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Challenges Facing Integration and Use of ICT in the Management of County Governments in Kenya

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Abstract

Kenyan's Vision 2030 identifies ICT as one of the core drivers of Kenya's growth and development strategy to becoming a middle income country by the year 2030. Vision 2030stresses access to ICTs based on its potential to increase productivity and raise the competitiveness of local businesses in a knowledge-based economy. ICT integration has not reached its full potential and utilization in the County governments. This has been brought about by a number of factors. Poor and inadequate ICT facilities, poor levels of computer literacy and ICT skills, poor level of awareness of internet facilities among policy makers, government officials and the ruling class in general and minimum involvement of academic institutions in network building are challenges mitigating against the use of ICTs. The Purpose of this study is to investigate on Challenges Facing Integration and Use of ICT in the management of County Governments in Kenya. The paper used a desk study review methodology where relevant empirical literature was reviewed to identify main themes according to the global and local contexts. From the literature reviewed, the study revealed that it is an area worthy of doing research. The study found out that ICT integration has and continues to be a challenge in many county governments. Its integration is yet to reach its full potential and its utilization is limited. The literature review highlighted several factors that affect ICT integration for service delivery. These challenges include lack of enough ICT infrastructure, lack of staff capacity in terms of trainings, staff attitude towards technology adoption, poor government regulation policies and lack of management commitment. Based on the findings and conclusions, the study recommends that County Government staff should be trained and retrained in application of ICT for improved integration and use of ICT in the management of the County activities. To sustain this, there is a need for rethinking education as a whole to produce the future ICT integration implementers.

Key words: *ICT integration, staff capacity, ICT infrastructure, management commitment, County Government*

1.0 Introduction

The introduction of ICT and especially the internet has brought immerse changes in the world and more so in communication. ICTs encompass a range of rapidly evolving technologies which include telecommunication technologies such as telephone, cable, satellite, Television and Radio, computer-mediated conferencing and video conferencing as well as digital technologies which include computers, information networks such as internet, World Wide Web, intranets and extranets and software applications (Vadaon, 2010).

Africa has seen improvement in e-government with countries in the region looking to increase their online presence through developing websites for government ministries and agencies as shown by the United Nation 2012 survey. Seychelles (0.5192) climbed several points to number one in the region in 2012 followed by Mauritius (0.5066) and South Africa (0.4869). It is notable that all of the African leaders increased their e-government development index value in 2012 but lost in comparative performance around the world, except for Kenya and Morocco, which gained in the world rankings from 124 to 119 and from 126 to 120 respectively. Tunisia (0.4833) and Egypt (0.4611) declined in rank substantially as did Cape Verde (0.4297) because their improvements did not keep pace with those of other countries around the world.

Kenyan's Vision 2030 identifies ICT as one of the core drivers of Kenya's growth and development strategy to becoming a middle income country by the year 2030. Vision 2030stresses access to ICTs based on its potential to increase productivity and raise the competitiveness of local businesses in a knowledge-based economy (GOK-NESC, 2007). To realize this, the government is investing heavily in ensuring that the entire country has access to internet services at an affordable cost. Government has invested in fiber optic cables at least to every provincial headquarters and has an ambitious plan to have all urban centre connected to the World Wide Web (World Vision, 2011). However, despite these efforts, access to internet or to computers amongst the rural population, is still limited (Tilvawala, Myers & Andrade, 2009). Some of the district headquarters have no basic internet infrastructure hampering effective and timely communication and learning (World Vision, 2011).

ICT integration has not reached its full potential and utilization in the County governments. This has been brought about by a number of factors. Okiy (2013) points out poor and inadequate ICT facilities, poor levels of computer literacy and ICT skills, poor level of awareness of internet facilities among policy makers, government officials and the ruling class in general and minimum involvement of academic institutions in network building as challenges mitigating against the use of ICTs. Haliso (2014) adds that lack of functional ICT policy, economic barriers, ICT infrastructure, resistance to change, low capacity of communication facility and lack of policy for manpower development are also common barriers undermining the use of ICTs. According to Al-Rashidi (2014), resisting change from within the organizations, technical barriers and lack of ICT training for employees are among the factors that can lead to failures of e-government projects.

1.1 Statement of the Problem

ICT integration has not reached its full potential and utilization in the County governments. This has been brought about by a number of factors. Okiy (2013) points out poor and inadequate ICT facilities, poor levels of computer literacy and ICT skills, poor level of awareness of internet facilities among policy makers, government officials and the ruling class in general and minimum involvement of academic institutions in network building as challenges mitigating against the use of ICTs (Magutu & Lelei, 2010). Haliso (2014) adds that lack of functional ICT policy, economic barriers, ICT infrastructure, resistance to change, low capacity of communication facility and lack of policy for manpower development are also common barriers undermining the use of ICTs. According to Al-Rashidi (2014), resisting change from within the organizations, technical barriers and lack of ICT training for employees are among the factors that can lead to failures of e-government projects.

Scanty studies have been conducted on challenges facing ICT integration in the County governments. (Tilvawala, Myers, & Andrade, 2009; Gichoya, 2005; Okiy, 2005; Haliso, 2011, Ogunsola, Akindojutim, and Omike, 2011, Al-Rashidi, 2011; Magutu and Lelei, 2010 conducted studies with bias on national government. Magutu and Lelei (2010) specifically studied Information Systems Implementation in State Corporations with a bias on State Parastatals. Therefore it is evident that there exists a conceptual gap. This study therefore sought to bridge the research gap by conducting a desktop review on challenges influencing integration and use of information and communication technology in county governments in Kenya.

1.2 Purpose of the Study

The Purpose of this study is to investigate on Challenges Facing Integration and Use of ICT in the management of County Governments in Kenya.

2.0 Literature Review

2.1 Theoretical Framework:

2.1.1 Task Technology Fit

Task-technology fit (TTF) theory holds that IT is more likely to have a positive impact on individual performance and be used if the capabilities of the IT match the tasks that the user must perform (Goodhue and Thompson, 1995). Goodhue and Thompson (1995) developed a measure of task-technology fit that consists of 8 factors: quality, locatability, authorization, compatibility, ease of use/training, production timeliness, systems reliability, and relationship with users. Each factor is measured using between two and ten questions with responses on a seven point scale ranging from strongly disagree to strongly agree. Goodhue and Thompson (1995) found the TTF measure, in conjunction with utilization, to be a significant predictor of user reports of improved job performance and effectiveness that was attributable to their use of the system under investigation.

Although the Goodhue and Thompson (1995) model operates at the individual level of analysis, Zigurs and Buckland (1998) present an analogous model operating at the group level. Since the initial work, TTF has been applied in the context of a diverse range of information systems including electronic commerce systems and combined with or used as an extension of other models related to IS outcomes such as the technology acceptance model (TAM). The TTF measure presented by Goodhue and Thompson (1995) has undergone numerous modifications to suit the purposes of the particular study.

2.1.2 Rodger's Theory of Diffusion of Innovation

Diffusion of innovation (DOI) theory was developed by Rodgers in 1962, and is argued to be one of the oldest social science theories. It originated in communication to explain how, over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system. The end result of this diffusion is that people, as part of a social system, adopt a new idea, behavior, or product. Adoption means that a person does something differently than what they had previously (that is, purchase or use a new product, acquire and perform a new behavior, etcetera). The key to adoption is that the person must perceive the idea, behavior, or product as new or innovative. It is through this that diffusion is possible (Sahin, 2006).

In the context of the current study, the aforementioned theory enables the investigation of Integration of ICT by County Governments. As Rodgers posits, adoption is a decision of full use of an innovation as the best course of action available, while rejection is a decision not to adopt an innovation. This reasoning will be applied to explain embracing of and resistance to Integration of ICT in County Governments.

Communication is asserted to be the process in which participants create and share information with one another with the aim of reaching a mutual understanding. Communication occurs through channels between sources. To enhance the diffusion of Integration of ICT in County Governments, it should be ensured that the system is communicated through the most effective channels. It is further observed that innovation diffusion process includes a time dimension. More so, the nature of social system affects individuals' innovativeness, which is argued to be the main criterion for categorizing adopters.

2.2 Empirical Review

Most developing countries are characterised by limited computer applications in the public sector, inadequate infrastructure and shortage of skilled manpower (Mengiste, 2010). Mengiste, (2010)notes that "this situation exists not merely due to lack of financial resources, but largely due to lack of coordination at different levels in making effective use of the technology". This uncoordinated efforts can only result in duplication if each department implements its own ICT projects without due regard to compatibility within the government.

Most developing countries are characterized by limited computer application in the public sector, inadequate infrastructure and shortage of skilled manpower (Gichoya, 2005). Kenya is not an exception. With limited access to electricity and phone lines, few people in Kenya have a computer at home. Radio and television access is much better (GOK-KNBS, 2010). On the other hand, mobile phones are commonplace and the number of internet users is increasing rapidly due to the number of internet cafés, shops and access centres that are available, particularly in urban areas (CCK, 2012).

According to Farrell et al, (2007), there is limited penetration of the national physical telecommunication infrastructure into rural and low-income areas. Consequently, there is limited access to dedicated phone lines and high-speed connectivity for e-mail and the internet. Even where access to high-speed connectivity is possible, high costs remain a barrier to access.

According to Ikolo and Okiy (2012), mastering the use of ICT has become a core competency for competition and sustained development. It is also likely to become a core competency in delivering public services education and training, and even micro credit and poverty reduction programs. To realize this potential, the current focus on investment in physical infrastructure and hardware, and on isolated experimentation and piecemeal implementation must be broadened and scaled-up to address the enabling policies, institutions, infrastructures, and skills, and to devise national strategies that are capable of agile adaptation and participatory social learning.

Murphy (2004) notes that weak human resource management and management capacity has been responsible for the derailment of IFMIS implementation in Kenya. Systems improvements (that is, macro model, MTEF, performance budgeting, cash management, IFMIS, payroll/personnel systems) are typically undermined by failure to address complimentary human resource (manpower planning, recruitment, incentives, training), organizational restructuring and improved management capacity (delegation, middle management empowerment, team building). He further posits that IFMIS implementation is hindered by over-complex change projects requiring high levels of technical and management capacity.

Despite widespread support for whole-of government, there remain major problems in overcoming departmental silos, reducing fragmentation and enhancing coordination (UN, 2012). E-government barriers are both technical and non-technical. According to Al-Rashidi (2009), successful e-government is at most 20% technology and at least 80% about people, processes and organizations. Leaders' management skills are important to have a successful e-project. Top leadership should therefore adhere to the principles of management through planning and regulations of operations, decision making and control over actions of human being and coordination of resources through the processes of planning, organizing, directing and controlling in order to give stated objectives.

Paul, Opal, Vanesa and Karlene (2008) posited that while management characteristics are perceived as a large part in the decision-making processes towards ICT adoption, it is the

characteristics of managerial practices that bear a direct relationship to the adoption-diffusion process. Another managerial attribute affecting adoption is age. Older managers are more likely to be uncomfortable with taking rapid steps towards ICT adoption, while younger individuals may be more likely to embrace ICT. It was found that managers with the most positive attitude towards ICT adoption were those who interpreted IT as an effective tool in transforming business operations. Administrative culture also has an effect on the development of e-government. This, however, can only be established by management to a certain extent (Schedler and Schmidt, 2004).

According to Kordha, Gorica, & Ahmetaj, (2011), ICT policies in state government lack institutionalization. It is a challenge to establish solid guidelines for the initiatives in this area. The application of ICT in governmental administration process is characterized by the fragmentation of initiatives and the difficulty in horizontal coordination among various governmental agencies. The costs of managing ICT operations in administration are smaller than those of facing the challenges of manual coordinating efforts. There are no enforcement mechanisms, nor financial ones, nor the loss of power or legitimacy, to make it disadvantageous for the ICT to remain relevant. The results of innovative policies are an offer of services that evolves within the scope of each department, but with great difficulties to offer integrated services, interdepartmental or even among different spheres of government or powers.

Kipsoi, Chang'ach and Sang (2012) observe that policy makers in Kenya continue to introduce strategies for ICT, with the intention of increasing its use in secondary schools. These strategies are likely to have an effect on the school level factors. The teacher level obstacles are more difficult for policy makers to tackle as it is the teachers themselves who need to bring about the required changes in their own attitude and approach to ICT. Stigler and Hiebert (2009) in their research findings stated that, the main factor in front of Mathematics integration process is the gap between the curriculum's expectations and teachers' beliefs. However, Gao, Tan, Wang, Wong and Choy (2011) suggested that, the integration of ICT into the Mathematics classroom depends on individual teachers as well as the schools' contextual factors.

Teacher related, challenges impact on fundamental change and are typically rooted in teachers' core beliefs and are therefore the most significant and resistant to change. Fullan (2007)**.** Teachers related factors refer to teacher comfortability, teacher confidence and teacher competence. Research indicates that lack of teachers' confidence prevents teachers from using ICT in their teaching (Peeraer and Van Petegem, 2011). Similarly Balanskat, Blamire and Kefala (2006) indicated that limitation in teachers ICT knowledge makes them feel anxious about using ICT in the classroom and thus not confident to use it in their teaching.

A study, in New Zealand and Australia conducted by Hudson and Porter (2010), found that, one of the barriers that Mathematics teachers identified in failing to adopt the use of computers in the classroom, is the lack of computer use is due to lack of experience in using computers in teaching Mathematics, lack of adequate professional training and lack of professional support in the use of computers in Mathematics instruction.

Successful use of technology for the benefit of children depends on the knowledge of teachers and their confidence and competence in using technology. So not only do teachers need to learn how

to use technology, they also need to learn how to apply the technology to teaching and learning. In addition, they need to know which technologies will most effectively meet children's skills, abilities and needs (Girgin, Kurt, and Odabasi, 2011).

Muriuki (2009) studied Challenges Facing the Ministry of Finance in The Adoption of Automated Financial System. The objective of the study was to determine the challenges facing the ministry of finance in managing change from legacy accounting systems to IFMIS. The study concluded that the major challenge was resistance to change brought about by fear of the unknown, not enough training, fear of redundancy and the fact that IFMIS ensured transparency leading to detection of fraud thus challenging the existing corrupt systems. It further recommended that ICT equipment and training be increased to boost employee awareness and that senior government officials show more support and commitment to the implementation of IFMIS.

ICPAK (2014) conducted a baseline survey on Devolution in Kenya with Respect to Public Financial Management Systems-One Year On. The study focused on county public financial management systems in support of the implementation of devolution in Kenya; performance of county human resources; roles and interrelations between county and national government; and evaluation the participation of the citizens and the private sector in county governance. The conclusion from the study was that most counties experienced connectivity challenges when the national IFMIS server is down leaving the rest of the country grounded. It further recommended that the national treasury should roll out county connectivity through a more reliable medium such as fiber optic cable as opposed to modems, or counties could consider clusters in which they make collective investments in laying connectivity infrastructure to compliment the efforts of the national government.

Leiderer et al (2007) examined Public Financial Management for PRSP Implementation in Malawi: Formal and Informal PFM Institutions in a Decentralizing System. The study aimed at examining the implications of decentralizing public financial management system for PRSP implementation. The study found that one of the major shortcomings undermining sound PFM in Malawi was lack of adequate human and technical capacity in key PFM positions, combined with insufficient financial, organizational and human resources management. The study recommended that the introduction of new PFM tools should always be accompanied by systematic long term and timely capacity development. This involves establishing mechanisms to disseminate specific knowledge acquired by individuals to all relevant stakeholders in order to preserve the gained knowledge and capacity for the institution.

Mwakio (2015) investigated the Challenges Facing County Governments in the Implementation of IFMIS in Taita Taveta County. The study aimed at finding out why there was still poor management of devolved funds to the counties despite the use of IFMIS at the counties. The study concluded that previous training on IFMIS had not involved senior county officers who were often too busy attending to other matters and thereby sending their junior staff for the training instead.

The study recommended that the national treasury deal more decisively on matters devolution and specifically in the implementation of IFMIS to avoid letting partisan politics interfere with management of devolved funds.

3.0 Findings and Discussion

From the literature reviewed above, the study revealed that it is an area worthy of doing research. The study found out that ICT integration has and continues to be a challenge in many county governments (Tilvawala, Myers, & Andrade, 2009). Its integration is yet to reach its full potential and its utilization is limited. The literature review highlighted several factors that affect ICT integration for service delivery. These challenges include lack of enough ICT infrastructure, lack of staff capacity in terms of trainings, staff attitude towards technology adoption, poor government regulation policies and lack of management commitment.

The study also found out that developing countries Kenya included are rapidly and heavily investing in ICTs despite the other challenges they face for instance drought and famine (WHO, 2012). Despite these efforts, the countries still have low internet connectivity, inadequate power supply especially in the rural areas where most governments are located coupled with regular interruptions, low number of computers in schools, limited /no computer laboratories. This creates a digital divide between the developed and the developing countries and thus the developing countries miss out on the benefits of ICT in almost all aspects (UNESCO, 2010).

Most developing countries are characterized by limited computer application in the public sector, inadequate infrastructure and shortage of skilled manpower (Gichoya, 2005). Kenya is not an exception. With limited access to electricity and phone lines, few people in Kenya have a computer at home. Radio and television access is much better (GOK-KNBS, 2010). Schedler and Schmidt (2004) shows that the management of an administrative unit has a relevant influence on the development of e-government in that it becomes active in three different fields of intervention: strategy, in the sense of setting objectives and the course of the project; the establishment of structures, such as the organization of structures and processes, but also rules and incentives; and capacity building in the sense of extending the organization's potential possibilities of action.

4.0 Conclusion

Based on the findings above the study concluded that lack of enough ICT infrastructure, lack of staff capacity in terms of trainings, staff attitude towards technology adoption, poor government regulation policies and lack of management commitment are some of the challenges influencing ICT integration in many county governments.

The study concluded that ICT infrastructure is an essential foundation for the information society. Being everything that supports the flow and processing of information, ICT infrastructure constitutes a significant enhancer (or barrier) to implementation of e-governance and ICT integration projects. For quality service delivery the ICT facilities should be readily available.

Lastly, the study concluded that top management support and commitment play a crucial role in any initiation and adoption process of ICT related programmes. It has great power to influence other members' behaviour within the organizations. Through long term strategic vision, top management can encourage the entire organization to learn and participate in ICT integration.

5.0 Recommendations

Based on the findings and conclusions, the study recommends that County Government staff should be trained and retrained in application of ICT for improved integration and use of ICT in the management of the County activities. To sustain this, there is a need for rethinking education as a whole to produce the future ICT integration implementers.

The study recommends for investment and maintenance of ICT infrastructure since ICT infrastructure are normally very delicate and prone to damages if not well handled or maintained. Maintenance of the ICT facilities should be done regularly to detect, repair or replace worn out parts and defects. Failure to maintain regularly may lead to complete damage of components prompting the purchase of new equipment. This should be avoided since the cost implications are high.

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