Financial Information Systems And Revenue Collection By County Governments In Kenya: A Case Study of Nairobi City County

Evans Machero Ochego, Ambrose Jagongo (PhD)
Department of Accounting And Finance, Kenyatta University, Kenya

Abstract - Local authorities are beneficial to citizens in the provision of health facilities, educational, research, political and commerce services. According to the Kenya County Government Act 2012, County authorities have an obligation to provide service within their jurisdiction. Realization of this mandate is dependent on the effectiveness of revenue collection methods that impact on delivery of service. Nairobi County produces more than half of the country's Gross Domestic Product and is the county with the largest population in Kenya; the Nairobi county government therefore is faced with a great challenge of service provision currently the county government faces deficiency of revenue collected as a result of defaulters. Evidence from literature points out that use of internal control systems positively impacts internal operations of organizations including, maximization of revenue collection. As a result of this, the study sought to investigate the overall effect of financial based Information systems on revenue collection by Nairobi County government. The specific objectives sought to: examine the effect of e-payment systems and investigate the effect of internal control systems on revenue collection by the County government of Nairobi City County. The main theory that guided the study was agency theory and adopted the descriptive research design. The study employed purposive sampling to conduct a survey of managerial staff in all the sub counties and county government totaling to 55 respondents. Also, 100 customers of the Nairobi county government who are users of e-payment systems such as e-construction, Ad system and E-jiji/parking management system were included. The main data collection instrument was research questionnaires and data obtained was majorly quantitative. Data analysis on the quantitative data was both inferential and descriptive, and was generated by use of Statistical Packages of Social Sciences (SPSS) software. Reliability of the data collection instrument stood at α=0.816 and the response rate was 72.88%. Data findings were presented by use of tables. Generally, descriptive analysis found out that E-payment system had a strong impact on revenue collection by the county government. E-payment systems had a strong significant relationship at β= 0.084; p=0.05; The study recommends that Implementation of financial systems, especially the ICS should be encouraged and rolled out to other counties for the improvement of this critical resource of revenue .Further studies should be done on the areas of how financial information systems are sourced, user needs generation and the cost benefit analysis. Also, since the study was limited to Nairobi City County, future studies should be replicated to other counties in Kenya.

Keywords: financial information systems, revenue collection, County Government, Nairobi city county, Internal control systems, Information systems.

1.1 Background of the study

Information system is a composition of people, hardware, software, information technology and procedures that collect, process, store and communicate information that aids in managerial decision making. According to Nyamboga and Kemparaju (2002) Information system involves processing and transmitting of information that may include computing, telecommunication and microelectronics. In reference to the pyramid model of information systems, information systems are categorized into four levels based on hierarchy of levels of organizations. These include transaction processing systems, management information systems, knowledge work systems and executive information systems. At the apex of an organization, the strategic level, decision support systems (DSS) and executive information systems (EIS) are used to aid decision making. At the management level management information systems (MIS) are used by departmental heads for decision making. At knowledge level, Office Automation Systems are used e.g. for day to day financial planning, whereas at the bottom level of organization hierarchy, transaction processing systems (TPS) are used for day to day decision making (D'Atri, Marco, & Casalino, 2008). Transaction processing systems are normally used by front line staff of organizations in their day to day operations. Data obtained from TPS are therefore very detailed. Management information system uses information gathered by both office automation systems and TPS and use it to generate summarized reports for middle level managerial decision making depending on departments of an organization. Decision support systems and Executive information systems are however used at the apex of management of organizations and are therefore essential in strategic planning of organizations by the strategic leadership (Kaplan publishing, 2014).

Further, information systems can be categorized with respect to functional area of organization/departments. Some of the Information Systems in this category include

the accounting information systems, manufacturing information systems, marketing information systems, human resource information system and financial information systems. In relevance to the study, the financial information systems (FIS) are systems that keep track of the firm's financial assets and fund flows. For instance, at the strategic level of an organization, FIS play a key role in the planning for long term profits. At management level, FIS facilitate management in the preparation of short term budgets. At knowledge level, FIS play a key role in portfolio analysis as well as designing of the firm portfolio of investments. At the operational level, FIS aid in management of accounts receivable/money owed to a firm (D'Atri, *et al.*, 2008). Financial information systems may interact with both internal and external operating environment of an organization depending on the size and area of operations. Transactions systems such as e-payment are a sub set of ecommerce systems which interact with an organization's customer purposefully for electronic payment of products or services purchased. In e-payment issues of trust and acceptance play a critical role on its usage. Main objectives of e-payment systems include increase in accountability, enhancement of security and customer convenience and ease of use. Internal control majorly involves the internal operating environment of an organization and basically refers to controls enacted by management or persons who have an intention of providing assurance regarding the effectiveness and efficiency of operations; reliability of financial reporting and compliance with laws and regulations. Components of internal control framework include: Control environment, risk assessment, control activities and monitoring (Oksijz, 2010). Githinji, Mwaniki, Kirwa and Mutonga (2014), discuss Information Systems as infrastructure for revenue collection, the need for ICT to drive revenue collection, and strategies required to maximize revenue collection. The article uses different theories such as Technology Acceptance model (TAM), Unified theory of Acceptance and use of Technology (UAUT) to examine the impact of management information system on revenue collection in Kenyan counties; as well as to establish the mode of strengthening domestic resource mobilization by utilizing ICT. The researchers used data from past literature, reviewing Information System theories linked to revenue collection systems. The authors highlight the importance of revenue in Kenya with an international view on need to use ICT to collect revenue. Article by Carton, Hedman, Dennehy, Damsgaard, Tan and McCarthy (2012), looks at both the dimensions of both the cost and benefits to their customer derived from e- payments. The focus of the study is the value proposition for the customers on adoption of mobile payments with a case study design approach on campus students. The study notes the inertia by banks in promoting tried payment methods which they advocate for in terms of risk to both the customers and businesses.. The authors found that the use of e-payments has provided a new way of payments but its value has not been established. Conclusion on the costs and benefits of e-payments has not been made but will serve as a basis to arrive at the conclusion on benefits to the economy. Further research on the topic is recommended to entail validating the framework empirically on a range of different emergent payment scenarios, with an aim to clarify the collaboration decisions for players in the market for mobile payments The framework developed by the authors will be useful in analyzing the value proposition for Nairobi City County citizens of E-jiji mobile payment solution. Study by Crandal, Otieno, Mutuku, & Colaco (2012) on the usage of mobile money services, products and applications with particular focus on M-PESA services in Kenya found that the mobile payment system had huge penetration and high usage among a large portion of the population. The research focused on the economic base of the pyramid and covered urban and rural areas of only 6 districts in Kenya. The authors used face-face interviews and questionnaires to collect data in order to understand the demand potential and usage of mobile money services in the base of the pyramid in Kenya. The study is useful to our research as it underscores the penetration of mobile money at the low end of the economic spectrum and hence the likely uptake and success of mobile payment solutions such as E-jiji pay. Control environment, which provides the discipline and infrastructure to the other elements of internal control systems such as organization structure, operating style and human resource. Risk assessment, another component of internal control identifies possibility and probability of risk occurrence. Control activities for instance, setting authorization and responsibility, approval process, reviewing processes and auditing involve establishment of critical items including IT process, segregation of duties, performance indicators, high level reviews and management of functions and activities. Lastly, monitoring is a component of internal control framework that correctly evaluates and accesses performance of internal control systems, as well as internal auditing and reporting of internal control weakness (Oksijz, 2010). Data bank consulting (2002) in their review identified that information technology development in organizations in financial sector had resulted to reduction of costs per transaction; broadened easier access per transaction; more effective systems of customer relationship management and availability of more efficient tools for controlling internal processes. Revenue can be defined as total receipts from donors, income generating activities, annual fee for members renewal , and any other investment earning activities (Mutisya, 2014).Revenue collection basically is a subset of financial management of an organization. According to

(GFOA, 2014) the process of revenue collection usually involves many actors among them tax payers, local governments treasurer, banks, tax collection agencies and the government attorney.

1.1.1 Revenue collection and local government in Kenya

Local authorities are beneficial to citizens in the provision of health facilities, educational, research, political and commerce services (UNHabitat, 2004). As at 2013, Kenya had a total of 175 local authorities though, devolution enabled creation of 47 county governments. Nairobi city county, after the transition of local authorities remains the largest local authority producing more than half of the country's' GDP. According to Kenya's County Government Act 2012, County Governments have an obligation to provide services within their jurisdiction. Realization of this mandate is dependent on the effectiveness of revenue collection methods that are deployed to achieve the target revenues that directly impact on delivery of service to their citizens. The County governments have potential through their various departments and sections to generate huge revenues as outlined in Finance Bill (Nairobi City County Finance Act, 2013). Also, provisional Revenue Act No. 3 of 2013 provides that the county government is authorized to disburse the available resources for use in different projects which is achieved by levies in form of land rates, residential and market rents, sundry debtors, issue of permits and licenses and penalty fees. The interest in enhancing revenue collection in developing countries, is increasing (Gulyani, 2009).According to Mensah, Ahegbebu and Asabere (2012) revenue is a critical element for survival of any utility sector and significance of the role of ICT in revenue collection and overall transformation of the economy, cannot be understated.. The researchers concluded that 'various stakeholders involved can be organized in a multi-sided platform to reduce transaction costs, maximize value creation and gain sustainable revenue for all stakeholders. In their article, Fieldstad and Haggstad (2012) examined advantages and limitations encountered in revenue movement in selected African countries. These authors discussed various ways of revenue collection, ability, and their effect on efficiency, revenue appropriation, and accountability. The article focused on revenue system and mobilization in urban settings of selected African countries including Botswana, Kenya, Malawi, Uganda, South Africa, Swaziland, and Zambia. The researchers concluded on the need for more research to be conducted to address design and implementation of effective revenue generating systems that address local government accountability. The main limitation of the article however is the wide knowledge gap on local government taxation and revenue collection in Africa and therefore brings out the need for further studies to address the impact of revenue collection systems in Africa, which is relevant to this study. Makokha, Alala, Musiega and Manase (2014), review factors that determine revenue maximization potential for the Kakamega County with its expanded scope and inherited employees under the new constitutional dispensation. The authors used data gained through interviews, questionnaires and focus group discussions of senior managers and those county staff members directly involved in revenue administration with the aim of establishing the key challenges faced in revenue collection. The research focused on a number of factors that affected either directly or indirectly the county's ability to collect revenues and concluded that there are numerous reasons for poor revenue collection and management key among them need for sufficient revenue supervision during revenue collection. The main limitation of this article was that the sample respondents were restricted to the Kakamega County. The authors concluded that many county Governments lack proper revenue administration capacity and therefore do not fully benefit from existing revenue resources. Revenue collection administration is often inefficient and thus large amounts of revenue are uncollected while the amounts that are collected sometimes are inappropriately managed. This study therefore provides insight on the existing knowledge gap as to the challenges county Governments face in revenue collection and administration, and mechanisms needed improve effectiveness of revenue collection (Makokha, Alala, Musiega, & Manase, 2014). Michaels (2011) reviews the nature of e payments in Kenya, their usage and reviews four cases on e payments which include EFT transfers, it undertakes an analysis of the current state of e payments in Kenya. The case studies method is used to look at the impact of e payments in Kenya including e payments use in the Lands ministry, non-governmental use for examinations council of Kenya, a micro finance institution and USAID partner - PACT Kenya.

1.1.2 Information Systems and local government in Kenya

In Nairobi County government, financial information systems employed/deployed concerning financial transactions include: LAIFOMS, IFMIS, Integrated payroll and personnel systems, E-Construction systems, Ad manager systems, Medical certificate systems, mortuary management systems, parking management systems, Ad hoc rates application systems, E-payment systems (KNAO, 2013). LAIFOMS revenue module and IFMIS are integrated financial information systems used by county governments in generating integrated reports of all financial transactions done by various cost centers therefore purposed as a linkage between sub-county governments, head county government and the treasury. Mortuary management system is aimed at automation of revenues and management of operations at the City

mortuary; Medical certificate systems manages issuance of medical certificates to food handlers in hospitality industry; Ad manager systems are purposefully designed to manage advertisements, signage's and billboards by automating invoices; parking management systems are aimed at generation of seasonal parking permits to motor vehicles; adhoc rates application system supports automation of rates billing and payments, e-construction system facilitates the automation of issuance of construction permits and payments. For the purpose of the study, the systems have been categorized into internal control systems, e-payment systems and stand-alone systems (KNAO, 2013). Any change process is marred by its challenges depending on how well it is managed. To succeed implementers have to win confidence of the stakeholders and managing their fears appropriately. According to Kotter (2008), *"people typically prefer the status-quo and change means uncertainty about what the future looks like"* resulting to resistance to change. To encourage employees to assist with the change, leadership of county government must create a sense of urgency and battle resistance to task a powerful coalition of management that consistently communicates on the vision. According to Ndou (2004), the challenges that institutions face when implementing e- solutions especially for public entities is majorly ICT infrastructure. Ndou (2004), noted that infrastructure is required to enable e- revenue collection. Proper ICT infrastructure and literacy provide means to access the e- government solution which will lead to higher acceptance of such systems hence success. The Technology Acceptance Model (Davis, 1986) provides a theoretical model that explains rationale behind adoption of technology, specifically information technology by users. In this model, external variables/environment of a user influences his/her attitude and acceptance of technology. Perceived usefulness and ease of use in turn influence his/her attitude towards the technology therefore the user develops intention to use and actual use. In this study this model will enable understanding on the part of user, such that even though the computerized financial information systems are available in a work environment, actual effective use for the intended purpose also depends on the user willingness. In his study used the model and concluded that it was an important theoretical tool in understanding user acceptance of e-learning.

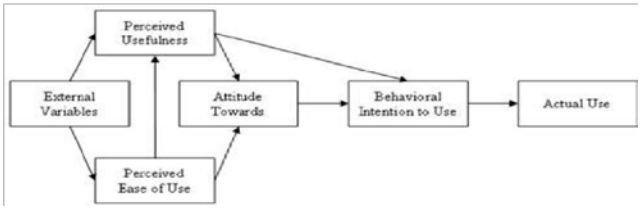

Figure 1: Technology Acceptance model (Davis, 1986)

According to Kotter (2008), status quo is usually due to uncertainty of expectations brought about by new systems of operations therefore resulting to resistance to change. To encourage employees to assist with the change, leadership create a conducive environment for use of technology which creates a sense of urgency and battle resistance to task a powerful coalition of management that consistently communicates on the vision. According to Ndou (2004), the challenges that institutions face when implementing e- solutions especially for public entities is majorly ICT infrastructure. Ndou (2004), noted that infrastructure is required to enable e- revenue collection. Proper ICT infrastructure and literacy provide means to access the e- government solution which will lead to higher acceptance of such systems hence success. In reference to special audit report (2013), inadequacy of staff training, laxity on the part of management in ensuring proper utilization of IS available as well as lack of proper infrastructure (for instance, orange modems were being used in place of fiber cables to operate IFMIS and as result various stations experienced continued downtime from servers). Proper policies also have to be set up to ensure that legality and procedures are in place and therefore guide the running of the system.

1.2 Statement of the problem

According to (KNBS, 2014; UN Habitat, 2014), Nairobi City County has the most developed access to services and with the growing population, demand for services will increase. From its inception, the city's population has grown tremendously to a population of more than 3million people according to population census of 2009 (KNBS, 2009). This has exerted pressure to the County Government primary role of provision and management of basic social and physical amenities. As a result, this pressure has translated to increase in financial requirements for the County. Special audit report on county governments (2013) identified that if revenues collected by the county governments were efficiently and prudently used, local governments would be capable to fulfill their primary mandate of provision and management of adequate and quality basic services and physical infrastructures such as basic education, housing, health, water and sewerage, refuse and garbage, planning and development, urban public transport, fire services among others to its residents. However county governments expenditure budgets strongly rely on the revenues projected, alongside government funding. A study conducted by UN Habitat (2004) identified "that the fundamental problem that faces municipality funds in Africa is disparity between in budgeted resources and expenditure", which has been contributed to by among other factors, inefficiency of revenue collection, national government interferences, considering that although African countries have put in place revenue collection

structures, accountability of revenues collected remain inefficient to the extent of mismanagement. Previous studies in this area have identified a gap between financial resources and financial expenditure, citing ineffectiveness of revenue collection by county governments. Otieno, Oginda, Obura, Aila, Ojera, & Siringi,(2013), in their study in Homabay County Government, identified that internal control systems had a positive relationship with maximization of revenue collection. However, internal control systems which is enacted by management of firms, only address effective operations on internal environment of firms as pertains to compliance with laws and regulations, reliability in the reporting of financial transactions, and efficiency in the monitoring of operations. As at the first quarter of 2013 for instance, debt collection by Nairobi city county had improved by sh.3.75billion, however an outstanding balance of sh.14.640 billion down from 18.75 billion is yet to be collected from defaulters (KNAO, 2013).This improvement could be attributed to many factors among them implementation of information systems. This study intends to incorporate both the internal environment and operating environment of local county government and find the reason of debt collection improvement, by investigating the effect of financial based information systems on the effectiveness and efficiency of revenue collection by Nairobi City County.

The Specific Objectives of the study were:

i. To establish the effect of e-payment systems on revenue collection by the County government of Nairobi City County

ii. To determine the effect of internal control systems on revenue collection by the County government of Nairobi City County.

Conceptual framework

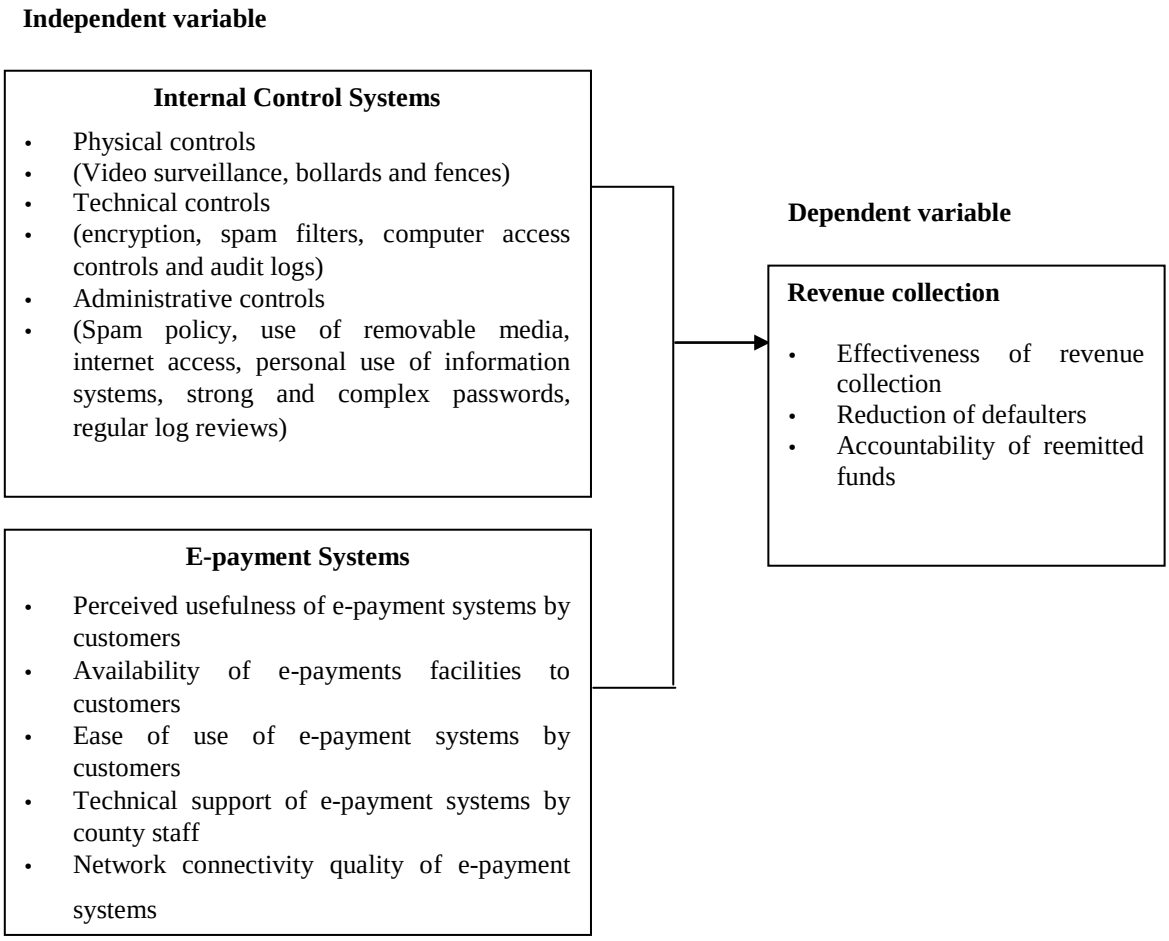

Figure 2 : Conceptual framework Researcher (2016)

2.0 RESEARCH DESIGN AND METHODOLOGY

The study employed descriptive research design as it is suitable to explain how and why things are the way they are (Mugenda & Mugenda, 2003). In the case of the study the researcher intended to investigate the usage aspect of

information system and how it contributes to revenue collection. Therefore descriptive research design was most suitable for the study. The target population of the study was customers that is E-construction, Ad manager system and E – jiji pay users and 55 head staff of the Nairobi City County Government (including the sub-counties) who use Financial Information Systems i.e. Internal Control Systems and E-payment systems. The researcher clustered the sample population into two groups. Group one consisted of county government staff, where head staff in the operational level, knowledge level, managerial and strategic level in the finance department were purposively picked as sample respondents in the study. Group two was also purposively selected and consisted of e-payment customers to the county government totaling to 100 respondents. Where 10% of the 591 registered architecture - firm using E-construction, 10% of 70 registered Ad firms and 34 E-jiji pay users were considered for sampling. Therefore the entire sampled population composed of 155 respondents. The primary instrument of data collection was a research questionnaire. Secondary data was collected from reports at Nairobi County Government offices .The study used descriptive and inferential statistics to analyze the data collected. Descriptive statistics entailed use of measure of central tendency, mean and measure of variation, standard deviation .Inferential statistics involved use of multiple regression model : $Y= \beta 0 + \beta 1\ X1 + \beta 2\ X2 + e$

Where: Y= Dependent variable, β_0= Constant ,β_1-β_2= Change in Y as a result of change in X ,X_1= Internal Control Systems,X_2= E-Payment Systems , e= error term

3.0 RESULTS AND DISCUSSION

From table 3.1 below, the reliability was measured using internal consistency technique where the Cronbach alpha co-efficient was 81.6%, with a total of 21 items used in the questionnaire.

Table 3.1 Reliability analysis

Variable	Items	α	Comment
E-payment systems	6	0.751	Reliable
Internal Control Systems	5	0.708	Reliable
Revenue collection	5	0.664	Reliable
Score	21	0.816	Reliable

Source: Survey data (2017)

The table 3.2 below represents the response rate of the study:

Table 3.2 Response rate

	Targeted respondents	Actual respondents	Percentage
County government staff	55	17	31
E-payment service customers	100	69	69
Total	155	86	55.4

Source: Researcher (2017)

At the county government, the knowledge level staff were the most contactable (31%) compared to the other managerial levels i.e operational and managerial levels. In reference to Bryman and Bell formular for calculation of response rate the study had a response rate of 72.88%

3.2 Respondent biographic information

Section 3.2 discusses the biographic information of the respondents of the study including, the county government staff and customers of e-payment services. Section 3.2.1 discusses the biographic information of the county government staff, whereas section 3.2.2 discusses the biographic data of the users of e-payment services of Nairobi county government.

3.2.1 County government staff

The table 3.3 below represents the biographic information of the study respondents. The researcher sought to understand the gender, age, level of education, area of designation and years of work in current designation of the respondents.

Table 3.3 County government staff Bio data

		Gender		
	Frequency	Percent	Valid Percent	Cumulative Percent
Male	10	58.8	58.8	58.8
Female	7	41.2	41.2	100.0
Total	17	100.0	100.0	
		Age		
20-24	Frequency	Percent	Valid Percent	Cumulative Percent
	4	23.5	23.5	23.5
25-29	1	5.9	5.9	29.4
30-34	2	11.8	11.8	41.2
35-39	4	23.5	23.5	64.7
40-44	2	11.8	11.8	76.5
45-49	3	17.6	17.6	94.1
50 and above	1	5.9	5.9	100.0
Total	17	100.0	100.0	
		Level of Education		
	Frequency	Percent	Valid Percent	Cumulative Percent
Secondary level	1	5.9	5.9	5.9
Tertiary level	5	29.4	29.4	35.3
Olevel	4	23.5	23.5	58.8
University level	7	41.2	41.2	100.0
Total	17	100.0	100.0	
		Area of designation		
	Frequency	Percent	Valid Percent	Cumulative Percent
Managerial level	5	29.4	29.4	29.4
Knowledge level	7	41.2	41.2	70.6
Operational level	5	29.4	29.4	100.0
Total	17	100.0	100.0	
		Years of work		
	Frequency	Percent	Valid Percent	Cumulative Percent
0-4years	6	35.3	35.3	35.3
5-9years	4	23.5	23.5	58.8
10-14years	3	17.6	17.6	76.5
15-20years	3	17.6	17.6	94.1
above 20years	1	5.9	5.9	100.0
Total	17	100.0	100.0	

Source: Survey data (2017)

From table 3.3, 58.8% of the respondents were male whereas 41.2% of the respondents were female. Majority of the respondents who participated in the study were aged between20-24 and 35-39 at 23.5% whereas the least frequent were aged between25-29 and above 50 years old (5.9%). Out of this population, 5.9% had attained secondary level of education, 29.4% had attained tertiary level of education, and 23.5% had attained O level education, whereas 41.2% had attained university level of education. Based on the area of designation, 29.4% of the respondents were at the managerial level, 41.2% were at the knowledge level while 29.4% were designated at operational level. In terms of years of work experience, 35.3% of the respondents had worked between 0-4years, 23.5% between 5-9years, 17.6% between 10-14 years, 17.6% between 15-20 years and 5.9% above 20years.

3.2.2 Customers of Nairobi County Government E-payment services

From table 3.4 below summarizes the bio data of the customers of Nairobi County Government E-payment services i.e. gender, age, marital status, level of education, employment, usage of mobile systems and usage of E-payment systems. From table 3.4, 42% of the respondents were male, 58% were female. Majority of the respondents were aged between 20-24 years (29.4%) and 25-29years (29.4%), while the least frequent were aged between 45-49 years (4.4%). Out of the total respondents, 49.3% were married, 47.8% were single while 2.9% were divorced. Based on the level of education, 8.7% of the respondents had attained tertiary level of education, 1.4% had attained O level of education whereas 89.9% had attained university level of education. Based on employment, majority of the respondents were in formal employment (58.2%), 22.4% were in informal employment, whereas 19.4% were in entrepreneurship. In reference to duration of usage of mobile payment systems, majority of the respondents have used the system between 5-9 years (49.3%), whereas very few respondents (5.8%) had used mobile payments systems for 15 years and above. Out of the total respondents, majority (29%) had used E-payment systems for two years whereas the least frequent (1.4%) respondents had used E-payment systems for 5 years.

Table 3.4 Customers of Nairobi County Government E-payment services Bio data

Gender				
	Frequency	Percent	Valid Percent	Cumulative Percent
Male	29	42.0	42.0	42.0
Female	40	58.0	58.0	100.0
Total	69	100.0	100.0	
Age				
	Frequency	Percent	Valid Percent	Cumulative Percent
20-24	20	29.0	29.4	29.4
25-29	20	29.0	29.4	58.8
30-34	12	17.4	17.6	76.5
35-39	6	8.7	8.8	85.3
40-44	7	10.1	10.3	95.6
45-49	3	4.3	4.4	100.0
Total	68	98.6	100.0	
Marital status				
	Frequency	Percent	Valid Percent	Cumulative Percent
Married	34	49.3	49.3	49.3
Single	33	47.8	47.8	97.1
Divorced	2	2.9	2.9	100.0
Total	69	100.0	100.0	
Level of education				
	Frequency	Percent	Valid Percent	Cumulative Percent
Tertiary level	6	8.7	8.7	8.7
O level	1	1.4	1.4	10.1
University level	62	89.9	89.9	100.0
Total	69	100.0	100.0	
Employment				
	Frequency	Percent	Va Valid Percent	Cumulative Percent
Formal employment	39	56.5	58.2	58.2
Informal employment	15	21.7	22.4	80.6
Entrepreneur	13	18.8	19.4	100.0
Total	67	97.1	100.0	
Usage of mobile systems				
	Frequency	Percent	Valid Percent	Cumulative Percent

0-4 years	15	21.7	21.7	21.7
5-9 years	34	49.3	49.3	71.0
10-14 years	16	23.2	23.2	94.2
15 years and above	4	5.8	5.8	100.0
Total	69	100.0	100.0	

Usage of E-payment systems				
0years	Frequency	Percent	Vali d Percent	Cumulative Percent
	10	14.5	16.7	16.7
1years	11	15.9	18.3	35.0
2years	20	29.0	33.3	68.3
3years	5	7.2	8.3	76.7
4years	5	7.2	8.3	85.0
5years	1	1.4	1.7	86.7
6years	3	4.3	5.0	91.7
7 years and above	5	7.2	8.3	100.0
Total	60	87.0	100.0	

Source: Survey data (2017)

3.3 Descriptive Analysis

The descriptive analysis sought to measure the variation and central tendency of the responses and therefore the standard deviation and the mean were computed respectively. Five point- likert scales were used to rank the respondents responses on Financial Information Systems (i.e. E-payment systems, Internal Control Systems) and revenue collection.

3.3.1 E-payment systems

Table 3.5 represents the six items that were used to measure E-payment systems. A five point Likert scale was used, where 1=Strongly Disagree 2=Disagree 3=Not sure 4=Agree 5=Strongly

Agree

Table 3.5 E-Payment systems

	N	Min.	Max.	Mean	Std. Deviation
Tapping of revenues	69	1.00	5.00	4.4058	.75379
County government dues	69	1.00	5.00	4.3043	.84548
Easy to use	69	1.00	5.00	4.0000	1.12459
Technical support	69	1.00	5.00	3.3913	1.43709
Network connectivity	69	1.00	5.00	3.5942	1.27555
Need arising	69	1.00	5.00	4.0870	.98128
Aggregate scores	69			3.9638	1.06963

Source: Survey data (2017)

From the table 3.5 the responses ranged between one and five. The respondents, who were the customers to the county government services agreed that E-payment services influenced the tapping of revenues; enabled them pay for county government dues; the e-payment systems were easy to use and that they would definitely consider use of E-payment systems whenever the need arose. The aggregate mean score was 3.9638 indicating that, generally the respondents agreed with the questions on E-payment systems. The aggregate standard deviation was 1.06963 indicating a normal variation on the responses. These findings are supported by works of researchers such as Carton, et al., 2012; Crandal, *et al.*, 2012) who agreed in their studies that efficiency in revenue and was most efficient with network connectivity.

3.3.2 Internal Control Systems

Table 3.6 represents the five items that were used to measure Internal Control systems. A five point Likert scale was used where 1=Not at all 2=Little extent 3=Moderate extent 4=High extent 5=Very high extent

Table 3.6 Internal Control Systems

	N	Min.	Max.	Mean	Std. Deviation
ICS and usefulness	17	2.00	5.00	3.2353	.75245
ICS and financial tasks	17	2.00	5.00	3.1765	.95101
ICS and ease of use	17	2.00	4.00	3.4118	.61835
ICS and technical controls	17	1.00	5.00	3.0588	.89935
ICS and managerial support	17	1.00	5.00	3.4706	1.12459
Aggregate scores	17			3.2706	0.86915

Source: Survey data (2017)

From table 3.6 above, responses to the questions on ICS and its usefulness and on ICT and financial tasks ranged between 2 and 5. The responses to the question on ICS and ease of use ranged between 2 and 4, whereas the responses to the questions on ICS and technical controls and ICS and managerial support ranged between 1 and 5. Generally, the respondents thought that the items influenced ICS were to a moderate extent where ICS and usefulness (mean=3.2353); ICS and financial tasks (mean=3.1765); ICS and ease of use (mean=3.4118); ICS and technical controls (mean=3.0588) and ICS and managerial support (mean=3.4706). The aggregate standard deviation was 0.86915, indicating a normal variation on the respondents' responses.

Studies by researchers such as Githinji *et al*., (2014); Mensah *et al*., (2012) support these findings where they view ICS as a useful tool in financial institutions as it promotes accountability, security through surveillance as well as monitoring and control.

3.3.4 Revenue collection

Table 3.7 represents the five items used to measure revenue collection. A five point Likert scale was used where 1=Strongly Agree 2=Agree 3=Not sure 4=Disagree 5=Strongly Disagree

Table 3.7 Revenue Collection

	N	Min.	Max.	Mean	S. D
ICS and accountability of revenue collection	17	1.00	5.00	3.5882	.87026
E-payment enabling revenue collection effectiveness	17	3.00	5.00	4.0000	.61237
ICS influencing identification of defaulters	17	2.00	5.00	3.5294	.79982
E-payment availability and reduction of defaulters	17	3.00	5.00	4.0000	.70711
Average Scores	17			3.8118	0.7633

Source: Survey data (2017)

From table 3.7, question on ICS and accountability of revenue collection ranged between 1 and 5; questions on ICS influencing the identification of defaulters on revenue collection process ranged between 2 and 5, while the questions on E-payment services enabling revenue collection effectiveness and E-payment availability influencing reduction of defaulters ranged between 3 and 5. Mostly the respondents agreed with the questions on revenue collection: ICS and accountability of revenue collection (mean= 3.5882); E-payment enabling revenue collection effectiveness (mean= 4.0000); ICS influencing identification of defaulters (mean=3.5294); E-payment availability and reduction of defaulters (mean=4.0000), ICT infrastructure and revenue collection process (mean= 3.9412). The aggregate mean was 3.8118, indicating that the respondents agreed with the statements on revenue collection. The aggregate standard deviation was 0.7633, indicating a normal variation on the responses. These findings on revenue collection are supported by studies of researchers such as Makokha *et al*., (2014); Mensah *et al*., (2012)

3.4 Inferential Analysis

This section of chapter four discusses the strength of the relationship between the study variables, the regression model and the coefficients of the findings.

Table 3.8 Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.610[a]	.372	.343	.45844	1.990

Table 3.9 ANOVA[a]

		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.305	3	2.435	6.070	.004[b]
	Residual	2.732	13	.210		
	Total	4.038	16			

Table 3.10 Coefficientsa

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	2.184	1.031		2.119	.048		
E-payment systems	.040	.124	.084	.320	.054	.891	1.123
ICS	.371	.373	.380	.994	.138	.419	2.385

Source: Survey data (2017)

The model summary table 3.8 above, R^2=0.372 indicates that 37.2% of the variation in revenue collection is explainable by the independent variables: ICS and E-payment systems. 62.8% of the variation however is explainable by other factors excluded in the study. In reference to ANOVA table 3.9, the model used is significant at F=6.070; p=004<0.05 indicating its suitability for making conclusions on the objective of the study.Coefficients table 3.10 analyzed relationship between the independent and dependent variables and their significance. The established regression equation was:

$$Y=2.184+ 0.084+0.380\ X+ e$$

The regression equation indicates a positive relationship between the study variables with a constant of 2.184. Indicating that a unit increase in the financial information system i.e. ICS and E-payment systems would lead to 2.184 increase in revenue collection. The general objective of the study was to investigate the effect of financial information systems on revenue collection by local governments in Kenya, the study established a strong positive relationship between FIS and revenue collection at p=0.004<0.05. These findings have been supported by studies such as Bahl and Bird (2008); Fieldstad and Haggstad (2012); Makokha *et al*. (2014). Objective one, of the study sought to examine the effect of e-payment systems on revenue collection by the County government of Nairobi City County. The study established a strong positive relationship between E-payment systems and revenue collection by the local government at β= 0.084; p=0.05. Objective two sought to investigate the effect of internal control systems on revenue collection by the county government of Nairobi City County. Most of the respondents (consisting of e-payment customers) have attained university level of education (89.9%) and have experience on use of mobile and e-payment systems. These could explain the strong relationship between use of e-payment systems and revenue collection. Similarly majority of the respondents (41.2%) were at the knowledge level of designation, with tertiary and university level of education (70.6%), indicating high levels of literacy. There could be other factors such as government intervention, corrupt practices by council staff, which mediate the relationship between FIS and revenue collection. Similar findings have been reached by studies see; Mensah *et al*., (2012); Makokha, *et al*., (2014)

4.0 CONCLUSION AND RECOMMENDATIONS

Objective one examined the effect of e-payment systems on revenue collection by the County government of Nairobi City County. The study established a strong positive relationship between E-payment systems and revenue collection by the local government at β= 0.084; p=0.05. The aggregate mean score was 3.9638 indicating that, generally the respondents agreed with the questions on E-payment systems. The aggregate standard deviation was 1.06963 indicating a normal variation on the responses. Implementation of financial systems, especially -payments should be encouraged and rolled out to other counties for the improvement of this critical resource of revenue for the continued efficient and effective functioning of the county governments in provision of their services to their stakeholders. Education on importance of technology, promotions and motivation on employees should be improved to enable full acceptance and

maximization of financial benefits to the county government of Nairobi City.

REFERENCES

[1] Bahl, R., & Bird, R. (2008). Sub National Taxes in Developing Countries: The way forward. *Public Budgeting and Finance, 28*(4), 1-25.

[2] Barbara, I., & Barki, H. (2007). Quo Vadis, TAM. *Journal of the Association of Information System, 8*(4), 211-218.

[3] Carton, F., Hedman, J., Dennehy, D., Damsgaard, J., Tan, K., & McCarthy, J. (2012). Framework for Mobile Payments Intergration. *The Electronic Journal Information Systems Evaluation, 15*(1), 14-25.

[4] Crandal, A.

[5] , Otieno, A., Mutuku, L., & Colaco, J. (2012). Mobile Money Phone Usage at the Kenyan base of the pyramid. *iHub Research, Research Solutions Africa*, 6-11.

[6] Dimitrios. (2003). *eAirlines:strategic and tactical use of ICTs in airline industry.* Retrieved 2015, from http://www.epubs.survey.ac.uk/1120/1/fulltext.pdf.

[7] Fieldstad, O., & Haggstad, K. (2012). *Local Government Revenue Mobilization in Anglophone Africa.* Michelsen Institute.

[8] GFOA. (2014). Retrieved July 2015, from Government Finance Officers Association: www.gfoa.org/revenue collection

[9] Githinji, R., Mwaniki, M., Kirwa, K., & Mutonga, M. (2014). Information Communication Technology (ICT) on revenue collection by Kenyan Counties. *International Journal of Academic Research In Business and Social Sciences, 4*.

[10] Kaplan publishing. (2014). *Business Analysis.* London: Kaplan Publishing.

[11] Kenya National Bureau of Statistics . (2010). *The 2009 Kenya Population and Housing census.* Nairobi: Government Press.

[12] Kenya National Bureau of Statistics. (2014). *Exploring Inequality*. Nairobi: Government Press.

[13] KNAO. (2013). *Special audit report of the Auditor General on the financial operations of Nairobi County.* Nairobi: Government Pres.

[14] Kothari. (1999). *Research Methodology: Methods and Techniques* (2 ed.). New Delhi: New Age International Publishers.

[15] Laudon, K., & Laudon, J. (1988). *Mnagement Information Systems* (2 ed.). Macmillan.

[16] Makokha, S., Alala, O., Musiega, D., & Manase, G. (2014). *International Journal of Management Science and Technology, 2*(4).

[17] Mensah, J., Ahegbebu, M., & Asabere, N. (2012). Communication Technology (ICT)-Driven Business Model for the Utility Sector. *Journal of Information, Communication Technology Research, 2*(5), 402-428.

[18] Michaels, L. (2011). *Kenya Case Studies in E-Payments*. Washington, DC: USAID.

[19] Miyahra, H. (2008). *Using IT to improve tax and revenue collection.* Washington D.C: George washington Universitry.

[20] Mugenda, O., & Mugenda, A. (2003). *Research Methods.* Nairobi: Acts Press.

[21] Ndou, V. (2004). E-Government for Developing countries: Opprtunities and challenges. *The Electronic Journal of Information Systems in Developing Countries, 18*.

[22] Otieno, C., Oginda, M., Obura, J., Aila, F., Ojera, P., & Siringi, E. (2013). Effect of Information Systems on Revenue Collection by Local Authorities in Homa Bay County, Kenya. *Universal Journal of Accounting and Finance, 1*, 29-33.

[23] UNHabitat. (2004). *Challenges of Municipal Finance in Africa*. Nairobi: United Nations Human Settlements Programme.

[24] Uphadhyaya, G. (2011). *ICT application in service delivery: A case of Iinland Revenue Department,Nepal.* Retrieved from http://www.mppg-nsu-org/attachments/399