# Influence of Information Technology on Collection of Street Parking Fees in Eldoret Town, Kenya

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#### Abstract

The technological innovation has been an important matter in tax and revenue collection. Eldoret town has witnessed under collection of fees from street parking for a long time. This study sought to establish the influence of information technology on collection of street parking fees in Eldoret town. It was guided by decentralization theory. The study adopted Ex post facto research design, and data was collected through structured questionnaires. The study targeted a population of 948 consisting of 75 parking attendants, 52 management team and 821 motorists. A sample of 109 was drawn from the target population using simple and stratified random sampling. Data analysis was carried out using descriptive and inferential statistics. Mean, standard deviation and correlation analysis were statistical methods used for analyzing data. The study found out that the use of electronic channel speeds up collection of street parking fees which in turn eases revenue collection. Despite the aforementioned benefits, electronic facilities are rarely used in remitting the street parking fees. The study recommends that the parking attendants need to ensure that they are available to collect parking fees and vehicle owners ensure that they pay parking fees as required. The number of staff deployed for collection of street parking fees needs to be sufficient as well as the time allocated in collecting the fees. There is need to embrace the use of electronic facilities in remitting the street parking fees. Also, it would be important to train the parking attendants on the use of the technology so that they can have the knowledge and skills to use it. It is important to make the payment process simplified and less burdensome to the motorists.

Key terms: Information technology, street parking fees, revenue collection

## INTRODUCTION

#### Background to the Study

In 21<sup>st</sup> Century, business environment has become competitive and organizations are faced with a lot of challenges due to the dynamics of external business environment. Organizational success requires new managerial attitudes that emphasize the use of global markets, strategic flexibility, and the ability to accept and harness change (Hitt, Ricart, & Nixon, 1998). Due to dynamism of both the organization and environment, the ability to adapt becomes even more important (De wit & Meye, 2004). Advancement in technology, communication and innovation has made it possible for organizations to uphold the status quo to be competitive. Organizations should have the ability to devise strategies which are vital to its survival.

The public revenue collection is an essential component of fiscal policy and administration in any economy since it influences National Government operations and the grass roots. It is the fuel of every government as it is the main instrument through which government funding is ensured (Komolo, 2014). Nevertheless, prescriptions originating from the theory and from good international practice impose huge constraints on the choice of revenue instruments for governments. The collection of revenue should comply with best practices of ability to pay, equity, economic efficiency, certainty and convenience (Visser & Erasmus, 2005). For government to match its performance with the needs and expectations of its citizens, it should increase its fiscal depth without incurring costly recurrent overheads (Gidisu, 2012).

A sound revenue system for local governments is an essential pre-condition for the success of fiscal decentralization (Bird, 2010). The local revenue mobilization raises revenues and has the ability to foster administrative and political accountability by empowering communities (Shah, 1998). The local government usually provides fiscal

administrative, and other public amenities and services to local residents. In highly unitary centralized states, for instance, Great Britain and France, local government enjoys only limited powers in the area of initiating and executing policies, as a result of lack of autonomy and inadequate funds. Although the decentralization process has been considered by many as a basic underpinning apparatus for national democracy and development, the district assemblies are ill fitted to resist any infringement on its authorities by the central government (NALAG, 2005).

A broadly found characteristic of local government revenue systems in Africa is the enormous number of revenue instruments in use by the local authorities (Bahiigwa, Ellis, Fjeldstad & Iversen, 2004). In several local governments intend to raise taxes, fees and charges they are capable of mobilizing often without worrying excessively about the economic distortions and distribution effects that these instruments may create (Brosio,

2000). The Africa's population growth has outpaced local authority capacity for service delivery in terms of infrastructure, financing and management (McCluskey, Franzsen & Johnstone 2003

The local government authorities commonly experience difficulties in collecting fees, taxes and charges. Therefore, there are numerous experiments being conducted to find solutions to make collection of tax more revenue productive. The local taxes collection practices range from cases where local government authorities collect the taxes themselves to cases where tax collection is outsourced to central government, private agents, and semi-private partners. For example, the market cooperatives and private companies collect tax on behalf of the local government. Some fees and taxes are collected by the government and channeled back to the local government. For instance, in Malawi the non-tax revenue is envisioned to be collected by the central government, prior to redistribution of the resources to District Assemblies utilizing a formula approved by the Cabinet (Malawi Government, 1998).

In Tanzania, the collection of property tax in Dar es Salaam is assigned to the Tanzania Revenue Authority (Fjeldstad *et al*, 2011). The collection of a large number of local government revenue sources has been outsourced in the year 2008 (Fjeldstad *et al*. 2009). They comprise private collection of property taxes in some urban councils, market fees in both rural and urban councils, forestry levies until 2005 primarily in rural councils, cess on certain agricultural products in bus stand, rural councils, and parking fees. In Mwanza City Council, for example, more than one-third of the council's own revenues in 2006 were collected by private agents.

In most urbanized cities around the world, increasing car ownership and use, inadequate parking supply and high land values in central business areas have compounded the parking situation. As vehicles park in the streets motorists pay a fee to Municipalities or Counties for the parking spaces (Kipkorir, 2014). Eldoret town in the County Government of Uasin Gishu collects or receive money from motorists for parking their vehicles in marked street parking spaces, this money is called street parking fees. The street parking fees is one of the major income earners which need to be improved for the enhancement of maximum revenue collection. Parking fees are paid on daily basis to the parking attendants who issue a receipt to the motorist and some are paid on monthly, quarterly or yearly basis to the County offices as reserved parking. The payments are done as per the set County rules and regulations.

In recent years, technology has automated the collection process to a large extent, effectively tracking and managing delinquent cases and thereby increasing rates of revenue recovery. Yet despite the successful use of collections technology in other industries, governments have been relatively slow to adopt systems that can expedite their collections efforts (Bruce, 2017).

#### **Statement of the Problem**

Local authorities collect revenue from taxes, fees and charges. The implementation of innovative revenue collection strategies can enhance the local authority structures, manpower planning, training, new approaches to compensate management and adaptation of total quality management, and developing teamwork among management and staff.

Revenue collection in the developing economies such as Kenya has not always been as effective as it should be. The ineffectiveness is attributable to many factors (Elcock, 2013). Studies carried out by Kiprotich, Momanyi and Nyandusi (2012) showed that Kenya is amongst numerous developing nations struggling with the problem of tax compliance by the tax payers. Therefore, non-compliance to remission of taxes has been found to be a key determinant of revenue collection. A cross comparative analysis of earlier studies and findings reveal that tax noncompliance among business firms negatively affects collection of revenue.

Street parking fees is one of the most important sources of revenue to the local government if managed well; the local government has the responsibility for parking pricing so that the motorists can pay directly for using the parking facilities and collection is usually done by parking attendants employed by the local government. Uasin Gishu County Government is targeting to create over two hundred new parking slots in Eldoret town in a bid to increase its revenue collection. The new parking spaces are expected in new roads within Eldoret town (Ali, Fjeldstad, Sjursen & Institute 2013). Research done by ICPAK, 2014 indicate that counties' revenue target was to cumulatively collect Kshs.67.8 billion in the FY 2013/14 but in the first half of the Year, the actual revenue collection. The annual target from street parking fees collection for Eldoret town is Kshs.90 million and the county managed to collect 64 million in the FY 2012/2013; 71 million FY 2013/2014 and 79 million for the FY 2014/2015 (FY 2012/13/14/15 Financial Reports) which indicate that Eldoret town has not maximized fee collection from street parking.

Despite spirited efforts by County Governments to meet their projected revenue targets, there are still a number of issues requiring researchers' attention. This is because most studies conducted in the past have addressed the issues of parking management, and no studies have been conducted in Eldoret town to establish the influence of information technology on collection of street parking fees.

#### **Research Objective**

To establish the influence of information technology on collection of street packing fees in Eldoret town

## **REVIEW OF THEORIES & LITERATURE**

## Ability to Pay Theory

The ability to pay principle was extended by Jean-Jacques Rousseau (1712–1778), Jean-Baptiste Say (1767–1832) and John Stuart Mill (1806-1873). It is centered on concept of equal sacrifice that is regarded to be socialist sentiments and is utilized in most developed economies. In contrast, the benefit approach principle determines the amount of tax an individual pays by the benefit received in public services. According to Kirwan (2009), ability to pay theory is the most famous and commonly accepted principle of justice or equity in taxation. The citizens of a country need to pay taxes to the government in accordance with their ability to pay. It appears very equitable and fair that taxes need to be levied on the basis of the taxable capacity of a person (Kirwan, 2009). It is debated that this has disheartened those in the higher income bracket not to take up more assignment instead they involve much in leisure undertakings. However, the modern economists differ to this opinion. They affirm that when income increases, the marginal utility of income reduces. Therefore, they favour progressive system of taxation in all modern taxation systems. The principle establishes the areas of taxation potential and its tax collection exertions. Further, it determines what a community desires or is willing to spend. It ensures equity through transferring the excess to other impoverished areas.

#### **Technology Acceptance Model Theory**

Technology Acceptance Model Theory is an information systems theory that models how users come to accept and utilize a technology. The model proposes that when users are presented with a new technology, many factors influence their decision about how and when they will utilize it. These include perceived ease of use and perceived usefulness. Perceived ease of use is the degree to which an individual believes that utilizing a specific system would be free from exertion. Perceived usefulness is the extent to which a person believes that utilizing a particular system would enhance his or her job performance (Davis, 1989). Venkatesh and Davis extended the original Technology Acceptance Model to explain perceived usefulness and usage intentions in terms of social influence such as subjective norms, image and voluntariness and cognitive instrumental processes like job relevance, output quality, result demonstrability and perceived ease of use (Venkatesh and Davis, 2000).

#### **Related Literature**

The collection of street parking fees challenge should be broadly conceptualized within the tax reform initiatives. Technology adoption is key in improving the efficiency and effectiveness in collection of street parking fees. No doubt the traditional kinds of paper forms always will be an essential part of the tax administration system (UNCTAD, 2008). Through technology adoption, a tax collection agency will be able to meet their revenue collection targets as there will be less tax avoidance and evasions. Technology in the tax system falls under the Public Administration sector and its objective to improve the efficiency and effectiveness both at central and local level.

Panday (2006) carried out an empirical study to determine the effects of technology adoption on collection of revenue in India. He used regression analysis among a random sample of 20 parking spots in the country. The results of the study revealed that for 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. Panday (2006) in his study on use of technology on revenue in Malaysia collections using 120 copies of questionnaire distributed to employees of the county revenue department noted that technology adoption through automated systems have been proven to be capable of introducing massive efficiencies to collection of street parking fees that can result in increased revenue. Applying technological solutions towards the strategic goals for government is a key step towards ensuring efficiency in street parking fees collection.

Aamir, Qayyum, Nasir, Hussain, Khan and Butt (2011) carried out a meter analysis in Pakistan among a random sample of 15 local counties using qualitative analysis. The objective of the studies was to find out the effect of technology adoption on collection of street parking fees in the counties. The results of the studies revealed that modernization and technology adoption in the tax system had a significant impact on collection of street parking fees.

Teera (2002) examined the level of technology adoption in the tax system and tax structure of Uganda to investigate the factors affecting tax revenue from street parking fees in the country. He used the time series data of the period 1970 to 2000 and estimated a model. His results showed that use of more technological reforms in the streets enhanced the amount of revenue collected through street parking fees.

Muriithi and Moyi (2003) did a study on tax reforms and technology adoption in Kenya. One of the key objectives of tax reforms in Kenya was to ensure that the tax system could be harnessed to mitigate the tax evasion especially in collection of street parking fees. This would be achieved through tax policies intended to make the yield of individual taxes responsive to changes in national income. This study applies the concepts of elasticity and buoyancy to determine whether technology adoption in Kenya achieved these objectives. Elasticities and buoyancies are computed for the pre - reform period as well as the post-reform period. Evidence suggests that technology adoption had a positive impact on the overall tax structure and on revenue collection.

Odundo (2007) did a study on change management practices in technology adopted by Kenya Revenue

Authority in its reform and modernization programme. The objective of this study was to determine the Technology Change Management Practices adopted by KRA. The study was conducted through a case study of KRA. It was found that there have been a lot of technological changes in the firm that have prompted the management to effectively manage change. New departments have been created, others merged while others split in a bid to deliver better services to clients and thus ensure efficient collection of revenue.

Sigey (2010) studied the impact of automation as a technological strategy on collection of street revenue by the Kenya Revenue Authority. The study was carried out using 10 parking spots in Nairobi. The study adopted regression analysis for analyzing data. The purpose of the study was to establish the impact of automation on collection of street fees by KRA. The study sought to establish whether automation has resulted to efficient tax collection, to establish if automation had led to improvement performance of staff collecting street fees; what impact the improved skills have had on tax collection. The research study concluded that with the introduction of technology there has been improved efficiency, improved effectiveness, improved collection, reduced costs and improved governance.

#### **METHODOLOGY**

The study adopted Ex-post-facto research design for its ability to test hypotheses about cause-and-effect relationships. The target population of the study was 948 drawn from 75 parking attendants, 52 management team and 821 motorists (Human Resource Department, Uasin Gishu County, 2015).

The study used simple random sampling on motorists and stratified sampling procedure was used on parking attendants and management team. A sample size of 109 was selected consisting of 43 parking attendants, 34 management team and 32 motorists derived using Nassiuma's (2000) formula.

$$n = \frac{NC^2}{C^2 + (N-1)e^2}$$

Where

n =sample size; N =population size; C =coefficient of variation which is 50%; and e =8error margin which is 0.05. Data collection was done using a questionnaire and interview schedule.

All the respondents' opinions and views obtained from the field were matched and coded using numerical numbers. Measures of association were utilized to examine the relationship between variables. The mean score for each attribute was calculated and the standard deviation used to interpret the respondents deviation from the mean. The results were presented on frequency distribution tables. Here the interest was focused on frequency of occurrence across attributes of measures. The study used correlation analysis to determine the existence of relationship between variables. The test was done at 95% confidence interval. Significant relationships were considered at p < 0.05.

#### **RESEARCH FINDINGS**

In this section we shall look at the summary of responses obtained from various respondents to the questions posed. Table 1 gives the findings on the use of technology by the parking attendants. We can conclude that the use of electronic remittances within the departments in the county government is low this is because information systems literacy levels among the parking attendants is still very low as can be seen from the table. It was also found out that the organization does not have sufficient equipment for use by the parking attendants yet the parking attendants have accepted the use of technology in revenue collection

 Table 1 Use of technology by parking attendants

		SD	D	Ν	А	SA	Mean	Std. Deviation
We use Electronic facilities in remitting the street parking fees	Freq.	18	13	6	5	3	2.16	1.261
	%	40	28.9	13.3	11.1	6.7		
I know how to use the organization management information system	Freq.	14	11	10	4	6	2.49	1.375
	%	31.1	24.4	22.2	8.9	13.3		
There are enough machines and devices in the organization	Freq.	17	14	7	5	2	2.13	1.179
	%	37.8	31.1	15.6	11.1	4.4		
I have enough knowledge and skills in the use of Technology	Freq.	11	7	2	18	7	3.07	1.483
	%	24.4	15.6	4.4	40	15.6		
The use of Technology ease revenue collection	Freq.	11	3	4	13	14	3.36	1.583
	%	24.4	6.7	8.9	28.9	31.1		
I like the current street parking collection system	Freq.	10	6	9	12	8	3.04	1.429
	%	22.2	13.3	20	26.7	17.8		
The technology speeds collection of street parking fees	Freq.	12	4	3	9	17	3.33	1.679
	%	26.7	8.9	6.7	20	37.8		

#### Use of technology by The Management Team

Table 2 shows the responses concerning the perceptions of the management team on the use of technology in revenue collection. It was found out that the majority of the revenue collected are electronically submitted and also, equipment used for revenue collection are adequate for a certain staff number but not all the staffers. This indicates that the technology used might not be suited for parking revenue collection. About 67 per cent of the

Management team affirmed that the technology use can speed up revenue collection while 23 per cent were not sure of the efficiency of the technology used.

#### Table 2 Use of Technology by Management Team

		SD	D	Ν	А	SA	Mean	Std. Deviation
We use electronic facilities in remitting street parking fees	Freq.	0	10	2	19	0	3.29	0.938
	%	0	32.3	6.5	61.3	0		
There are enough machines and devices in the organization	Freq.	0	9	2	20	0	3.35	0.915
	%	0	29	6.5	64.5	0		
The use of Technology ease revenue collection	Freq.	0	5	21	5	0	3.84	0.898
	%	0	16.1	67.7	16.1	0		
I like the current street parking collection system	Freq.	0	12	5	13	1	3.1	0.978
	%	0	38.7	16.1	41.9	3.2		
The technology speeds collection of street parking fees	Freq.	0	3	7	16	5	3.74	0.855
	%	0	9.7	22.6	51.6	16.1		

## Use of Technology by Motorist Paying Parking Ticket

The responses in table 3 represent the perception of the motorist concerning the use of technology in street parking. The results show that the organization does not use electronic – based parking system this could be because the system used by the county government is not effective in revenue collection as affirmed by motorists in table 3 The motorists were indifferent to the systems and methods used by the county government in the way its collects the parking revenue as the technologies used are inadequate. However, they agreed that technology can speed up revenue collection.

#### Table 3 Use of Technology for Motorist Paying Parking Ticket

		SD	D	Ν	Α	SA	Mean	Std. Deviation
The Parking attendants use electronic facilities in collecting street parking fees	Freq.	15	8	1	0	0	1.5	0.885
	%	62.5	33.3	4.2	0	0		
I like the technology applied by the county Government in collecting street parking fees	Freq.	1	16	3	1	3	2.54	1.103
	%	4.2	66.7	12.5	4.2	12.5		
The use of technology ease revenue collection	Freq.	3	3	14	4	0	3.79	0.884
	%	12.5	12.5	58.3	16.7	0		
The technology used by the county government is adequate	Freq.	8	8	7	1	0	2.04	0.908
	%	33.3	33.3	29.2	4.2	0		
The technology speeds collection of street parking fees	Freq.	3	7	1	4	9	3.38	1.555
	%	12.5	29.2	4.2	16.7	37.5		

### **Trends of Weekly Street Parking Fees Collection**

This section of the analysis highlights the revenue accrued from street parking fees. Based on the results in table 4 the county government receives a minimum of 12000 on a weekly basis and a maximum of 43,000. The weekly target on the lower side is 5000 and on the higher side 50,000.

#### **Table 4 Trends of Weekly Street Parking Fees Collection**

	Ν	Minimum	Maximum	Mean	Std. Deviation
Collect/Receive per week in Kshs	45	12000	43000	28466.67	7415.739
Weekly target/set target in Kshs	45	5000	50000	34511.11	8830.789

#### **Correlation Results**

The study analyzed the relationships that are inherent among the independent and dependent variables as well as inter-independent factor correlations. The results of this analysis were summarized and presented in table 5

Pearson Correlation results in table 5 showed that technology is positively related with collection of street parking fees with a Pearson Correlation coefficient of r=.438 which is significant at p < 0.01. From the foregoing, there is a linear relationship between technology and collection of street parking fees.

#### **Table 5 Correlation Results**

		Collection of street parking fees	technology	Compliance by Motorists	Employee Recognition and Reward	Number of Parking Attendants	Parking spaces
Collection of street parking fees	Pearson Correlation	1					
	Sig. (2- tailed)						
Technology	Pearson Correlation	.438**	1				
	Sig. (2- tailed)	0.003					
Compliance by Motorists	Pearson Correlation	.582**	.604**	1			
	Sig. (2- tailed)	0.000	0.000				
Employee Recognition and reward	Pearson Correlation	.763**	.461**	.709**	1		
	Sig. (2- tailed)	0.000	0.001	0.000			
Number of Parking Attendants	Pearson Correlation	.630**	.442**	.639**	.712**	1	
	Sig. (2- tailed)	0.000	0.002	0.000	0.0000		
Parking spaces	Pearson Correlation	.345*	0.241	0.212	0.257	0.269	1
	Sig. (2- tailed)	0.02	0.111	0.163	0.088	0.074	

#### **Regression Results**

From table 6 the findings indicated that the model correlation coefficient was 0.62 which indicated that 62% variation of Collection of street parking fees is explained by Technology. This relationship was significant considering the coefficient of determination value of 0.62.

## **Table 6 Regression Results**

R	R Square	Adjusted R Square	Std. Error of the Estimate
.787a	0.62	0.571	0.66114

a Predictors: (Constant), Parking spaces, Compliance by Motorists, technology, Number of Parking Attendants, Employee Recognition and Reward

b Dependent Variable: Collection of street parking fees

#### **Hyphothesis Testing**

Findings in table 7 show that technology had coefficients of estimate which was significant basing on  $\beta_1 = 0.169$  (p-value = 0.047 which is Less than  $\alpha = 0.05$ ) thus we conclude that technology has a positive and significant effect on collection of street parking fees. We reject null hypothesis stating that there is no significant relationship between technology and collection of street parking fees.

## **Table 7 Coefficient of Estimate**

	Unstandardize	d Coefficients	Standardiz	Standardized Coefficients		
	В	Std. Error	Beta	t	Sig.	
(Constant)	0.115	0.441		0.261	0.796	
Technology	0.07	0.127	0.169	0.548	0.047	
Compliance by Motorists	0.671	0.21	0.509	0.341	0.000	
Employee Recognition/reward	0.666	0.178	0.599	3.744	0.001	
Number of Parking Attendants	0.159	0.172	0.136	0.922	0.032	
Parking spaces	0.096	0.073	0.137	1.321	0.004	

a Dependent Variable: Collection of street parking fees

#### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### **Summary of Findings**

The main purpose of the study was to establish the influence of information technology on collection of street parking fees in Eldoret town. The target population of the study comprised of parking attendants, management team and motorists. The study made inference on the hypotheses that technology has no significant influence on collection of street parking fees.

Parking attendants affirmed that the use of electronic remittances within the departments in the county government is low. This is attributed to low literacy levels pertaining information systems. As a result, the use of technology is subject to individual acceptance of the use of technology in revenue collection. Despite this, parking attendants have accepted the use of technology in revenue collection. However, the organization lacks sufficient equipment for use by the parking attendants.

According to the management team, majority of the revenue collected are electronically submitted. This speeds up revenue collection though the system used by the county government is not effective in revenue collection. It has also been shown that the equipments used for revenue collection are inadequate for all the staff. To the motorists, they doubt whether the use of technology by the county government could aid in revenue collection. They find the technology inadequate though they are of the belief that technology can speed up revenue collection.

#### Conclusion

The study has indicated that the use of electronic channel speeds up collection of street parking fees which in turn eases revenue collection. Despite the aforementioned benefits, electronic facilities are rarely used in remitting the street parking fees. In fact, it is a challenge for the parking attendants to use the organization management information system. The situation is further worsened by inadequate machines and devices in the organization as well as knowledge and skills in the use of the technology. In light of this, it is uncertain whether or not the technology used by the county government is adequate.

#### Recommendations

The study recommends that there is need to embrace the use of electronic facilities in remitting the street parking fees. This can be made possible by availing adequate machines and devices in the information system. Also, it would be important to train the parking attendants on the use of the technology so that they can have the knowledge and skills to use it.

It is important to make the payment process simplified and less burdensome. This can also be achieved by ensuring that there is no political interference when collecting parking fees. Also, the parking attendants need to ensure that they are available to collect parking fees and use less enforcement to get money from vehicle owners.

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