E-SERVICES & DEVOLUTION: USAGE OF ICT APPLICATIONS ON CUSTOMER SERVICE DELIVERY IN MACHAKOS COUNTY GOVERNMENT, KENYA

Mathew M. Egessa*[1], Felix Musau[2]

[1]Senior ICT Officer, University of Nairobi and PhD Scholar, Jaramogi Oginga Odinga University of Science and Technology, Kenya.

[2]Founding Dean, School of Computing Sciences, Riara University, Mbagathi Way, Nairobi City, Kenya.

ABSTRACT

This paper examined the effect of ICT applications and their frequency of usage on customer service delivery in Machakos County Government (MCG). The ICT applications included Mobile Point of Sale (M-POS) for revenue and parking fees collection, CCTV security surveillance system in different sub-counties within Machakos County and the Help Desk System. Self-administered questionnaires and interviews were used to collect primary data from 57 employees of MCG and 100 service seekers (traders and vehicle owners who pay parking fees). The research study established that there exists a strong positive relationship between ICT applications and their usage ($r = 0.795$, $P = 0.000$) and customer service delivery. The paper recommends that county governments fully adopt ICTs by allocating funds and goodwill towards the development and maintenance of ICT system applications.

Keywords: e-services, County Governments, System applications, Customer service delivery, Machakos County.

INTRODUCTION

Studies on Local Authorities (LAs) and ICTs report that there is potential for provision of opportunities to transform public administration into an instrument of development, at the service of citizens (UN, 2014; Ochieng & Gichoya, 2013; Otieno, et al., 2013; Waema & Adera, 2011; Misuraca, 2006; WITSA, 2003). The studies further enumerate other benefits resulting from LAs embracing ICTs. The benefits include: saving costs while improving quality, response times and access to services; improving the efficiency and effectiveness of public administration; increasing transparency in administration; reducing corruption and increasing political participation.

Globally, governments in Europe are increasingly perceiving e-government and on-line service delivery as a cost reduction measure and a way to provide better and more user-friendly services to their citizens and businesses while concurrently achieving efforts to go green (UN, 2014).

In most African countries, e-government applications for the central government were often way ahead of the ones implemented at the local level (Waema & Adera, 2011). This is

attributed to the fact that the driver of e-local government initiatives largely depended on officials in the central government, as shown by studies in Uganda and Mozambique (Asingwire, Muhoozi, & Angeyo, 2007; Macueve, 2007). According to Waema and Adera (2011), local governments had created the necessary Local Area Networks (LANs), internet connectivity and web-presence, albeit with a predominant focus on e-administration, in almost all African countries where e-government applications had been implemented. Exceptionally, a few local governments had further moved to providing services and information electronically (e-services) through web portals. An example is Cape Town's 'Smart City' initiative in South Africa (Misuraca, 2006). However, no country had achieved the point of electronic interactions between government and the civil society (e-society).

Studies in Ghana and Ethiopia reveal that successful and proper utilization of web portals is frustrated by the poor state of e-readiness of most local governments. This is evidenced by the poor penetration of ICT infrastructure, limited access to the Internet at the household level and a low level of ICT literacy among local community members (Gasu & Akakpo, 2009; Atnafu, Mequanint, & Adal, 2008).

In Kenya, effective and operational e-government is posited to; facilitate better and efficient delivery of information and services to the citizens, promote productivity among public servants, encourage participation of citizens in government and empower all Kenyan citizens (GOK, 2008). According to Makanyenza et al. (2013), adoption of modern technologies is among other strategies to improve service delivery in Kajiado local authority, Kenya. Otieno et al. (2013) also established that computerised information systems had a positive effect on the revenue collection by local authorities in Homabay, Kenya. Computerisation of the council's activities equally enhanced efficiency as a result of timely revenue collection enhanced management integrity and provided clear records. Just like some of the cases from the rest of Africa, Mitullah and Waema (2007) established that the implementation of e-government at the local level was still being driven by the central government.

STATEMENT OF THE PROBLEM

Different studies on the adoption and usage of various ICTs on local governments have underpinned the benefits resulting thereof (Ochieng & Gichoya, 2013; Otieno, et al., 2013; Waema & Adera, 2011; Misuraca, 2006; WITSA, 2003).

However, amid all these benefits, various challenges have resulted in poor service provision and management (Otieno, et al., 2013; Mitullah & et al, 2005; WITSA, 2003). Delivery of infrastructure and services, financial management, institutional and legal framework, human resource capacity and managing rapid growth, have been challenges during the adoption of ICTs.

The resulting disparity between the ideal situation and the real one is a knowledge gap that needed to be filled, hence the need for this study. This gap is validated by Waema and Adera (2011), Misuraca (2006) and Ndou (2004), who acknowledge that the effects of ICTs on governance in both central and local governments remain largely unchartered and unexploited in academic research, especially in Africa and in other developing countries.

LITERATURE REVIEW

The UN (2014) notes that the high number of portals providing e-procurement platforms is an indicator that governments are moving away from one sided interaction between the public and the private sectors and are moving closer towards a two-way interaction, where governments are also requesting services from the private sector through their online portal.

In Europe, online service delivery is increasingly seen as a means to reduce costs while providing better and more user friendly services to citizens as well as being part of the governments' efforts to go green (UN, 2014).

Though Ochieng and Gichoya (2013) classify ICT applications under ICT infrastructure, they should be separated since ICT infrastructure mostly constitutes the hardware and tangible equipment that carries ICT application software which are intangible.

The case studies reviewed show the status and different usage of the ICT applications. The UN e-government survey (2014) reports that the local government of Amman, the capital city of Jordan has developed an innovative application of SMS text service aimed at increasing communication between citizens and the government. It works in two ways: push messages by the government to citizens such as sending reminders or awareness programme campaigns; or pull messages sent by citizens as inquiries which are automatically responded to. Similar concepts have been implemented in South Africa and Singapore.

The United Nations Economic and Social Commission for Asia and Pacific (UNESCAP), in the report of the committee on ICT, reiterated the importance of the use of ICT applications for disaster risk reduction and management (UNESCAP, 2010). SMS based disaster warning system is used in Bangladesh while the Japanese government uses mobile technology to delivery emergency information such as evacuation instruction from local governments (UN, 2014).

In Ethiopia, the e-government applications that were studied had not been automated; while in Kenya, Morocco and Mozambique, the applications that were under study were pioneer e-government applications at the local government level (Atnafu, Mequanint, & Adal, 2008; Mitullah & Waema, 2007; Kettani & Asamae, 2008; Macueve, 2007). In all the case studies, the local governments had a web presence; however, the focus of e-government was predominantly on e-administration. Few local governments had upgraded and moved to provide services and information to key stakeholders electronically through web portals (e-services). This step however faced challenges of language background, literacy level and level of ICT knowledge. This is exemplified in Morocco and South Africa where government portals did not factor the language and other socio-economic and cultural aspects of the target users (Kettani & Asamae, 2008; Abrahams & Newton-Reid, 2007).

Local governments with web presence had their websites at the publishing stage of the staged e-service content development model (Chan et al., 2007) or at the emerging stage of e-government maturity level (United Nations, 2008). Only South Africa had moved to online services in Africa. However, hardly any country in Africa had moved to achieving electronic interactions between government and civil society (e-society). On the downside too, the technical quality of some of the ICT application systems in Africa was substandard, a case in

point is Uganda. The system functionality for the application was inadequate and the system could not also be interfaced with other systems in government (Asingwire, Muhoozi, & Angeyo, 2007).

METHODOLOGY

This research study was done through the use of both a descriptive and a correlational cross-sectional survey. A descriptive research attempts to describe systematically a situation, problem, phenomenon, service or programme. A correlational research on the other hand attempts to establish the existence of a relationship between two or more aspects of a situation (Dawson, 2002; Kothari, 1985; Kumar R. , 2005).

Target population

The target population of this study was the staff of the county government of Machakos who interact with service seekers and county government officials at three departments of Machakos county government [ICT department {21 employees}, Procurement department {16 employees}]; Accounts department {25 employees} and service seekers at the Ministry of Finance and Revenue Collection. Due to sensitivity of data regarding the revenue collected on a daily basis, data on the number of service seekers paying revenue was withheld by the county government officers. 100 traders and vehicle owners who pay parking fees were issued with questionnaires. They were drawn from different sections of Machakos town. The total study population was therefore 62 service providers.

Sampling design

This study used two sampling strategies: stratified random sampling and purposive sampling. For the stratified random sampling technique, the staff members that interact with service seekers were divided into different strata based on the departments in which they work. Thereafter, the respondents were randomly selected from the various strata. Purposive sampling technique was used to gather data from the service seekers. This method gave the researcher the flexibility to pick only people who were likely to have the information and was willing to share it. It also helped to ensure representation of different variations of service seekers (customers) by attempting to maintain heterogeneity in the demographics.

Table 1: Study population and sample size

Department / Category	Population	Sample Size
ICT Department	21	19
Procurement Department	16	14
Accounts Department	25	24
Service Seekers (Traders & Vehicle owners who pay parking fees)	*	100
Total	62*	157

Source: *Research study 2015*

Data collection methods and techniques

This research study employed both primary and secondary data collection methods. It collected first-hand information from respondents through the use of Self-Administered

Questionnaires (SAQs) and interviews. Two sets of questionnaires were prepared, one set was filled by service providers and the other by service seekers. Different statements were placed before the respondents to know their attitudes, which was measured using the five point (1-5) Likert scale format. The questionnaires for the service providers were dropped and picked up later. The service seekers were interviewed using the structured questionnaire. Adequate time was taken to explain the purpose and objectives of the study to the respondents.

Data analysis and presentation

Data collected by the instruments was edited, coded and analysed descriptively and inferentially using the Statistical Package for Social Sciences (SPSS) programme. This sought to establish frequencies, patterns and relationships between study variables. The findings were then presented in form of frequencies, percentages and tables.

RESULTS

Out of the targeted 57 employees, 52 of them filled questionnaires and returned, representing a 91.23% response rate. Of the 100 targeted service seekers, all of them filled and returned the questionnaires, representing 100% response rate.

Demographic Characteristics of respondents

Personal details of the employees were analysed using three parameters namely gender, age and highest level of qualification as shown table 2.

Table 2: Demographic Characteristics of Respondents

Demographic Characteristic		Employees N=52		Service Seekers N=100	
		Frequency	Percent (%)	Frequency	Percent (%)
Gender	Male	27	51.92	58	58.00
	Female	25	48.08	42	42.00
	Total	**52**	**100**	**100**	**100**
Age	20 years and below	-	-	3	3.00
	21- 30 years	29	55.77	35	35.00
	31- 40 years	20	38.46	47	47.00
	41-50 years	03	05.77	15	15.00
	Total	**52**	**100**	**100**	**100**
Highest academic qualification	KCPE	-	-	13	13.00
	KCSE	-	-	9	9.00
	Post-Secondary certificate	02	03. 85	15	15.00
	Diploma	08	15.38	48	48.00
	Graduate	32	61.54	12	12.00
	Masters	10	19.23	3	3.00
	Total	**52**	**100**	**100**	**100**

Source: *Research study 2015*

Effect of ICT applications and their usage on customer service delivery

To assess the effect of ICT applications and their usage on customer service delivery in the study area, the study presented several statements on the same to the respondents (county employees). The results of the responses is presented in table 3.

Table 3: Responses to statements on ICT applications and their usage

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean (s.d)
I frequently visit the Machakos county government's website	(40.6%)	(31.3%)	(9.4%)	(12.5%)	(6.3%)	3.88 (1.264)
The Machakos county government's website is well maintained and updated	(21.9%)	(53.1%)	(18.8%)	(6.3%)	(0%)	3.91 (0.818)
The Machakos county government's website/ other ICT System Applications in the Machakos county government offer online transactions (e.g. payment of rates, fees and fines)	(15.6%)	(31.3%)	(31.3%)	(21.9%)	(0%)	3.41 (1.012)
There are ICT System Applications in the Machakos County Government that offer collaboration and working together with other stakeholders outside the ministries (National government, civil society and business community)	(28.1%)	(31.3%)	(28.1%)	(12.5%)	(0%)	3.75 (1.016)
The ICT System Applications are frequently used by staff and customers	(9.4%)	(40.6%)	(40.6%)	(3.1%)	(6.3%)	3.44 (0.948)
The use of ICT System Applications has improved customer service delivery in the ministry	(43.8%)	(37.5%)	(12.5%)	(6.3%)	(0%)	4.19 (0.896)

Key : s.d – Standard Deviation

Source: *Research study 2015*

Generally, majority of the respondents had the feeling that the usage of ICT system applications had improved customer service delivery. That was evidenced by 43.8% who strongly agreed with the statement and 37.5% who agreed with the statement, amounting to 81.3% of the respondents.

The study found out that Machakos county government had established a web presence that was informational, according to E-Macao Program (2009). This was also similar to earlier studies conducted in Ethiopia, Kenya, Morocco and Mozambique (Atnafu, Mequanint, & Adal, 2008; Mitullah & Waema, 2007; Kettani & Asamae, 2008; Macueve, 2007). The web presence was at the publishing stage of the staged e-service content development model (Chan & et al., 2007) or the emerging stage of e-government maturity level (United Nations, 2008). 53.2% of the respondents were neutral (31.3%) or disagreed (21.9%) with the statement that Machakos county government website and other ICT system applications offered online transactions.

The study further subjected the findings to inferential statistics using Pearson's product moment correlation coefficient. The test was used to determine the strength and direction of the relationship between ICT applications and their usage; and customer service delivery. The results are represented in table 4

Table 4: Effect of ICT applications and their usage on customer service delivery

		Customer Service Delivery
ICT Applications and their usage	Pearson Correlation	.795**
	Sig. (2-tailed)	.000
	N	32

**. Correlation is significant at the 0.01 level (2-tailed).

Source: *Research study 2015*

The results indicated a very strong positive and significant correlation between ICT applications and their usage and customer service delivery in Machakos county government. That meant that ICT application and their usage, positively affected customer service delivery.

External customers' perception of ICT applications on customer service delivery

The study administered 100 questionnaires to randomly selected traders and vehicle owners who pay parking fees. This was done to get their perception of the ICTs deployment by Machakos county government and the implication the ICT applications have on customer service delivery. The inclusion of this group into the study was born from the recognition that they are the beneficiaries of the services by the county government.

Awareness of ICTs deployment by Machakos county government

CCTV surveillance system was the most known about ICT deployment by Machakos county government at 94%. 91% of the respondents knew about automated revenue collection system and 61% knew about the Machakos county government's website but only 26% of the respondents had visited the website.

Effect of ICT applications on customer service delivery

Several statements were presented before the respondents to examine the effect of ICT adoption on customer service delivery.

Most of the respondents (69%) agreed or strongly agreed that the use of ICT by Machakos county government had helped to save time from bureaucratic proceedings. 68% agreed or strongly agreed that the use of ICT by the county government had made services to be easily accessible. On the other hand, only 53% of the respondents either strongly agreed or agreed that the use of ICT by Machakos county government had made its employees to be non-discriminatory towards customers. 52% of the respondents also either strongly agreed or agreed that the use of ICTs had made Machakos county government employees to be prompt and efficient.

Table 5: Effect of ICT applications and their usage on customer service delivery (External customers)

Statement	Strongly Agree (%)	Agree (%)	Neutral (%)	Disagree (%)	Strongly Disagree (%)	Mean (s.d)
The use of ICT by the county government has helped to save time from bureaucratic proceedings	(21%)	(48%)	(31%)	-	-	3.90 (0.718)
The use of ICT by the county government has made its employees to be non-discriminatory towards customers	(12%)	(31%)	(39%)	(9%)	(9%)	3.28 (1.083)
The use of ICT by the county government has made services to be easily accessible.	(37%)	(31%)	(25%)	(7%)	-	3.98 (0.953)
The use of ICT has made the county government employees to be prompt and efficient	(21%)	(31%)	(16%)	(23%)	(9%)	3.32 (1.286)

Key: s.d – Standard Deviation

Interview results

The study interviewed selected ICT officers to establish their views regarding ICT applications and the frequency of their usage in the county government. Insights from the interviews were incorporated into the questionnaires that were distributed among the employees and external customers.

The interviews revealed the existence and usage of CCTV security surveillance system that covers major roads, government buildings, garages, bus park and other public spaces. Over 500 security cameras had been installed. The interviews also established that there was an official website for the county government and all ministries had separate websites. IFMIS

was also in use and the Human Resource department had a HRM and Payroll system. The revenue collection team had a Mobile Point of Sale (M-POS) System to collect revenue from market stalls, vehicle owners who parked within the town, people carrying baggage, slaughter houses and sand harvesters.

The interviews also established that all permanent employees of the county had official email addresses created for them with the domain @machakosgovernment.com. This was to provide a platform for official communication within and outside the county government of Machakos. The existence of a Help Desk System was also established through the interviews. Employees from other departments who experience ICT related problems were to submit a query to the system. A ticket number would then be generated and an ICT officer would be assigned to handle the task.

E-procurement was however noted to not to have been fully implemented. Downloadable tender documents would be placed on the county website. They were meant to be downloaded, filled manually and then returned to the county offices. All in all, it was established that the available system applications were normally in use.

CONCLUSION AND RECOMMENDATIONS

Based on both the descriptive and inferential analysis, it can be concluded that ICT applications and their usage has a positive effect on customer service delivery. The study recommends that:

1. County Governments should allocate more funds towards installation and maintenance of ICT applications.

2. County Governments should encourage the usage of the installed ICT system applications in order to reap maximum benefits from them.

3. With the ever changing technological environment, continuous research should be undertaken to ensure the ICT applications are up-to-date with the prevailing trends.

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