Global Journal of Management and Business Research: G Interdisciplinary
Volume 17 Issue 2 Version 1.0 Year 2017
Type: Double Blind Peer Reviewed International Research Journal
Publisher: Global Journals Inc. (USA)
Online ISSN: 2249-4588 & Print ISSN: 0975-5853

Adoption of ICTs for Service Delivery Improvement by Local Governments in Uganda: Communication Tools

By Mr. Wilfred Kokas Aupal & Mr. Charles Oleja
Mbarara University of Science & Technology

Abstract- Provision of public goods and services to the communities remains the mandate of governments, which in most developed and emerging economies has been decentralized to local governments. Guided by the assumption that Information Communication Technologies (ICTs) creates faster communication which enables local governments to serve the communities better; this paper examines how local governments in Uganda have adopted the use of Information Communication Technologies (ICTs) especially emails and telephones as communication tools in their day to day operations. Three districts in Eastern Uganda were selected for this study. Cross-sectional design was used employing mixed methods for data collection. Quantitative data was collected form 225 respondents, while qualitative data was obtained from 5 key informants.

Keywords: adoption, information communication technologies (ICTs), local governments, eastern uganda.

GJMBR-G Classification: JEL Code: O30 General, O300, O380

Strictly as per the compliance and regulations of:

Adoption of ICTs for Service Delivery Improvement by Local Governments in Uganda: Communication Tools

Mr. Wilfred Kokas Aupal [α] & Mr. Charles Oleja [σ]

Abstract- Provision of public goods and services to the communities remains the mandate of governments, which in most developed and emerging economies has been decentralized to local governments. Guided by the assumption that Information Communication Technologies (ICTs) creates faster communication which enables local governments to serve the communities better; this paper examines how local governments in Uganda have adopted the use of Information Communication Technologies (ICTs) especially emails and telephones as communication tools in their day to day operations. Three districts in Eastern Uganda were selected for this study. Cross-sectional design was used employing mixed methods for data collection. Quantitative data was collected form 225 respondents, while qualitative data was obtained from 5 key informants. The results revealed that very few respondents used emails for communication, slightly a bigger number used telephones and the majority used face to face discussions – informal meetings, formal meetings and memos to communicate. In the concluding remarks, the paper point out the challenges faced by local governments in an attempt to adopt ICTs and also suggests some remedies to enhance the ICTs adoption.

Keywords: adoption, information communication technologies (ICTs), local governments, eastern uganda.

I. Introduction

The provision of public goods to the communities has remained an issue of concern to scholars and policy makers worldwide (Díaz-Cayeros, Magaloni, & Ruiz-Euler, 2014:2). The state is the main actor when it comes to the delivery of public goods (Kamei, Putterman, & Tyran, 2015:40) and both developed and developing nations have adopted the use of Information Communication Technologies (ICTs) as a communication mechanism through which communities are best served as this creates more efficiency and effectiveness in coordinating the day to day operations (Cordella, & Tempini, 2015:280). Barrett, Davidson, Prabhu and Vargo (2015:136) agree that the ICT tools have led to improved productivity and efficiency in service delivery and also points out that many of the service innovations have cropped up due to the widespread use of ICTs. Gatautis (2015:18) mentions the use of ITCs in local governments as improvement of public policy and transformation of relationships with citizens, business and other public institutions, and also to facilitate the process of decision making. Similarly, the use of ICTs is believed to make the markets function more efficiently and contribute to economic growth which would not have been achieved if the traditional methods were used (Stork, Calandro & Gillwald, 2013:34). However, in their paper Connected for Development? Theory and evidence about the impact of Internet technologies on poverty alleviation, Galperin and Fernanda (2017:10) argue that full productivity impact for ICTs may delay to materialize particularly in developing countries due to threshold effects that may delay productivity returns on these technology investments.

ICTs can be defined as computers, hardware, electronic equipments and applications that help people to access, retrieve, process and exchange information and at times are referred to as e-business or e-government (Wang, Hsu, Reeves, & Coster, 2014:102; Cirera, Lage, & Sabetti, 2016:6). ICTs also enable social networking functions and communications among individuals or groups of people. The Economic commission for Africa has emphasized that the ability to access and use information is no longer a luxury but a necessity for development in a rapidly changing world and to achieve this ICTs need to be involved (Adomi & Kpangban, 2010:1). According to Kayisire and Wei (2016:1) the growth and use of ICT adoption and usage in Africa in the last two decades has been unprecedented and mobile phones are increasingly becoming more affordable and being used as a platform for internet accessibility. Stork, Calandro & Gillwald (2013:14) agree that mobile telephones are increasingly becoming entry point for internet usage and adoption in African continent.

Despite the increasing ray of hope for adoption of ICTs in developing economies, there is scanty literature on how local governments in Uganda have shown trends to embrace ICTs. This paper selected telephone and emails as the most used ICTs (Venkatesh, Croteau & Rabah, 2014:111) for communication and tries to establish their adoption by local governments in Uganda in conjunction with the traditional methods of communication which include face to face discussion, meetings and memo.

Author α: Mbarara University of Science & Technology/Uganda Technology and Management University C/O Makerere University/ Regional Center for Quality of Health Care (RCQHC) P.O Box 29140, Kampala, Uganda. e-mails: kwaupal@yahoo.com, 2014phd040@stud.must.ac.ug
Author σ: Havilah Company Limited, P.O Box 6871 Kampala. e-mail: oleja.charles@gmail.com

In the next sections of the paper, we provide general literature relating to the adoption and usage of ICTs at global and regional levels and lastly pick scholarly information on how Uganda as a country has endeavored to adopt ICTs as communication tools.

a) Global literature for adoption trends of ICTs

Information communication Technologies (ICTs) play a vital role in the revolution aimed at transformation of the global economies leading to socio-economic development (Russell& Steele, 2013:1; Maumbe & Okello, 2013:114). In the American context, 83.6% of the local governments had websites in the year 2000, which grew to 87.7% by 2002 and even those without websites had plans to acquire (Norris & Moon, 2005:68). By the year 2012, global average of mobile subscriptions was at 88.5% with Korea and Netherlands being on the lead, Singapore and Kazakhstan were close behind followed by United Kingdom and United States of America, with Africa having only 26.7% of the subscription (Aquaro, 2012).

In the study conducted in 2012 to assess the world leaders in adoption of ICTs, of the 20 countries which emerged winners, none was from African continent (Szopiński, Szopiński, Staniewski & Staniewski, 2017:201). The results of the comparative study undertaken by Jianguang and Jianming (2015:39) indicated that there remains significant variation in the extent of informatization development with China and other countries and trailed by Africa.

While studying internet usage by local government employees in Southern California, Ting and Grant (2005:10) established that 97% of employees had internet in their offices and 99% reported using their emails for office work and other personal work. These results showed very high adoption of ICTs by developed economies. Aware of the fact that the use of ICTs in client-administration would reduce corruption levels by limiting direct contact and permitting reconstruction of all communication records (Szopiński, et al., 2017:199), it is therefore imperative that the reasons for low adoption of ICTs by developed nations with all the resources to invest for these technologies needs to be investigated (Jancsics, 2013:320)

b) Adoption of ICTs: Regional context

In a bid for developing countries to achieve millennium development goals, the notion of ICTs was introduced around 1980s; it progressed through radio, television, internet and mobile technologies centered on political, social, natural, physical, human and financial aspects (Russell & Steele, 2013:1). Mosweu, Bwalya, & Mutshewa (2017:97) revealed that technophobia, negative attitudes to system use, perceived system complexity and incompatibility with existing information systems as key factors contributing to low adoption and usage of the system in African context.

Understanding it from the Zambian perspective; Bwalya (2017:2) listed factors such as lack of required infrastructure, low ICT literacy rates, cultural beliefs and low economic development to be hindering adoption of ICTs. Bankole and Bankole (2017:501) while drawing conclusions to their study pointed out that; ICT innovations require socio-cultural conditions for adoption, initiation and implementation.

Despite all these challenges, it is interesting to note that the adoption of ICTs in Africa especially the mobile communication technology is growing at a faster rate and by the year 2012, about 650 million subscriptions were registered and this represented a figure more than that of USA or UK, this finding show that Africa is the fastest growing region in terms of mobile communications connectivity and adoption (Kayisire & Wei, 2016:1).

Akoh and Ahiabenu (2012:349) revealed how monitoring of specific and important aspects of elections was conducted using social media tools and ICT applications in 10 African countries which include; Ghana, Côte d'Ivoire, Guinea, Mauritania, Malawi, Mozambique, Namibia, Botswana, Togo and Niger. To date, traditional election coverage, online election reporting on the Africa continent has been experiencing growth in recent years.

Adomi and Kpangban (2010:5) observed that the usage and adoption of ICTs in secondary schools of Nigeria has a positive impact on teaching, learning and research and further notes that efforts to integrate ICT into the secondary school systems have not yielded fruits due to poor project implementation policies and limited information infrastructure. Ogbomo (2009:2) had already noted that illiteracy was a big barrier to adoption of ICT in Nigeria.

In their paper; Uses of Information and Communication Technology (ICT) in agriculture and rural development in sub-Saharan Africa; Maumbe and Okello (2013:114) indicates how the government of South Africa in 2001 after getting frustrated by poor service delivery, adopted the use of e-government as a means of mending the interaction gap with the citizens. Similarly, in the year 2007, Kenya adopted the use of e-government as part of civil service reform through which the citizens could access services effectively and efficiently.

In Egypt, there is e-readiness where all the citizens access the benefits and opportunities created by ICTs and appropriate communication infrastructure has been developed to enable this public access. Some of the ICT services in Egypt include e-learning, e-health, e-government, e- business, e-culture and e-export (Gebba & Zakaria, 2015:13). E-government adoption in Egypt is currently at the level of enhanced and interactive presence (level II and III as defined by the UN web presence model 2001) and it is now recognized in facilitating and expediting social, economic and political

development (United Nations, 2012; Ayman & Abdel–Azim, 2016:11 and Zakaria, 2015:16).

It is worthy to note that the adoption of ICTs in African countries varies from country to country which is also based on societal structures, and a case in point is the use of robots to control traffic in the city of Kinshasa by the police department, yet this has not been adopted by cities of Democratic Republic of Congo's neighbors such as Nairobi or Kampala (Bhattacharya, 2015:82).

c) *Adoption of ICTs in Uganda: Selected practical examples*

The study focused on local governments because it is the institution Government of Uganda has chosen to implement most of the government programmes in the bid to bring services nearer to the citizens. In that respects the findings on how the local governments adopt ICTs, could largely represent the extent of adoption of ICT in Uganda for improvement of service delivery. Our respondents were district public servants responsible for service delivery, and district and sub county political leaders with the mandate to monitor government programmes and offer oversight to the technical staff. These groups were appropriate for the study. The study focused on adoption of ICTs by the local governments where the district and sub county technical staff and political leaders were the respondents, which is one side of the coin in service delivery assessment. The perspective of the masses on ICTs adoption particularly for demanding services and mobilizing for development should be investigated.

Like any other developing country in Africa, Uganda is not spared from ICTs adoption problems and challenges such as low level of ICT literacy, low infrastructure, cultural and socio- economic problems. Nevertheless, ICTs are currently used and adopted in Uganda in the fields such as electoral process, prevention of violence, agricultural sector in the rural areas, commerce and trade, education, heath, e-government among others (Callen, Gibson, Jung & Long, 2016:4; Mirembe, Obaa, & Ebanyat, 2016:15; Morrison, 2016:2; Baryamureeba, 2007:468; Lubega, Kajura, & Birevu, 2014:106; Basheka, Lubega, & Baguma, 2016:83; Charles, & Yoshida, 2016:2 and Nabafu, & Maiga, 2012:287).

There is light under the tunnel for ICT usage and adoption in Uganda because the National Information Technology Authority (NITA)–Uganda was established by the Act of Parliament with the mandate with the main objective of putting in place ICT policies, strategies and initiatives (NITA-Uganda, 2010:1).NITA-Uganda has also created District Information Business Centers (DBICs) and District Web Portals (DWPs) in about all districts in Uganda. These national ICT polices also reflect the Uganda government desire to adopt ICT systems for national development and also addressing the earlier assertions that Africa is "a technological desert" due to low technology use and adoption (Charles, & Yoshida, 2016:2; Rorissa & Demissie, 2010:161).

Uganda with over 80% of her population being dependant on agriculture, experts have used ICT to create a platform through which scientists and students at the universities can share information with the smallholder farmers in the rural communities, and this enhances development (Mirembe, Obaa, & Ebanyat, 2016:15). The study findings further indicated that the most preferred ICTs were mobile telephones, computers and internet at 40.5%, 21.3% and 20.1% respectively. Similarly, ICT usage was high in peri-urban compared with the rural population though with very insignificant difference. Martin and Abbott (2011:19) found that the rural farmers in Kamuli district, which were funded by Volunteer Efforts for Development Concerns (VEDCO) relied highly on the usage of mobile phones for agricultural extension services.

According to Charles and Yoshida (2016:2) the usage of ICT in Uganda's health system dates back to the year 1998 or during the introduction of the mobile telephones and was adopted by the Ministry of Health in 2012 to be used by health practitioners. Kivunike, Ekenberg, Danielson and Tusubira (2009:6) observed that in the rural communities of Uganda, ICTs have been taken as quality of life indicator because it can be used to obtain information on good health practices, contact a doctor, be able to know where the drugs are and at what cost. Abandu and Kivunike (2017:122) add that the use of mobile phones (e-health) facilitates the sharing of health information and collection of patient data among others; they further suggest mobile phones be used in Uganda to mobilize mothers for immunization and other health services.

In education sector, ICT is being used in both primary and secondary level by the learners. This has been taken to the university levels such as the Uganda Technology and Management University, which developed monitoring and evaluation blended-learning model which uses ICTs and hence addressing the challenges in providing higher education in African countries (Basheka, Lubega, & Baguma, 2016:83). This mode of learning can be done using internet, mobile phones, television sets, radio, video conferencing and others (Lubega, Kajura, & Birevu, 2014:106)

Nabafu and Maiga (2012:298) revealed that use of ICTs (local e-government) by local governments enables administrators to extend services to the communities by providing online means for people to get together and communicate. Furthermore, after realizing the benefits that ICT play in community development, the Ministry of Local Government established Local Government Information System (LOGIS) and Local Government Financial Information Analysis System (LGFAS). ICTs are also used at the communities to avert violence, crime and insecurity (Morrison, 2016:2). Grossman, Humphreys, and

Sacramone-Lutz (2016:1) found that ICTs play a critical role in the politics of Uganda to offer services such as sensitization of the communities, political campaigns and the analysis of the final votes. Callen, Gibson, Jung, and Long (2016:4) add that the use of ICTs in Uganda has minimized electoral irregularities.

II. Methodology

The study used a cross-sectional research design, which enabled the researchers to measure the population outcomes in a simultaneous manner (American Dietetic Association, 2011). Additionally, both quantitative and qualitative data was collected from a sample of respondents, which was agreeable with cross-sectional design (Graber, 2004). Jinja, Tororo and Soroti districts, covering district and sub county level were included in the study where data was collected using questionnaires and key informant interviews.

The sample size for the two data collection methods was arrived at separately where quantitative data target population was 360 members leading to the sample size of 313 as guided by Krejcie and Morgan (1970). The total number of respondents was 225 giving a response rate of 71.9% which is scholarly acceptable to be free of bias (Welch & Barlau, 2013, Baruch, 2013). The remaining 28.1% include the respondents who did not return questionnaires within the data collection period even after several reminders giving reasons such as the questionnaire got lost and he/she is very sick and cannot fill the questionnaire. Qualitative data collection method had a purposively selected sample of 8 with a response rate of 62.5% which was arrived when the responses reached a saturation point (Fusch & Ness, 2015).

Quantitative data was analysed using Statistical Package for the Social Sciences (SPSS) Version 22 which generated frequencies and percentages indicating which ICTs are most used by local governments. Qualitative data was collected by the use of interview guide through recording, was transcribed, processed by Microsoft word computer application and lastly analysed by the use of content analysis.

III. Results and Discussion

The study sampled district public servants: technical and political team which groups are familiar with service delivery in the districts. The technical team performs most of the service delivery, while the political team provides policy creation and performance monitoring as mandated by the local government law and the constitution of Uganda. Eight four percent of the respondents (table 1) had attained tertiary education and were therefore competent to understand the questions. The questions used to find out use of ICTs were simple and clear and easy for the respondents to understand and give appropriate response. Quantitative raw data was check for completeness and accuracy before the coded data was entered into SPSS software that was used for the statistical analysis; while qualitative data from the recorded interviews were transcribed using Microsoft word. The quantitative data was analyzed by multiple response analysis to generate cross-tabulation tables for descriptive statistics.

The question is, "Are ICTs technologies being used to enhance service delivery in local government?" To attempt to answer this question 313 respondents were asked (225 responded) to indicate the main ways of communication in their departments from a suggested list.

Table 1 confirms the answer is, "yes". Table 1 show that 56.9% of the respondents indicated using telephones in their departments and 24% indicated use of email for communication. This study findings tie up with what (Mirembe, Obaa, & Ebanyat, 2016:15) reported that the most preferred ICTs for communication were mobile telephones, computers and internet at 40.5%, 21.3% and 20.1% respectively. However the findings show that; face-to-face interactions (87%) and formal meetings (80%) lead as the main ways of communications in the local governments. With the study findings indicating 24% use of email as a communication tool in Uganda local governments, could have emanated from the position pointed by the results of the earlier studies that; Africa has a low website connectivity and subscription which is at an average of only 26.7% and varies from country to country (Aquaro, 2012; Bhattacharya, 2015:82)

The results indicate that while traditional ways of communication, face-to-face interactions and formal meetings lead in use in office communication, the ICTs are also taking up their position and complementing coordination in the local governments. This is evidenced the qualitative finding, when responding to the question related to the current methodology of communication in the district compared to the past, one of the district high-ranking technical official said:

> *"Communication..well, we are adhering to the current communication era in terms of using internet, phones, of course the internet is also in the phone, but we use internet both in the system and in the phone, social media like WhatsApp. We have a group of mail where we send messages to people at any time..to people that come for the meetings and give update. We have gone a step forward to ask departments who are implementing activities wherever they are to give an update of what they are doing. If I am monitoring a road for an example, as a senior officer, I will identify gaps on a road, take photos and put this on social media..you will be able to know that she or he did this today".*

The study results agree with that of Barrett, Davidson, Prabhu and Vargo (2015:136) who found that

ICTs have led to improved productivity and efficiency in service delivery. When asked whether the new current communication technologies have helped the district to achieve performance, one of the respondents retorted that;

> *"… really it is very helpful for achieving performance because there… people are accounting for their where-about, if I tell you that I am going to the field and I am not actually in the field … will not be able to send you pictures of where I am …that is accountability good enough to know that I am in the field".*

The results also indicate that the ICTs usage and adoption is more to do with the younger population aged from 18-39 and 40-50 years had represented 52.4% and 32.0% respectively were telephone users with the rest of the age group representing only 23.4%. Similarly, email communication was highly inclined to the young age; 18-39 and 40-50 years had represented 44.4% and 36.9%. These findings are in agreement with findings by (Schreuers, Quan-Haase, & Martin, 2017:4) who observed that, because ICTs are integral part of younger adults' life-style, they understand digital technology better that the previous generation.

Study findings in the literature reviewed (Bwalya, 2017:2; Bankole and Bankole, 2017:501) pointed out factors such as lack of required infrastructure, low ICT literacy rates, cultural beliefs and low economic development to be hindering adoption of ICTs. The study findings agree with the previous literature, when asked about the challenges the district is facing in using ICTs, one of the respondent expressed some frustration by saying;

> *"….then now the new system which has been introduced, I hear for monitoring… it's called what?...Integrated Financial Management System (IFMS)…this systems are frustrating local governments. I know it is good so that the government monitors its money. But the way the system works… payments which can be done in a day can be pushed to a week; they say the system is not working….. and when it comes to paying salary the personnel officer has to travel to Kampala because the system has failed here and even when he goes it Kampala the system again does not work".*

The study findings also revealed that the respondents who acquired at least diploma level of education are the most users of telephone and emails indicating 86.5% and 96.7% respectively. This findings agrees with Deen-Swarray (2016:31), Deen-Swarray argued that educational attainments is only one indicator that could be used to assess the ICT access and usage, and further advised that; to comprehensively address digital exclusion challenge, multiple aspects of literacy should be examined. One of the respondents when asked how service delivery can be improved in the district alluded to this finding by saying;

> *"…we want central government to help us with new technical people, some of these people have been in the service for long, there are new technologies coming, let them for refresher courses so that they move together with the world, because now most things have changed, that is what we are looking at….these new technologies can easily be sustained and implemented here".*

IV. Conclusion

ICTs have been adopted in the formal communication in the local governments to coordinate activities and have improved performance in service delivery. The ICTs are not meant to replace traditional communication ways, face-to-face interaction, hard copy memos, publications etc. but to complement them and better communication. The ultimate beneficiary of this ICTs adoption and advancement are the communities that get better services and the public servants as well because they will feel fulfilled for their work once their performance rating goes high.

The implications of results are that, while the benefits of adoption of ICTs is without doubt the challenges on infrastructure and low rates of connectivity by the masses still limit use of ICTs for service delivery. However, as more people acquire telephone and internet services, and more interface ICTs applications are introduced like creation of platforms where people can text in information and get information, the benefits of ICTs will continue to improve service delivery.

ICTs are a strong political power because it gives tools to the masses to demand transparency and accountability from the local governments. By use of telephone, email, internet in social media the masses can provide information to authorities as a feedback, and mobilize themselves for mass actions to seek for services. The findings of this study agree with findings from earlier studies. ICTs function in local governments for sharing information (Abandu and Kivunike, 2017:122); this is evidenced by a statement from one of the respondents who said they use it for relaying project monitoring data. Like in monitoring road construction works a spot needing attention is photographed and its picture is circulated through internet to the relevant authorities for remedial actions. The adoption of ICTs remains low for various reasons which situations was observed in Zambia as well (Bwalya, 2017:2), which may be explained by ICT illiteracy and low economic development. Airtime and internet rates are still high and unaffordable by an average person and this highly hinders connectivity and usage on the ICTs.

The study concentrated on district technical staff and political leaders but did not include the

recipients of the services, who are the masses. It would be interesting to find out adoption of ICTs by the masses for use in demanding for services, and assess the quality of service that is being provided by the local governments. The perspective of the masses is missed out in the study, although an attempted was made to include the political leaders who are the representatives of the masses.

Bibliography

1. Abandu, J., & Kivunike, F. N. (2017). Evaluating the role of perceived usefulness in user adoption of mobile immunisation notification system in Uganda. *International Journal of Telemedicine and Clinical Practices*, *2*(2), 154-167.
2. Abandu, J., & Kivunike, F. N. (2017). Immunisation-notification adoption model: strategies for implementing mobile electronic notification of mothers in Uganda. *International Journal of Telemedicine and Clinical Practices*, *2*(2), 121-139.
3. Adomi, E. E., & Kpangban, E. (2010). Application of ICTs in Nigerian secondary schools. *Library Philosophy and Practice (e-journal)*, 345.
4. Akoh, B., & Ahiabenu, K. (2012). A Journey Through 10 Countries: Online election coverage in Africa. *Journalism Practice*, *6*(3), 349-365.
5. American Dietetic Association. (2011). *Cross-sectional Study Design*. ADA Research Toolkit ADA Research Committee
6. Aquaro, V. (2012). *Global Trends in E-Government Development*. Paper presented at the Capacity Building Workshop on "Leadership Capacity-Development for Improved Delivery of Public Services in Africa Using ICT", Addis Ababa Ethiopia 23-25 July 2012.
7. Ayman, D. M., & Abdel–Azim, R. (2016). Adopting E-government as a strategic tool for economic development: Insights from Governmental websites in Egypt.
8. Bankole, F. O., & Bankole, O. O. (2017). The effects of cultural dimension on ICT innovation: Empirical analysis of mobile phone services. *Telematics and Informatics*, *34*(2), 490-505.
9. Barrett, M., Davidson, E., Prabhu, J., & Vargo, S. L. (2015). Service innovation in the digital age: key contributions and future directions. *MIS quarterly*, *39*(1), 135-154.
10. Baryamureeba, V. (2007). ICT as an engine for Uganda's economic growth: The role of and opportunities for Makerere University. Fountain Publishers Kampala.
11. Basheka, B. C., Lubega, J. T., & Baguma, R. (2016). Blended-learning approaches and the teaching of monitoring and evaluation programmes in African universities: unmasking the UTAMU approach.
12. Bhattacharya, K. (2015). From Giant Robots to Mobile Money Platforms: The Rise of ICT Services in Developing Countries. *IEEE Internet Computing*, *19*(5), 82-85.
13. Bwalya, K. J. (2017). Determining Factors Influencing E-Government Development in the Developing World: A Case Study of Zambia.
14. Callen, M., Gibson, C. C., Jung, D. F., & Long, J. D. (2016). Improving electoral integrity with information and communications technology. *Journal of Experimental Political Science*, *3*(1), 4-17.
15. Charles, T. P., & Yoshida, C. (2016, June). Factors affecting the adoption of ICT in malnutrition monitoring. Case study: Western Uganda. In *Computer and Information Science (ICIS), 2016 IEEE/ACIS 15th International Conference on* (pp. 1-6). IEEE.
16. Cirera, X., Lage, F., & Sabetti, L. (2016). ICT use, innovation, and productivity: evidence from Sub-Saharan Africa.
17. Cordella, A., & Tempini, N. (2015). E-government and organizational change: Reappraising the role of ICT and bureaucracy in public service delivery. *Government Information Quarterly*, *32*(3), 279-286.
18. Deen-Swarray, M. (2016). Toward digital inclusion: understanding the literacy effect on adoption and use of mobile phones and the internet in Africa. *Information Technologies & International Development*, *12*(2), pp-29.
19. Díaz-Cayeros, A., Magaloni, B., & Ruiz-Euler, A.(2014). Traditional governance, citizen engagement, and local public goods: evidence from Mexico. *World Development*, *53*, 80-93.
20. Fusch, P. I., & Ness, L. R. (2015). Are we there yet? Data saturation in qualitative research. *The Qualitative Report*, *20*(9), 1408.
21. Galperin, H., & Fernanda Viecens, M. (2017). Connected for Development? Theory and evidence about the impact of Internet technologies on poverty alleviation. *Development Policy Review*, *35*(3), 315-336.
22. Gatautis, R. (2015). The impact of ICT on public and private sectors in Lithuania. *Engineering Economics*, *59*(4).
23. Gebba, T. R., & Zakaria, M. R. (2015). E-Government in Egypt: An analysis of practices and challenges. *International Journal of Business Research and Development*, *4*(2), 11-25.
24. Graber, D. A. (2004). Methodological developments in political communication research. *Handbook of political communication research*, 45-67
25. Grossman, G., Humphreys, M., & Sacramone-Lutz, G. (2016, October). Information technology and political engagement: Mixed evidence from Uganda. In *European Political Science Association Annual Conference, at Brussels, Belgium*.

26. Jancsics, D. (2013). Petty corruption in Central and Eastern Europe: the client's perspective. *Crime, law and social change*, *60*(3), 319-341.
27. Jianguang, Z., & Jianming, Z. (2015, November). A comparative study of China and the world's informatization development. In *Information Society (i-Society), 2015 International Conference on* (pp. 39-44). IEEE.
28. Kamei, K., Putterman, L., & Tyran, J. R. (2015). State or nature? Endogenous formal versus informal sanctions in the voluntary provision of public goods. *Experimental Economics*, *18*(1), 38-65.
29. Kayisire, D., & Wei, J. (2016). ICT adoption and usage in Africa: Towards an efficiency assessment. *Information Technology for Development*, *22*(4), 630-653.
30. Kayisire, D., & Wei, J. (2016). ICT adoption and usage in Africa: Towards an efficiency assessment. *Information Technology for Development*, *22*(4), 630-653.
31. Kivunike, F. N., Ekenberg, L., Danielson, M., & Tusubira, F. F. (2009, May). Investigating perception of the role of ICTs towards the Quality of Life of people in rural communities in Uganda. In *Proceedings of the 10th International Conference on Social Implications of Computers in Developing Countries, May. Dubai School of Government*.
32. Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educ psychol meas*. *Retrieved http://www.coloradoedu/ibs/deca project/pubs/Survey*.
33. Lubega, J. L., Kajura, M. A., & Birevu, M. P. (2014). Adoption of the SAMR model to asses ICT pedagogical adoption: A case of makerere university. *International Journal of e-Education, e-Business, e-Management and e-Learning*, *4*(2), 106.
34. Lwanga-Ntale, C., Mugambe, B., Sabiti, B., & Nganwa, P. (2014). Understanding How open data could impact resource allocation for poverty eradication in Kenya and Uganda.
35. Martin, B. L., & Abbott, E. (2011). Mobile phones and rural livelihoods: Diffusion, uses, and perceived impacts among farmers in rural Uganda. *Information Technologies & International Development*, *7*(4), pp-17.
36. Maumbe, B. M., & Okello, J. J. (2013). Uses of Information and Communication Technology (ICT) in agriculture and rural development in sub-Saharan Africa: Experiences from South Africa and Kenya. In *Technology, Sustainability, and Rural Development in Africa* (pp. 113-134). IGI Global.
37. Mirembe, D., Obaa, B., & Ebanyat, P. (2016). Developing and piloting a multi-channel ICT-Enabled Model to enhance University engagement with smallholder farming communities in Uganda. *African Journal of Rural Development*, *1*(1), 13.
38. Morrison, C. (2016). Engaging with local communities to prevent violence: what role for ICTs?
39. Mosweu, O., Bwalya, K. J., & Mutshewa, A. (2017). A probe into the factors for adoption and usage of electronic document and records management systems in the Botswana context. *Information Development*, *33*(1), 97-110.
40. Nabafu, R., & Maiga, G. (2012). A model of success factors for implementing local e-government in Uganda.
41. National Information and Technology Authority (NITA)-Uganda. (2010). ICT policies, strategies and initiatives put in place in Uganda *Inter-sessional panel of United Nations Commission on Science and Technology for Development*. Geneva.
42. Norris, D. F., & Moon, M. J. (2005). Advancing e-government at the grassroots: Tortoise or hare?. *Public administration review*, *65*(1), 64-75.
43. Ogbomo, M. O. (2009). Information and communication technology (ICT) in local government administration: the case of Oshimili North local government area of Delta State.
44. Rorissa, A., & Demissie, D. (2010). An analysis of African e-Government service websites. *Government information quarterly*, *27*(2), 161-169.
45. Russell, S. E., & Steele, T. (2013). Information and Communication Technologies and the Digital Divide in Africa: A Review of the Periodical Literature, 2000-2012. *Electronic Journal of Africana Bibliography*, *14*(1), 1.
46. Schreuers, K., Quan-Haase, A., & Martin, K. (2017). Problematizing the digital literacy paradox in the context of older adults' ICT use: Aging, media discourse, and self-determination. *Canadian Journal of Communication*, *42*(2), 1.
47. Stork, C., Calandro, E., & Gillwald, A. (2013). Internet going mobile: internet access and use in 11 African countries. *info*, *15*(5), 34-51.
48. Szopiński, T., Szopiński, T., Staniewski, M. W., & Staniewski, M. W. (2017). Manifestations of e-government usage in post-communist European countries. *Internet Research*, *27*(2), 199-210.
49. Ting, Y. & Grant, R. (2005). Internet usage by local government employees. A study of effect of individaul preferences, group influences and administrative factors. *The Social Science Journal, 42*, 323-331.
50. United Nations. (2012). Department for Economic and Social Affairs. E-government Survey 2012: "e-government for the people" http://unpan1.un.org/intradoc/groups/public/documents/un/unpan048065.pdf
51. Venkatesh, V., Croteau, A. M., & Rabah, J. (2014, January). Perceptions of effectiveness of instructional uses of technology in higher education in an era of Web 2.0. In *System Sciences (HICSS), 2014*

47th Hawaii International Conference on (pp. 110-119). IEEE.

52. Wang, S. K., Hsu, H. Y., Reeves, T. C., & Coster, D. C. (2014). Professional development to enhance teachers' practices in using information and communication technologies (ICTs) as cognitive tools: Lessons learned from a design-based research study. *Computers & Education*, *79*, 101- 115.
53. Welch, W. W., & Barlau, A. B. (2013). Addressing survey nonresponse issues: Implications for ATE principal investigators, evaluators, and researchers. *National Science Foundation.*
54. Zakaria, M. R. (2015). Towards categorizing e-government services: the case of Egypt. *International Journal of Business Research and Development*, *3*(3).

Appendix 1

Table 1: Main ways of communication in local government

Variable	N=225	Face to face interaction	Telephone discussions	Formal meetings	Memos	Emails	publications	Total
Male	% of Total	60.40	39.10	56.40	29.80	17.80	15.60	68.40
Female	% of Total	27.10	17.80	23.60	9.80	6.20	8.40	31.60
Total	**% of Total**	**87.60**	**56.90**	**80.00**	**39.60**	**24.00**	**24.00**	**100.00**
Technical	% of Total	67.10	44.40	63.10	35.10	21.80	20.00	76.40
Political	% of Total	20.40	12.40	16.90	4.40	2.20	4.00	23.60
Total	**% of Total**	**87.60**	**56.90**	**80.00**	**39.60**	**24.00**	**24.00**	**100.00**
18 - 28 years	% of Total	3.10	1.30	1.30	0.00	0.40	0.40	3.60
29- 39 Years	% of Total	43.80	28.60	37.10	15.60	10.30	12.90	49.60
40-50 years	% of Total	27.20	18.30	28.60	17.00	8.90	8.00	31.70
51-60 years	% of Total	12.50	8.00	12.50	6.70	4.00	2.20	14.30
over 60 years	% of Total	0.90	0.90	0.90	0.40	0.40	0.40	0.90
Total	**% of Total**	**87.50**	**57.10**	**80.40**	**39.70**	**24.10**	**24.10**	**100.00**
Primary	% of Total	0.90	0.90	0.00	0.00	0.00	0.90	0.90
O'level	% of Total	8.90	3.60	6.70	1.30	0.40	1.30	10.20
A'level	% of Total	4.40	3.10	4.00	1.30	0.40	0.90	4.90
Diploma	% of Total	23.60	14.20	21.30	8.90	3.60	8.00	26.70
Degree	% of Total	29.80	21.30	29.30	15.60	9.80	7.10	35.10
Masters	% of Total	8.90	5.30	8.40	6.20	4.90	4.40	9.30
Post Graduate Diploma	% of Total	11.10	8.40	10.20	6.20	4.90	1.30	12.90
Total	**% of Total**	**87.60**	**56.90**	**80.00**	**39.60**	**24.00**	**24.00**	**100.00**