EFFECT OF ELECTRONIC PAYMENT MECHANISMS ON REVENUE PERFORMANCE: A CASE OF KISUMU COUNTY GOVERNMENT, KENYA

BY

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DECLARATION

This is my original work and has not been submitted for examination in any other university.

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Above all, I humbly and sincerely thank Almighty God for sustaining, enabling and preserving my life and that of my family.

DEDICATION

To my mother Caren Achieng Okwanyo for her tireless effort that ensured a strong educational foundation that has taken me this far.

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ABSTRACT

Globally,realization of revenue targets in counties is core to meeting their financial responsibilities which will lead to recognition of their directive to offer valuable and well-timed services to the residents.Counties have sufficient revenue streams to fund their current projects and programmes, but revenue collection levels often do not meet projections. According to approved supplementary budget of Kisumu county for the financial year 2017/2018, the total revenue generated by the county from all its revenue streams depicted a deficit 4.59% less than the projected revenue.This is a pointer to the fact that electronic payment(e-payment) system introduced by the county government in revenue collection is not achieving the much desired outcome in revenue collection.Studies however reveal that the use of electronic payment positively influence revenue performance.The effect of e-payment on revenue performance is still not clear.Similarly past studies have failed to examine the extent of mobile and online payments in revenue collection. The general objective of the study was to assess the effect of electronic payment mechanism on revenue performance in Kisumu county.Specifically, the study sought to: establish the extent of usage of mobile phone payment in revenue collection, to determine the extent of application of online payment in revenue collection in Kisumu county.The study was anchored on technology acceptance theory.A correlational survey design was adopted with a study population of 140 taken from 7 sub counties using stratified judgemental sampling technique, primary data was collected using structured questinnares and secondary from audited financial records.Out of the 140 respondent there was 72.1% response rate. The questionnares were administered on drop and pick technique. The 140 sampled group was informed as a result of pilot study in Butere subcounty of Kakamega County and subsequent reconnaisance in the target subcounties in Kisumu county. The validity of the instrument was achieved through pilot testing with analysis of the pilit study data yielding a Cronbach alpha of 0.742 which compares favorably with the acceptance standard value of Cronbach's Alpha coefficient at α=0.7 used to test reliability There was a strong positive association between mobile phone payment and revenue performance in Kisumu County as depicted by r value of 0.781, p-value 0.006< 0.05 hence indicating there was sufficient evidence to confirm existence of a significant relationship between mobile money payment and revenue performance. The value of r of 0.603 signifies moderate positive association between online payment and revenue performance which resonate with the p-value of 0.000<0.05 (at 95% confidence level/alpha value) which evince existence of sufficient evidence to confirm existence of a significant relationship between online payment and revenue performance. In conclusion it was evident that the electronic payment mechanisms have a significant effect on revenue performance. Therefore it was recommended that the county government finds a mechanism of fully implementing electronic payment to boost revenue collection. It also forms a basis of theory building for future research endeavors.

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LIST OF ABBREVIATIONS AND ACRONYMS

DOI	Diffusion of Innovation
TAM	Technology Acceptance Model
ICT	Information Communication Technology
IGFs	Internally Generated Funds
SBP	Single Business Permits
EFT	Electronic Funds Transfer
ATM	Automatic Teller Machine
USA	United States of America
MIS	Management Information System
PoS	Point of Sale
EAC	East African Community
KRA	Kenya Revenue Authority
TPB	Theory of Planned Behavior
IS	Information System
A	Agree
SA	Strongly Agree
N	Neutral
D	Disagree
SD	

OPERATIONAL DEFINITION OF TERMS

Automation - The technological upgrade undertaken by County Revenue Authority as part of its strive to increase tax collection and reduce tax loopholes especially caused by tax evasion.

Revenue performance - Is the percentage of budgeted revenue collections that is actually collected or is the extent to which the actual revenue collected meets the revenue projected over a given period of time.

Information Communication Technology: This refer to an umbrella term that includes any communication device or application, encompassing radio, Television, Phones, Computer Networks, Satellite systems, as well as the various services associated with them such as video conferencing and distance learning.

Mobile phone payment: Also referred to as mobile money, mobile money transfer, and mobile wallet) is money paid for a product or service through a portable electronic device such as a tablet or cell phone

Online payment: refers to money that is exchanged electronically. This involves use of computer networks, the internet and digital stored value systems. It is usually the transaction that results in transfer of monetary funds from the customer bank or credit card account to the recipient's bank account

Electronic payment system: is a financial exchange that takes place online between buyers and sellers or is a way of paying for a goods or services electronically, instead of using cash or a check, in person or by mail

Revenue performance: is a measure of how well or poorly the taxpayer's earnings or money is taken and remitted to the government

Fiscal policy: is the means by which a government adjusts its spending levels and tax rates to monitor and influence a nation's economy

E-wallet is a type of electronic card which is used for transactions made online through a computer or a smartphone. Its utility is same as a credit or debit card and needs to be linked with the individual's bank account to make payments.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Revenue collection is very important for every County Government globally as it enables the government to acquire assets which are not liable to debt and which the government uses to develop its economy. So, revenue is collected by the government upon its citizens for support or for the purpose of facilitating the Service Delivery in a country (Aamir et al., 2011). It is neither a voluntary payment by the tax payer nor like a donation. Rather it is an enforced payment to the government (Garner, 1999). County Governments therefore collect revenue for investment, Socio-Economic development and growth at the grassroots (Olatunji, 2009) and service delivery. Thus collection of adequate revenue by County Government is essential for economic development, growth, and improved service delivery at the County level (Clegg & Greg, 2010). According to Sohne (2003), for a county government to match in performance with the growth and expectations of its constituents, it must dramatically increase its fiscal depth without incurring costly recurring overheads. Sohne (2003) further noted that automated systems have proven to be capable of introducing massive efficiencies to business processes that can result in increased revenue. Applying technological solutions towards achieving key goals by the government is a key step towards transforming government into an entity that can keep abreast of the needs, requirements and expectations of today's modern world.

According to de Wulf & Sokol, (2012), one of the efficient revenue collection methods is application of information technology. Electronic tax return, payment systems and tax automation systems gain an increasing importance because of their ability to increase collections. Electronic tax management applications firstly started in the USA, and then spread in other developed and developing countries. Factors such as information and communication technologies which develop rapidly together with the process of globalization, gain strength and decrease costs and the increasing information sharing have extended the electronic tax management applications all over the world.

Public revenue collection is an integral component of fiscal policy and administration in any economy because of its influence on government operations. It is the fuel of every government as it is the main instrument through which government funding is ensured. Tax revenue collection

should comply with best practices of equity, ability to pay, economic efficiency, convenience and certainty (Visser & Erasmus, 2002). For any organization to match in performance with the growth and expectations of its clients, it needs to increase its fiscal depth without incurring costly recurring overheads (Tetteh, 2012).Automation of process at revenue collection points has a positive impact on the tax clearance time (Haughton &Desmeules, 2001).

Automation of tax collection allows tax data entry, automated processing, computation and analysis as well as automatic production of tax reports and feedback required for control and risk management purposes (Holniker, 2005). Automation of tax collection includes developing powered computer program to carry out tax assessments and computations; and to determine tax dues at high levels of speed and accuracy hence ensuring quick response to the recipient (Guido, 2007)

In order to curb tax evasion, revenue authorities make use of data base programs to assist with case selection. A data base is a research tool which combines data from various revenue information systems and identifies areas of risk to be investigated by the audit section (Rai, 2014). External data base programs from other government or non-government agencies are also used, such as those of the registrar of companies, the Title Deeds Office, and others. As such, modernization of tax collection system has a great impact on the level of revenue collection in any economy (de Wulf & Sokol, 2012).Automation system based approaches have become an important vehicle for achieving efficiency in tax administration (UNCTAD, 2013). Hence, automation impacts on the efficiency of tax administration. Efficiency of tax administration is defined as costs, tax clearance time and effectiveness of revenue collection.

The county governments are enjoined to identify and increase revenue from homegrown sources in form of taxes, fees and fines among others to increase their economic base for development of the area (Gituma,2017). In accumulation to the Internally Generated Funds (IGFs), the county governments are likely to fashion out projects and programs that pull to poverty reduction in their local areas. The fiscal policy constitutes the core sources across all the counties. Kenya pioneered a Single Business Permit (SBP) system which became prototypical and has been emulated by other countries in the region. In spite of the outlined revenue sources amongst others, the counties have been facing shortfalls of finances to fund their budgets.

Revenue accrued through tax system, customs, excise duties, licenses or other sources is very crucial in guaranteeing smooth execution of government schemes. All over the world, taxation is one of the prominent avenues of revenue collection by governments (Okiro, 2015). It has been established that developed countries have advanced tax policies which have enhanced their revenue collection. However, developing countries often have inefficient tax structures which hinder efforts of their tax collection (Kayaga, 2007).This is because for years revenue collectors have not been channeling all the amount of money they collect to the county treasury (Ngotho & Kerongo, 2014).The net effect could be a bigger loss, which would deter county economic development, growth and improved service delivery (Mutakha, 2011). Therefore, sound revenue system for county governments is a vital pre-condition for the success in promoting efficiency in the service delivery and economic development at the counties (Ngotho & Kerongo, 2014)

According to Njanja (2014), to eliminate or significantly reduce corruption, achieve the county financial objective and simplify payments, the electronic Payment (E-Payment) has been introduced-payment is a payment by direct credit, Electronic Transfer of credit card details, or some other electronic means, as opposed to payment by cheque and cash. (Agimo,2004). E-payment is a payer's transfer of a monetary claim on a party acceptable to the beneficiary, a financial exchange that takes place online between the buyer and the seller. The process of cashless transactions plays a big role in ensuring that the County Governments collect enough revenue to fund its projects.

According to Okiro, (2015), E-payment has been designed to help individual customers and companies as well as the banks in eliminating or reducing some of the problems inherent in the settlement and payment process. Customers can pay their bills without having to actually move to the bank's premises (Wahab, 2012). They may also have access to their account information and even transfer money to other accounts in the comfort of their homes.

The options available in electronic payment system include, Electronic Funds Transfer (EFT), Automated Teller Machine (ATM), cards (debit, credit and smart), Electronic Purses/Wallets, mobile money (Mobile Banking and Money Transfer), Telephone Banking, Personal Computer Banking (Home Banking), Digitized 'E-Cash' Systems, Electronic Cheque, Online/Internet Payments and Digital Person to Person (P2P) Payments (Wahab, 2012)

According to Pariwat & Hataiseere (2004), for the achievement of effective and efficient retail payment systems, the following considerations that shape the choice of payment method for consumers and businesses should be taken into account; the convenience, reliability and security of the payment method, the service quality, involving such features as the speed with which payment are processed; the level and structure of fees charged by financial institutions; taste and demographic; and technological advances which have improved the speed, convenience and flexibility of different payment systems.

Empirically, Muema et al. (2014) assessment of the adoption of mobile parking management information systems in the parking industry in Nairobi County and found out that the parking industry were generally ready to adopt the mobile parking management system. Kinyanjui and Kahonge (2013) reviewed mobile based system and revealed that the use of mobile communication, cities in countries such as Singapore and Germany experienced increased efficiency. Kirui & Onyuma (2015) looked at the role of mobile money transactions on revenue of microbusiness in Kenya and found out that mobile money transactions has a positive significant relationship with MSE sales turnover.

Krolikowski (2014) analysed if mobile-enabled payment methods reduce petty corruption in urban water provision.Results showed that mobile-enabled payment methods can reduce information asymmetries and the incidence of petty corruption to promote improved financial management by making payment data more transparent and limiting the availability of economic rents in the billing and payment process. Otiso, Simiyu & Odhiambo, (2013) analysed the effects of sales revenue by use of mobile phone money transfer on the profitability of the micro and small enterprises in Bungoma County, In summary.The Past studies have fell short of relating mobile phone payment to revenue cololection.The extent of usage of mobile phone payment in revenue collection is therefore not known.

Traditionally, tax was being collected by non-automated systems are manual systems of revenue collection which are centrally from one place. Before the introduction of automated systems of revenue collection, local authorities used manual systems of collections by using manual receipts. Problems such as high costs for collection, fraud, underpayment and leakages in revenue were worse by massively expanding the current taxable base without the use of adequate computerized solutions (Fjeldstad & Heggstad, 2012).

Okiro, (2015) emphasizes that county governments haven't fully realized the impacts of the huge sums of revenues they lose or do not collect due to lack of appropriate MIS that deal with revenues. There exists a poor co-ordination between various departments in county governments as a result the impact of revenue collection has been minimal. County employees charged with the collection of various forms of revenue collections are not guided by coherent revenue policies this in turn makes it difficult to establish the effect of revenue collection on county's growth. As counties start to take shape, their survival and growth stages, main focus has been on their development appropriateness which needs appraisal so as to establish the extent to which they are demand and value adding (United Nations, 2005).

Empirically, whereas Odoyo et al (2013) did a study on the effect of information systems on revenue collection by local authorities in Homa Bay Countyand found that there is a strong positive relationship between Internal Control Systems and revenue collection. Wahab (2012) looked at adoption and use of electronic payment systems in Ghana and established that the adoption and use of the e-payment system was found to be low mainly due to the inadequate availability of point of sale terminals at shopping points among others. Benard et al (2018) assessed the effects of automation of revenue collection on the performance of county government of Trans Nzoia,Kenya and established that online process of automation of revenue collection processes influence performance in Trans Nzioa county.

Kibaara (2018) analyzed the influence of information communication technology adoption on successful revenue collection process by the County Government of Nairobi, Kenya. The study found out that cloud computing, mobile phone technology and e-wallets had a positive and significant influence on the revenue collection process. Githinji et al (2014) conducted a study on information and communication technology (ICT) on revenue collection by Kenyan Counties. From the works highlighted, it is clear that no past study has tried to explore the extent of online payment mechanism on revenue collection as many previous studies merely delve on effect of electronic payment mechanisms but did not bother to include the online payment as a component of electronic payment. The role of electronic payment in revenue collection efficiency. Extent of application of online payments on revenue performance is not known.

1.2 Statement of the Problem

Globally, tax revenue is the most reliable source of revenue generation to most economies. One major administrative problem today for many county governments is their inability to collect the revenue. There are huge gaps between reported and projected revenues, this can be attributed to poor administrative capacity to assess the revenue base and enforce the payment of taxes. In Kisumu county, the collected revenue for the financial year 2017/2018 improved by 4% and this despite a projection of an improvement by 12% as a result of the introduction of electronic revenue collection. Currently, there are still revenue leakages which make it difficult for the Kisumu county government to effectively finance its budget. The effect of electronic payments on revenue performance is still not clear since revenue collections in the county still fall short of revenue projections despite the introduction and use of e-payments. Reviewed studies however have also fell short of analyzing the extent of mobile and online payments as a means of electronic payment. Their extent of use in Kisumu County revenue collection is also unknown. This research therefore was designed to study the effects of electronic payment mechanisms on revenue performance in Kisumu County government.

1.3 General Objective of the Study

The general objective of the study was to analyze the effect of electronic payment Mechanisms on revenue performance of Kisumu County government.

1.3.1 Specific Objectives

1) To establish the extent of usage of mobile phone payment in revenue collection in Kisumu County

2) To determine the extent of application of online payment in revenue collection in Kisumu County

1.4 Research Hypothesis

HO_1: There is no significant relationship between Mobile phone payment and improvement in revenue collection in Kisumu County

HO_2: There is no significant relationship between online payment and improvement in revenue collection in Kisumu County

1.5 Scope of the Study

The study focused only on Kisumu county government revenue department. It covered the concept of electronic payment system in the county and focused on mobile phone payment system as a way of revenue collection in the county and online payment. Similarly, the extent of application of electronic payment system in the county and how it affects revenue collection efficiency was looked into.

1.6 Justification of the Study

This study is significant to the central and county governments in that recommendations arrived at will guide the policy makers to appreciate the importance of putting up mechanisms of enhancing revenue collection and minimizing leakages in order to enable them offer the required services effectively. The Kisumu County government would benefit by gaining information on how to ensure effective e-payment that would enrich the revenue collection by the government hence achieve the objectives of the county and propel socio-economic development through effective revenue collection performance. The county management may also benefit from the findings of the study by putting corrective measures suggested that will go a long way in putting in place policies positive to harnessing revenue collection efficiency.

1.7 Conceptual Framework

Independent variable   Dependent variable

Electronic payment System

Mobile phone payment

Online payment

Revenue Performance

Revenue collection efficiency
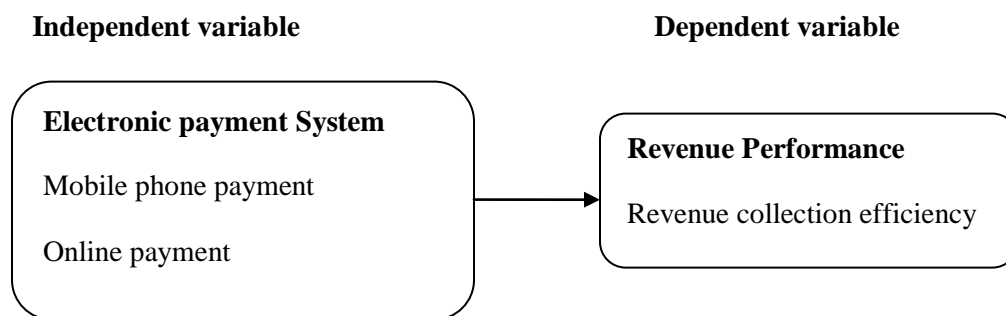
**Figure 1.1: Electronic payment mechanisms & Revenue Performance Relationship
Source: Okiro (2013) and Kibaara (2018).**

This conceptualization brings about the expected relationship that exists between the independent and dependent variables in an environmental framework. Electronic payment system according to Okiro (2013) and Kibaara (2018) include mobile phone payment and online payment. The use of mobile phone and online payment systems is expected to contribute to efficiency in revenue collection in Kisumu County.

CHAPTER TWO

LITERATURE REVIEW

This chapter reviews theoretical literature and empirical studies. It focuses on the theoretical foundations upon which the study was built. It also explores comparative empirical literature which helps to explain the gap that the study sought to address. The literature discussed is mainly on electronic payment system and revenue performance.

2.1 Theoretical Literature Review

2.1.1 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed by Davies (1989) for revenue collection system since it is an information systems theory that models how users come to accept and use an innovation. The model suggests that when users are presented with a new innovation, a number of factors influence their decision about how and when they will use it. The TAM can be used in the context of electronic billing service and payment system. This is because electronic mobile service requires a technological platform including mobile phone and internet for it to be feasible. Therefore, there is the crucial aspect of use of the technology in order for electronic billing service to be embraced by customers at Kisumu County. In the event the technology is perceived to be complex to be used, then the service would not be embraced since the customers are likely not to find any satisfaction from it.

According to (Nyaga and Omwenga, 2016), use of Information Communication Technology systems has positively impacted revenue positively by reducing distance and speed of communication. The tax payers do not have to physically appear at revenue offices to pay tax because they can log on and transact.

According to Kibaara (2018), this theory supports the variables mobile technology by relating how acceptance in the use of mobile phones can improve on revenue collection process. He asserts that currently a majority of people own a mobile phone and have access to the various mobile money platforms (Mpesa, Airtel Money and Orange Money). He argues that the tenets of this theory show that the available supporting systems have supported the adoption of the electronic payment systems. Secondly, many city residents have adopted the cashless style of transacting with over half of the transactions being done using soft money (credit cards, mobile money, bank transfers and internet banking).According to him, this theory suggests that if there

are supporting mechanisms to a new method of doing things, it has a higher chance of being accepted .Kibaara (2018) further posits that the widespread use of mobile phones and adoption of mobile banking in Kenya laid the platform for the introduction of e-payment service. The banking system has also revolutionized to make the traditional banking practices unattractive to customers.

2.2 Electronic Payment

According to Herelimana (2018), electronic payment is an important part of business or an organization. Electronic payment system is a form of inter-organizational information system for monetary exchange, linking many organizations and individual users. This may require complex interactions between the stakeholders, the technology and the environment. Electronic payment is also referred to as a financial exchange that takes place online between buyers and sellers (William, 1997). The E-payment system can be classified as direct online credit/debit payments, mediated credit/debit payments, store-value money and electronic bill payment (Fazlollai, 2002).The content of this exchange is usually some form of digital financial instrument (such as encrypted credit card numbers, electronic cheques or digital cash) that is backed by a bank or an intermediary, or by a legal tender. Electronic payment gives people an alternative to paying bills and debts other than the use of cash, cheque and money order (Wahab, 2012)

Automation of taxation systems is found to have a positive impact on effectiveness of revenue collection. According to Maisiba (2016), electronic tax system forms part of the revenue collection reforms by Kenya Revenue Authority whose main motive is enhancing tax collections and tax efficiency and thus, tax revenues have been increasing rapidly due to the country's rapid economic development accelerated by the new systems. Tax collection in Africa used the systems established by their colonial masters until, after the establishment of East African Community (EAC) in 1967 when all tax administration matters were placed under the community. In 1973 each country decided to administer income tax on its own while customs and excise taxes remained under the control of EAC. Electronic tax system formed the major part of the revenue collection reforms by Kenya Revenue which saw the tax revenues increase rapidly since implementation. Further, Kenya initiated a single business permit (SBP) licensing system whose successful outcome made it a model for the region (Ndunda and Ngahu, 2015)

Various ICT based revenue collection applications are available for use in the modern world) (Ndu today. These are simply referred to as Electronic Payment (E- payment) system (Ngahu &

Wanyoike, 2015), integrated into revenue collection. The E-payment system is accessible online through Point of Sale (PoS) terminal devices and physical agents (such mobile phones, debit cards, agents, mobile money). The E-payment is intended to help the companies using it to eliminate or reduce and minimize corruption by allowing customers to pay their bills without having to actually move to the firm premises. The customers have access to their account information and even transfer money to other accounts in the comfort of their homes (Wahab, 2012).

According to Martinez-Costa et al., (2008), an organization adopting e-payments would adequately improve the revenue collection performance for the county.

However, if the motivation for adoption of the e-payments system is solely external, the organization implementing the system would meet the pressures and might not improve revenue collection.

According to Balunywa et al. (2014), the use of Information Communication Technology (ICT), such as e-payment, would considerably increase the revenue collection as it helps tracking noncompliant revenue payers. Thus, the implementation of e-payment is paramount in ensuring optimal revenue collection.

2.3 Empirical Literature Review

2.3.1 Mobile Phone Payment and Revenue Collection

Mobile technology is a key ICT tool that has affected business and also government agencies positively (Vulkan, 2008).Muema et al. (2014) in his assessment of the adoption of mobile parking management information systems in the parking industry in Nairobi County with a special focus on Lulu East Africa indicated that Nairobi county and the parking industry were generally ready to adopt the mobile parking management system, although as with any technological adoption it was bound to face some barriers which could be overcome.

Another study by Kinyanjui and Kahonge (2013) did a study on mobile based system revealed that the use of e-payment by use of mobile communication, cities in countries such as Singapore and Germany have experienced increased efficiency in traffic management and parking fees collection and they suggested that it is necessary to develop a similar solution elsewhere in the world to experience efficient payments.

Kirui & Onyuma (2015) did a study on the role of mobile money transactions on revenue of microbusiness in Kenya. This paper determined the effect of mobile money transactions on the

sales turnover of MSEs in Nakuru town.The study used a descriptive cross sectional survey design targeting 21,139 registered MSEs located within Sub- Counties in Nakuru Town, Kenya. A stratified sampling technique was used to select 246 MSE.The result revealed that mobile money transactions has a positive significant relationship with MSE sales turnover. The study recommended that mobile phone operators need to consider reduction in money transfer transaction cost, and insurance companies need to encourage payment of premiums using mobile money services. The study also recommended that financial institutions need to offer banking services through mobile phones such as deposits, withdrawals and loan applications with a reduced cost.

Krolikowski (2014) analysed if mobile-enabled payment methods reduce petty corruption in urban water provision.This paper empirically evaluated the ability of novel mobile-enabled payment methods to reduce information asymmetries and mitigate petty corruption in the urban water sector's billing and payment processes. The study used the case of Dar es Salaam to explore the role of mobile-enabled payment instruments through the use of a stratified random sample of 1097 water utility customers and 42 interviews with representatives from the water sector, the telecommunications industry, civil society, and banking institutions. Results showed that mobile-enabled payment methods can reduce information asymmetries and the incidence of petty corruption to promote improved financial management by making payment data more transparent and limiting the availability of economic rents in the billing and payment process.
Otiso, Simiyu & Odhiambo, (2013) did a study on effects of sales revenue by use of mobile phone money transfer on the profitability of the micro and small enterprises in Bungoma County, Kenya.

The main purpose of this study was to determine the effects of mobile phone-money transfer services (M-PESA) on the profitability of Micro and Small Enterprises in Bungoma South District. The specific objectives of the study were to; determine the effect of cost reduction, sales revenue and market share by use of mobile phone money transfer services on the profitability of Micro and Small Enterprises. The sampling technique used was multi-stage random sampling where a total of 57 sample size was yielded. Some of the major findings included that almost each business own or have used a mobile phone in their business at 98%, Other major findings were that Mobile Money Transfer services forms the highest percentage of usage among the

respondents at 86% as opposed to traditional banking hall and money transfer companies at 10% and 4% respectively as it reduced their transport cost and risks when sending cash. Mobile Money Transfer services were also rated above average with 58% and have assisted MSEs to reduce costs as it reduced the number of times going to the bank

From the works reviewed, its clear that no study in Kenya has ever attempted to establish the extent of usage of mobile phone payment in revenue collection. Whereas, Kinyanjui and Kahonge (2013) did a review on mobile based system and they found out that the use of e-payment by use of mobile communication in countries such as Singapore and Germany have experienced increased efficiency in traffic management and they recommended that it is necessary to develop a similar solution elsewhere in the world to experience efficient payments. However, Muema et al. (2014) assessed the adoption of mobile parking management information systems in the parking industry in Nairobi County while Kirui & Onyuma (2015) only looked at the role of mobile money transactions on revenue of microbusiness in Kenya.The studies above also fell short of relating mobile phone payment to revenue cololection.The extent of usage of mobile phone payment in revenue collection is therefore not known.

2.3.2 Online payments and revenue Performance

Odoyo et al (2013) in their study on the effect of information systems on revenue collection by local authorities in Homa Bay County, Kenya found that there is a strong positive relationship between Internal Control Systems and revenue collection. However, resistance to change by the council staff was found to be derailing the full implementation of IS. The study is useful to the present study for full integration of IS, and more specifically e-payment system, in revenue collection.

A study by Wahab (2012) on the adoption and use of electronic payment systems in Ghana established that the adoption and use of the e-payment system was found to be low mainly due to the inadequate availability of point of sale terminals at shopping points among others. These were found to be affecting the perceived ease of use even though the perceived usefulness of e-payment systems was strongly present among individuals and businesses. The study recommended customer education and wide spread deployment of e-payment point of sale terminals to merchants.

Benard et al (2018) assessed the effects of automation of revenue collection on the performance of county government with reference to Trans Nzoia, Kenya. The study established that online

process of automation of revenue collection processes influence performance in Trans Nzioa county government office to a great extent and that automation of revenue collection processes offers great deal of effective management. The study concluded that online payment process of automation of revenue collection processes influence performance in Trans Nzioa county government office to a great extent.

Kibaara (2018) did a study on the influence of information communication technology adoption on successful revenue collection process by the County Government of Nairobi, Kenya. The main aim of the study was to determine influence of cloud computing, mobile phone technology and how E-Wallets influence revenue collection process. The study found out that cloud computing, mobile phone technology and e-wallets had a positive and significant influence on the revenue collection process. The study recommended that the county government should develop and deploy electronic payment platforms that are accessible to both the high income earners and low income earners.

Githinji et al (2014) conducted a study on information and communication technology (ICT) on revenue collection by Kenyan Counties. The study aimed to do a review on information systems theories and examine the impact of management information system on revenue collection in Kenyan counties. The theories reviewed included Technology Acceptance Model Theory, Unified Theory of Acceptance and Use of Technology, Theoretical Implementation Process-Theory, Theory of Reasoned Action, Theory of Planned Behavior (TPB), Theory of Technical Acceptance Model, Agency Theory, Control Theories and Cultural Theories. It took into consideration the importance of information and communication technology (ICT) as an infrastructure for revenue collection by Kenyan Counties and emphasized that ICT is an essential tool for revenue collection efficiency.

Adenya & Muturi (2017) examined the factors affecting revenue collection efficiency in County Governments in Kenyawith reference to Kiambu County. The study was based on the premise that Kiambu County, like other county governments in Kenya has consistently failed to collect targeted revenue for the past three financial years, hence the need to evaluate factors affecting revenue collection efficiency by county governments in Kenya. The results showed that revenue collection personnel capacity, technology, internal controls, and enforcement of laws were positive and significant predictors of revenue collection efficiency.

Ataro et al (2016) did a study on factors affecting revenue collection efficiency in Trans-Nzoia County. The objectives were; to determine the effect of revenue collection practices, to determine the effect of internal controls, to determine the effect of competencies, to determine the effect of compliance level and to determine the combined effect of revenue collection practices, internal controls, compliance level and compliance level on the efficiency of Revenue collection. The study recommended that, all revenue collection methods be computerized as a means of internal control systems and emphasized that training of staff should be done to improve on their competencies, and more means of sourcing for revenue should be established by allowing staff to be innovative to allow compliance.

Ngugi & Kagiri (2016) analyzed factors influencing optimal revenue collection in County Governments in Kenya with reference to Kiambu County Government. The study aimed to establish how public participation, competency, legislation and technology influence optimal revenue collection. The study revealed that public participation, skills level of the county staff and legislation framework plays a significant role in optimum revenue collection. The findings also suggested that technology positively and significantly affect optimal revenue collection.

Kamande (2014) examined factors affecting revenue collection in Kenya Revenue Authority. The purpose of this study was to examine the factors that affected, both positively and negatively, revenue collection in Kenya Revenue Authority (KRA) in Nairobi County. More specifically, it examined the effects of the Political Situation on Revenue Collection, the effects of Policies put in place by the incumbent policymakers and the effects of the KRA Support Systems on revenue collection. The results revealed that the prevailing political situation did in-fact affect business operations, security of the people, as well availability and distribution of resources and as a result, tax collection and administration of tax laws. It also revealed that the policies in place at a specific point in time did affect the revenue collection for the jurisdiction. The research argues that the KRA support system which comprised of among others, Information Technology Systems, Human Resources and Stakeholders all played a significant role in the process of revenue collection in KRA.

Tetteh (2012) analyzed the automation system procedure of the Ghana Revenue Authority on the effectiveness of revenue collection with a case study of customs division. The aim of this study was to examine the automation system procedures of the Ghana Revenue Authority on the

effectiveness of revenue collection. The findings showed a positive and significant effect of automation system on effectiveness of revenue collection. Additionally, automation was significantly related with tax clearance time.

Noronaa (2016) investigated automation of tax collection by Ghana Revenue Authority. The results suggested a positive effect of automation system usage and the cost of tax administration, on effective revenue collection. Additionally, automation was significantly related with tax clearance time. The study recommended increased automation system in revenue collection in order to cut costs in revenue collection.

Maisiba & Atambo (2016) conducted a study on effects of electronic-tax system on the revenue collection efficiency of Kenya Revenue Authority: A case of Uasin Gishu County. The study was set to establish the effects of electronic tax payment on revenue collection efficiency, to find out the effect of electronic tax filing on revenue collection efficiency and to establish the challenges facing the use of electronic tax system by KRA and give possible recommendations. The key findings were that most respondents agreed that KRA has good electronic tax payment System.

Monica, Makokha & Namusonge (2017) did a study on the effects of electronic tax system on tax collection efficiency in domestic taxes department of Kenya Revenue Authority. Their study aimed to establish the effects of electronic tax payment on revenue collection efficiency, to find out the effect of electronic tax filing on revenue collection efficiency and to find out the level of taxpayers 'knowledge in operation electronic tax system and gave possible recommendations. The results showed that electronic tax payment system negatively affect tax collection efficiency at KRA. The study recommended that should KRA should continuously upgrade the system and to offer prefilled electronic forms to simplify the process and make it accessible with different browsers and gadgets.

Baingana (2011) analyzed corporation tax administration and revenue performance in Uganda Revenue Authority in Eastern Uganda. The study was set out to examine the relationship between corporation tax administration and revenue performance. The results revealed a significant and positive relationships between Taxpayer identification, sensitization, tax assessments, collection procedures and revenue performance of corporation tax. It was clear

from the statistics that taxpayer identification explained most of the variance in revenue performance. The study recommended training in taxpayer identification among others to boost corporate tax revenue.

In summary, whereas Odoyo et al (2013) examined information systems and revenue collection by local authorities in Homa Bay County, Wahab (2012) only addressed the adoption and use of electronic payment systems in Ghana. Whereas Benard et al (2018) and Noronaa (2016), Tetteh (2012) argued generally for automation as a solution to effectiveness in revenue collection. Monica, Makokha & Namusonge (2017), Maisiba & Atambo (2016) were more specific in advancing that electronic tax collection system negatively affects tax collection efficiency. Adenya & Muturi(2017), Ataro et al (2016), Kamande (2014), Ngugi&Kagiri (2016 examined the examined the factors affecting revenue collection efficiency quite apart from the works of Baingana (2011), who looked at corporation tax administration and revenue performance in Uganda though was quick to point that taxpayer identification among others boosts corporate tax revenue.

From the works however, it is noted that the areas addressed though varied did not comprehensively cover the subject of online payment in revenue payment in Kisumu. They are deficient in informing tax policy and reforms. They also failed to shed light on the role of online payment mechanism on revenue collection efficiency. For this reason, these areas are still unclear. Specifically, the extent of application of online payment on revenue collection in Kisumu County is not clearly addressed. These remain unknown.

CHAPTER THREE
RESEARCH METHODOLOGY

This chapter presents the methodological components that the study adopted to identify, collect, and analyze data. Specifically, it covers the research design, study area, target population, sample design procedures and sampling techniques to be used, data collection, verification of reliability and validity of instruments, data management, and analysis.

3.1 Research Design

This study adopted a correlational survey design. The design tested the hypotheses in order to determine whether the objectives of the study were met. According to Curtis, Chomsky & Dempsey (2016), a survey design is most suitable in a research aimed at establishing a problem and to obtain information concerning the current status of a phenomenon in order to describe what exists with respect to the variables or conditions in a situation; It can also be used to identify the characteristics of a phenomenon or explore possible correlations among two or more phenomena. The correlational approach was used since the study sought to examine the extent to which two or more variables relate. According to Leedy and Ormrod (2010), correlational research is concerned with establishing relationships between two or more variables in the same population or between the same variables in two populations.

3.2 Area of Study

The study was conducted in Kisumu County with headquarters in Kisumu city. Kisumu city is a port city in Kisumu County, Kenya at 1,131 m (3,711 ft), with a population of 409,928 (2009 census). It is the third largest city in Kenya, the principal city of western Kenya, the immediate former capital of Nyanza Province and the headquarters of Kisumu County. It has a municipal charter but no city charter. The study will be carried out in the revenue office located in Milimani Estate. The location of the study area by longitude and latitude is (0.0917° S, 34.7680° E)

3.3 Target Population

According to Zikmund et al. (2010) and Kothari (2004), a population refers to all items in any field of inquiry and is also known as the 'universe'. Polit and Beck (2003) refer to the population as the aggregate or totality of those conforming to a set of specifications.

The population of this study comprised 140 Revenue Collection Officers in Kisumu County drawn from the 7 sub counties of Kisumu West, Kisumu Central, Kisumu East, Seme, Muhoroni, Nyando and Nyakach.

3.4 Sampling Techniques

The study adopts stratified purposive sampling. Sub County was taken as stratum then respondents purposively picked from each stratum. Tongco (2007) states that the main objective of a purposive sample is to produce a sample that can be logically assumed to be representative of the population. This is often accomplished by applying expert knowledge of the population to select in a non-random manner a sample of elements that represent a cross-section of the population. Guarte & Barrios (2006) emphasize that purposeful sampling method enable the researcher to select specific subjects who will provide the most extensive information about the phenomenon being studied.

3.4.1 Sample size

According to Sandelowski, (1995), sample size is the subset of representative units from the target population. A sample 140 revenue collection officers taken from all the seven sub counties in Kisumu County was selected for the study. The sample size for this study follows an assertion by Nainget al (2006) that a sample size of 30% is deemed acceptable as a representative sample in a study.

Table 3.1: A summary of Revenue Collection Officers

Sub County	No.	Sample
Kisumu West	80	24
Kisumu Central	90	27
Kisumu East	76	23
Seme	58	17
Muhoroni	54	16
Nyando	54	16
Nyakach	56	17
Total	**468**	**140**

Source: Kisumu County government, 2019

3.5 Data Collection Methods

Data type and collection method will entail the following;

3.5.1 Sources of Data

Both primary and secondary data were used. Louis, Lawrence, and Morrison (2007) describes primary data as those items that are original to the problem under study while Ember and Ember (2009) describe primary data as data collected by the investigator in various field sites explicitly for a comparative study. Primary data was obtained using questionnaires which were administered to the respondents. While secondary data was obtained from audited accounts and county records.

3.5.2 Data Collection Procedure

The researcher obtained a letter of introduction from the university. A reconnaissance visit was made in every sub county in order to identify any significant challenges and find ways to overcome them before the real research. The reconnaissance visit enabled the researcher to declare an intention to serve the research instrument and secure the related appointment with the revenue heads in every sub county.

A pilot study was conducted on fourteen respondents from Butere Sub County selected randomly from among the population targeted. Responses from the pilot study were analyzed to test for validity of the research instrument, therefore, allowing any corrections to be made before the actual study.

From the piloting, it was also determined that most reliable sources of accurate information were revenue officers, Sub county Revenue compliance officers, computer programmers and surveyor as opposed to entire revenue collection team hence the subsequent reduction in the target population.

3.5.3 Data Collection Instrument

Structured questionnaires were used to collect the data. The questionnaire comprised both structured and semi-structured items. In order to ensure high statistical variability in the survey, responses of six (6) items for each construct were scored along a five (5) point Likert scale on a range of five items and scored along a "strongly agree" to "Strongly disagree" five (5) point Likert scale.

3.5.4 Reliability Test for Data Collection Instrument

Golafshani (2003) defines reliability as the extent to which results are consistent over time and an accurate representation of the total population under study. He further argues that reliability refers to the extent to which an experiment, test, or any measuring procedure yields the same results on repeated trials. Meaning that if the results of a study can be reproduced under a similar methodology, then the research instrument is considered to be reliable.

Reliability is aimed at determining consistency and stability. The ideal motive is to test stability by administering the instrument to the survey respondents twice. To check the reliability of the instrument in this study, Cronbach's Alpha coefficient was used (Cronbach, 1951). According to suggestions by Hair et al (1998), a coefficient of 0.7 is deemed acceptable for the reliability test. The instrument was piloted in Butere Sub county since the officers targeted possessed similar characteristic as those sampled in the actual study.

From the pilot study involving 14 respondents from Butere Sub County, the output of reliability statistics is displayed below.

Table 3.2 Reliability Statistics

Case Processing Summary

		N	%
Cases	Valid	14	100.0
	Excluded[a]	0	.0
	Total	**14**	**100.0**

a. Listwise deletion based on all variables in the procedure.

The table above indicates that there were fourteen respondent who participated in the pilot study, it is also evident that all the 36 (100.0%) questionnaire items were respondent to without any omission reported which signified the respondents in the subsequent study would be able to respond to the item.

Cronbach's Alpha	N of Items
.742	36

From table 3.2 above it is evident that the data collection instrument had 36 questionnaire items with a Cronbach alpha of 0.742 being obtained after analysis of the data obtained from the pilot study. The value compares favorably with the acceptance standard value since 0.742>0.7, an indication the instrument was likely to yield both reliable and valid results.

3.6 Data Analysis

Data obtained from the field was categorized and coded using SPSS and analysed descriptive statistics to yield frequency tables in addition to regression analysis to obtain model summary and multiple correlation coefficients for purposes of determining association and relationship among dependent and independent variables.

3.7 Regression Model

The proposed model for specific objectives is as below:

$Y = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \varepsilon$

Where:

Y = Revenue performance

X_1 = Mobile phone payment

X_2 = Online payment

i = the units of analysis.

ε = Error term

α = the constant.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4.1 Introduction

This chapter presents the findings and interpretation of the study. It is sequenced into seven main sections comprising: response rate, demographic characteristics of the respondents; extent of mobile payment in Kisumu County, extent of application of online payment in Kisumu County, the relationship between; i). Use of mobile phone payment and revenue performance in Kisumu County, ii). Application of online payment and revenue performance in Kisumu County.

4.2 Response Rate

140 respondents were targeted with 101 responding, translating to 72.1% response rate.

4.3 Demographic Characteristics of the Respondents

Table 4.1 below summarizes the information obtained from the questions that sought the demographic characteristics of the respondents in relation to sub county, job title/designation, gender, age bracket, level of education and terms of employment.

Table 4.1: Distribution of the respondents by demographic information

Charateristic	F	%
Sub County		
Kisumu Central	22	21.8
Kisumu West	17	16.8
Kisumu East	17	16.8
Seme	13	12.9
Nyakach	12	11.9
Muhoroni	11	10.9
Nyando	9	8.9
Job title/designation		
Sub County Revenue Collection Officers	69	68.3
Computer Programmers	7	6.9
Sub County Revenue Officers	7	6.9
Surveyors	7	6.9
Revenue Compliance Officers	7	6.9
Not stated	4	4.0
Gender		
Male	80	79.2
Female	19	18.8
Not stated	2	2.0
Age bracket		
18-30 years	61	60.4
41-50 years	20	19.8
31-40 years	15	14.9
Not stated	5	5.0
Level of education		
Diploma	38	37.6
Certificate	31	30.7
Undergraduate Degree	23	22.7
Masters	6	6.0
Not stated	3	3.0
Terms of employment		
Contract	72	71.2
Permanent	24	23.8
Not stated	5	5.0

Source: research data 2019

When distributed by Sub County where they worked, table 4.1 shows that 21.8% were drawn

from Kisumu Central, 16.8% each were from Kisumu West and Kisumu East respectively,

12.9% reported Seme, 11.9% stated Nyakach, 10.9 % indicated Muhoroni while 8.9% wrote Nyando.

With regard to their job titles/designations, 68.3.0% of the respondents were Sub County Revenue Collection Officers, 6.9% each were Computer Programmers, Sub County Revenue Officers, Surveyors and revenue Compliance Officers respectively while 4.0% did not specify their designations.

The table illustrates that when categorized by gender, most (79.2%) were males, 18.8% were females while 2.0% did not comment.

When distributed by age brackets, the table depicts majority(60.4%) of the respondents were aged between 18-30 years, 19.8% were within 41-50 years age range, 14.9% reported 31-40 years while 5.0% did not comment.

On education level of the respondents, the table evince 37.6% had attained diploma, 30.7% were certificate holders, 22.7% had undergraduate qualifications, 6.0% reported masters while 3.0% did not comment.

Regarding terms of employment, the table demonstrates majority (71.2%) of the respondents were engaged on contractual basis, 23.8% were on permanent and pensionable terms while 5.0% did not comment.

4.4 Extent of mobile payment in Kisumu County

Table 4.2 Agreement/disagreement with Mobile payment activities

Extent of mobile payment	% Extent of Agreement/Disagreement				
	SA	A	N	D	SD
All services provided by the county government are paid for using mobile money	24.8	21.8	-	25.7	27.7
The county government has opened pay bill numbers for different services	27.7	72.3	-	-	-
Major telephone service providers(Safaricom, Airtel and Telecom have been incorporated in the e-payment platform	11.9	37.6	27.7	-	22.8
Mobile overpayments are reimbursed to customers by the system	12.9	12.9	30.7	-	43.6
There is an acknowledgement message sent to clients when payments are made using mobile phone	48.5	51.5	-	-	-
Revenue collection per day is accurately ascertained using the mobile payment system	5.0	58.4	13.9	6.9	15.8

Source: Research Data 2019

From table 4.2 above, it is evident that majority (53.4%) of the respondents disagreed with the assertion that all services provided by the county government were paid for using mobile money transfer platform while 46.6% this was the case.

All(100.0%) of the respondents unanimously agreed that the county governments had opened pay bill numbers for different services in addition to an acknowledgement message being sent to clients whenever payments are made using mobile phone.

The table also shows 49.5% of the respondents confirmed that major telephone service providers (Safaricom, Airtel and Telecom) had been incorporated in the e-payment platform, 27.7% were neutral while 22.8% reported they were yet to be incorporated.

Regarding reimbursement of mobile overpayment to customers by the system, the table shows 43.6% of the respondents disagreed, 30.7% neither agreed nor disagreed while 25.8% reported this was routinely done.

Mobile daily revenue collection was accurately ascertained using mobile payment system according to majority (63.4%) of the respondents, 22.7% disagreed while 13.9% neither agreed nor disagreed.

Table 4.3 Mobile phone payment activities

Mobile phone payment activities	% Extent of Agreement/Disagreement				
	SA	A	N	D	SD
The County government uses Short message service reminders	12.9	52.5	-	6.9	27.7
Mobile money payments in the county reduces the risks of handling cash in fees payment	74.3	25.7	-	-	-
Tax remitted to the county government has improved as a result of mobile payment	24.8	52.5	-	6.9	15.8
Mobile money payments have reduced the costs of revenue collection in the county	38.6	47.5	13.9	-	-
Mobile money payments have won public trust in revenue collection	40.6	36.6	22.8	-	-
Mobile money payment of taxes have reduced cases of embezzlement of county taxes and improved collection	38.6	26.7	11.9	22.8	-

Majority (65.4%) of the respondents agreed their respective sub counties did use short message service (SMS) reminded while 34.6% reported they were not used.

The table is also indicative that all (100.0%) of the respondents were of the view mobile money payment in the county did reduce the risk of handling cash in fees payment. This line of thought is also echoed by most (77.3%) of the respondents who reported that the tax remitted to the county government had improved as a result of adopting mobile payment while 22.7% disagreed. This is consistent with the findings by Kibaara (2018) who had asserted that cloud computing, mobile phone technology and e-wallet had a positive and significant influence on the revenue collection process.

On mobile money payment having reduced the cost of revenue collection in the counties, most (86.1%) affirmed this abounded while 13.9% did not comment.

Additionally, it is evident that most (77.2%) of the respondents held the view mobile money payment had won public trust in revenue collection with 22.8% neither agreeing nor disagreeing.

Mobile money payment of taxes had reduced cases of embezzlement of county taxes and improved revenue collection according to majority (65.3%) of the respondents, 22.8% disagreed while 11.9% did not comment. These findings echoes those of Adenya & Muturi (2017) who were postulated that revenue collection technology among other factors were positive and significant predictors of revenue collection efficiency. This is further supported by Krolikowski (2014) who also found out that mobile-enabled payment could reduce information asymmetry and mitigate incidences of petty corruption by fostering transparency in billing and payment process.

4.5 Extent of use of online payment in Kisumu County

Table 4.4: Extent of use of online payment in Kisumu County

Extent of online payment	% Extent of Agreement/Disagreement				
	SA	A	N	D	SD
Single business permits can be generated online in Kisumu county	18.8	74.3	-	-	6.9
The county government has opened an online portal for making payments using debit and credit cards	18.8	3.0	78.2	-	-
The county government purchased equipment's for card swiping when making payments	4.0	10.9	32.7	30.7	21.8
The county government has designed electronic cards for making county revenue payments online	36.6	4.0	-	30.7	28.7
Computers in the county government offices are networked to enable tracking customer payments	49.5	22.8	27.7	-	-
The online payment transactions can easily be retrieved for future references	51.5	25.7	22.8	-	-

Source: Research data 2019

Table 4.4 depicts most (93.1%) of the respondents agreeing that it was possible to generate single business permits online in Kisumu County while 6.9% disagreed.

With regard to the county government having opened an online portal for making payments using debit and credit cards, the table demonstrates 78.2% of the respondents were uncertain while 21.8% agreed it had.

Majority (52.5%) were of the opinion the county government had purchased equipment for card swiping when making payments, 32.7% were neutral while 14.9% agreed the said equipment had been purchased. A further majority (59.4%) of the respondents disagreed with assertion that the county government had designed electronic cards for making county revenue payment online while 40.6% agreed such cards had been designed.

On the issue of networking computers in the county governments offices to enable tracking customer payment, it is evident that majority (72.3%) agreed this had been undertaken while 27.7% were indeterminate. Consequently, most (77.2%) of the respondents reported online payment transactions were easily retrievable for future reference while 22.8% were neutral. This is in consonance with the findings by Wahab, (2012) who reported e-payment was intended to enable customers' easily access their bills and account information without necessarily having to visit the offices.

Table 4.5: Level of Agreement/Disagreement with Online payment activities

Online payment activities	% Extent of Agreement/Disagreement			
	SA	A	N	D
The county government has invested on e-government services	47.5	52.5	-	-
The county government has computerized taxation services	66.3	33.7	-	-
The online Kisumu county tax payers have been sensitized about online tax system	19.8	50.5	29.7	-
Tax collection has improved in the county as a result of online tax remittance	20.8	79.2	-	-
The county government has employed enough professionals to handle the online tax system	36.6	24.8	38.6	-
There is reduced level of corruption as a result of the use of online tax system.	39.6	37.6	-	22.8

Source: Research data 2019

Table 4.5 above evince a general consensus among the respondents with all (100.0%) reporting that the county government had invested in e-government services, computerized taxation and tax collection in the county having improved due to online tax remittance. This findings on improved revenue collection is in line with the of Benard et al (2018) who had concluded that online payment process of automation of revenue collection process influence performance to a greater extent.

Majority (70.3%) of the respondents were in agreement that online tax payers within Kisumu County had been sensitized about online tax system while 29.7% neither agreed nor disagreed. With regard to the county government employing enough professionals to handle the online tax system, it is evident that majority (61.4%) of the respondents reported this had been undertaken while 38.6% were neutral.

Most (77.2%) of the respondents reported reduction in levels of corruption incidences resultant from online tax system usage while 22.8% negated this perception.

Table 4.6: Level of Agreement/Disagreement with   Revenue Performance aspects

Revenue Performance	% Extent of Agreement/Disagreement			
	SA	A	N	D
There is an overall improvement in revenue collection in the County as a result of e-payments	38.6	61.4	-	
Embezzlement of county revenue has tremendously reduced as a result of electronic payment	36.6	40.6	22.8	-
There is more accountability on the use of county revenue funds as a result of e-payment	23.8	53.5	-	22.8
The county budget deficit gap has been reduced as a result of e-payment	34.7	42.6	-	22.8
The cost of revenue collection in the county has reduced due to use of e-payment system	31.7	31.7	23.7	12.9
Budget projection has been made easier as a result of IT use in revenue analysis	41.6	58.4	-	-

Source: Research data 2019

Table 4.6 portrays all (100.0%) of the respondents agreeing that there was an overall improvement in revenue collection in the county due to e-payment beside budget projection having been made easier by usage of IT in revenue analysis. This findings resonate with those of Kinyanjui and Kahonge who had postulated that use of e-payment especially mobile communication result in increased efficiency in parking fee collection among other avenues.

It is also evident that most (77.3%) each of the respondents were in agreement that; budget deficits had been abridged and accountability on use of county revenue funds had been enhanced all stemming from e-payment platform while 77.1% reported tremendously reduction in embezzlement of county revenues.

Majority (63.4%) of the respondents affirmed that the cost of revenue collection in the county had reduced due to usage of e-payment, 23.7% were neutral while 12.9% disagreed.

4.6 Relationship between use of mobile phone payment and revenue performance in Kisumu County

Table 4.7: Model summary for mobile phone payment

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.781[a]	.609	.589	.314	.609	29.642	5	95	.000

a. Predictors: (Constant), Mobile money payment of taxes and extent of use of mobile payment in Kisumu County:

b. Dependent variable: revenue performance

Source: Research data 2019

From table 4.7 above, it is evident that there is an association between mobile phone payment and revenue performance in Kisumu County due to R value of 0.781 thus depicting a strong positive association between the variables. A unit increase in mobile phone payment attributes will therefore cause an equivalent improvement in revenue performance in Kisumu County.

Table 4.8: Multiple Regression Analysis Coefficient[a] for Mobile phone payment

Model for Extent of use of mobile payment	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Correlations	Collinearity Statistics
	B	Std. Error	Beta			Zero-order	VIF
(Constant)	1.263	.451		2.800	.006		
7.a. Extent of use of mobile payment in Kisumu County: i. All services provided by the County Government are paid for using mobile money	.057	.051	.188	1.127	.263	.659	6.774
ii. The county government has opened pay bill numbers for different services	.438	.096	.402	4.563	.000	.463	1.892
iii. Major telephone service providers(Safaricom, Airtel and Telecom have been incorporated in the e-payment platform	.221	.079	.599	2.809	.006	.630	11.038
iv. Mobile overpayments are reimbursed to customers by the system	-.094	.043	-.283	-2.195	.031	.318	4.030
v. There is an acknowledgement message sent to clients when payments are made using mobile phone	.139	.086	.143	1.619	.109	.085	1.884

a. Predictors: (Constant), Extent of use of mobile payment in Kisumu County:

b. Dependent variable: Revenue performance

Source: Research data 2019

Table 4.8 above illustrates t value of 2.800 which is greater than 1.92 depicting a positive effect between mobile phone payment and revenue performance in Kisumu County. The p-value denoted as sig of 0.006<0.05 (confidence level at 95%/alpha value) thus indicating availability of sufficient evidence to confirm existence of a significant relationship between mobile phone payment and revenue performance in the county. This echoes the strong association cited on the basis of regression model summary r value above, the positive association resonate the correlation statistics as depicted by the positive Z-orders ranging from a low of 0.085 to a high of

0.659 relating to; all services by the county government payable through mobile money transactions, existence of pay bill numbers for different services ,incorporation of Safaricom, Airtel and Telecom into e-payment program by the county, reimbursement of overpayment to customers by the system and sending acknowledgement message to clients for payments made via mobile phones

The observed positive association herein reported is also explained by the weak to moderate multicollinearity among the variables as demonstrated by Variance Inflation Factors (VIF) ranging from lowest of 1.884 to highest of 11.038. These findings evince p-value $0.006 < 0.05$ hence indicating there was sufficient evidence to confirm existence of a significant relationship between mobile money payment and improved revenue collection efficiency in Kisumu County.

4.7 Relationship between application of online payment and revenue performance in Kisumu County

Table 4.9: Model summary for use of online payment

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.603[a]	.363	.322	.403	.363	8.931	6	94	.000

a. Predictors: (Constant), Mobile money payment of taxes and extent of use of mobile payment in Kisumu County:

b. Dependent variable: revenue performance

Source: Research data 2019

It is evident from table 4.9 that value of r of 0.603 signifies moderate positive association between online payment and revenue performance in Kisumu County government.

Table 4.10: Multiple Regression Analysis Coefficient[a] for Online payment

Model for extent of use of Online payment	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations	Collinearity Statistics
	B	Std. Error	Beta			Zero-order	VIF
(Constant)	4.216	.387		10.889	.000		
i. Single business permits can be generated online in Kisumu county	-.056	.164	-.104	-.341	.734	.085	13.666
ii. The county government has opened an online portal for making payments using debit and credit cards	-.056	.173	-.090	-.324	.747	.082	11.481
iii. The county government purchased equipment's for card swiping when making payments	-.085	.161	-.187	-.527	.599	.336	18.480
iv. The county government has designed electronic cards for making county revenue payments online	.255	.080	.898	3.202	.002	.406	11.620
v. Computers in the county government offices are networked to enable tracking customer payments	-.217	.113	-.380	-1.918	.058	-.060	5.791
vi. The online payment transactions can easily be retrieved for future references	.227	.141	.378	1.604	.112	.145	8.204

a.   Predictors: Extent of Use of online payment in Kisumu County:

b.   Improved revenue performance

It is evident from the table 4.10 that t value of 10.889 is greater than 1.92 signifying a positive correlation between online payment and revenue performance in Kisumu county, the p-value designated as sig. of 0.000<0.05 (at 95% confidence level/alpha value) which portrays there is sufficient evidence to confirm existence of a significant relationship between online payment and revenue performance in Kisumu county. Moreover, this is supported by the positive Z-orders

ranging from 0.082 to 0.406 relating to the county having; facilitated online generation of single business permits, opened an online portal for making payments via debit and credit cards, purchased equipment for card swiping when making payments, designed electronic cards for online revenue payment, eased retrievability of online payment transactions for future reference. However, negative correlation was also noted as displayed by the negative Z-orders with regard to networking of computers in the county government offices to enable tracking customers' payment.

4.8 Effects of electronic payment mechanism on revenue performance in Kisumu County

Regression Equation

$Y = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \varepsilon$

Where: Y = Revenue performance, X_1= Mobile phone payment, X_2=Online payment, i = the units of study, ε = Error term

$Y = \alpha + \beta_1 X_{1i} + \beta_2 X_{2i} + \varepsilon$

Key: α is the average of the B constants for the independent variables, ε is the average of the summation of the two standard errors = B/t

From the regression equation above, it is deducible that a unit increase in independent variable (mobile phone payment and online payment) attributes would yield resultant unit effect on revenue performance and vice versa.

The following general conclusions can thus be made in relation to the two hypotheses postulated in section 1.4;

Reject the null hypotheses and accept alternative that state: There is a significant relationship between Mobile phone payment and improvement in revenue collection efficiency in Kisumu County

Reject the null hypothesis and accept the alternative that state: There is a significant relationship between Online payment and improvement in revenue collection in Kisumu County.

The foregoing conclusions are in tandem with Ngugi & Kagiri (2016) findings who in their study suggested that technology positively and significantly affected revenue collection.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter outlines the summary of the research findings, conclusions arising from the findings and the recommendations and is sequenced into demographic characteristic of the respondents, extent of usage of mobile phone payment in revenue collection in Kisumu County, extent of application of online payment in revenue collection in Kisumu County, relationship between use of mobile phone payment and improvement in revenue collection in Kisumu County, Relationship between use of online payment and improvement in revenue collection in Kisumu County and effects of electronic payment mechanism on revenue performance in Kisumu County.

5.2 Summary

The respondents were drawn from seven Sub Counties namely; Kisumu West, Kisumu Central, Kisumu East, Seme, Muhoroni, Nyando and Nyakach respectively. It is deducible also that Kisumu Central has the highest number of revenue collection staff within the Kisumu County.

The respondents' designation ranged from revenue compliance officers in conjunction with Sub County revenue collection officers for purposes of revenue collection, computer programmers for networking and designing debit and credit cards among other tasks, sub county revenue officers and surveyors respectively. Majority (79.2%) of the respondents were males while 18.8% were females which indicate the county government was yet to attain the affirmative action in relation to job opportunities. Most (75.3%) of the respondents were youths aged between 18-40 years. Similarly majority (66.3%) had attained some level of certification (diploma/undergraduate/masters) from tertiary institutions. It is however not possible to ascertain the level at which the certificates herein referred were obtained whether high school or college. Additionally, majority (71.2%) of the respondents were engaged on contractual basis while 23.8% were on permanent and pensionable terms.

5.3 Extent of Usage of Mobile Phone Payment in Revenue Collection in Kisumu County

Whereas majority (53.4%) of the respondents reported that all services provided by the county government were not paid for using mobile money transfer platform, 46.6% agreed this was the

case. All the respondents unanimously agreed that the county governments had opened pay bill numbers for different services in addition to an acknowledgement message being sent to clients whenever payments are made using mobile phone. Interestingly though, 49.5% of the respondents confirmed that major telephone service providers (Safaricom, Airtel and Telecom) had been incorporated in the e-payment platform, 27.7% were neutral while 22.8% reported they were yet to be incorporated. Further, 43.6% disputed reimbursement of mobile overpayment to customers by the system while 30.7% were uncertain. Majority (63.4%) however, agreed that mobile daily revenue collection was accurately ascertained using mobile payment system, 22.7% disagreed while 13.9% were uncertain.

With regard to mobile phone payment activities, majority (65.4%) of the respondents were in agreement their respective sub counties did use short message service (SMS) reminder while 34.6% reported they were not used. On the other hand 100.0% were of the view mobile money payment in the county did reduce the risk of handling cash in fees payment which was also replicated by most (77.3%) respondents reporting that the tax remitted to the county government had improved as a result of adopting mobile payment while 22.7% disagreed. Mobile money payment had reduced the cost of revenue collection in the counties according to most (86.1%) respondents with most (77.2%) of the respondents also perceiving mobile money payment as having won public trust in revenue collection. Mobile money payment of taxes had also reduced cases of embezzlement of county taxes and improved revenue collection according to majority (65.3%) of the respondents while 22.8% stated it had not.

5.4 Extent of use of Online Payment in Kisumu County

It was possible to generate single business permits online in Kisumu County according to most (93.1%) of the respondent though most (78.2%) were not certain whether the county government had opened an online portal for making payments using debit and credit cards. Contrary to the foregoing uncertainty however, majority(52.5%) of them were of the opinion the county government had purchased equipment for card swiping when making payments, 32.7% were neutral while 14.9% agreed the said equipment had been purchased. A further majority (59.4%) also refuted claims of the county government having designed electronic cards for making county revenue payment online while 40.6% agreed such cards had been designed. Networking computers in the county government's offices to enable tracking customer payment had been

undertaken consistent with majority (72.3%) of the respondents while 27.7% were not sure. A further 77.2% of the respondents reported online payment transactions were easily retrievable for future reference.

There was concensus among the respondents with 100.0% confirmation that the county government had invested in e-government services, computerized taxation and tax collection in the county having improved due to online tax remittance. Majority (70.3%) also held the view that online tax payers within Kisumu County had been sensitized about online tax system while 29.7% were not sure. The county government had employed enough professionals to handle the online tax system according to majority (61.4%) of the respondents reported this had been undertaken thus contributing to reduction in levels of corruption incidences resultant from online tax system usage as reported by most (77.2%) while 22.8% negated this perception.

5.5 Revenue Performance

There was consensus among the respondents will 100.0% agreement that there was an overall improvement in revenue collection in the county due to e-payment in addition to budget projection having been made easier by usage of IT in revenue analysis. Most (77.1%) were in agreement that as a result of adopting e-payment; embezzlement of county revenue had tremendously reduced while a further 77.3% reported budget deficits had been abridged and accountability on use of county revenue funds had been enhanced which is also echoed by 63.4% of the respondents affirming that the cost of revenue collection in the county had reduced due to usage of e-payment.

5.6 Relationship between use of Mobile Phone payment and Revenue performance in Kisumu County

There was a strong positive association between mobile phone payment and revenue performance in Kisumu County as depicted by r value of 0.781 which is greater than 0 which is also supported by p-value $0.006 < 0.05$ hence indicating there was sufficient evidence to confirm existence of a significant relationship between mobile money payment and improved revenue collection efficiency in Kisumu County. The observed positive association is similarly evinced by the Z-orders all of which are positives although there seems to be mild multicollinearity among the variables as demonstrated by VIFs.

5.7 Relationship between Application of online Payment and Revenue Performance in Kisumu County

The value of r of 0.603 is greater than 0 and closer to one hence signifying a strong positive association between independent (online payment) and dependent variable (revenue performance) within Kisumu County government. Similarly the p-value of 0.000<0.05 (at 95% confidence level/alpha value) which evince existence of sufficient evidence to confirm existence of a significant relationship between online payment and revenue performance in Kisumu county which is also supported by the observed positive Z-orders. The effect of negative Z-order for one variable herein depicted was overshadowed by the positive ones as exhibited by the moderate to strong multicollinearity among the variable.

5.8 Effects of Electronic Payment Mechanism on revenue Performance in Kisumu County

The regression equation indicate that a unit increase in independent variable (mobile phone payment and online payment) attributes would yield resultant unit effect on revenue performance and vice versa.

The following general conclusions can thus be made in relation to the two hypotheses postulated in section 1.4;

Reject the null hypotheses and accept the alternative that state: There is a significant relationship between Mobile phone payment and revenue performance in Kisumu County

Reject the null hypothesis and accept the alternative that state: There is a significant relationship between online payment and revenue performance in Kisumu County

5.9 Conclusions

The following conclusions can be drawn from the foregoing summary of findings and in tandem with research objectives and hypothesis;

i. Based on the findings of objective one, although majority of the respondents reported mobile phone payment in revenue collection being used to a greater extent, some were of the view that not all services provided by the county government were paid for using

mobile money transfer platform nor was there reimbursement of mobile overpayment to customers by the system.

ii. Based on the findings of objective two, whereas online payment was extensively used with possibility to generate single business permits online among other activities in Kisumu County, some respondents were neither certain whether the county government had opened an online portal for making payments using debit and credit cards nor designed electronic cards for making such payment.

5.10 Recommendations

i. Based on the conclusion of objective one that establishes the extent of the usage of mobile phone payment in revenue performance in Kisumu County, the county government of Kisumu should ensure that all the payment of all the services, fees and taxes are paid through mobile phone payment this would help curb fraudsters taking advantage to defraud the county government by having parallel collections of the revenues. This will intern improve the revenue collections thus good service delivery in the county. The county government should also provide mechanism for reimbursing overpayment through mobile phone payments and online payments. This hence will improve the acceptance of   the e-payment platforms by the county residence hence boosting the revenue collections. In addition the county government should create awareness through seminars and campaigns on mobile phone payments in on revenue collection in Kisumu County.

ii. Based on the conclusions of objective two, which establishes the extent of application of online payment in revenue performance in Kisumu County, the county government should create awareness through seminars and campaigns on the online payments. This will help ensure that all those residing in the county are aware of the e-payments thus improving the revenue collection in the County government of Kisumu.

5.11 Limitations of the Study

I. The study only focused on the revenue department of Kisumu County government which may have not given intensive report on revenue performance, it would have

covered the whole finance department to ascertain revenue performance and other effects in other departments in the finance docket in the County government.

II.   The study was only done in one county in the Republic of Kenya thus may not be used to judge the revenue performance in other Counties in Kenya.

III.   The study only covered the aspects of the electronic payment systems in revenue performance thus leaving other aspects such as the manual collections that is still experienced in some parts of the county

5.12 Suggestions for Further Research

Further research should be done in the whole finance department of Kisumu County government to ascertain the role played by various sectors in revenue performance and not only the revenue department in the County government. Other counties should also be included to come up with a report that can be adopted to inform policy makers to come up with policies that controls the revenue collections in Kenya.

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APPENDICES

Appendix 1: Letter of introduction

MASENO UNIVERSITY

SCHOOL OF GRADUATE STUDIES

Office of the Dean

Our Ref: MSC/BE/00045/2017

Private Bag, MASENO, KENYA
Tel:(057)351 22/351008/351011
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Date: 22nd July 2019

Approved

TO WHOM IT MAY CONCERN

RE: PROPOSAL APPROVAL FOR GEORGE MBOYA OKWANYO— MSC/BE/00045/2017

The above named is registered in the Master of Science in Finance in the School of Business and Economics, Maseno University. This is to confirm that his research proposal titled **"Effect of Electronic Payment Mechanisms on Revenue Performance: A Case of Kisumu County Government, Kenya"** has been approved for conduct of research subject to obtaining all other permissions/clearances that may be required beforehand.

Prof. J.O. Agure
DEAN, SCHOOL OF GRADUATE STUDIES

Maseno University   *ISO 9001:2008 Certified*

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Appendix 2: Questionnaire

You are kindly requested to fill in the blank spaces at the end of each question or statement or simply put a tick [√] where appropriate.

Section A: Demographic Information

1. Sub County…………………………………………………………………………………

2. What is your Job Title/Designation…………………………………………………………..

3. What is your gender?   Male   ☐   Female   ☐

4. What is your age bracket? 18- 30 years   ☐   31 – 40 years   ☐

    41 – 50 years   ☐   Over 50 years   ☐

5. What is your level of education?

    Certificate   ☐   Diploma   ☐   Undergraduate Degree ☐

    Masters   ☐   Doctorate ☐

    Other (Please specify) _____

6. What are your terms of employment?

    Permanent   ☐   Contract ☐

Key: SA-Strongly Agree (5) / A-Agree (4) / N-Neutral (3) / D-Disagree (2) / SD-Strongly Disagree (1)

Section B: Extent of use of mobile payment in Kisumu County

7. a). Tick (√) one box for each, to indicate extent of agreement/disagreement with the following activities relating to mobile payment

	Extent of mobile payment	SA	A	N	D	SD
i.	All services provided by the county government are paid for using mobile money					
ii.	The county government has opened pay bill numbers for different services					
iii.	Major telephone service providers(Safaricom, Airtel and Telecom have been incorporated in the e-payment platform					
iv.	Mobile overpayments are reimbursed to customers by the system					
v.	There is an acknowledgement message sent to clients when payments are made using mobile phone					
vi.	Revenue collection per day is accurately ascertained using the mobile payment system					

7. b). **Mobile phone payment**s money paid for a product or service through a portable electronic device such as a tablet or cell phone.

Tick (√) one box for each, to indicate your level of agreement/disagreement with the following **mobile phone payment** activities in your organization

	Mobile phone payment activities	**SA**	**A**	**N**	**D**	**SD**
i.	The County government uses Short message service reminders					
ii.	Mobile money payments in the county reduces the risks of handling cash in fees payment					
iii.	Tax remitted to the county government has improved as a result of mobile payment					
iv.	Mobile money payments have reduced the costs of revenue collection in the county					
v.	Mobile money payments have won public trust in revenue collection					
vi.	Mobile money payment of taxes have reduced cases of embezzlement of county taxes and improved collection					

Section C: Extent of use of online payment in Kisumu County

8. a). Tick (√) one box for each, to indicate the extent of agreement or disagreement with the following activities relating to online payment

	Extent of online payment	**SA**	**A**	**N**	**D**	**SD**
i.	Single business permits can be generated online in Kisumu county					
ii.	The county government has opened an online portal for making payments using debit and credit cards					
iii.	The county government purchased equipment's for card swiping when making payments					
iv.	The county government has designed electronic cards for making county revenue payments online					
v.	Computers in the county government offices are networked to enable tracking customer payments					
vi.	The online payment transactions can easily be retrieved for future references					

8. b) **Online payment:** is usually the transaction that results in transfer of monetary funds from the customer bank or credit card account to the recipient's bank account.

Tick (√) one box for each, to indicate your level of agreement/disagreement with the following online payment activities.

	Online payment activities	SA	A	N	D	SD
i.	The county government has invested on e-government services					
ii.	The county government has computerized taxation services					
iii.	The online Kisumu county tax payers have been sensitized about online tax system					
iv.	Tax collection has improved in the county as a result of online tax remittance					
v.	The county government has employed enough professionals to handle the online tax system					
vi.	There is reduced level of corruption as a result of the use of online tax system.					

Section D: Revenue Performance is a measure of how well or poorly the taxpayer's earnings or money is taken and remitted to the government

9. Tick (√) one box for each, to indicate your level of agreement/disagreement with the following activities relating to revenue performance in the County.

	Revenue performance	SA	A	N	D	SD
i.	There is an overall improvement in revenue collection in the County as a result of e-payments					
ii.	Embezzlement of county revenue has tremendously reduced as a result of electronic payment					
iii.	There is more accountability on the use of county revenue funds as a result of e-payment					
iv.	The county budget deficit gap has been reduced as a result of e-payment					
v.	The cost of revenue collection in the county has reduced due to use of e-payment system					
vi.	Budget projection has been made easier as a result of IT use in revenue analysis					

Thank you for your response