightened focus on transparency, security and compliance, made the government payments domain truly unique hence the need for e-payments in government. A few studies have cited negative attitudes among some managers as a major hindrance (Farhoomand*et al.*, 2010). Negative attitudes cause resistance to change and lack of management commitment, reducing the company's resource allocation and motivation to use the technology. Implementing Web technology as a business channel requires some additional investment and resources, such as hardware and software. Shortages of information technology infrastructure remain a critical barrier in some cases to the continuing growth of online commerce (Gilbert *et al.*, 2009).To solve this problem, once again the government has introduced a cashless method of paying for fares using the electronic card (NTSA Act 33, 2012). This e-card was expected to enhance accountability by removing direct cash from day to day for the case of Matatuoperators. Despite the enormous benefits that the system is expected to bring and other stakeholders through a legal injunction successfully petitioned the government to delay implementation of the e-payment system. Ever since, it is not clear to what extent stakeholders have implemented the e-payment system and what factors have necessitated that implementation. This among others challenges prompted the researcher to make an investigation into the challenges facing digital payment system in Kenya.

Purpose of the Study

The purpose of this paper was to investigate the challenges facing the digital payment system in in Kenya; by determining the extent to which human skills influence adoption e-payment system and assess the extent to which the cost of ICT influences adoption of e-payment system in Kenya.

II. Methodology

The study was guided by three theories: technology acceptance theory, diffusion of innovation theory and Technology, Organization and Environment context theory. Methodology is the combination of various methods and procedure the researcher follows towards realization of the research objectives. This study adapted a survey research design involving a case study approach and a desktop research. Gupta & Gupta (2011) note that, research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data. Case study is an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and context are not clearly evident; and in which multiple sources of evidence are used (Yin, 2003). Case study involves a careful and complete observation of a social unit that places more emphasis on the full analysis of a limited number of events or conditions and their interrelations (Kothari, 2010). The author further asserts that, case study is essentially an intensive investigation of the particular unit under consideration. The population for this study included individuals who have access to the mobile phones having Mobile money transfer apps and m-banking applications. The study therefore targeted human population. The study sample was derived using purposive sampling on individuals and some government agencies. Purposive sampling is a non- probability sampling procedure which does not afford any basis for estimating the probability that each item in the population has a chance of being included in the sample (Kothari, 2010). Purposive sampling technique was used to select mobile users and mobile service providers'agent's (e.g. Telcom money, M-pesa, Yu cash, Equitel

andairtel money), bank agents and service Consumers. The criterion that was used in purposive sampling was based on the experience in mobile banking services, Internet banking and usage of Electronic Money Transfer services. Data analysis was done using Statistical Package for Social Sciences (SPSS Version 22).

Tools

The study used both structured and unstructured questionnaires. The questions were presented with exactly the same wording and in the same order to all respondents (Kothari, 2010). For the purpose of mobile Banking evaluation, researchers asked test respondents to complete questionnaires before, during, and/or after a mobile banking test, as a means of obtaining test data. Pre-test questionnaires were designed and used to assess the participants' prior knowledge about the service before the test, their backgrounds, and their initial impressions of the Service. Post-task questionnaires were given out during the test or upon completion of a task. A post- task questionnaire was administered for the following purposes:

1) As a method for data logging, 2) to obtain immediate reactions to the test at critical points, and 3) to obtain a view of how test participants' perceive change as they spend more time testing the product/services. Thinking-aloud technique or protocol was a valuable method of data collection in usability testing. It had several variations, but basically, the test participants were asked to verbalize their thoughts while performing the tasks. Comments made by the participants were often valuable complements to the observed behaviors in the test. Thinking aloud protocol enabled participants to communicate what they feel about a product and problems they encounter while using it. During usability test, apart from making the test users verbalize their thoughts as in the thinking aloud protocol, the researchers prompted them by asking direct questions about the product and services in order toget data on various dimensions of mobile banking and Electronic money transfer services.

III. Findings

The study found out that the challenges facing the digital payment or electronic payment systems are common and include the following:

3.1 Encryption

Online shopping are very sensitive to notion that e-commerce is insecure, particularly when it comes to online payments. Most online payment systems use an encryption system to add security to the transmission of personal and payment details. There are various encryption schemes in use to prevent from frauds of online payments.

3.2 Digital Signatures

The parties involved in online payments, transactions should use digital signatures in order to ensure authentication of transactions. This includes use of customized service provider name or identity.

3.3 Check Whether the Country is a "High Risk" Country

Always require closer inspection for orders that being shipped to an international address. Pay more attention if the card or the shipping address is in an area prone to credit card fraud. A study on a Clear Commerce® survey, showed that , the top 12 international sources for online fraud are Ukraine, Indonesia, Yugoslavia, Lithuania, Egypt, Romania, Bulgaria, Turkey, Russia, Pakistan, Malaysia, and Israel. The same survey also showed that the 12 countries with the lowest fraud rates are Austria, New Zealand, Taiwan, Norway, Spain, Japan, Switzerland, South Africa, Hong Kong, the UK, France, and Australia. IP Geolocation service can identify the country of origin for businesses that need more information. It is therefore helpful in maintaining the authentication in online payments.

3.4 Firewalls

A firewall is an integrated collection of security measures designed to prevent unauthorized electronic access to a networked computer system to protect private network and individuals machines from the dangers of the greater internet, a firewall can be employ to filter incoming or outgoing traffics based on a predefined set of rules or network protocol called firewalls policies.

HarunaIssahaku (2008) identified challenges to adopting e-payments in Africa as follows:

i. Lack of adequate and reliable infrastructure
ii. Security concerns by the population
iii. Inadequate skills due to low levels of computer literacy
iv. Lack of legal and institutional frameworks in government on e-payments
v. Integration issues

vi. Lack of knowledge and awareness on e-payments

vii. Lack of trust in electronic payments

Majority of these issues were in concurrence with this research although some of them are no longer impediments for the adoption of e-payments in the government of Kenya. Already the government of Kenya had dealt with some of the issues, for instance it had already constituted the legal framework through the enactment of Kenya national payment systems act of 2011(Kenya Law Reports, 2011). However, this legal framework was not as adequate as it did not bestow the responsibility of implementing e-payments to a particular government entity. In addition, these observations by HarunaIssahaku (2008) were to larger extent technical issues that did not address the human factors. His arguments do not take into consideration the change management issues and stakeholder engagement as proposed by Legris P. and ColleretteP. (2006). In their model on e-government Kumar et al. (2007), suggested that for effective e-government adoption, the following should be considered: User characteristics (perceived risk, perceived control, and internet); Website design (perceived usefulness, perceived ease of use); Service quality and Client satisfaction perspectives. This was largely borrowed from the TAM model. Indeed, there were other frameworks and models developed in the area of e-government services, however, most of these frameworks were either for evaluating the impact of e-government services or for assessing its implementation. For instance, the framework for Evaluating the Impact of e-Government in developing countries as suggested by Ibrahim Otieno and Elijah Omwenga (2014) provided a guideline for assessing the impact of e-citizen from a citizen's perspective.

From the findings of this study, it is evident that the issues of stakeholder engagement, Change management, ICT Infrastructure, Awareness and Information security and compliance have a great impact on adoption of e-payments in the government of Kenya. The government of Kenya should seek first to establish the adequacy of the current ICT infrastructure in government payment processing departments verses the required ICT infrastructure to implement e-payments.

E-payments awareness should be done within government MDA's by identifying all players in government e-payments and engaging them from the initial stages to actual implementation and post implementation. Efforts should be made through awareness, Adequate ICT infrastructure and regulatory frameworks to provide information security and compliance assurance thus building trust for e- payments within government. Elaboratewell-coordinated management structure that is representative of government e-payments domain should be put in place through development of a change management strategy.

Challenges of e payment affecting performance in organization

The study found out that there were several challenges affecting usage of E-payments in developing countries' governments' example Kenya. This included:- Lack of adequate and reliable infrastructure, Security concerns by the population, Inadequate skills due to low levels of computer literacy, Lack of legal and institutional frameworks in governments on E-payment s ,Integration issues ,Lack of knowledge and awareness on E-payment s, Lack of trust in electronic payments .

SN	CHALLENGE	EFFECT/ RESPONDENTS REACTION
1	Wrong transaction	- Partial or no money is recovered, the recovery procedure was noticed or initiated in early 2018 by Safaricom product as M-Pesa reverse. - The process is time consuming and always torcher client psychologically, and it only benefits a few clients that have theknow-how of the procedure. - The process can also invoke the legal system in case of huge amount wrong transaction. Which in turn is expensive, slow and time consuming especially when involving bank APIs and pay bill products.
2	Reliability and Trust	- Most clients admitted that they use Safaricom line basically for digital transaction since it'swell-integrated with various supportive online transaction platforms including banks and government products e.g E-citizen. The Equity bank users noted that they prefer equitel line since it has direct mapping to Equity bank products and services. - They admitted to be using Airtel, and Telcom for communication and data bundles. - The major risk that was raised by the clients was fraud via online links and masqueraders who un-procedurally acquire line registration and use it illegally to acquire digital loans sending many innocent clients to CRB.
3	Usability and computing skills	- It was noted that the middle aged people were the people who benefit a lot with digital transactions. As they use it to pay school fees, buy goods, pay bills, send money to their siblings. - Young people aged between 12- 20. Only receive and withdraw money, buy bundles and be available only. However a small percentage confirmed depositing and sending money. - The most dis advantaged group are the blind who raised concern of not being able to use the App. Since it's only meant for people who can see.
4	Legal framework	- In order to reduce the issue of loan repayment defaulters, the government introduced all loans to be reported in CRB and this goes a long way to affect digital borrowers and online money lenders. - A number of cases were noted where students could get access of ID of deceased

		person register for a line then use it for online borrowing.

The study established that while the pace of the transition from paper-based payment instruments and systems to electronic instruments was increasing, the usage of electronic payment solutions needed to be accelerated. Consumers and businesses systems to improve their access to e-payment systems finance. This would be an initial step toward venturing into e-commerce as a means to penetrate new markets. In this respect, the ministry had drawn up a service charter to raise consumer's awareness of its convenience, speed and efficiency and to encourage its use.

It was noted that a smooth functioning payment system was critical to the effective functioning of the economy. As the payment systems continued to evolve, Central bank of Kenya and the National treasury in conjunction with the ICT consortium, continues to facilitate and foster the safety and efficiency of the payment systems to safeguard public interest. To enhance the efficiency of the payment systems, Bank had recently reviewed the legal and regulatory framework of the payments system. A comprehensive legislation on E-payment systems is in place to provide the Central Bank of Kenya responsibility under the National Payments System mandate a properly functioning payment system that enhances safety, efficiency, minimizes system risk and control financial entities. It is founded on a clear, transparent, and enforceable legal framework. This is in line with Bank of International Settlement Principles of Financial Market Infrastructures.

The study found out that the most crucial area that needed attention and more funds disposed to it thereof was more training with a frequency of 76 accruing to 44.4% of the total sample size. It was also established that more expenditure was incurred on seamless operations without interruption of any nature or system failure with a frequency of 40 and a valid 23.4%. It was also established that competence and well trained staff was imperative with a frequency of 19 and overall 11.1%.

These challenges are occasioned by the levels and rate of usage of E-payment s by the ministry, the costs and value involved to engage in the e –payments systems and the issues of security and trust as addressed in the processes of E-payment systems in government ministries in Kenya. The challenges included lack of adequate and reliable infrastructure, inadequate skills due to low levels of computer literacy. Breakdowns and unprecedented delays, bureaucracies with respect to specimen signatures and authentication, lack of legal and institutional frameworks in governments on E-payments, Integration issues, Lack of knowledge and awareness on E-payments, Lack of trust in electronic payments. Slow processes and overly misappropriation and maladjustment of records apparent on the face value.

IV. Conclusion

The use of digital payment in Kenya is being stabilized though still suffering from a number of challenges including: trust, perception, poverty, ignorance, cost, inadequate infrastructure and regulatory policies.

Recommendations

More research to be carried out focusing on individual products at specific service provider such mobile money transfer, Internet Banking, electronic banking and their associated challenges.

References

[1]. Gupta, M. & Gupta D., (2011). Research Methodology, Eastern Economy , printers Private Limited, New Delhi
[2]. Kothari, C. R., (2014). Research Methods: Methods and Techniques. New Delhi, India: New Age International LTD.
[3]. Krishna Murthy M. S, B. H. (2016). Current Trends in Mobile Banking Research Issues. International Journal for Research in Business, Management and Accounting, Volume-2.
[4]. Yin, R. K., (2003). Case Study Research - Design and Methods (3rd ed.). Thousand Oaks: California-Sage.
[5]. Krishna Murthy M. S, B. H. (2016). Current Trends in Mobile Banking Research Issues. International Journal for Research in Business, Management and Accounting, Volume-2.
[6]. Ngairah James Liguyani, J. N. (2016). CHALLENGES FACING PERFORMANCE OF E-PAYMENT SYSTEMS IN GOVERNMENT MINISTRIES IN KENYA; A CASE OF MINISTRY OF ENERGY AND (PETROLEUM (MOEP). The Strategic Journal of Business & Change Management., Volume 3, 991-1012.
[7]. Farhoomand, A.F., Tuunainen, V.K., and Yee, L.W. (2010), "Barriers to global electronic commerce: a cross-country study of Hong-Kong and Finland", Journal of Organizational Computing and Electronic Commerce, Vol. 10 No.1, pp.23-48.
[8]. Gilbert, L.A., Kendall, J., Soh, C., and Tung, L.L. (2009), "Perceived barriers to the widespread commercial use of the Web",
[9]. (Kethi D. Kilonzo*, 2007) An Analysis of the Legal Challenges posed by Electronic Banking)
[10]. (OPERATIONAL CHALLENGES IN THE IMPLEMENTATION OF E-BANKING AT THE NATIONAL BANK OF KENYA ,JOSPHINE N. MUTUNGA 2013
[11]. Farhoomand, A.F., Tuunainen, V.K., and Yee, L.W. (2010), "Barriers to global electronic commerce: a cross-country study of Hong-Kong and Finland", Journal of Organizational Computing and Electronic Commerce, Vol. 10 No.1, pp.23-48.
[12]. Gilbert, L.A., Kendall, J., Soh, C., and Tung, L.L. (2009), "Perceived barriers to the widespread commercial use of the Web
[13]. Harrison, A.W., (2008), "The influence of individual differences on skill in end-user computing", Journal of Management Information Systems, Vol. 9 No.1, pp.93111.
[14]. Shah, M.H. and Siddiqui, F.A., (2006).Organisational success factors in adoption of ebanking at the Woolwich bank, International Journal of Information Management, 26 (6), 442-456.

[15]. White, K., and Harrison, T. (2004). Online banking information: what we want and what we get, Qualitative MarketResearch, 7 (1), pp. 67-79.
[16]. Karamjeet K., & Ashutosh, P. (2015). E-Payment system on e-commerce in India. Retrieved from: https://www.ijera.com
[17]. Kumar, V., Mukherjee, B., Butt I., & Persuade, A. (2007). Factors for Successful E- Government Adoption: A Conceptual Framework. The Electronic Journal of e-Government Vol. 5, No, 1, pp 63 -76, Retrieved from: www.ejeg.com
[18]. National Council for Law Reporting (2011). National Payment systems act. Available at www.kenyalaw.org.
[19]. Otieno, I. & Omwenga, E. (2014). Towards the Development of a Citizen-Centric Framework for Evaluating the Impact of e-Government: A Case Study of Developing Countries. Retrieved from: http://ieeexplore.ieee.org/
Chapter 488 Law of Kenya