

## **EFFECT OF E-PAYMENT SYSTEMS ON SUSTAINABLE REVENUE COLLECTION IN NAIROBI CITY COUNTY GOVERNMENT**

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## **ABSTRACT**

Governments in both developed and developing countries require revenue to finance their expenditures. Sustainable revenue collection is necessary in promoting efficiency in the service delivery and economic development of county governments. For effective mobilization of revenue, there is the need to put in place effective e-payment system. This study intended to establish the effect of e-services, mobile payment system and e-banking payment system on sustainable revenue collection in Nairobi county government. The study was supported by the information systems success theory, Diffusion Innovation Theory and Resource Based theory. A cross sectional research design was adopted. The target population for the study was the Nairobi County Government. The unit of study was the NCCG staff and KRA staff. This comprised of 98 middle level management employees and 143 low-level management employees. Due to the small size of the population, all the employees took part in the study. Primary data was collected using semi structured questionnaires. Descriptive statistics used include means, frequencies, percentages and standard deviation. Inferential statistics were Pearson's product moment of correlation and multiple regression analysis. The study found that e-receipting improves county revenue collection, usage of e-

services enhance revenue collection, e-billing facilitates revenue collection of the county and e-invoicing is enhances sustainability in revenue. The study found that the county government uses Mpesa to collect revenue, mobile payment is done through the USSD code\*647# to facilitate payment of revenue in the county government, mobile app-payments are made through an app on android to enhance revenue collection in the county and web portal facilitates revenue collection in the county. The study concluded that e-services has the greatest effect on sustainable revenue collection in Nairobi City County Government, followed by e-banking payment system then mobile payment system had the least effect on the sustainable revenue collection in Nairobi City County Government. The study recommends that the government through the National and County government should implement policies that enhance sustainable revenue collection in government institutions. The Government of Nairobi City County should increase their public awareness campaigns to ensure that the consumers get the right information as pertains to e-payment in revenue collection.

**Keywords:** E-payment, E-banking, E-services, Sustainable revenue collection

## **INTRODUCTION**

Governments all over the world need revenue to finance their expenditures. Sustainable revenue collection is necessary in promoting efficiency in the service delivery and economic development of county governments (Sausi, Mtebe & Mbelwa, 2021). Sustainable revenue

collection refers to operations in an entity where its dues are fully collected improving the collection and increasing the amount collected (Kishura, 2020). For effective mobilization of revenue, there is the need to put in place mechanism which enhances sustainable revenue collection. Use of automated systems has been proven to produce massive efficiencies in regard to enhanced revenue collections.

Globally, governments are under pressure to deliver basic services to their citizens. To fund amenities such as clean drinking water, waste management, adequate power supply and healthcare, sub-national/city administrations are under financial stress. The development of an integrated revenue collection system (e-payment) provides the necessary platform to support cities, municipal administration to more efficiently collect own source revenue and to assist the decision making process through improved data collection, visual data representation, sophisticated reports and analytical metrics (World Bank, 2014).

Revenue collection among the counties in Kenya however has not been hitting the targets the net effect being a huge loss, which would par county economic development, growth, and improved service delivery (Wambua, 2017). In order to eliminate or significantly reduce corruption and achieve the county financial objectives and simplify payments, the Electronic Payment (E-Payment) has been introduced. Worldwide, there has been an upsurge of Electronic payment system meant to facilitate elimination of losses of revenue through corruption and simplify payments (Tee & Ong, 2016). Technology has come in hand in enhancing not only efficient but also sustainable revenue collection in the governments in the world.

Conventionally, nearly all revenue bodies provided in-person payment services or promoted the use of mailed payments by cheque, referred to as non-electronic payment methods, due in part to the absence of alternatives. However, over time with increased digitalization, it became more cost effective for revenue entities to use third parties such as banks to collect tax payments, with relevant payment data being transmitted by banks to the government electronically to enable them to update taxpayers' records. This is referred to as a partially electronic payment method. A more recent development is the fully electronic payment method, in which taxpayers make their own payments online (or arrange for this to be done automatically via their bank with a direct-debit type of arrangement) (Mustapha, 2018).

The Nairobi City County Government appointed Kenya Revenue Authority as the principal agent for overall revenue collection for all county revenue. The Kenya Revenue Authority (KRA) is a Semi-Autonomous Government Agency (SAGA) whose objectives are to assess, collect and account for all revenues and to advice on matters relating to the administration of, and collection of revenue under the written laws. According to Kiema (2017), 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.

The Kenya Local Government Reform Programme (KLGRP) was conceptualized by the government of Kenya in the early 1990s and became operational in 1996. The decentralization initiative under the KLGRP was launched focusing on strengthening Local Authorities (LA). The programme had three components: rationalizing central-local financial relations, improving Local Authorities financial management, including revenue mobilization, and strengthening citizen participation in planning and ownership of programmes. The reform programme had recognized the importance of Local Authorities in enhancing economic governance, improving public service delivery, and increasing economic efficiency, accountability and transparency. The reforms had also included putting in place Fuel Levy Fund, Contribution in Lieu of Rates, user charges rationalization, single business permits and most greatly Integrated Financial Management System (IFMS). These programs aimed at restructuring the local public sector and more importantly, strengthening local level accountability mechanisms (Cheboi & Bruce, 2021).

At independence, Nairobi inherited a system of Local Authorities, whose basis was the Local Government Act (Cap. 265) rather than the Constitution. Local Authorities derived their revenue raising powers from a variety of legal instruments including: the Local Government Act (Cap 265, sections 216 and 217) which empowered Local Authorities to establish and maintain a General Rate Fund; b) the Valuation for Rating Act (Cap 266) and the Rating Act (Cap 10267), The Rating Act provided for imposition and collection of property rates by rating authorities while the Valuation for Rating Act (Cap 266) provided for valuation of properties for the purpose of levying rates. The latter also laid out procedures to be followed in preparing a valuation roll, which is a legal document consisting of information on all rateable properties within a specific jurisdiction, the Trade Licensing Act (Cap 497) which empowered Local Authorities to impose business license fees, the Local Government Act (section 222) which empowered Local Authorities to borrow, including through issuance of stocks or bonds, although this facility was rarely used (Lubanga, Gakobo, Ochieng & Kimando, 2017).

Okiro (2015) noted that the tax modernization program was introduced in Kenya in 1986 with the hope of, among other things, enhancing revenue collection. The Kenya Revenue Authority (KRA) was established by an Act of Parliament, chapter 469 of the laws of Kenya in July 1995 as the only tax collecting agency mandated to collect tax on behalf of the government of Kenya (Laws of Kenya, 2012). The purpose of KRA is assessment and collection of tax, as well as administration and enforcement of laws relating to revenue. Before the enactment of KRA, the task of revenue collection was shared between at least 5 government ministries. This led to high levels of revenue leakage, replication of roles, high collection and administration costs as well as lack of accountability from the respective revenue collecting ministries (Munyao, 2020). Its enactment increased revenue collection drastically, and currently about 90 percent of the national budget is funded by tax revenue.

At the inception of County Governments, Nairobi City County was collecting taxes manually without a proper set framework. Over the years the County contracted Web Tribe (Jambo

pay) to collect revenue on its behalf through a platform known as "E-jiji pay". This contract was terminated for, among others, poor revenue collection. In early 2018 the County then again contracted National Bank of Kenya through an entity known as "Noveta" for purposes of revenue collection. Currently the County is using a hybrid manual system as well as the "Noveta" platform (Wambua, 2017). The role of automation in revenue collection cannot be over emphasized especially with regard to efficiency gains and sealing leakages. The Controller of Budget and the Commission on Revenue Allocation reports indicate that majority of counties use fragmented ICT systems in revenue collection and management. The systems previously used by the County for revenue collection purposes are LAIFOMS (the core reporting system), RevenueSure and FleetFix (Transport Management) and eDevelopment Permit System (Urban Planning) (Owino, Otieno & Odoyo, 2017).

### **Statement of the Problem**

The governments have a responsibility of ensuring infrastructural development, economic and social empowerment of its citizen's failure of which renders the County government dysfunctional. In order to implement all this, governments need to collect sufficient revenue which is not the case as revealed by the auditor generals' report of 2018. County governments are explicitly assigned the power to impose taxes such as infrastructure maintenance fees, property rates, entertainment taxes, user fees such as parking fees, game park fees, house rents, water and sewerage fees, trade licenses and market fees (Casu & Lazo, 2017). According to the KRA I.C.T Strategy (2018 – 2021), most counties missed their annual revenue collection targets in the 2017/18 financial year. Out of 47 counties only Tana River, Kwale and Migori counties met their targets. Despite of the significant investment in ICT many of the county governments have been faced with a situation where their entire revenues have not been enough to meet their budgetary needs.

Nairobi County collected Ksh 10 billion in 2013/14 which increased nominally to Ksh 11.5 billion in 2014/15, representing a growth of 14.7%. This was followed by a further increase to Ksh 11.7 billion in 2015/16, albeit marginal. Despite this growth in revenue collection, it is important to note that Nairobi like majority of the counties has consistently fallen short of realizing revenue targets for the period 2013/14-2015/16 (Nairobi City County, 2017). Since the coming in of Nairobi city County Government in March 2013, the county has not been able to realize optimum revenue potential and budget targets due to poor performance of own source generated revenues. In FY2017-2018 the county realized 26.328 billion against target of 33.45billion which equivalent to budget underperformance of 21%. Own source revenue generated was Ksh 10.109billion against target of Ksh 17.22billion. In FY 2018-2019 internal revenue generated was Ksh 10.25billion against a target of Ksh 15.50billion representing under performance of 33.8%.

The Nairobi city county has over the years failed to meet its revenue collection targets, this has hindered the county government in implementation of budget and service delivery. Despite of the significant investment in ICT by Nairobi county governments they been faced with an impossible situation where their entire revenues have not been enough to meet their budgetary needs hence the revenue collected is not sustainable. Most of these have not had enough money to pay the wages of their employees causing to disruption of essential services, stalled projects and loss of funds hence the revenue is not sustainable and it's upon this basis that this study sought to determine the effect of e-payment system on sustainable

revenue collection. Sustainability of revenue collection in Nairobi County is the key to meet their mandate to offer quality and timely service delivery to the residents.

Governments benefit from e-payments. The less cash is transacted, the more people are pulled into the formal, taxpaying economy and the more transparent services become. A paperless system should cut delays and inefficiency and enhance transparency thus helping to increase revenue. Governments depend on taxes, rates, fines, and other financial obligations to raise revenue. Many developing countries are utilizing information communication technology (ICT) hoping to make e-government and the economic development journey faster (Rotich & Nzuki, 2018). The current study therefore sought to determine the effect of e-payment system on sustainable revenue collection in Nairobi County Government, Kenya.

### **Objectives of the Study**

The objectives of the study were as follows:

- i. To evaluate the effect e-services on sustainable revenue collection in Nairobi County Government, Kenya.
- ii. To examine the effect of mobile payment system on sustainable revenue collection in Nairobi County Government, Kenya.
- iii. To determine the effect of e-banking payment system on sustainable revenue collection in Nairobi County Government, Kenya.

### **Theoretical Review**

This study was guided by the theory of information systems success theory, technology acceptance model and resource based theory.

#### **Information Systems Success Theory**

Initial development of the theory was undertaken by Delone and McLean (1992) basing it from an earlier research on communications by Shannon and Weaver. This theory sought to provide a comprehensive understanding of IS success by identifying, describing, and explaining the relationships among six of the most critical dimensions of success along which information systems are commonly evaluated. The earlier model advances six key pillars of information systems success which are system quality, information quality, use, user satisfaction, individual impact as well as organizational impact.

Information quality impacts both a user's satisfaction with the system and the user's intentions to use the system, which, in turn, impact the extent to which the system is able to yield benefits for the user and organization. As with information quality, the overall quality of a system is also one of the most common dimensions along which information systems are evaluated. System quality indirectly impacts the extent to which the system is able to deliver benefits by means of mediational relationships through the usage intentions and user satisfaction constructs. Along with information quality and system quality, information systems are also commonly evaluated according to the quality of service that they are able to deliver.

The most important information is negative input, according to systems theorists, because this information alerts the organization to problems that need to be corrected. Negative input tells

the organization that it is doing something wrong and that it must make adjustments to correct the problem. Positive input tells the organization that it is doing something right and that it should continue or increase that activity. Organizations then organize and process this information to formulate solutions or responses to these changes. As Crowston, Howison and Annabi (2006) noted open systems use information to respond to environmental changes and adjust accordingly. The adjustments affect the structure or process of the organization, or both. The structure is what the organization is, whereas process is what the organization does. Adjustments are intended to reduce, maintain, or increase the deviations. Processing positive and negative input to adjust to environmental change is called throughput. In the throughput of information, the organization analyzes it and tailors it strategically to fit with the organization's goals, values, and within the relationship context it holds with publics. This theory is highly applicable in e-services towards sustainable revenue collection in Nairobi County Government, Kenya.

### **Innovation Diffusion Theory**

The theory was proposed way back by Rogers in 1962 and was proposed by Rogers. It asserts that innovation is a process whose aim is to improve economic development (Wani & Ali, 2015). According to this theory, innovation is an idea, which is perceived to be new by individuals and may be covering all the technological, scientific, organizational and financial as well as the commercial activities necessary to create, implement, and market improved products or processes. According to Wonglimpiyarat and Yuberk (2005), the innovation theory brings on board four basic elements namely the innovation, communication process, the time and the social system. The innovation element puts attention on the ability to create and foster more efficient and better measures of doing things.

Lee, Hsieh and Hsu (2011) noted that this theory groups innovation adopters into five categories: innovators which comprise individuals who are the first to try the innovation; early adopters, whose composition are the persons who represent opinion leaders; early majority individuals, who are the people wanting to have a tangible evidence that the innovation works prior to adopting it; late majority who are the skeptical persons who only adopt the innovation after the majority and laggards have tried it. The authors add that the adoption rate of innovative strategies can be considered in terms of: relative advantage to the organization, trial-ability of the new mechanisms, compatibility, complexity, and observability to the stakeholders. Communication, which lays, creates and shares information relating to innovative strategies in the organization also affects their rate of adoption. The third element, time, refers to the duration taken in the innovation-decision process.

In Kenya, the culture of cashless payments has grown over the last decade with majority of Nairobi residents preferring to use e-payments as a substitute to paying in cash. Before this, all transactions were in cash and there had been many cases of losses due to security concerns. The technique was initially developed by banks by the introduction of PIN-secured credit cards and was later adopted by mobile money service providers. The technology has

diffused so fast that even the smallest canteen in the neighbourhood has a means of accessing cashless payments. This diffusion enabled the county government to use the already existing structures to enable city residents pay rent and parking fees via the existing electronic payment systems. The tenets of this theory illustrate how the e-banking payment system affects the sustainable revenue collection in Nairobi County Government, Kenya.

### **Resource Based View Theory**

Resource Based View Theory (RBV) was developed by Edith Penrose in 1956. The principal preposition of this theory is premised on the concept of economic rent and the view of the company as a collection of capabilities. This view of strategy has a coherence and integrative role that places it well ahead of other mechanisms of strategic decision making. The Resource Based View Theory offers a critical and fundamental insight into why with valuable, rare, inimitable and well organized resources may enjoy superior performance (Barney, 1995).

Resource based theory argues that a firm has the ability to achieve and sustain competitive advantage if it possesses resources that are valuable, rare, imperfectly imitable and non-substitutable. Initiated in the mid-1980s by Wernerfelt (1984) the resource-based view (RBV) has since become one of the dominant contemporary approaches to the analysis of sustained competitive advantage. The supporters of these arguments argue that organizations should look inside the company to find the sources of competitive advantage instead of looking at competitive environment for it (Vogel & Guttel, 2013). The resource-based view is based on the idea that the effective and efficient applications of all useful resources that the company can muster helps determine its competitive advantage.

In regards to mobile payment system, the adoption is based on internal factors to enhance efficiency and improve processes, the knowledge and expertise gained, which actually creates opportunities for real competitive advantage. An organization adopting mobile payment system would adequately improve the sustainable revenue collection in Nairobi County Government. However, if the motivation for adoption of the mobile payment system is solely external, the organization implementing the system would meet the pressures and might not improve revenue collection. The present study found this theory very beneficial in that mobile payment system affects the sustainable revenue collection in Nairobi County Government.

### **Research Methodology**

The study used a cross sectional research design. Snyder (2019) describes cross sectional design as fact-finding enquiries, involving asking questions often in the form of a questionnaire of a large group of individuals, adding that the major purpose is description of the state of affairs as it exists at present and represent the findings and information statistically.

The target population for the study was the employees from Nairobi County Government Finance department and Economic Planning Department. The accessible population refers to a subset of the target population which the researcher can easily reach in order to select a representative sample (Newman & Gough, 2020). The unit of study was the 241 comprising of NCCG staff and KRA staff. This comprised of 98 middle level management employees and 143 low-level management employees. Due to the small size of the population, all the employees took part in the study as Nayak and Singh (2021) opined that when the target population is small, all the elements in the population take part in the study.

Self-administered questionnaires were used to obtain the data. This study adopted both descriptive and inferential statistics. Descriptive statistics included frequency, mean and standard deviation of the scores relating to each of the variables used in the factor analysis. Inferential statistics, mainly Pearson correlation and multiple regression were used. Pearson product moment correlation was used to examine whether there is a significant association between revenue collections as the dependent variable and e-services, mobile payment system and e-banking payment system, as the independent variables. Multiple linear Regression model was used to identify significant predictors of revenue collection.  $P < 0.05$  was considered significant. The regression model is as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon \dots \text{Equation 1}$$

Where: Y represents dependent variable (Sustainable Revenue collection)

$\alpha$  represents the regression constant.

$\beta_1, \beta_2, \beta_3$  represents change in Y for each increment change in  $X_1, X_2$  and  $X_3$

$X_1$  represents E-services

$X_2$  represents mobile payment system

$X_3$  represents e-banking payment system

$\epsilon$  represents error term

## **Research Findings and Discussions**

### **Correlation Analysis**

This section puts into perspective the relationship between the independent variables and the dependent variable and also the influence of the independent variable on the dependent variable. The section outlines the results of both correlation. The decision rule for correlation was in accordance to Mohajan (2018) who postulated that that  $r=1$  shows a Perfect linear correlation,  $0.9 < r < 1$  indicates Positive strong correlation,  $0.7 < r < 0.9$  Positive high correlation  $0.5 < r < 0.7$  Positive moderate correlation,  $0 < r < 0.5$  Weak correlation  $r=0$  No, relationship and  $-1 < r = < 0$  Negative relationship

*Table 1: Correlation Matrix*

		Sustainable Revenue Collection	E-Services	Mobile payment system	E-banking payment system
Sustainable Revenue Collection	Pearson Correlation	1			
	Sig 2-tailed				
E-Services	Pearson Correlation	.795	1		
	Sig 2-tailed	.019			
Mobile payment system	Pearson Correlation	.737	.854	1	
	Sig 2-tailed	.032	.000		
E-banking payment system	Pearson Correlation	.764	.865	.871	1
	Sig 2-tailed	.006	.026	.007	

From the study, the results indicate that all the study variables had positive high correlation to Sustainable Revenue Collection Nairobi City County government, this was indicated by e-services ( $r=0.795, p< 0.05$ ) mobile payment system ( $r=0.737, p< 0.05$ ) and e-banking payment system  $r=0.764, p< 0.05$ ). This implies that e-services, mobile payment system and e-banking payment system positively and significantly influence Sustainable Revenue Collection Nairobi City County government. The outcomes are in line with Sausi, Mtebe and Mbewwa (2021) who stated that sustainable revenue collection is necessary in promoting efficiency in the service delivery and economic development of county governments.

### **Multiple Regression Analysis**

Multiple regression analysis is a powerful technique used for predicting the unknown value of a variable from the known value of two or more variables. In this study multiple regression helped to predict the combined effect of e-services, mobile payment system and e-banking payment system on sustainable revenue collection of Nairobi County Government. The results of multiple regression analysis are shown in Table 3.

*Table 2: Multiple Regression Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.860	0.739	0.735	0.136

- a. Predictors: (Constant), E-Services, Mobile payment system and e-banking payment system
- b. Dependent Variable: Sustainable Revenue Collection.

From Table 3, R-Squared is used to evaluate the goodness of fit of a model. In regression, the R square coefficient of determination is a statistical measure of how well the regression line approximates the real data. It measures the proportion of the variation in dependent variable in this case strategic innovation implementation, explained by independent variables. The adjusted R-squared is a modified version of R-squared that has been adjusted for the number of predictors in the model. The adjusted R-squared increases only if the new term improves the model more than would be expected by chance. It decreases when a predictor improves the model by less than expected by chance while the standard error of the estimate is a measure of the accuracy of predictions.

From the results on model summary  $R= 0.860$ ,  $R-$  square = 0.739, adjusted  $R-$  square= 0.735, and the  $SE= 0.136$ . The coefficient of determination also called the  $R$  square is 0.739. This implies that the effect of the predictor variables (E-Services, Mobile payment system and e-banking payment system) explains 73.9% of the variations in Sustainable Revenue Collection in Nairobi City County Government. This study therefore assumes that the difference of 26.1% of the variations is as a result of other factors not included in this study. Qanchora et al. (2021) affirms that technology has come in hand in enhancing not only efficient but also sustainable revenue collection in the governments in the world.

### **Assessing the Fit of the Multiple Regression Model**

Multiple regression analysis was conducted to test the influence among predictor variables on sustainable revenue collection in Nairobi City County Government. All the three null hypotheses were tested using F statics. The test results are shown in Table 4.

*Table 3: ANOVA Results*

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.722	3	3.241	174.432	1.10E-53
	Residual	3.437	185	0.019		
	Total	<b>13.159</b>	<b>188</b>			

a. Dependent Variable: Sustainable Revenue Collection

b. Predictors: (Constant), E-Services, Mobile payment system and e-banking payment system

The findings of the study in Table 4 showed that there was a statistically significant relationship between the independent variables and the dependent variable ( $F= 174.432$ ;  $p=1.10E-53$ ). This therefore indicates that the multiple regression model was a good fit for the data. It also indicates that E-Services, Mobile payment system and e-banking payment system all influence Sustainable Revenue Collection in Nairobi City County Government. Njoku (2020) argues that in order to eliminate or significantly reduce corruption and achieve the county financial objectives and simplify payments, the Electronic Payment (E-Payment) has been introduced. Worldwide, there has been an upsurge of Electronic payment system meant to facilitate elimination of losses of revenue through corruption and simplify payments.

## Regression Coefficients

The study employed multiple regression analysis to test the hypotheses. Multiple regression analysis was conducted to test the influence among the study variables E-Services, Mobile payment system and e-banking payment system on sustainable revenue collection in Nairobi City County Government. This was done with a significance level of 0.05, such that when the significance value is less than the 0.05 the null hypothesis is rejected and when it is above 0.05 we fail to reject the null hypothesis (Ringle, Sven & Michael, 2015). These results were presented in Table 5.

*Table 4: Regression Coefficients*

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
(Constant)	2.369	0.523		4.530	0.000
E-Services	0.763	0.228	0.534	3.346	0.002
Mobile payment system	0.670	0.209	0.319	3.206	0.003
E-banking payment system	0.731	0.261	0.476	2.801	0.009

a. Dependent Variable: Sustainable Revenue

The first null hypothesis  $H_{01}$  stated that; e-services have no significant effect on sustainable revenue collection in Nairobi City County Government. The study findings indicated that there was a statistical significant effect of e-services on sustainable revenue collection in Nairobi City County Government ( $\beta = 0.763; p < 0.05$ ). The study therefore rejected the null hypothesis at 95% level of significance and accepted the alternate hypothesis which showed that there was an effect of e-services on sustainable revenue collection in Nairobi City County Government. The research findings were in agreement with Chen, Walker, McCalman, Elkhouly and AbdElDayem (2021) who stated that e-payment system provides the ease of transaction processing in e-commerce between consumers and sellers. Using the E-payment System has many benefits for payers, payees, E-commerce, banks, organizations and governments.

The second null hypothesis  $H_{02}$  stated that; mobile payment system has no significant effect on Sustainable Revenue Collection in Nairobi City County Government. The study findings indicated that there was a statistical significant effect of Mobile payment system on Sustainable Revenue Collection in Nairobi City County Government ( $\beta = 0.670; p < 0.05$ ) The study therefore rejected the null hypothesis at 95% level of significance. The findings of the study concur with Munyao (2020) who noted that mobile payment systems led to high levels of revenue leakage, replication of roles, high collection and administration costs as well as lack of accountability from the respective revenue collecting ministries.

The third null hypothesis  $H_{03}$  stated that; e-banking payment system has no significant effect on sustainable revenue collection in Nairobi City County Government. The study findings indicated that there was a statistical significant effect of e-banking payment system on Sustainable Revenue Collection in Nairobi City County Government ( $\beta = 0.731; p < 0.05$ ). The study therefore rejected the null hypothesis at 95% level of significance and accepted the

alternate hypothesis which showed that there was an effect of e-banking payment system on performance of real estate sector in Sustainable Revenue Collection in Nairobi City County Government. The research findings are in line with Apau, Obeng and Darko (2019) who stated that taxable businesses are required to issue receipts via electronic cash registers to all customers for payments made in cash, by bank cards, credit cards, or debit cards and also electronic payments.

The findings further showed that the regression coefficients of the independent variables (E-Services, Mobile payment system and E-banking payment system) were positive and significant predictors of Sustainable Revenue Collection in Nairobi City County Government. Thus the regression equation becomes;

$$Y = 2.369 + 0.763X_1 + 0.670 X_2 + 0.731X_3 \dots \text{Equation 2}$$

From the regression equation and the results in Table 4.19, the coefficients refer to the slope of the regression line and amount of variance each predictor contributes to the general regression equation. Therefore, adjusting e-services by 1 unit would lead to a 0.763-unit change on Sustainable Revenue Collection in Nairobi City County Government. It is also noted that changing 1 unit of mobile payment system would lead to a 0.670-unit change on Sustainable Revenue Collection in Nairobi City County Government. Lastly, a 1 unit change in e-banking payment system would lead to a 0.731-unit change on Sustainable Revenue Collection in Nairobi City County Government. Hence all variables are statistically significant predictors of the dependent variable.

## Conclusions

From the findings, the following conclusions can be established; the usage of E-services is useful in enhancing sustainable revenue of Nairobi County Government. This study concluded that e- services enhance convenience. This is crucial for the Nairobi County Government to collect more revenue since it allows citizens to make payment of services at their own comfort.

From the findings, it was discovered that mobile payment system enhances revenue collection. It was found that mobile payments, E-banking, and E-wallet enhance revenue collections of county governments. Thus, the study concluded that the County government uses mobile payment system to curb fraud which is perceived to be a risk for when prompted to make transactions manually.

Lastly, the study concluded that e-banking payment systems enhance revenue collection in Nairobi County government. From the findings, e-banking payment systems provide convenience to customers as well as the organization. This study also concludes that partnership with various payment agents or partners such as banks to facilitate payments for the County government is essential since the partners have reliable and effective payments systems that are used across the world, therefore, this partnership is crucial.

## **Recommendations**

The study recommends that the government through the National and Nairobi City County government should implement policies that enhance sustainable revenue collection in government institutions. The study findings will also help to provide strategies on the implementation of E payment system in order for sustainable revenue collection.

The study also recommends that the Government of Nairobi City County should review its revenue collection standards to ensure that all its wards, departments and other related units are compelled by regulations to adopt e-banking payment system and other ensure management of revenue collection system. There should be structured e-banking payment system adoption standards and structure in Nairobi City County.

The study further recommends that the Nairobi County Government should invest more on new technology, innovations and capacity building to improve the uptake of e-services. The study recommended that the Nairobi County Government should sensitize, inform and remind their clients on the availability, accessibility, usage and value of e-services at their disposal to improve their uptake and use. The study showed that e-payment systems are a critical factor for sustainable revenue collection of County governments. The study thus supported the understanding of innovation diffusion theory. That is through innovation the social context of the new technology influences the adoption of innovative activities in the business processes and enhances revenue collection.

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