

**A MODEL FOR INFORMATION ACCESS AND FLOW FOR ELECTRONIC  
GOVERNANCE IN SELECTED LOCAL GOVERNMENTS IN UGANDA**

**BY**

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**Submitted in accordance with the requirements for the degree of**

**DOCTOR OF LITERATURE AND PHILOSOPHY**

**in the subject**

**INFORMATION SCIENCE**

**at the**

**UNIVERSITY OF SOUTH AFRICA, PRETORIA**

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**OCTOBER 2015**

## **DEDICATION**

To my daughters Adeline, Abigail, Isabella, Elaine and Elizabeth

## DECLARATION

I, Denis Asiimwe Katebire, declare that this study entitled *A Model for Information Access and Flow for Electronic Governance in Selected Local Governments in Uganda* is my own work, and that all the sources of information used or quoted have been duly acknowledged by means of complete references.



7 October 2015

## SUMMARY

Advances in information technology (IT) and the global shift from governance to e-governance in the public sector have motivated Uganda to put in place a robust information communication technology (ICT) infrastructure to enhance citizen access to e-information and information flow for e-governance in its local governments. However, this has not been realized due to a lack of functional information systems. This study investigated critical issues in information access and flow in Isingiro district and Mbarara municipality – two of Uganda’s upper local governments – with the aim of modeling an information system to support e-governance in these governments. Rooted in a pragmatist epistemology with an orientation towards mixed methods research (MMR), the study adopted a methodological triangulation technique. A convergent design was adopted that involved the concurrent collection and analysis of quantitative and qualitative data. A random sampling scheme was used to select 360 participants from 8 study sites for a questionnaire survey, while a purposive sampling scheme was used to select 64 people to participate in 8 focus group discussions (FGDs) and 25 in key informant interviews.

The findings of the study indicate that citizen access to e-governance information in the local governments is low. Information flow to the citizens is constrained by lack of affordable media outlets, so the local governments are forced to keep frequency of government to citizen (G2C) communication to a bare minimum. Worse still, government communication lacks formal programming: neither is it based on an information needs assessment of the citizens nor does it have a feedback mechanism. There are also myriad factors breeding inequality and social disadvantage within the communities that constrain citizen access to ICT tools and e-skills. The findings show also that the current e-governance models are ICT-intensive and highly reliant on the Internet, so they require higher e-skills levels and higher diffusion of ICT tools than those currently available in developing countries. The models are also largely civil society oriented. However, a SWOT analysis shows that the local governments have the capacity to implement a home-grown, hybrid e-governance system of information access and flow.

The study recommends *inter alia* that the local governments establish their own broadcasting services, base their public communications on citizen e-information needs, and design multi-

media communication strategies combining traditional and convergent media. More importantly, the study recommends the implementation of an interactive, hybrid and multimedia e-governance information system, whose model it articulates.

**Key words:**

Information access, information flow, e-governance, e-governance information needs, e-governance models, e-information systems, local governments, G2C communication, C2G communication, SWOT analysis.

## **ACKNOWLEDGMENTS**

Almighty God is great. I wish to acknowledge the contributions of the following people that made the completion of this study possible. Foremost are my promoters, Professors Patrick Ngulube and Omwoyo Bosire Onyancha, whose dedication and insightful criticisms to my drafts right from the research proposal to the last chapter of the dissertation provided indispensable building blocks for this work. Hilary Belinya, Saimon Agaba and Bernard Kabonekye provided invaluable research assistance. Hilary was particularly instrumental during quantitative data analysis. Authorities in Mbarara municipality and Isingiro district local government provided security and guide services during fieldwork.

Makerere University undertook to fund my doctoral studies and research but on many occasions failed to provide funds, till they provided no more funds. This breach seriously hurt the progress of the study programme. I wish to thank Evarist Barigye and Bernard Kabonekye for the financial bailout that supplemented my personal sources to finance my studies to completion. I wish also to thank members of my household – my beloved wife Mackline; children Elizabeth, Edgar, Elaine, Isabella, Abigail, Edward, and Adeline; relative Celia; and visiting relatives and friends – for enduring austerity living during the later period of my studies.

God bless you all.

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## **ABBREVIATIONS AND ACRONYMS**

ACFODE	Action for Development
ASCII	American Standard Code for Information Interchange
AST	Adaptive Structuration Theory
AYDEL	African Youth Development Link
BPR	Business Process Reengineering
BROSDI	Busoga Rural Open Source and Development Initiative
CAO	Chief Administrative Officer
CEWIGO	Centre for Women in Governance
DBICs	District Business Information Centres
DENIVA	Development Network of Indigenous Voluntary Associations
FAO	Food and Agriculture Organization
FCC	Federal Communications Commission
FGD	Focus Group Discussions
FOWODE	Forum for Women in Democracy
GDP	Gross Domestic Product
G2B	Government to Business
G2C	Government to Citizen
G2C2G	Government to Citizen to Government
G2G	Government to Government
HRAs	Hard-to-Reach Areas
ICCPR	International Covenant on Civil and Political Rights
ICTs	Information Communication Technologies
IFAD	International Fund for Agricultural Development
IICD	International Institute for Communication and Development
IT	Information Technology
KRC	Kabarole Research and Resource Centre
LCs	Local Councils
LIS	Library and Information Science
MDGs	Millennium Development Goals



MFI	Microfinance Institutions
MMR	Mixed Methods Research
MoICT	Ministry of Information and Communication Technology
NAADS	National Agricultural Advisory Services
NAWOU	National Association of Women Organizations in Uganda
NBI	National Data Transmission Backbone Infrastructure
NITA-U	National Information and Technology Authority of Uganda
NPM	New Public Management
NRM	National Resistance Movement
OCR	Optical Character Recognition
PAPs	Public Internet Access Points
PC	Personal Computer
PIWA	Panos Institute West Africa
PLWA	People Living with HIV/AIDS
PWDs	People with Disabilities
RAPCD	Rwenzori Association of Parents of Children with Disabilities
RCs	Resistance Councils
RDC	Resident District Commissioner
RIC-NET	Rwenzori Information Centres Network
RLP	Refugee Law Project
SACCO	Savings and credit cooperative
SDLC	Systems Development Life Cycle
SMS	Short Message Service
SWOT	Strengths, Weaknesses, Opportunities and Threats
UCC	Uganda Communication Commission
UDHR	Universal Declaration of Human Rights
UNCST	National Council of Science and Technology
UNDP	United Nations Development Programme
UNGA	United Nations General Assembly
UPE	Universal Primary Education
URA	Uganda Revenue Authority

URN            Uganda Radio Network  
USE            Universal Secondary Education  
UYONET       Uganda Youth Network  
WOUGNET    Women of Uganda Network

# CHAPTER ONE

## INTRODUCTION AND ORIENTATION

### **1.1 Introduction**

Information is increasingly an indispensable resource in every human enterprise. In the context of public administration, information is so fundamental to ensuring democratization and good governance that citizens and members of the private sector should be able to easily access it as of right. Access to public information enables the people and civil society to scrutinize government practices, participate in public policy and decision-making and demand for government accountability (Fairbanks, Plowman & Rawlins, 2007; Kristiansen, 2004; UNDP, 2010). Therefore, the systematic collection, processing, transmission and storage of information are central to enabling governments to do effective governance and the public to do effective participation and scrutiny.

The information revolution of the late twentieth century and the global move towards newer and more participatory forms of public administration have ushered in an opportunity for greater involvement of citizens and civil society in governance, and have increased the diffusion of information communication technologies (ICTs) and the Internet in different sectors of government. In consequence of this unprecedented development, there has been growing public agitation across the world for more information from the governments about the policies and decisions they take on behalf of the people (Groundviews, 2007). However, this development has also meant that increasingly, the Internet and ICTs have become a necessary factor for the ability of individuals, enterprises and civil society organizations to successfully participate in political and economic governance. This is the essence of e-governance: applying ICTs and the Internet to enhance the achievement of the goals of good governance (Backus, 2001; Ssewanyana, 2009; Weddi, 2005).

Unfortunately, the application of ICTs in public administration in developing countries in general and local governments in Uganda in particular has tended to remain restricted to the computerization of traditional office routines. The ICTs have not brought about real e-governance, and have thus not had much positive impact on the relationship between the local

governments and their constituencies (the people and the private sector). Among other reasons for the low realization of ICT-triggered societal transformation in developing countries have been the blatant shortcomings in the gathering, organization and digitization of information; and the manner in which information flows within the local governments (Balan & Radu, 2012; Verboncu & Nicolescu, 2008). In Uganda, in the face of the wide cultural and socioeconomic diversity, formal access and flow of information in local governments has been a far cry. Yet, there cannot be any meaningful attempt at improving governance in local government without putting in place a versatile information infrastructure and a viable public information access policy. Successful e-governance must depend on a well-organized and efficiently directed information system that serves as the implementation support (Balan & Radu, 2012; Verboncu & Nicolescu, 2008).

This study investigated the state of e-governance and the critical issues of information access and flow in the context of e-governance in Isingiro district and Mbarara municipality, western Uganda. The findings of the study informed the model of a hybrid prototype e-governance information system to facilitate access and flow of official information in Uganda's local governments. The proposed model of the information system integrates the functions of information and knowledge management with ICTs and media tools, and the system is envisaged to enhance communication, citizen participation and good governance in the local governments.

## **1.2 Background to the study**

Since the mid 1980s, international financial institutions, supranational and national governments in the developed world have pressured developing countries to liberalize their economies, decentralize public administration, increase transparency in government, combat corruption and participate in global digital information sharing (United Nations, 2003). In keeping with this global pressure, civil society has increasingly demanded that governments be more open; and national governments have pledged to provide better and faster services and to extend their information and service offerings to the grassroots, mostly rural areas (Bertot, Jaeger & Grimes, 2010; Majekodunmi, 2013).

Uganda started on the road to decentralization and local governance in 1987 when the National Resistance Movement (NRM) government introduced “Resistance Councils (RCs)” (Uganda. *Resistance Councils & Committees Statute*, 1987), which were popular grassroots assemblies headed by executive committees with limited jurisdiction over local matters. The RCs were later given limited judicial powers (Uganda. *Resistance Committees (Judicial Powers) Statute*, 1988). In 1993, the NRM government decentralized many of its functions to five hierarchical levels of local government: district, county, sub-county, parish and village (referred to respectively as RC5 to RC1). In 1997, the RCs were renamed Local Councils (LCs) but retained both their legislative and executive authority (Uganda. *The Local Governments Act*, 1997). The vision of decentralization was to enhance efficiency and accountability in the local governments, with the local governments determining their own priorities, modalities and quality in the management of the devolved resources (Katebire, 2008; Ashaba-Aheebwa, 2001).

Uganda’s decentralization bid was grounded in clear theoretical underpinning and historical experience. Faguet (2004) observed that there is always a tendency for local governments to be more efficient, more participatory and more transparent than central governments. Similarly, researchers on the decentralization system of government (Azfar, 2007; Bardhan, 2002; Bardhan & Mookherjee, 2006a, 2006b; Lockwood, 2005) found that in the decentralization of public service delivery and preference matching, officials in higher local governments such as provinces and districts tended to have limited or no knowledge of local preferences compared to officials in lower local governments such as municipalities and sub-counties. In other words, the smaller a government unit became, the better the needs and capabilities of the people were understood, and the more efficient that unit became. This implied that decentralization to the lower levels of government translated into more efficiency and effectiveness in terms of citizen participation, preference matching, and service delivery.

The above observations and implications notwithstanding, there generally remained a “crisis of governance” in the public sector (Charbit, 2011; Milunovic, 2010; Popoola, 2011). The much hyped efficiency gains of decentralization did not completely deal away with the difficulties involved in the process of public administration, and this generally kept governance even at the local levels of government much below par. This “crisis” has been attributed to three important

factors. First, the cost of running a government was very high in relation to the resources available at the command of the government. Second, there was limited intercourse between government and the citizenry, for example, in the origination, management and dissemination of public information. Third, the governments' external interactions with business and civil society were poor (Clift, 2003; Heeks, 2002; Misuraca, 2007; Steiner, 2007; Wilson & Heeks, 2000). These problems were compounded by government restriction to manual and mechanical technologies (such as typewriters, physical files and file cabinets, manual processing, and physical delivery of information and communications), which were extremely slow and costly. It would take the intervention of ICTs, which entailed the digitization of governance information, processes and services, to enhance efficiency in local governments.

The concept of e-governance was thus born out of the need to tackle governance impediments, and was realized through the application of ICTs to governance (Backus, 2001; Ssewanyana, 2009; Weddi, 2005). E-governance was identified as a solution for local governments to address issues of transparency and accountability in the administration and management of resources and projects. Today, e-governance is primarily concerned with the involvement of the local population in determining the direction of government according to their local needs, capabilities, problems and priorities (Misuraca, 2007; PIWA/UNDP, 2010). It is important to point out, of course, that the population can only be involved when they are informed, and are an integral part of information generation, management and consumption processes; and when they are a factor or component in the information architecture of the government (Barker, 2005; Batley, 2007; Garrett, 2002; Van Dijck, 2003). This means that the concept of e-governance is entwined with the two related concepts of information architecture (the physical and logical structure of the e-governance information system) and geometry of information flows (the locations of the different social categories of people on the system) (Nath, 2005). Information is thus a very integral part of an e-governance system.

Backus (2001) defined the strategic objective of an e-governance system as to support and simplify governance for all parties: government, citizens and business. He also defined the more practical objectives of an e-governance system as consisting of the objectives for e-democracy and e-government. These include, first, providing citizen access to information and knowledge

about the political process, the services and the choices available; and second, enabling the transition from passive information access to active citizen participation by informing the citizens, representing them, encouraging them to vote, consulting them, and involving them (see also, Okot-Uma, 2000). Similarly, Nath (2005) attributed the evolution of the concept of “geometry of information flows” to the need to determine the degree to which the people, information, information sources, information channels and technologies, and other dynamics of information aiming to enhance good governance are integrated. As already noted, these concepts are predicated on the application of ICTs, which are used to prompt changes in the standards and delivery of local government services and, more importantly, in the way citizens, business and civil society interact and participate in governance.

Uganda’s drive to integrate ICTs in its local governments was initiated in 2002 upon a realization that there was a need for transparent governance in the Ministry of Local Governments (IICD, 2005; Weddi, 2005). Transparency was to be achieved by opening up government to the public, which meant putting official government information in the public domain and promoting public access to it (Ministry of Works, Housing & Communications, 2003). Indeed, putting government information in the public domain has been hailed as the single most important vehicle towards transparency of governance and the promotion of democratic ideals (Basu 2004; Héritier, 2003; Neuman, 2002; Rosendorff & Vreeland, 2006). It has been argued also that information held by the government is a national resource, and access to such information increases public participation and leads to increased scrutiny, discussion, comment and review of government activity (Faulkner, 2009).

Little wonder, then, that when Reinikka and Svensson (2004) investigated issues of transparency and accountability in the school capitation grant programme under decentralization in Uganda, they found a strong correlation between lack of information by the beneficiaries and lack of government accountability to the beneficiaries. Bashaasha, Mangheni and Nkonya (2011:10) have further observed that in the absence of accurate, adequate and timely information,

beneficiaries are not able to hold government accountable because the central government’s policy regarding the capitation grant is not well-known to parents,

particularly those outside the capital. This lack of knowledge means that local officials and politicians can take advantage of the gap in information and divert resources, because they know such actions will not attract political attention.

In such a context, any measures to promote transparency and demand accountability from the programme implementers must strive to arm the stakeholders – particularly the schools, parents and local authorities – with information to empower them to effectively participate by closely monitoring the programme.

Unfortunately, while in principle some powers and functions of government in Uganda have been devolved to the local governments, in practice the local communities have not been afforded the minimum support to enable them to effectively participate in crucial local governance activities (Kakumba, 2010). Without empowerment through customized training programmes, information, and awareness-raising, the local people cannot – and have not been able to – meaningfully engage in such activities as community planning and budgeting, monitoring implementation of projects and programmes, choosing leaders and representatives, and demanding accountability.

Thus, when a national ICT policy for Uganda was contemplated, one of the policy objectives was to “facilitate the broadest possible access to public domain information” (Ministry of Works, Housing & Communications, 2003). This objective would be achieved through:

- i) conducting research to establish citizens’ information needs and the barriers to information use, and developing measures to overcome these barriers;
- ii) increasing accessibility to government information and ensuring uniform practices in its distribution;
- iii) utilizing the local administrative council system to facilitate the flow of information from the grassroots to the centre and the other way round; and
- iv) initiating an e-government programme to digitize public domain information and make it available through Internet websites, public library systems and other appropriate dissemination media.



In 2005, Parliament enacted a law, the Access to Information Act, to give effect to the constitutional right of access to information provided for under article 41(1) of the Constitution of Uganda of 1995. The Act stipulated the classes of information to be accessed, and set the procedure and time limit in which a citizen may get information from a state agency. The Act also stipulated many types of information that public officials may not give to citizens, which has prompted some observers to refer to it as “a catalogue of exceptions” (Roundtable on the Access to Information Act 2005, 2006: 15). In June 2011, the government passed regulations to operationalize the Act, albeit with some provisions that make access costly and difficult. As Larsen, Excell and Veit (2011) have observed, the regulations are not in the spirit of the strong right to information provided for in the Constitution. Thus, in my considered opinion, the many exceptions in the law and the disabling provisions in the regulations are a reflection of lack of political will on the part of government to genuinely open up to public scrutiny.

Nevertheless, through the Ministry of Information and Communication Technology (MoICT), the National Information and Technology Authority of Uganda (NITA-U), and the Uganda Communication Commission (UCC), government has made a number of initiatives on the ICT infrastructure plane to, among other things, improve ICT access in rural areas. One of the earlier ICT initiatives was the DistrictNet programme of the International Institute for Communication and Development (IICD), which was initiated in 2002 to promote transparency in local governments and to improve the provision of public information through the implementation of ICTs (IICD, 2005). DistrictNet was implemented in the four districts of Mbarara, Lira, Mbale and Kayunga (representing the country’s west, north, east and central regions respectively) to improve performance in those local governments by establishing functional data/information management and public communication systems for effective and efficient service delivery. These pilot projects under the DistrictNet programme were prototypes: lessons and experiences from them were to be extended to the rest of the country.

A more recent initiative, the District Business Information Centres (DBICs) project, was implemented in the six districts of Lira, Iganga, Rukungiri, Mityana, Kamwenge and Busia between 2007 and 2010 to, among others, promote affordable and timely access to ICTs in rural Uganda (Lunghabo, n.d.). These DBICs were envisaged to facilitate electronic exchange of

information and experience among government officials and their communities. One of the core objectives of the project was to provide access to timely and reliable information to both the local and business communities in the districts to enable them make the best economic decisions.

These and other initiatives have indeed garnered considerable achievements as evidenced by the countrywide proliferation of ICT tools. By 2012, there were 47 licensed communications service providers in Uganda's ICT market, five of whom offered both voice and data services (CIPESA, 2012). Today, these private sector operators have laid fibre optic cables to link areas of commercial interest to them. On its part, government has built the National Data Transmission Backbone Infrastructure (NBI) to connect areas that were not seen as of commercial value for the private sector in the rest of the country. It has also been building the e-Government Infrastructure (EGI) to connect ministries and government departments onto an e-government network to provide services like videoconferencing, data and voice communication (CIPESA/Hive Colab/WOUGNET, 2011). This increased capacity investment in broadband by government and private operators has led to an increase in internet diffusion and offered a variety of methods of access both to information and to modern information technologies and tools. The most notable of the information access tools has been the mobile phone, which by mid 2011 enabled over 850,200 subscribers to access mobile internet (UCC, 2011).

The proliferation of ICT tools in the country is obviously a big score on the part of government, for it offers promise for enhanced accessibility to government information and services and, *ipso facto*, increased citizen participation in e-governance processes. During the 2011 Presidential and general elections, for example, a variety of ICT tools were broadly used for campaigning, tallying results, monitoring political groups, conducting civic education, and activism (CIPESA, 2012:1). The tools included mobile phones, automated calls, crowd sourcing platforms, radio, television, and social media (Facebook, Tweeter, Blogger, Youtube, etc). The CIPESA (2012) survey of 22 organizations involved in the elections showed that e-mail was the most popular of the internet-based communication tools at 77%, followed by social media at 68% and e-newsletters at 59%. Web portals and discussion groups were each used by 50% of the organizations, while e-forums were used by only 41%. Under the traditional media, radio was used by 68% and TV by 50% of the organizations. Under the mobile phone, short message

service (SMS) campaigns were conducted by 68% and automated calls by only 5% of the organizations (CIPESA, 2012:6).

While the above statistics reflect an impressive quantitative growth in the use of ICT tools in governance processes, a critical mind soon uncovers serious shortcomings about these figures. Foremost is the fact that these are statistics generated from a national sample of 22 civic organizations, whose representativeness (especially in terms of areas of operation) is untenable.\* Similarly, considering the limited capacity of the largely rural poor and largely semi literate population of Uganda to effectively integrate with ICTs,\*\* the use of the ICT tools was largely unidirectional – civic/political actors used them to reach out to the people but not the other way round. The people thus largely remained at the receiving end of the communications, unable to deploy these tools to access vital information such as candidates' profiles and manifestos.

The above picture of lopsided use of ICT tools in communication with the citizens is not limited to civic educators. In fact, it mirrors the reality in the district local governments. For instance, whereas the number of district local governments in Uganda currently stands at 112 (GoU, 2014), only 60 (53.6%) of these governments have got in place web portals that provide

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\* Of the 22 organizations, 15 were based in central Uganda alone – and specifically in Kampala capital city – although a few of them had some operations outside the region. The 22 were: Action for Development (ACFODE), African Youth Development Link, Centre for Women in Governance (CEWIGO), Development Network of Indigenous Voluntary Associations (DENIVA), East African Business Week, Electoral Commission of Uganda, Forum for Women in Democracy (FOWODE), I-Network Uganda, National Association of Women Organizations in Uganda (NAWOU), Refugee Law Project (RLP), The East African, The Observer Media, Transparency International (TI), Uganda National NGO Forum, Ugandans at Heart, and Women of Uganda Network (WOUGNET). Five organizations – Kabarole Research and Resource Centre (KRC), Rwenzori Association of Parents of Children with Disabilities (RAPCD), Rwenzori Information Centres Network (RIC-NET), Kiima Foods Kasese, and Mbarara District Local Government – were based in western Uganda. The remaining two regions of the country had only one organization each: E-Society Apac in northern Uganda, and Busoga Rural Open Source and Development Initiative (BROSDI) in eastern Uganda. See Annex 2 of the survey report.

\*\* In 2010, Uganda's rural population stood at 86.7% of the total population (World Bank, 2012; Republic of Uganda, 2012). In the same year, the International Fund for Agricultural Development (IFAD) reported that about 40% of all rural people in Uganda still live in abject poverty (IFAD, 2010). The national illiteracy rate is currently at 33.2% (World Country Facts: Uganda, n.d).

information on the administrative setup, social services, economic activities, investment opportunities and infrastructure (GoU, 2014). Unfortunately, only a few of these web portals do regularly update their information: a good number of them provide static information related to services as well as feedback forms that rarely return feedback largely due to the static nature of the portals and the limited capacity of the intended users to interact with them (Ssewanyana, 2009:6).

Thus, in spite of the country's impressive ICT infrastructure and proliferation of ICT tools, there is constrained interaction, and in some cases no interaction at all, between the local governments and their constituents. The citizens are generally not able to freely access governance information when they want to because the information is not there, or because it is in a form that is not comprehensible to them (Kiwanuka, 2012). It obviously takes more than infrastructure and technology to create meaningful access to and utilization of ICTs. As Wakabi (2011) has succinctly observed, it is access to information in the public domain and the availability of relevant and usable content that constitute a critical part of the ICT equation.

### **1.3 Statement of the problem**

Since 1993 when Uganda started implementing the policy of decentralization, a number of initiatives have been undertaken and efforts and resources expended to make local governance an affair of and for the people. There has been a significant proliferation of ICT tools in the country, and the central government has put in place a robust e-information infrastructure to enhance e-governance. However, despite the great effort spent on creating ICT-enabling infrastructure, the overall local governments' web presence of just 53.6% – even when some of this presence is static (GoU, 2014; Ssewanyana, 2009) – is quite disconcerting. It shows that the local governments have not embraced e-governance with the urgency and zeal it deserves.

Yet, the low web presence is not all that there is about limited or lack of access and flow of governance information in the local governments. The bigger problem is that even for the local governments that maintain their databases and websites and make use of other ICT tools, little or no attention has been paid to creating content that reflects the local needs and capabilities of the people, the format of information, cost of access, technology and other resources available within

the communities (Wakabi, 2011). Subsequently, there has not been a free and concerted flow of information from the local government units and agencies to the people, business, and civil society and vice-versa (Kiwauka, 2012). Thus, the local people, especially the underprivileged and those for whom the government programmes are targeting, have not been able to effectively participate in the governance affairs (Kakumba, 2010). In effect, in the absence of a clear system of access and flow of governance information, the relationship between the local governments and the people seems to remain more of alienation than integration. There is thus a critical need for intervention into this state of affairs for the goals of decentralization to be realized through e-governance.

#### **1.4 Purpose of the study**

The purpose of this study was to investigate critical issues in information access and flow in Uganda's local governments with a view to proposing a model of an adoptive information access and flow to support e-governance in these local governments.

#### **1.5 Specific objectives**

In order to realize the above purpose, the study focused on the following specific objectives:

1. To review the current state of access to e-governance information in selected local governments in Uganda in order to identify e-governance information needs;
2. To map out the current geometry of information flows in order to establish imbalances or gaps in the geometrical framework that need to be plugged into;
3. To review common information access and flow models, and perform a SWOT analysis of local governments to determine the features for the most appropriate model;
4. To propose and rationalize an information access and flow model that is appropriate for e-governance in Uganda's local governments.

#### **1.6 Research questions**

In line with the above objectives, the study was guided by the following research questions:

1. What is the state of access to e-governance information in Uganda's local governments?
2. What are the e-governance information needs of these governments?
3. What are the imbalances and/or gaps in the current geometry of information flows?

4. How can these imbalances and/or gaps be addressed?
5. What, in the context of common information access and flow models, are the strengths, weaknesses, opportunities and threats in Uganda's local governments?
6. What may be the most appropriate information access and flow model of e-governance for Uganda's local governments?

### **1.7 Justification for the study**

In today's increasingly globalizing world, the trend has been to move towards open and more transparent governments in which both citizens and business have a direct stake as participants and beneficiaries. Prior to the New Public Management (NPM) wave that swept most developed countries in the 1990s, governments paid scant attention to service quality and responsiveness to citizens and business (Saxena, 1996; Hughes, 2003). The NPM movement emphasized professional management practices – not administration – in government, in business fashion, focusing on service quality, performance management, and risk management. The application of ICTs in governance has caused a shift from NPM to e-governance, which has the effect of transforming the relationships between government and citizen and government and business, as well as the way public services are delivered (Saxena, 2005). This transformation is already a reality in most developed countries where ICT diffusion is high.

ICTs are therefore contributory tools to the realization of good governance. However, majority of the poor countries of the South are still highly constrained from effectively harnessing the full potential of these tools (Bruggink, 2003). They are generally not well equipped to manage information and knowledge to enable them make informed decisions on a range of governance and development issues, including the choice of ICT platforms that can cost-effectively integrate government, citizen and business.

The government of Uganda has for over a decade placed greater attention on ICTs, and has indeed created a legal, policy and institutional environment that is favourable to ICT service provision and proliferation (Wakabi, 2011). In 2003, Uganda adopted her first national ICT policy (Ministry of Works, Housing & Communications, 2003). In 2006, a fully fledged ministry in charge of ICT was formed and charged with the realization of the objectives of the country's

ICT policies, which were largely focused on improving connectivity – especially for local governments and marginalized groups – and enhancing the delivery of e-government services.

In 2011, the ICT ministry issued the National Electronic Government (e-Government) Policy Framework, whose overall vision was to “ensure online accessibility of all government services and opportunities for community participation in a friendly, transparent and efficient manner for all sections of the society;” and its mission was to “enhance and promote the efficiency and transparency in the functioning of government through the increased use of ICT for online service delivery to citizens and business” (MoICT, 2011). Following this policy framework, the ministry published an IT policy that stipulated, among other things, how the use of IT would facilitate interactions within government (G2G), between government and citizens (G2C), and government and business (G2B) (MoICT, 2012a). It also originated a draft ICT policy that envisions “a knowledge society where Information and Communications Technology (ICT) is central in all spheres of life” (MoICT, 2012b).

However, these developments notwithstanding, the country is still grappling, both with the ways of raising public access to government information and the wider concern of promoting e-governance in its local governments. ICT services are still out of reach for many Ugandans, as teledensity remains under 50% even though a good majority of mobile phone owners in the country subscribe to more than one mobile phone network (UCC, 2011). And even though mobile phone handsets are increasingly coming with advanced features for accessing the internet and other information sharing functions, internet diffusion in the country remains very low, being accessed by a mere 14% of the population (UCC, 2011; CIPESA, 2011). Only a few local governments have official websites, visited by a few elite, largely urbane users; and most of these sites are rarely updated and are hardly interactive, having been constructed without profiling the users and studying their information needs and user capabilities.

Thus, as a result of poor access to official government information, Ugandans have got low participation levels in civic matters. For instance, a recent study showed that only 59% of the registered voters participated in the 2011 Presidential elections (CIPESA, 2012). The same study found that only 10% of Ugandan households had a family member participating in local

governance activities. Considering, as we have already seen, that many local governments lack functional e-governance systems, the implication is that these governments are largely detached from their constituents – the citizens and the private sector. A study of this kind therefore, which investigates and articulates an information access and flow model that is tailored to the e-governance needs and circumstances of Uganda’s local governments, was both necessary and timely.

### **1.8 Originality and significance of the study**

In scholarship, originality – the manifestation of novelty in whole or in particular aspects of a research work – is not only expected of a researcher but also highly regarded. Lovitts and Wert (2009:4) view an original contribution as one that offers a novel or new perspective: “something that has not been done, found, proved, or seen before... [which] adds to knowledge, changes the way people think, informs policy, moves the field forward, or advances the state of the art.” According to this source, a research work such as a doctoral dissertation possesses originality if the researcher develops an original insight or discovery, or if he or she adapts a contribution from another discipline to his or her field.

From the foregoing definition, and upon review of other works on the subject (Cryer, 2006; Hannon, 2008; Mavodza, 2010), a number of important elements of originality in research work are discernible. First of all, research makes an original contribution if it is capable of providing new use, such as solving a problem or even identifying and providing frontiers for further research in the same field. This instant research meets both these criteria, for not only does it come out with an adoptive hybrid e-governance model to deal away with e-governance problems in local governments in Uganda, but it also recommends some critical areas for further research. Secondly, a research enterprise is considered original if it is able to adopt concepts and ideas or methods and tools from different fields or contexts of application. This particular issue is also related with the researcher’s ability to make use of datasets, including secondary data that were collected by earlier researchers for different purposes. Scholars generally agree that a thorough literature review – as presented in Chapter Two of this dissertation – is always sure to yield this form of originality (Cryer, 2006; Hannon, 2008).



Another important indicator of originality lies in the researcher's ability to project his or her voice and personality in the work while steering clear of avoidable plagiarism. Ordinarily, a person's values, beliefs, attitudes, and inclinations tend to reflect in his or her literary works. To avoid subjectivity and bias, this would normally call for the use of a neutral voice in such works. However, some scholars argue that doctoral dissertations, especially those with an interpretivist orientation, should include some first-person voice to demonstrate the authors' expertise and ownership (Cryer, 2006; Gumbo, Mathipa & Ngulube, 2014). Yet, legitimate as it is, this measure is unfortunately often rendered invisible, even irrelevant, by acts of plagiarism (Eisner & Vicinus, 2008; Gumbo, Mathipa & Ngulube, 2014; Johnson-Eilola & Selber, 2007). Plagiarism is committed when a researcher incorporates extended words (phrases or sentences), data or ideas from a source and fails to acknowledge that source so that what has been incorporated passes as his or her own (Gumbo, Mathipa & Ngulube, 2014:103). This dissertation occasionally utilizes the first-person voice, especially in instances where a strong argument is made, and particularly in the discussion of the findings. And to avoid plagiarism, every effort has been made to acknowledge sources of information and ideas through in-text citation and the provision of a complete list of all the sources consulted.

It has also been observed that in many instances, originality in research starts with the tools, techniques and procedures used; and also involves the exploration of the unexplored and the unanticipated (Cryer, 2006:193-196; Mavodza, 2010:17). The tools and techniques may have been created to execute the project at hand, or they may have already been in existence and then borrowed and applied to the current problem. In the instant study, the research tools and techniques were designed in response to the research questions and data needs, and used for the first time; and the procedure followed in the research is clearly laid out in Chapter Four.

Cryer (2006) advised that this important question of originality should be tied to the significance of a study. The significance of a study has itself been defined to refer to the importance and implications of the study for researchers, practitioners and policy makers (Creswell, 2003:149). In line with this definition, Lovitts and Wert (2009:4) emphasize that a study makes a significant contribution if it offers something that is useful and will have an impact. According to this

source, the usefulness and impact of a work are determined on the work's potential to meet any of the following:

- contributing to a very important breakthrough at the empirical, conceptual, theoretical, or policy level;
- causing the community to see things differently;
- influencing the conversation, research, and teaching; or
- advancing the field, the discipline, other disciplines, or society.

The instant study is significant in a number of respects. Foremost is the fact that the findings make an original contribution to the existing body of knowledge on the nature, role and application of information and ICTs in local governance. Secondly, the findings will inform policy action in the area of e-governance in local governments. Policy makers in the Ministry of ICT, in UCC, and in the district governments will benefit from the recommendations and the proposed model to review and reform or revise the current policies on information and e-governance. Thirdly, the study is of great importance to information managers, IT professionals and ICT service providers to align their services to the various e-governance realities uncovered by the study. Finally, the study provides a crucial point of reference for researchers both through the findings and the recommendations it makes for further research.

### **1.9 Research methodology**

Research methodology is concerned with the researcher's overall approach to the execution of a research project, drawing from the research paradigm, and encompassing the procedures followed and methods and techniques deployed in information gathering and analysis. According to Crossan (2003), the choice of a research approach should depend on the context of the study and the nature of the questions being asked. Similarly, Holden and Lynch (2004) argue that methodological choice should be consequential to the nature of the phenomenon to be investigated and the researcher's philosophical stance in relation to such a phenomenon.

This study adopted a pragmatist stance, which is a problem-centric one (Creswell, 2003; Creswell & Plano Clark, 2007). The study was oriented to mixed methods research (MMR), an approach that combines quantitative and qualitative methods, but adopted a methodological triangulation technique instead of a fully-fledged MMR. A convergent design was adopted,

which involved the concurrent collection and analysis of quantitative and qualitative data (in a single phase and with equal weight). Purposive and random sampling schemes were used to select the units of the study.

The study was conducted in two purposively selected local governments: Isingiro district and Mbarara municipality. A sample of 320 subjects was randomly selected from a cross section of people in eight random study sites to provide quantitative data. A semi-structured questionnaire was used to gather data from this sample. This type of questionnaire was preferred due to its advantages of time and cost-effectiveness, as well as objectivity and relative ease in data processing (Babbie, 2008; Bailey, 2008; Neuman, 2012; Robson, 2002). Another sample of 64 subjects was purposively constituted from eight interest groups (of eight people each) to participate in focus group discussions (FGDs). FGDs were employed because of their ability to bring together in a short time a number of people to discuss a specific subject in the context of their world of knowledge, practice or experience (Stewart, Shamdasani & Rook, 2007). The FGDs were conducted with farmers' groups, traders' groups, women's groups, and youth groups with the help of a discussion guide and generated lots of qualitative data. The third sample of 25 key informants (KIs) was purposively selected from among the local government officials and professionals in the private sector to provide in-depth information through qualitative interviews. The study was thus based on a total sample of 409 subjects.

The quantitative data was coded and then analyzed using the SPSS computer application. For the qualitative data sets, however, the researcher relied on the expertise of a data analyst, who employed the QDA Miner software. In keeping with the MMR approach to data analysis, the three data sets were separately analyzed and integrated at the interpretation stage (Onwuegbuzie & Combs, 2011). A detailed discussion of the research methodology is presented in Chapter Four.

### **1.10 Scope and limitations of the study**

The study was conducted in Mbarara municipality, a purposively selected urban local government and Isingiro district, a purposively selected rural local government. It investigated the information resources available at the local governments capable of enhancing e-governance.

These include official web portals, f.m. radio stations, television stations, public libraries and resource centres, etc. The study also focused on the resources available in the communities, such as mobile phones, internet cafes, radio and television sets, information centres, electricity, etc. This was meant to gauge the ability of the communities to access government information through those resources, as well as the bottlenecks to information flow to those audiences. All this enabled the assessment of the state of e-governance in these local governments, the social differentiation and the e-governance information needs of different social categories, as well as the challenges to e-governance communication. A SWOT analysis of the local governments was also made in light of the available information resources and bottlenecks.

The major limitation of this study lies in its limited geographical scope and number of cases studied. Uganda has a total of 111 district local governments (LC V), one city (a city has district status, i.e., LC V), and 13 municipalities (these have county status, i.e., LC IV). A study of only one district and one municipal government is not representative enough, and raises issues of generalisability of findings and applicability of the e-governance model designed on the basis of those findings. However, this limitation is mitigated by three factors: first, all local governments in Uganda are structurally and hierarchically similar, and are governed under the same legal, policy and institutional frameworks; second, the MMR approach adopted by the research enhances the level of generalization, which is much higher than what a typical qualitative study would guarantee; and third, the proposed e-governance model has features that make it adaptable to any Ugandan local government.

Another significant limitation is that the study was focused on communication between government and citizen, and was not able to cover communication between government and government (G2G) and government and business (G2B). Thus, both the quantitative and qualitative data were based on the G2C and C2G communications. Even where the study investigated the flow of government information to social categories and organized groups, emphasis remained on access to such information by individual members of the groups.

The other limitations were operational, and their major effect was to constrain the pace of the study. The first of these was the bureaucracy involved in research clearance. It took about three

months to have the proposal for the research get formal approval by the Uganda National Council of Science and Technology (UNCST) and security clearance by the Office of the President. The second was the lukewarm attitude of the scholarship processing office of Makerere University, which “funded” this doctoral programme. Not only did the staff training office grant insufficient funds, but the funds were NEVER released at the time required – and subsequently never released at all. This led me to miss registration on two occasions, to miss important study related events such as the doctoral forum at UNISA, and to divide attention between studying and raising money to support the study programme.

### **1.11 Definition of key concepts**

There are a number of terms and concepts in the entwined fields of information science and public administration whose meanings have not yet gained consensus or are yet to be clearly understood. Frequently, such terms are either erroneously used interchangeably or are simply misused. Under this section, a number of such terms are defined.

#### **1.11.1 E-governance**

The term e-governance denotes a concept that has been born out of the convergence between two fundamental global trends in public administration: decentralization and the application of ICTs (Coleman, 2006; Van Reijswoud & De Jager, 2005). Decentralization entailed a shift from centralized, vertical and hierarchical government control towards polycentric networks of governance based upon horizontal interactions between diverse actors. The application of ICTs to governance processes was aimed at the transformation of the generation and delivery of public services. Therefore, as Heeks (2002) observed, the concept of e-governance lies at the heart of two global revolutions: the governance revolution and the information revolution – a convergence that has created a shift in the way society works and is governed.

E-governance has indeed been defined as an information-age model of governance that seeks to realize the processes and structures for harnessing the potentialities of ICTs at various levels of government and the public sector and beyond, for the purpose of enhancing good governance (Okot-Uma, 2000; Holmes, 2001). The concept of e-governance is thus directly linked to the

concept of good governance (Gordon, 2006; Nath, 2005; United Nations, 2003). This link is succinctly captured by the UNESCO (2010) definition of e-governance as:

... the public sector's use of information and communication technologies with the aim of improving information and service delivery, encouraging citizen participation in the decision-making process and making government more accountable, transparent and effective.

It is to be noted that e-governance is clearly distinguishable from, and has got a wider meaning than the closely related concept of e-government, which is simply the government use of ICTs to support its operations and provide services to citizens and business (Furuholt & Wahid, 2008; Saxena, 2005). This study adopts the foregoing general definitions of e-governance.

### **1.11.2 Information**

A survey of the literature shows that there is no consensus – at least not yet – on a single, unified definition of information. As a concept, information possesses multiple conceptions as evidenced by its different uses and applications in different fields. Jakob Krebs has argued that different uses of words are the best evidence for their different conceptions; and that different conceptions call for different extensions and applications (Krebs, 2011: 236). Indeed, as Floridi (2005:351) observes:

information is such a powerful and elusive concept that, as an explicandum, it can be associated with several explanations, depending on the cluster of requirements and desiderata that orientate a theory.

If Floridi's observation is anything to go by, and as Shannon (1993:180) earlier argued, one cannot reasonably expect a single concept of information to satisfactorily cover the numerous possible applications of this general field. Little wonder that in later analysis, Floridi (2010:19) views information as "a conceptual labyrinth."

In Library and Information Studies (LIS) and allied fields, which tend to deal with data and information as reified entities, an operational definition of information in terms of data and

meaning (resulting from processing and refinement of that data) has gained considerable consensus. Increasingly, the concept is being used to refer to non-mental, user-independent, and declarative semantic contents embedded in physical implementations such as databases, encyclopedias, web sites, television programmes, etc, which can variously be produced, collected, accessed and processed (Floridi, 2005).

In a nutshell, being a polysemantic concept, information can be meaningfully defined and satisfactorily analyzed only in relation to well-specified contexts of application. Thus, in this study, the concept of information is used in the above LIS perspective.

### **1.11.3 Information access**

The concept of information access, which in the governance context is often variously referred to as “freedom of information,” “administrative transparency” or “the public’s right to know” (Lipchak, 2002), is about allowing people access to official information held by government and other public agencies. It also refers to the opportunities and avenues available to individuals to seek and use information from different official/formal sources such as institutions, public domains and databases, and government portals (Nath, n.d.). Information access has three major dimensions: sources of information (where information can be acquired), intensity of interactions (frequency of exchanges between individual seekers and sources), and information types (different forms such as text, graphics, and multimedia).

### **1.11.4 Information flow**

The Online Business Directory (<http://www.businessdictionary.com>) offers a concise definition of information flow as the path data [or information] takes from its original setting to its end users. To this must be added that in the governance context, the concept of information flow is closely linked with that of information access, and refers to the availability, supply or dispersion of information to individuals and groups within a society (Pérez-Montoro, 2007). According to this source, information flow has got two major dimensions: information production (new information in the public domain), and information broadcast or dispersion (same information available to anyone, anywhere).

There is, in my considered opinion, another very important definitional aspect to information access and flow – the aspect of policy. There are varying degrees to which the flow of information may be controlled in different societies or governments – degrees that indicate the extent to which the flow is restricted or open (Nath, n.d.). Besides its organic ties to the concept of information access therefore, the concept of information flow is also closely tied to that of information security. This implies that an information flow policy is also an information security policy because it describes the authorized paths along which information can flow (Braman, 2011). An information flow policy is designed to preserve the confidentiality and/or integrity of data, and defines the way information moves throughout a system. Thus, information may be restricted to *bona fide* users only, and deliberately and technically prevented from flowing to any other user.

### **1.11.5 Information architecture**

The term information architecture has somewhat different meanings in the related branches of library science, database design, web development, programming, technical writing, enterprise architecture, and software design (Belam, 2010; Morville & Rosenfeld, 1998). Most definitions, however, have common qualities, to wit: a structural design of shared environments; methods of organizing and labeling information entities and attributes, websites, intranets, and online communities; and ways of bringing the principles of design and architecture to the digital landscape (Information Architecture Institute, n.d.). The Information Architecture Institute thus defines information architecture to reflect all the above qualities, with emphasis on the *findability* and *usability* of information. This study adopts the Information Architecture Institute definition.

### **1.11.6 Geometry of information flows**

This concept refers to a detailed human-centric picture of information flows in a society/government, focusing on *who* the people getting connected to the information network and benefiting are when there is an increase in information access and flow (Nath, 2005). According to this source, the importance of this concept lies in the fact that the aim of e-governance is to use ICTs for development purposes—bringing real, significant changes in the lives of the people rather than emphasizing enhanced communication *per se*. In this study, the concept of “geometry of information flows” embraces: i) the target groups the information



should reach, ii) the key information needs, iii) existing channels of information, and iv) the bottlenecks to information flow to the target audiences.

### **1.12 Organization of the thesis**

This thesis is organized into seven chapters. This introductory chapter has dealt with the problématique of information and e-governance in Uganda's local governments, and clearly laid out the parameters of the study. Chapter Two of the thesis is the review of the literature on the related aspects of information and e-governance, while Chapter Three provides the theoretical framework of the study. Chapter Four presents a thorough discussion of the research methodology that was used for the study. Chapter Five makes the analysis and presentation of the findings. Chapter Six is the interpretation and discussion of the findings. Chapter Seven gives a summary of the major findings of the study, the conclusions and recommendations, and presents the proposed hybrid e-governance model for implementation in the local governments.

### **1.13 Summary of the chapter**

This Chapter has introduced the problématique of the study and set the study parameters. The Chapter provides a detailed background to the problem of poor access and flow of information in Uganda's local governments, which has been behind its failure to support e-governance. The Chapter presents the problem that was investigated, with clear objectives and research questions. It also provides a justification for the study, and discusses issues of originality and importance of the study. Major aspects of the methodology of the study are highlighted, and the scope and limitations of the study are also explained. The Chapter also defines the important concepts that are central in the study. The next Chapter deals with the literature review.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

Information technology (IT) has since the early 1990s been used in government in Uganda mostly through automation of the internal workings of government by processing data – a development that tended merely to replace clerical labour processes with their digital equivalent (Mulira, 1995). Nevertheless, such automation was an essential building block for e-government, and it was often introduced with the rationale of cutting costs (Mulira, 1995; Oyomno 1996). Along with the rest of the global community, however, Uganda has embraced e-governance, a much newer model of public sector governance predicated on ICTs. There are indeed a growing number of e-governance projects in the country, some of which are contributing to public sector reform and delivering gains of efficiency and effectiveness across a broad agenda. However, there are also many challenges which, in the context of local governments, explain the low rate of ICT diffusion and e-governance adoption (GoU/Ministry of Works, 2004).

This chapter makes an extensive review of literature on related aspects of e-governance in general, and e-governance in local governments in particular. During the literature search, a dearth of local literature was noted, which may be attributed to the relatively short period e-governance has been implemented in governments in developing countries. Also, because of the fast-changing nature of IT, all local literature going back to the 1980s was conveniently ignored, unless such literature presented historical or theoretical information that has not been rendered out of date. Nevertheless, a rich body of literature from across the globe has been accessed and reviewed in line with the themes and objectives of this study.

Section 2.2 of the chapter makes an overview of the importance of literature review, with a particular focus on the functions of the literature review and the literature map. Section 2.3 reviews literature on e-governance, focusing on a wide range of issues such as rationalizing e-governance, placing e-governance in the information and communication contexts, analyzing the role of professional information management, the role of ICTs and challenges to their adoption

and diffusion in developing countries. Section 2.4 focuses on the geometry of information flows in local governments, taking particular interest in exploring the meanings and relevance of key concepts to digital communication in local government. Of particular importance is the reference of the concept of geometry of information flows to questions of social disadvantage and marginalization. The geometrics of information flows and information nodes and access points are thus explored. In section 2.5, the chapter tackles issues of modeling information access and flows in local government communication. The review rationalizes modeling and SWOT analyses in local governments. In section 2.6, relevant empirical studies are identified and reviewed in line with the objectives of the study. Particular attention is paid to the purposes, methods and findings of those studies to enable their evaluation. Section 2.7 makes a summary of the gaps in the literature that guided the focus and scope of this study; and section 2.8 gives a summary of the chapter.

## **2.2 Importance of literature review**

A literature review is a critical or analytical survey and synthesis of carefully selected scholarly works, and aims to offer an overview of significant literature published on the topic under investigation (Katebire, 2007; Mathipa, 2014; Taylor & Procter, 2005). Mathipa (2014:76) has observed that to review literature in the context of research means to purposefully undertake a focused study of relevant literature that is pertinent to the topic one has chosen for study. Depending on the interest of the researcher, the literature review examines an area of conceptual and empirical research, reviews a theory, provides a description or summary, and makes a critical evaluation of each work. According to Katebire (2007:148), literature review is based on the assumption that knowledge is cumulative, and so people learn from and build on what others have done. Therefore, a literature review should provide an overview and analysis of the current state of research on a topic or question.

### **2.2.1 Functions of a literature review**

Creswell (2003: 29-30) broadly elaborated the major functions of literature review as: sharing with the readers the results of other studies that are closely related to the study being reported; relating a study to the larger ongoing dialogue in the literature about a topic, filling in gaps and extending prior studies; and providing a framework for establishing the importance of the study

being conducted and a benchmark for comparing the results of a study with other findings. This elaboration, inclusive as it is, is so broad that it has the effect of denying the readers the benefit of detail, which warrants further unpacking.

A number of scholars have underscored the utility of literature review in research projects (Boote & Beile, 2005; Galvan, 1999; McMillan & Schumacher, 2006; Petticrew & Roberts, 2006; Taylor & Procter, 2005). Katebire (2007:148) makes a synthesis of the foregoing works and summarizes the functions of literature review as:

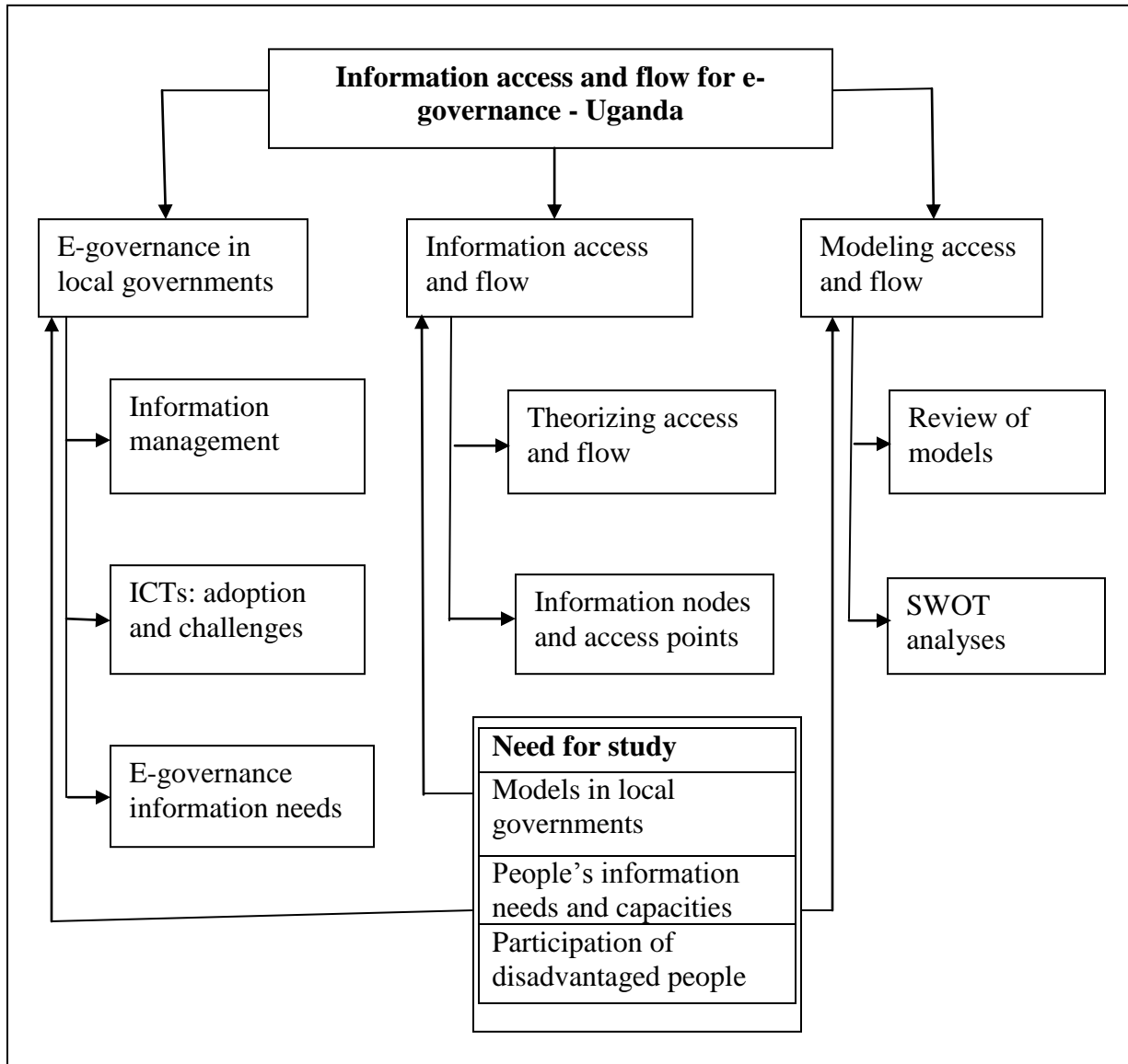
- to place each work in the context of its contribution to the understanding of the subject (problem or research question) under investigation;
- to describe the relationship of each work to the others under consideration;
- to identify new ways to interpret, and shed light on any gaps in previous research;
- to resolve conflicts amongst seemingly contradictory previous studies;
- to identify areas of prior scholarship in order to avoid “reinventing the wheel,” which is an unnecessary duplication of effort;
- to carry on from where others have already reached (to build on the platform of existing knowledge and ideas);
- to increase breadth of knowledge on one’s subject area; and
- to provide an intellectual context for one’s work enabling one to position one’s project in relation to other works.

Later works on the benefits of literature review fit well within the above outline (Boston College University Libraries, 2008; Cohen, Manion & Morrison, 2008; Cooper, 2011; Creswell, 2014; Garrad, 2009; Green, 2009; Mathipa, 2014; Taylor & Procter, 2008).

### **2.2.2 Map of the research literature**

A research literature map is a researcher-constructed model that enables the researcher to relate the different parts of his or her study and show how the study fits in the broader literature (Altinay & Paraskevas, 2008; Creswell, 2003; Mavodza, 2011; Rahmandoust, Norouzi, Ahmadian, Rast, Farhadi & Shah, 2011). In the words of Creswell (2003:39), it is a “visual summary of the research that has been conducted by others” in the researcher’s area of study.

**Figure 1: Literature map of the study**



There are different ways in which a literature map may be constructed (Creswell, 2003; Glatthorn & Joyner, 2005; Rahmandoust et al., 2011). It may be done in a hierarchical, top-down order ending with the researcher's proposed area of study that is expected to extend the literature. In this method, research themes are shown as boxes and related by lines. Another model uses a kind of flowchart with the literature thematically unfolding from left to right, whereby the studies furthest to the right point to the researcher's proposed study that adds to the literature. Again, one may use

circles, whereby each circle represents a body of literature and the intersection of the circles represents an area where research is needed and being proposed.

A literature map is an extremely important research tool during the review of the literature. Not only is it effective in enabling the researcher to identify crucial research points, but it also helps in illustrating the gaps in the literature (Altinay & Paraskevas, 2008).

### **2.3 E-governance in local governments**

Calista and Melitski (2007) pointed out the confusion that exists between e-government and e-governance; and that many observers employ the two concepts interchangeably thereby inhibiting a distinction between them. Although there is considerable overlap between the two, the nature of the overlap is to leave e-government somewhat “nested” within e-governance, with the former stressing service delivery transactions and the latter going a step further to focus on networked participatory interactions. Both these concepts thrive on three factors: information, communication, and technology. The focus of this study – and particularly of this literature review – is on the broader and more inclusive concept of e-governance, especially in the context of local governments. The following subsections present a review of literature on information (including information access and information management), communication, and ICTs, and how they factor in e-governance in the local government context. Literature on challenges to e-governance adoption and e-governance information needs in local governments is also considered.

#### **2.3.1 E-governance: a brief introduction**

There are many definitions of e-governance in the literature, which are not fundamentally different in substance. Some of the more eloquent definitions are captured in sub section 1.11.1, among which is UNESCO’s (2010) which views e-governance as the application of ICTs in government to improve information and service delivery, encourage citizen participation in the decision-making process and make government more accountable, transparent and effective. E-governance resulted from the convergence between decentralization and the application of ICTs to governance functions and processes taking place in the 1980s (Coleman, 2006; Van Reijswoud

& De Jager, 2005). Heeks (2002) views e-governance as the product of the governance revolution and the information revolution.

Research in e-governance is still relatively new, and is still mired in the conceptual confusion created by its close association with e-government. As Coursey and Norris (2008) indicate, much contemporary thinking and writing on these interrelated – and much often interchangeable – concepts has been driven by normative models spanning from around mid-1990s. There is indeed a significant tendency in the literature, albeit quite inadvertent, to consider e-governance and e-government as referring to one thing. Nevertheless, some literature has strived to differentiate the two (Calista & Melitski, 2007; Grönlund & Horan, 2005; Ndou, 2004; Palvia & Sharma, 2007; Sheridan & Riley, 2006). The differentiation notwithstanding, there is generally so much overlap and interchangeability of the terms in the literature that it would have been an uphill task for this review to treat them completely discreetly.

On the utility and rationale for e-governance, it has been argued that it represents a tremendous impetus to move forward in the 21st century with higher quality, cost effective government services and a better relationship between citizens and government (Adesida, 2001; Eyob, 2004; Fang, 2002). These scholars believe that e-governance is becoming the preferred tool to enhance seamless government services among its customers (citizens, private sector, and government agencies). This belief has been confirmed by subsequent empirical scholars, such as Ndou (2004: 8-12) and Ratneshwer and Tripathi (2010: 133-34), who succinctly capture the potential of e-governance in the public sector as:

- cutting costs and improving the efficiency of processes within the government;
- enhancing the capacity of government to provide various social services to the citizens;
- improving the quality of service delivery to businesses;
- strengthening the democratic foundations of governance through transparency, anticorruption and accountability;
- improving the quality of decision making;
- networking and community creation; and
- promoting the use of ICTs in other sectors of the society.

The foregoing literature shows that wherever e-governance has been successfully implemented, it has enabled governments to provide services and information to the public within an appropriate timescale. Undoubtedly, e-governance facilitates efficient, speedy, transparent and participatory processes for performing the administrative activities of government, which consist largely in the dissemination of information and delivery of services to the public and other agencies of government. This dissemination function is particularly important for the instant study: it places e-governance squarely in the LIS field.

There is quite a volume of literature on the link between e-governance and library and information services (Bertot, 2010; Bertot, McClure & Jaeger, 2008; Boule, 2011; Chakraborty, 2008; Furuholt & Matotay, 2010; Gibson, Bertot & McClure, 2009), Wahid, Furuholt & Kristiansen, 2006). A common thread in these works is that governments have in an effort to enhance efficiency increasingly moved information and services onto the Internet, and that this development has given the LIS field a new role of steering the implementation of e-governance and e-government initiatives. The public libraries have thus become an essential link between governments and their constituents, i.e., as government information, services, and resources go online, public libraries become critical community gateways to such information and services.

Steering e-governance implementation requires the library and information services to perform a set of routine tasks, which include *inter alia*: electronic processing, storage, retrieval and dissemination of governance information; the provision of Internet services; and the provision of continuous e-literacy skills training to the patrons. This is already a reality in the more developed countries of the North (and a few in the South) where public library and information services include free public electronic access technologies and the Internet (Bertot, 2010; Gibson, Bertot & McClure, 2009; Jaeger & Fleischmann, 2007), and where there are sufficient levels of e-literacy skills among the patrons (Lozanova-Belcheva, 2013)

Training in e-literacy skills constitutes an essential niche of the public library. Research has also shown that the implementation and success of e-governance depends so much on the e-literacy skills of the citizens, and that e-governance and e-literacy are closely related with each other (Lozanova-Belcheva, 2013; Omeire & Omeire, 2014:484; Rajput & Nair, 2013:136). Citizen



access to digital information and participation in e-governance processes, and their access to and use of e-government services, all depend on their e-literacy skills. Lozanova-Belcheva (2013) has in fact attributed the insufficient use of e-services in the communities she studied to a lack of e-government literacy. It has also been shown that libraries increasingly play an integral role as service providers in e-governance and e-government systems, but that unfortunately there is still very little work to assess the scope or trajectory of citizen needs in libraries (Gibson, Bertot & McClure, 2009).

### **2.3.2 Information, communication and e-governance**

Information is a fundamental tenet of democracy, and should therefore be readily available to citizens as of right. The United Nations General Assembly (UNGA) asserted as early as 1946 that “freedom of information is a fundamental human right and ... the touchstone of all the freedoms to which the United Nations is consecrated” (UNGA, 1946). Since the late 1980s and early 1990s, there have been considerable paradigm shifts in public sector governance around the world, notably from the traditional bureaucratic public administration to new public management to decentralization to e-government. With an awakening and greater involvement of civil society, the media and increased diffusion of ICTs and the Internet in different sectors of government, there has been growing public agitation across the world for more information flow from the government about the policies and decisions taken on behalf of the people (Groundviews, 2007).

Information is a condition *sine qua non* in digital local government administrations – it is the fuel that ignites the technological and other resources leading to e-government and e-governance, both of which ultimately lead to good governance. Balan and Radu (2012:454) have observed that information, which “itself is a symbol of our time” requires specific computing and telecommunication tools so that it becomes one of the most important strategic resources for all types of organizations, including local government. They argue that in the local government context, the collection, processing, transmission and storage of data are essential to the quality of decisions taken and their purpose. Information is therefore one single most important resource needed to give people access to IT and the Internet, which are the essential drivers of e-government and e-governance.

Research has underscored the role of information in enhancing all forms of governance – especially political and economic governance. There is consensus that information is one of the key inputs in economic processes, and that information technology has gradually become more crucial for the ability of individuals, enterprises and communities to successfully participate in political and economic governance (Armstrong, Guay & Weber, 2010; Centre for Effective Government, 2012; Hollifield & Donnermeyer, 2003). Just as Kristiansen (2004:11) elaborated “a clear relationship between information asymmetry, corruption and bad governance,” the UNDP (2010: 1) has also observed:

Access to information is a pivotal empowerment tool and underpins effective interventions in the area of democratic governance which is central to sustained poverty reduction and the achievement of the MDGs. It is vital for strengthening accountability, transparency, participation and rule of law.

Be that as it may, there cannot be any meaningful attempt at improving governance in local government, whether by reinventing or reengineering it, without putting in place a versatile information infrastructure and a viable public information access policy.

In a 1993 paper entitled: “Serving Citizens in the Information Age: Access Principles for State and Local Government Information,” the US Information Industry Association (IIA) outlined a number of policy principles necessary for governments to preserve public access to government-held information (Anon, 1993). These include, inter alia:

- encouragement of diversity of information sources;
- guaranteed public right to access;
- access rights that are not affected by record storage media;
- assurance of equal and timely access; and
- prohibition of monopoly control of public information.

The IIA also articulated a policy framework within which state and local governments should shape the policies and procedures to guarantee citizen access to government information.

The ability of the public to access government information enables the public to scrutinize government practices, demand for accountability, and participate in decision-making (Bunting, 2004; Cotterrell, 1999; Fairbanks, Plowman & Rawlins, 2007). Information and transparency are mutually reinforcing, and are both indispensable factors in the good governance equation. A culture of withholding information leads to corruption and all manner of other malpractices that undermine democratic governance (Groundviews, 2007). However, while the responsibility for transparency and accountability in government – including the responsibility to provide official information to the public in a timely and accurate manner – lies with its public officials, the right of citizens to gain access to public documents must be supported under a constitutional and legislative framework (Inter-American Commission, 2010; Peled & Rabin, 2011; Sondore, 2004). Therefore, the quest for transparency makes it imperative for government to put in place legal, policy and institutional structures that make information on government processes available to its various publics.

Finel and Lord (1999:316) defined transparency as consisting of the “legal, political and institutional structures that make information about the internal characteristics of government and society available to actors both inside and outside of the domestic political system.” It has been observed that public trust in government has over time been drastically declining, a phenomenon that has largely been attributed to poor communication between the governments – both central and local – and their various publics about what was taking place in government (Heise, 1985). This attribution gradually laid bare the need to develop a model of communication in public administration that incorporates open and responsive communication practices.

In response to this need, considerable research has focused on the role of government communication toward engendering good governance (Anon, 2009; Fairbanks et al., 2007; Koven & Kunselman, 2003). The salient issues in the research included analysis of the communication function of government and how communicators in government value and practice transparency, assessment of success and failure in government communication, and identification of practices and structures that promote transparent communication practices. For instance, Fairbanks et al (2007) examined the public relations function of government, which relays information to the public through a government publicist. Their findings indicated that

unfortunately for this perspective, the government publicist is often more interested in meeting government interests than the interests of the public irrespective of the public gain or detriment from the actions of the government. They concluded that the overriding interest in government communication is to marshal support for and compliance with new laws and policies; generally to influence citizen behaviour and direct public opinion (Fairbanks et al, 2007: 24).

The benefits of a sincere and transparent government communication programme have been succinctly captured as here cited *in extenso*:

Providing citizens with adequate information on priorities, programs, and activities ensures the legitimacy of the government and therefore stabilizes the political situation in a country. In contrast, when governments face a crisis of legitimacy, they are vulnerable to disruptive forces and may not be able to effectively carry out their mandates. It is therefore in the interest of governments to communicate effectively about the work they do on behalf of their constituents. As legitimate players in evolving public spheres, governments benefit from developing and maintaining effective communication capacity with citizens, to better take stock of their needs and preferences, and to foster a more deliberative public space for multi-stakeholder participation, informed policy debate, and development effectiveness (Anon, 2009: 1).

Unfortunately, the tendency for governments to hire spin doctors to facilitate the control of public opinion has often boomeranged into an ever increasing loss of public trust in governments, forcing the governments ultimately to turn to the media (Koven & Kunselman, 2003). But as Fairbanks et al (2007: 24) observe, the ironical part of it is that the news media, too, have been more eloquent in highlighting government weaknesses and failures than otherwise. It is thus imperative that governments throw away all pretence and strive to inform and be informed by the public by incorporating principles of transparency and good governance into their information and communication practices.

### **2.3.3 Access to information, information management and e-governance**

In e-governance contexts, access to information represents a critical aspect of citizen empowerment to participate in public affairs. Citizen empowerment has been defined as “... a process through which individuals become powerful enough to be able to participate directly to controlling and influencing events and institutions that have a direct effect over one’s life” (Spreitzer, 1996, cited by Avram & Priescu, 2012:949). According to this source, information empowers people to acquire special skills and knowledge as well as sufficient autonomy to enable them to influence public affairs. This viewpoint is consistent with the international perspective on access to information, which is couched in the right to information. The right of access to information encompasses the citizens’ right to know what their government is doing, and the freedom and capacity to access information in the possession of government – whether that information is created by the government or acquired. This right is premised on the principle that the government does not own the information it holds but rather holds it on behalf of the people (International standards: Right to information, 2012).

This perspective on access to information challenges the long held bureaucracy principle of secrecy of information and leads to an improvement in the quality of governance in public administration (Davis, 2006; Ligabo, Haraszt & Bertoni, 2004). There are a number of governance benefits that accrue from unimpeded access to information, which include, but are not limited to: allowing greater accountability and transparency, allowing fulfillment of civil and political rights, preventing and revealing corruption, and increasing citizen participation in public affairs (UNDP, 2003). It is important to note, of course, that these benefits are not limited to the public sector: certain information from companies and NGOs performing public functions or receiving public funding must be open to public access (Ferguson, 2014).

The effectiveness with which information is accessed in an organization depends so much on the information management function and the vibrancy of the information system in that organization. Research has over the years examined the utility of information systems in the context of local governance (Asgarkhani, 2005; Boyle, Humphreys, O’Donnell, O’Riordan & Timonen, 2003; Krishnan & Teo, 2012). Among the major findings is that successful government reengineering is a function of a well-organized and efficiently directed information

infrastructure, where the information system serves as the e-government implementation support (Balan & Radu, 2012; Verboncu & Nicolescu, 2008). An information system consists of information, equipment, technology and human resources. Therefore, a local government drive towards successful implementation of e-government and e-governance requires significant marshalling of skilled, competent and committed library and information workers as well as an equipped information and knowledge management infrastructure.

The foregoing literature indeed illustrates that with a system of enhanced information access and flow in place – with abundant, accurate and timely information – rules and administrative procedures in government are so simplified as to guarantee a broad and non-discriminatory public access to public information services. However, as Boule (2011) has found, all this necessitates, among other things, a reorientation of the traditional library and information management service to respond to the needs of the new information age. It has also been shown that in the emergent digital world, libraries are emerging as means of creation and dissemination of information and knowledge, and must therefore be seen to play a pivotal role in steering e-governance to be proactive (Boule, 2011; Chakraborty, 2008). Citing Lee Rainie on the role librarians must play in the “new social operating system,” Boule (2011:1) quotes:

Library spaces are being changed precisely to take account of the networked learning environment ... Moreover, librarians are among the most advanced advocates ... for the proposition “we’ll give you what you want where you are; you don’t have to come to us (although we could help you even more if you did).”

Indeed librarians are among the most advanced advocates because they possess the technical competencies in information and knowledge management required to steer organizations to higher electronic-enabled levels.

Gray (2000) defined knowledge management as an organizational process for acquiring, organizing and communicating both tacit and explicit knowledge so that others may use it to be more effective and productive. In the context of e-governance in the public sector, knowledge management is required in relation to the public (G2C; G2B), and within government

departments (G2G). The information and knowledge management competencies therefore clearly define the role of librarians as professional information workers in steering governments towards e-governance. Thus, as Chakraborty (2008) argues, functions such as e-commerce and e-learning may remain reactive because they involve just information management, but e-governance must be proactive because it goes beyond information management to involve knowledge management, hence the indispensable role of the public library.

The place of the public library in an electronic local government network is of particular significance (Bertot, McClure & Jaeger, 2008; Boule, 2011; Furuholt & Matotay, 2010; Wahid, Furuholt & Kristiansen, 2006). Besides the traditional role of information management, public libraries are increasingly becoming public internet access points (PAPs) for their patrons and whole communities. In fact, a study of public libraries in the US found that virtually all the libraries studied provided public Internet access to patrons through public access workstations, while 54.2 percent of them also offered wireless Internet access; and that in many communities, public libraries were the only providers of free Internet access (Bertot, McClure & Jaeger, 2008: 286).

In the developing world, the role of public libraries has not been as significant given their marginal role resulting from poor funding and limited resources (IGF, 2012; TNS RMS East Africa, 2012). Their role is played by other modes of PAPs, variously referred to as information kiosks, telecentres, cybercafés, or community technology learning centres (Bell, 2006; Wahid, Furuholt & Kristiansen, 2006). These alternative PAPs have demonstrated success in offering library facilities, training workshops, videoconferencing, distance education, training and e-commerce (Oestmann & Dymond, 2001). Collectively, PAPs provide an invaluable stop-gap measure for public information and education in the largely poor and under-educated communities. In fact, one study found that as high as two thirds of Internet users in Tanzania, Indonesia and Peru got their access through PAPs (Wahid, Furuholt & Kristiansen, 2006).

Research has shown that information and advancement levels of information and knowledge management play a big role in reinventing governments to embrace and exploit opportunities presented by the electronic revolution. Throughout the 1990s, developing and least developed

countries were lagging behind other nations of the world in both the volume and quality of information, and *ipso facto* in e-government adoption (UNPA & ASPA, 2001).

UNPA and ASPA (2001) developed a five-stage scale – the emerging stage, enhanced stage, interactive stage, transactional stage and seamless stage – to analyze the progress made by world nations towards an online presence. Their results indicated that nearly all 32 countries at the first stage were characterized by static and insufficient information, which was also infrequently updated. It was by no coincidence that these countries, all of which were among the world's least developed nations, also had very few interactive features, and non-existent online services. Indeed, later studies (e.g. Eyob, 2004) confirmed that countries or local governments with more resources were more successful in e-government and e-governance implementation, which resulted in more government efficiency.

#### **2.3.4 The role of ICTs in local government**

Advances in ICT research and innovation, and the application of ICTs to governance functions and processes have brought myriad benefits to the public sector of government. Researchers in digital governance are generally agreed that ICTs, once properly designed and strategically deployed, offer a wide range of benefits to individuals, communities, organizations and governments in all areas of life (Adesida, 2001; d'Orville, 2000; Magno & Serafica, 2001; Pereira, 2003; PIWA/UNDP, 2010; UNDP, n.d.). ICTs facilitate information exchange vertically between government, business and citizens, and horizontally among government agencies themselves as well as among businesses and citizens. Technological facilitation of information exchange is manifested in faster, more generous, and less expensive information flows for decision-making and for development (Ahmed, Islam, Ahmed & Rahman, 2006; Ogbomo, 2009). Not only do ICTs speed up the flow of information and its use in decision-making, but they also create new modes of sharing ideas, and reducing the costs of collecting and analyzing information.

Ciborra (2005) summarized the role of ICTs in government as ordering the relationship between the state and the citizens, setting the boundaries between the state and the market, and ensuring greater accountability and transparency. Researchers generally agree that the application of ICTs



to public administration functions improves the quality of service, increases the effectiveness of governments, reduces purchasing and fulfillment cycles, and lowers administrative costs (Adesida, 2001; Ahmed, Islam, Ahmed & Rahman, 2006; Kumara, 2010; Magno & Serafica, 2001; MG Consultants, 2008; OECD, 2012; Ogbomo, 2009; Pathak, Naz, Singh & Smith, 2010). It has been found, for example, that technology convergence due to digitalization, wide band transmission, compression technologies, and standards development lends support for the low cost provision of public services such as education and health care.

Countries are using ICTs to increase public participation in decision-making processes, to improve on the functioning of their public institutions, and to enhance the delivery of public services especially to the poor and marginalized sections of society (Pereira, 2003; PIWA/UNDP, 2010; UNDP, n.d.). PIWA (Panos Institute West Africa) and UNDP particularly emphasize the element of participation, thus:

ICTs have advanced considerably, including in Africa, and have broken through to social and political life. In view of the numerous advantages offered by these technologies (speed, cost reduction, wider reach), they are now crucial for the work of the public sector, for civil society organizations and for governments, which use them for intra-governmental communication and for providing services and communicating with citizens. We can therefore argue that ICTs enhance citizen participation by enabling citizens to interact better with each other and with their elected officials. In a nutshell, this is e-participation (PIWA/UNDP, 2010:10).

Participation, especially in this new ICT-enhanced mode, is the best indicator used to measure citizen empowerment. Therefore, by increasing citizen access to information and participation in local government affairs, ICTs empower individuals and local communities.

Another, perhaps most radical mark of ICTs on local government, is reengineering. Reengineering local government is the latest in a series of global reforms or paradigm shifts aimed at increasing efficiency in government. The term “reengineering” was first used in the

business context in the 1980s to rethink the essential processes through which businesses were accomplished, and was referred to as business process reengineering (BPR). It was defined as “the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance such as cost, quality, service and speed” (Hammer & Champy, 1993; Muthu, Whitman & Cheraghi, 1999).<sup>\*</sup> The concept was later adopted and applied to the government context in 1992 under the term “reinventing” (Osborne & Gaebler, 1992), a term that is still preferred by some scholars and practitioners of government who do not want to use it interchangeably with “reengineering” (Hillmann, 2001).

Mechling (1994) identified three elements that characterize reengineering: first, all the steps in the change process must be redesigned in order to make the process fundamental; second, the change ought to have radical goals that must be reached rapidly; and third, there must be selective application of appropriate ICTs. In fact, Hillmann (2001:2) emphasized this last element, thus:

It is the use of information technology that marks the true distinction between the terms reinventing government and reengineering government. While to reinvent government simply means to radically alter it, to reengineer it means to use computers and other information technologies to achieve the radical goals.

Thus, whether in local government (public sector) or in business (private sector), the term “reengineering” entails the application of ICTs to the government and business processes in order to transform them. Therefore, reengineering is the vehicle to e-governance, and e-government.

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<sup>\*</sup> BPR involves five iterative steps molded on the traditional structured systems analysis and design method – commonly referred to as the Systems Development Life Cycle (SDLC) – which involves planning, analysis, design, implementation, and maintenance. Thus, the BPR steps are: (i) prepare for reengineering (planning), (ii) map and analyze “as-is” process (analysis), (iii) design “to-be” process (design), (iv) implement reengineered process (implementation), and (v) improve continuously (maintenance).

While developing countries can effectively reengineer and appropriate the benefits of ICTs for different functions (Ndou, 2004:2), the success of e-governance must entail the scrutiny, termination or accommodation of certain conditions, needs and obstacles unique to each country. It has been demonstrated that many countries have failed to reengineer their governments due to the failure to appreciate existing gaps, such as the gap between the current political situation and that required for implementation of e-governance.

It is also important to point out that the private sector of business and non-governmental led community development – an extremely important sphere of the local government, both as a partner and a customer – is strengthened by an ICT-enhanced local government. ICTs have a demonstrable potential to strengthen economic growth by empowering people and reducing poverty; and building capacities, skills and networks. According to Adesida (2001:9), ICTs have proved successful at creating new markets, new technological applications for collaboration, and new methods and tools for scientific and technological research. It has been shown, for instance, that some of the big multinationals that put their supply chains online have been able to save upwards of 20%, reduce inventories by about 50% and in some cases lower administrative costs by up to 75% (Adesida, 2001).

### **2.3.5 Challenges to e-governance adoption in government**

Although e-governance has been hailed as capable of integrating government publics and processes by breaking the barrier of distance and leading to efficient administration and citizen engagement, research shows that it has not made as much impact on the citizens as e-commerce and e-learning have done (Chakraborty, 2008). PIWA/UNDP (2010:11) has noted that despite all the various benefits accruing from the application of ICTs in government (as reviewed in the preceding section), ICTs have also introduced new challenges, *inter alia*: limited and unequal access to ICTs, lack of infrastructure, electronic fraud, and the absence of or inadequate legal frameworks which explain their slow diffusion.

Moon and Norris (2005) investigated the association between the adoption of e-government in municipal government and its outcome. Two different survey data sets of American municipal reinvention and e-government were analyzed, and findings showed that managerial

innovativeness orientation and city size were the most compelling determinants of municipal e-government adoption. Torres, Pina and Royo (2005) studied the adoption of e-government initiatives at the regional and local level in the EU and found, *inter alia*, that most regional and local governments had a website that was in most cases more or less a governmental billboard. Their study suggested that e-government was not likely to remodel governance in the short term. It was shown that e-government initiatives were still predominantly non-interactive and non-deliberative: they tended to reflect current service delivery patterns rather than transform them.

Ebrahim and Irani (2005) and Davidson, Wagner and Ma (2005) focused on the barriers to e-governance adoption. Their studies identified and discussed these barriers as broadly falling under IT infrastructure, citizen security and privacy, poor or a complete lack of IT skills, organizational issues, operational costs, and the tendency to replicate traditional government (functional insularity). Although these studies were non-deliberative on the urban-rural setting dichotomy, analysis indicated that these barriers were universal. A deliberate urban-rural study, however, was conducted by Choudrie, Weerakkody and Jones (2005), who focused on regions and groups of the populace in both settings that had not benefited from the provision of online public sector products and services. It was found that while citizens' backgrounds influenced accessibility to e-government services in the urban area, geographical location-related issues posed problems to the same in the rural area.

The failure of e-governance initiatives has also been associated with alienation of people from the planning process and disregard for their needs (Bishop, 2004; Koh, Prybutok, Ryan & Ibragimova, 2006). Citing Professor Stephen Coleman, for instance, Bishop (2004: 117) showed that the application of new technologies should be led by "what the people want." According to his findings, e-governance initiatives should be introduced along the lines of successful trials in the UK through the Hansard Society and by the UK Parliament – experiments that had managed to get people involved who not only had not been involved in public policy discussions before, but also had never been on the Internet. Similarly, Koh et al (2006) found that without proper understanding of the importance of e-governance initiatives, employees cannot place high value on them. Government agencies must therefore evaluate how strategic e-governance and e-

government plans are developed, communicated, and integrated into the work environment and aligned with business strategies.

Other researchers have investigated the phenomenon of slow diffusion of technology into local governments (McNeal, Tolbert, Mossberger & Dotterweich, 2003; Chadwick & May, 2003; Ebrahim & Irani 2005; Koh et al, 2006). McNeal et al (2003), for instance, examined why digital government was less extensive in some American states than in others. Employing a multivariate regression analysis to test explanations for state innovation in e-government, the study focused on the proportion of state-level government websites offering online services to citizens. It was found that republican-controlled legislators were more likely to embrace e-government, implying that efficiency concerns drove reliance on digital government. It was also shown that innovators in e-government were states with fewer households with Internet access and less use of the initiative process, implying that citizen demand was not a factor. It was concluded therefore that e-government implementation was likely to be slower where it was driven by legislative professionalism and, to a lesser extent, state professional networks, rather than citizen demand.

This disregard for citizen demand and popular participation was confirmed by later studies (Chadwick & May, 2003; Koh et al, 2006), which indicated that the democratic potential of the Internet had been marginalized by the ways in which governments framed such technology since the early 1990s. The studies show that an executive-driven “managerial” model of interaction has assumed dominance at the expense of “consultative” and “participatory” possibilities. It is interesting to note, of course, that this global perspective on technology diffusion in government easily shields the dire condition of countries in the poor and emerging economies. Deliberate research analysis of the state of e-governance diffusion in the developing world returns a disconcerting picture. Studies show that wherever e-governance and e-government projects have been introduced in developing countries, they have tended to end in failure – partial or total (Avgerou & Walsham, 2000; Allen, Juillet, Paquet & Roy, 2001; Heeks, 2002, 2003; Bishop, 2004; Saxena, 2005; Dada, 2006; Koh et al, 2006; Scuppan, 2009). Heeks (2003) particularly shows that 50% e-government implementation in developing countries registered partial failure while 35% was a total flop.

A plethora of factors have been identified as affecting the implementation of ICT projects in developing countries. Scuppan (2009: 120), for example, taking a general perspective of a traditional politico-bureaucratic institution that is too stuck in its inefficiencies to be able to embrace radical governance changes, has observed:

A low-performance public administration with correspondingly low resources is a typical problem in African and other developing countries. It is characterized by an often rigid centralism with neo-patrimonial leadership style, a weakly developed local administration, corruption, high levels of over-staffing with low pay scales, as well as unmotivated and unqualified staff (citing Wescott, 1999).

Allen et al. (2001) had earlier observed that the adaptive challenges of e-governance go far beyond technology; they call for organizational structures and skills, new forms of leadership, and the transformation of public-private partnerships. In other words, technology *per se* does not and cannot transform the way in which governments discharge their obligations.

Research has indeed showed that most e-governance projects in Africa – and elsewhere in the developing world – fail largely due to the gap between the technology design and the reality of the context in which the projects are to be implemented (Dada, 2006; Heeks, 2002, 2003). Heeks' extensive research showed that large gaps often exist between project design and public sector reality in most developing countries; and that it is these “technology-reality gaps” (the mismatch between current reality and the design of future e-government system) that underlie failure. He recommended stakeholder sensitization as the way to address this tactical challenge.

Expounding on Heeks' “archetypes of failure” brought by this technology-reality gap, Dada (2006) identified and examined three manifestations of this gap. These are, first, the hard-soft gaps – the “hard” being the actual technology and the “soft” the reality of the social context; second, the private-public gaps – the system designed for private sector and the reality of the public sector; and third, the country context gaps – the system designed for a developed country and the reality of a developing country where the system is transferred. In essence, as long as the technology design for the e-government and e-governance projects in the developing countries is

not tailored to their needs, resources, capabilities and environments, these projects cannot survive the devastating effects of the foregoing gaps.

There is indeed relative invisibility of African e-governance projects, which may as well be explained in the context of their failure to take-off as a direct result of the design and implementation gaps. Scuppan (2009: 119) has observed:

An exact ranking of sub-Saharan African countries with regard to the implementation of [e-governance] is difficult because the countries of this region are rarely mentioned – with the exception of South Africa – in relevant studies. This is in no small part due to the fact that, to date, sub-Saharan Africa has barely registered on the [e-governance] radar screen and thus hardly any measurable [e-governance] data is available.

The ranking difficulty Scuppan highlights above is not difficult to discern: there are usually very limited benchmarks to rely on for this task, which also tend to be almost exclusively techno-centric in focus – particularly on Internet usage (Saxena, 2005). According to Saxena (2005: 502-3), the techno-centric rather than governance-centric focus on e-governance has been the main reason for its failure. Therefore, e-governance-centricism (excellence in governance) requires the initiative to be effectiveness-driven rather than merely efficiency-driven.

Another interesting observation is that even where the national and local governments have attempted to respond to the structural technology adoption challenges caused by asymmetrical global relations, they have been constrained by limited institutional and citizen capacity. The African Network of Constitutional Lawyers (2011) has observed, for instance, that many countries are still governed under prohibitive laws and procedures. Among other effects is that these laws and procedures have constrained the expansion of professional training programmes to raise a calibre of technology-savvy information workers to facilitate new forms of electronic engagement in information work. This has in turn weakened the capacity of the library and information professionals to keep pace with the demands of the information age. And as Igbo and Imo (2010) have found, a shortage of proficient information workers has also been

associated with obsolescence of resources, ineffective bibliographic organization and ineffective information services. On the other hand, a lack of appropriate frameworks for technology adoption and information access has meant that civil servants continue to delay users' access basing on the old bureaucracy laws and the culture of secrecy (African Network of Constitutional Lawyers, 2011).

The effects of institutional incapacity to manage electronic information tools and resources are felt in multiple forms at the user level. Hoggan (2002) summarized them as including information overload, misinformation, poorly designed navigation, and loss of browsability. In many cases, users are likely to rely on only one or two databases and often miss unique information that is available through other sources.

Beyond governmental and institutional challenges are individual citizens' own limitations to access electronic information. Some of the limitations are of a personal nature, such as those associated with skills and costs; others stem from the unavailability of electronic information tools and resources. Studies have in fact shown that an overwhelming portion of the citizenry in poor countries has very limited capability to access e-governance information or to use it effectively (Furuholt & Wahid, 2008; Nlerum, Albert & Prince-Kaye, 2012). Nlerum, Albert and Prince-Kaye (2012) for instance, found that only 40% of their respondents (women farmers in Rivers State, Nigeria) had access to agricultural information, but more notably, that their major sources of information were friends, family members and fellow farmers. It is such situations of limited avenues of e-governance information and limited citizen capacity to source it that warrant the intervention of PAPs (Furuholt & Wahid, 2008; Sein, 2009; Sein & Furuholt, 2009).

However, the utility of PAPs towards this goal in poor countries is in contention. First of all, they are generally not well utilized to provide e-governance information. Secondly, those providing free or low cost access (e.g. telecentres) tend to be better utilized than profit-oriented ones (e.g. Internet cafés), but they are unfortunately the much less available. Thirdly, profit-oriented PAPs are not committed to e-governance. Furuholt and Kristiansen (2007), for example, found very few traces of e-government and e-governance use from Internet cafés in Tanzania. Considering that this could have been due to the commercial nature of these cafés, Furuholt and Matotay



(2010) investigated alternative PAPs – a telecentre in Mwanza, some broadband networks in Mara, and a book café in Dar es Salaam. While these showed a higher rate of citizen access to e-governance information, it was also shown that they provided very little on how the citizens might achieve access to government services.

This review has underscored the role of public libraries as invaluable PAPs for local communities in the developed world. The delivery of free Internet services to their patrons and communities is certainly not without its own challenges. Foremost is the fact that an ever expanding size of clientele, which calls for an increase both in the quantity and quality of services, exerts considerable strain especially in terms of bandwidth, sitting space and computing capacity (Bertot, McClure & Jaeger, 2008: 286-7). These challenges, of course, need not be over-emphasized in the case of the developing countries. It should be noted, nevertheless, that as the ways in which the public library continues to adapt to the evolving and increasingly complex ICT environment begin to unfold (Boule, 2011), there are equally a number of important implications for the libraries. Bertot, McClure and Jaeger (2008: 296) have summarized them as:

- significantly increasing bandwidth at the desktop;
- customizing existing library physical facilities to accommodate Internet-based services;
- increasing staff and reorienting staff expertise with new Internet services library settings;
- determining how the new Internet-based services complement, replace, or change existing service roles; and
- redefining library resource sharing and multi-type networking.

All these are serious challenges to public libraries in their role as PAPs intended to enhance e-governance adoption in developing countries.

### **2.3.6 E-governance information needs in developing countries**

Researchers on e-governance and e-government adoption are agreed that one cannot meaningfully advance e-governance initiatives without an effective e-readiness assessment framework (Cecchini & Raina, 2004; ITU, 2009; Ojo, Janowski & Estevez, 2007; Shareef, Ojo & Janowski, 2008). Noting that past e-readiness surveys were ineffective and lacked a clearly defined purpose, these researchers underscore the need for an assessment framework that would help to identify and focus on the critical variables for e-informational projects in government.

Accordingly, e-governance projects should be designed and implemented on the basis of established information needs and needed services of the communities being served; and the information system and technology platforms should be developed in collaboration with local staff so as to bridge the hard-soft gaps and enhance a sense of ownership of the system (Bishop, 2004; Cecchini & Raina, 2004; Heeks, 2003; Koh et al, 2006; Scuppan, 2009). It is therefore extremely important that the people, who the system is intended to serve, be mobilized and integrated in the system development process. Such mobilization has in the past benefitted from sustained government campaigns about the value of e-skills and educational programmes in enabling government officials, citizens and businesses to effectively utilize the e-governance system (Ho, 2002; Jaeger & Thompson, 2003; Moon, 2002).

Backus (2001:8) identified a number of requisite elements for a functional e-information system, which in my view are important elements about which the information needs of an e-governance system can be assessed. These are: information service, content, human resources, and system security. According to him, ICT-driven information systems and processes have to be adapted to a completely new, full time service model. A practical example is given of a citizen querying the system at midnight about the status of his application: the system should afford him an immediate (automated) response. This also implies that the e-governance environment calls for enhanced content management and timely updates. Content is as varied as the user needs, which have been identified to include:

...citizens employing government information and services; residents and immigrants seeking information about their new country; government employees using e-government in their job functions; people in other countries wishing to know more about a nation; and on and on (Bertot, Jaeger & McClure, 2008:137).

Ultimately, and particularly in developing countries, these new information needs manifest in different forms: as human resource needs requiring information and knowledge management skills; as information and system security needs requiring programming and network systems skills; and as financial needs.

There is considerable literature on information and knowledge management as a composite e-governance information need; but this literature also highlights the technological, financial and managerial challenges constraining the information and knowledge management service in developing countries (Wagner, Cheung, Lee & Ip, 2003; Wagner & Bolloju, 2005; Guizzardi-Silva, Dignum, Perini & Wagner, 2005). It has been shown, for example, that qualified staff and training schemes are often in short supply in developing countries (Basu, 2004; Ndou, 2004). However, one interesting question has lingered in light of the foregoing challenges: whether information and knowledge management requires huge financial and robust ICT resources (Nieto, Luna & Ramos, 2010). This question seems to put the feasibility of robust knowledge management solutions for e-governance on a weighing scale. While knowledge management solutions largely depend on government readiness and ability to spend on technology and related costs, government readiness in developing countries is not always matched by ability. Overall budgets for information and ICT-related projects are generally small, so that such projects are naturally underfunded and often flop.

The problem of access to robust technology platforms is compounded by dire financial and human capital needs. Three interconnected solutions have been identified in the literature, viz., alternative knowledge management solutions based on simple and affordable technology platforms such as virtual communities (Hammerman, 2005; Hinchcliffe, 2008; Wagner, Cheung, Lee & Ip, 2003), reusable and compatible applications and software (Mittal, Kumar, Mohania, Nair, Batra, & Roy, 2004; Ratneshwer & Tripathi, 2010), and a phased technology adoption on the basis of priorities (Mittal et al., 2004). It is shown that the creation of virtual communities is inexpensive and technologically simple. This means that not only are the demands for hardware, software and bandwidth relatively modest, but also the requisite technology platforms can be acquired with the most basic ICTs. It is also shown that with reusable solutions, one local government can use solutions that were developed for another government, which eases both on the financial and human capital constraints.

Another indispensable e-governance information requirement has been the implementation environment. For over a decade ago, researchers have been concerned with the question of context-orientation to the successful implementation of e-government and e-governance

(Furuholt & Matotay, 2010; ITU, 2008; Schuppan, 2009). They have addressed the different political, economic, socio-cultural and institutional contexts that must be considered when implementing e-government and e-governance in the developing world generally, and in sub-Saharan Africa in particular. There is general consensus that direct transfer of ICT solutions and related organizational concepts from developed to developing countries is a futile exercise.

## **2.4 Geometry of information flows in local governments**

In any networked environment, the purpose of the network cannot be achieved if the servers neither know nor can reach the clients. While in the physical, computer networks the clients are workstations (computers), in the social, e-governance networks, the clients are the categories of people (the publics) targeted by or connected to the network. It is to these that information and services must bring positive change.

### **2.4.1 Understanding the geometrics of information flows**

The concept of “geometry of information flows” primarily belonged to the pure science domains such as mathematics and physics. The concept was gradually adopted and adapted in applied science fields such as information systems and information theory, where it nevertheless retained its techno-centric perspective in the analysis of network protocols and related problems (Jacquet, 2004). Its usage in the social sciences is credited to Vikas Nath, who applied it to socio-governance network contexts to examine the role of ICTs in increasing the volume of information flowing to the disadvantaged groups of society, and how this leads to their empowerment and participation in the public sphere (Nath, 2005, 2007).

In its socio-governance network context, geometry of information flows refers to a detailed human-centric picture of information flows in a society, focusing on specific categories of people getting connected and benefiting from ICTs whenever there is an increase in information access and flow (Digital Governance Initiative, 2005). Nath (2005, 2007) emphasized the importance of the “geometry of flows” since the object of the application of ICTs to governance processes is to enhance development by transforming the lives of the disadvantaged publics. In short, if the application of technology to governance processes is to bring benefits to the disadvantaged

publics within the local government, then e-governance projects must be designed to be more focused on how to best reach these publics.

There is considerable research, both theoretical and empirical, on the concept of information flows in a networked society (Castells, 2004a, 2004b, 2010; Harding, 2006; Stadler, 2003). The *Good Lizard Media* blog defined information flows as “streams of information that constitute the organizational logic of our networked society” (Good Lizard Media, 2012:1). According to the reviewed literature, when direct flows of communication (such as face-to-face conversations) are mediated by ICTs, they are freed from the spatial constraints of typical “real-world” conversations – they become information flows because they are no longer merely “real world” but “real time” interactions. Castells (2004a: 442) defines “flows” as:

... purposeful, repetitive, programmable sequences of exchange and interaction between physically disjointed positions held by social actors in the economic, political, and symbolic structures of society.

The distinction between “real world” and “real time” communication is extremely important in explaining the efficiency and versatility of the enhanced flows associated with the latter. While real world – the space-and-time to which people are accustomed – is associated with the “space of places,” real time is associated with “space of flows” (Stadler, 2003; Castells, 2004a; Castells, 2004b). The concept of space of flows is concerned with ICT-mediated human action and interaction containing continuous flows of time-sensitive communications: people are connected to a continuous, real-time cybernetic community that is more located in time than in their physical places.

The concept of space of flows has been described as a high-level cultural abstraction of space and time and their dynamic interactions with digital age society (Castells, 1989). The term, which was later coined as a new type of space that allows distant synchronous, real-time interaction (Castells, 2004b:146) is characterized by three elements, viz: (i) the places where the people and their interactions are located (the organizational nodes), (ii) the communication networks linking the people and their activities (flow mediums), and (iii) the items composing

the flow traversing through networks (information content) (Stadler, 2003: 3; Castells, 2004a: 36-7; Castells, 2004b: 146-7).

The concept of space is tied to social practices: while space of flows is articulated through the conceptual, time-sharing practices of people as social actors, space of places provides the material support of these practices. Thus, the two “spaces” are not – and should not be – mutually exclusive. However, as Castells (2010) cautions, a dislocation between the conceptual space of flows and the physical space of places is both possible and problematic. He observes:

The dominant tendency is toward a horizon of networked, ahistorical space of flows, aiming at imposing its logic over scattered, segmented places, increasingly unrelated to each other, less and less able to share cultural codes. Unless cultural, political, and physical bridges are deliberately built between these two forms of space, we may be heading toward life in parallel universes whose times cannot meet because they are warped into different dimensions of a social hyperspace (Castells, 2010: 458-9).

Therefore, flows of information must influence and articulate the presence of places for social activity and exchange, which is the basis of the concept of nodes of information flows.

This question of spaces in the geometry of information flows has got very practical implications for the success of e-governance implementation in local government. As the Finnish government information society action programme 2011-2015 summarizes, digitalization in government brings with it a heavy package of benefits and opportunities; but it also carries a risk of inequality and exclusion of citizens – the digitalization of services and information flows is often implemented in a technology-driven manner, without understanding the needs of the citizens or taking their skills into consideration (Ministry of Transport and Communications, 2011:4). There are even great variations in the uptake of ICT services between categories of users: age, disability, education, economic status, etc. Therefore, e-governance implementation must proceed on a point of citizen equality by targeting disadvantaged groups – which is the object of geometry of information flows.

### **2.4.2 Information nodes and access points**

In computing and communication networks, a node is a terminal or other point where a message can be created, received, or transmitted (Encarta, 1993-2009). According to this source, however, the definition of a node also depends on the network and protocol layer referred to. It also defines an information transfer node as a physical location on a communications network, which is usually part of the core layer of a network and contains devices that move information in the most expedient manner possible.

While the concept of nodes has gained currency in research on information flows in social, organizational network contexts, there is no consensus yet among researchers as to what information nodes really are. Some researchers have focused on the location and importance of nodes as both information processors and transmitters within social networks (Dodds, Watts & Sabel, 2003; Kimura, Saito, Nakano & Motoda, 2009). The bottom-line in these studies is that just like a physical network node (an active electronic device that is attached to a network) is capable of sending, receiving, or forwarding information over a communications channel, so is a social network node. On the message handling function of the nodes, Dodds, Watts, and Sabel (2003:12518) observe:

Once initiated, a message is passed from source to target through a chain of intermediaries. Each node in the chain must process each message that it initiates or receives in the same time step by forwarding it to an immediate neighbour.

But the above work does not make it easy for one to work out how these nodes differ from the electronic devices in computer networks. Are they homogeneous entities in a sense of programmed electronic devices that must handle the processing of messages in the same manner, or are they some conscious actors who would select messages according to interest and relay them according to convenience?

A general analysis of literature on the digitization of social processes and functions shows that the proponents of social information nodes model them on computer network nodes (e.g., Mejias, 2006). In network theory, a node is a point in a network topology at which lines intersect

or branch. Also, the distribution and access points of a network topology generally branch out from information transfer nodes located in the same area. But the conceptualization of social and organizational networks as analogous to physical computer networks does not entirely add up. This is perhaps why some researchers in the information fields view nodes just as information access points in a sense of, say, a collection of agricultural information at a sub-county, or of government policies at a district information office; while others view them as people (information workers) and/or organizations.

Mejias (2006) acknowledges the importance of information nodes as forming links to other nodes in a social network and linking to nodes in their immediate surrounding just as easily as they link to other nodes. Although this acknowledgment does not spell out the nature of the nodes, subsequent researchers, perhaps riding on its context, showed information nodes clearly as people (Boule, 2011; Brogan, 2007). They may be individuals, groups, or general audiences from whom information is sought; and who when connected and reachable, they form a network and become its different nodes. Boule (2011:1) has observed:

Nodes are actors in networks. Usually, we've thought of network nodes as people, but increasingly, organizations can be "nodes" that provide information and advice that help people make decisions or cope with problems. People become nodes by acting like friends and being content creators.

The essence of this observation is that organizations are as much of nodes as individuals because it takes individuals to make organizations. And, as Castells (2010) would have it, organizations provide spaces that nurture these new kinds of networks, spaces both physical and virtual.

## **2.5 Modeling information access and flow**

This section presents a review of the literature on the meaning and importance of modeling a system before it can be implemented. Modeling is a technical activity and requires that a thorough study be made of the technical aspects of the system to be put in place (Langley, Nolan, Nolan, Norman & Provost, 2009). However, it is equally important that the factors within the implementation environment of the system be studied to ascertain the likelihood of the



successful implementation of the system. SWOT analyses are common tools used for such studies. Therefore, the section also reviews literature on the use of SWOT analyses as feasibility analyses for the implementation of proposed systems. A review of the e-governance information system models is done in Chapter Three.

### **2.5.1 The utility of modeling**

Modeling has for a long time been devised by business analysts, engineers, scientists and other professionals to map out the complex structures or systems that they plan to build. There is a considerable amount of research literature on models and their application in different fields. This literature variously defines a model as a formal framework for representing the basic features of a complex system by a few central relationships (Samuelson & Nordhaus, 1998); an abstraction or an approximate representation of the real item that is being built (Cernosek & Naiburg, 2004); or simply as a deliberate simplification of reality (Begg & Dornbusch, 2000; Anon., n.d.).

On the importance of models, the *Unified Modeling Language User Guide*, 2<sup>nd</sup> edition observes that “we build models so that we can better understand the system we are developing” (Anon., n.d.: 1). Thus, according to this source, a model should be viewed as providing a “blueprint” or “detailed plan” of a system. Slingerland and Kump (2011:2) view modeling as an art because “one must know what one wants out of a model and how to get it,” and assert that “...a model will rationalize the information coming to our senses, tell us what the most important data are, and tell us what data will best test [what] is embodied in the model.” In fact, models are considered indispensable to the successful implementation of systems, considering especially that the people who make the designs are not necessarily the ones that will implement them (Cernosek & Naiburg, 2004).

Research shows that models often take different forms: a model may be structural, emphasizing the organization of the system, or it may be behavioral, emphasizing the dynamics of the system (Anon., n.d.). It may be physical, specifying implementation details – including configuration choices in case of data modeling, or it may be conceptual if intended to represent real world

views or states of affairs (AIS, 1997). Further differentiation of models has been made by Slingerland and Kump (2011:1), who observe:

Some are purely conceptual, some are physical models such as in flumes and chemical experiments in the lab, some are stochastic or structure-imitating. The distinction also can be made between forward models, which project the final state of a system, and inverse models, which take a solution and attempt to determine the initial and boundary conditions that gave rise to it.

This wide variation and differentiation notwithstanding, AIS (1997) emphasized that these models should be viewed as different layers of abstraction, which different modeling approaches may address in different ways: some designers may address only the physical implementation, others only the logical structure, while yet others may provide elements of different layers.

It is important to point out that the success or failure of a project is often a reflection of the viability of the model upon which it was implemented. Models can be deceptive if their development process does not take serious cognizance of the realities of the project environments. As Coursey and Norris (2008) found, some models may be inaccurate or even not useful at all for understanding the phenomena for which they were developed. Evidence from empirical studies of local e-government in the United States, which aimed to test whether the current models could describe or predict the actual development of e-government, found that the models, though intellectually interesting, were purely speculative, having been developed without linkage to the literature about information technology and government.

### **2.5.2 Modeling prerequisites: SWOT analyses in local governments**

There is a tendency among researchers and corporate entrepreneurs to view and deploy SWOT analyses merely as business tools. Indeed, there is considerable literature that views a SWOT analysis as a strategic planning tool (Hahn & Powers, 1999; Hung, 2006; Schraeder, 2002). Such literature has influenced the use of SWOTs in business contexts to analyze competitiveness and enhance organizational performance by matching the activities of organizations to their operational environments and resource capabilities. It has been argued that strategic planning

helps organizations to establish priorities, diversify their products or services, deal effectively with rapidly changing circumstances, and chart future directions for them to survive and maintain a sustainable competitive advantage (Navarro & Gallardo, 2003; Schraeder, 2002). In a 2006 study, Hung examined the concept of SWOT analysis as a strategic planning tool that could help universities to adapt to new changes, and articulated a SWOT framework to analyze the Vietnamese Can Tho University.

A SWOT analysis is also widely viewed as a management tool deployed to initiate new and sustainable programming in organizations. It has actually become a popular precursor to innovation in local governments. Indeed, some researchers believe that the essence of SWOT analyses in government is to pave way to the introduction of changes in delivery-level public services, and that this must critically depend on consulting with the users of the services and achieving a deep understanding of the citizens' needs and expectations (Dunleavy, Rainford & Tinkler, 2012). According to these researchers, such changes should not merely be about simple alterations in routine procedures, but should constitute real innovation. Innovation has been variously defined in a corporate context as the implementation of new organizational structures and management processes (Walker, 2006: 313-4), and as being a combination of "invention, adoption, diffusion, and evaluation" of the new structures and processes encompassing the creation of new products and services (Institute for Government, 2009: 1).

A SWOT analysis is a two-dimensional tool that analyzes the internal environment of an organization in terms of its strengths and weaknesses, and external environment in terms of its opportunities and threats. This method, which has the advantage of applicability in varying contexts, is so valuable owing to its intuitive ability to organize great quantities of information and data, aiming to identify the strategic issues in a reliable and relevant way (Balan & Radu, 2012; Buta, 2007). It has thus been widely employed in public administration contexts to analyze the management and utilization of information resources to enhance democratization and service delivery. Balan and Radu (2012: 454) have in fact observed that the "modernization of public administration ... cannot be achieved without taking into account the need to improve the informational system." In a quest to improve information management in a local public

administration, they conducted a SWOT analysis that resulted in increased administrative efficiency and transparency.

## **2.6 Empirical literature on e-governance in local government**

In spite of the huge wealth of conceptual literature on e-governance in local governments generally, and on issues of information access and flow in particular, there is a paucity of empirical literature. Moreover, most of the available empirical studies are from the developed countries, leaving Africa and the developing world in general a dry landscape to draw from. Nevertheless, for indicative purposes, a few studies were identified and reviewed to point out the scope and methodological shortcomings they suffer as a way of refining the direction for the instant study.

### **2.6.1 Issues in e-governance implementation**

Scuppan (2009) addressed the different institutional and cultural contexts that must be considered when implementing e-government projects in sub-Saharan Africa. Much as e-government is a global phenomenon, wholesale transfer of ICT solutions and related organizational concepts from developed to developing countries is simply inappropriate. Three country cases of noteworthy e-government projects in Africa are illustrated: Ghana, Uganda, and Kenya. Data for the cases was collected through semi-structured in-depth interviews with development experts. The study suggested that for the successful implementation of e-government projects in developing countries, the different institutional, cultural, and wider administrative contexts must be considered to avoid unintended effects. Although the study is clearly on e-government, it nevertheless raises very important issues in ICT implementation that are equally applicable to e-governance projects. However, the exclusively qualitative methodology based on only three case studies suffers serious limitations and raises questions about the generalizability of the study findings made by the researcher.

Furuholt and Matotay (2010) investigated the extent to which public Internet access points were used for accessing e-government information and services in Tanzania; and how they could be used in order to contribute to good governance in developing countries in the future. The study too utilized case study approach to investigate “three very different types of not-for-profit

Internet access points” (p.6). The researchers made a purposive selection of participants and conducted semi structured face-to-face interviews and an informal focus group discussion with 8 actors. The findings indicated that public access to electronic information on public issues through Internet access points was extremely low. One of the major reasons was that the government had put in place a G2C system of communication without minding so much about the functionality aspects of the system. The authors point out in one instance: “it seems like the G side in the G2C context has focused very little on how the citizens may achieve access to the services ...” (p. 8), implying that the citizens’ user needs were not factored in the design of the system.

This was an extremely important study of the factors that are often ignored in the design and implementation of ICT projects, which often leads to their failure. The study was focused on the system of “accessing e-government information and services,” but the researchers went beyond, perhaps inadvertently, and addressed issues of e-governance. The methods used were also legitimate for this kind of project. We think, however, that for a study that was concerned with the extent of use of the public Internet access points and the desire to “model” their future usage for good governance, it would have done well to work with some quantitative data as well.

The Panos Institute West Africa jointly with the UNDP conducted an exploratory study of six country case studies in West Africa with the purpose of gaining a better understanding of e-governance practices in the region (PIWA/UNDP, 2010). The major focus of the study was on citizen participation. The case studies were Burkina Faso, Cape Verde, Côte d’Ivoire, Ghana, Nigeria and Senegal, whose governments had demonstrated a real willingness to transform relationships between government services and their users, particularly by strengthening the use of ICTs and by offering information services online. After purposive selection of the six countries, 20 value-added e-governance initiatives were selected in all the countries and interviews conducted with their leadership through e-mail, telephone or face to face. The findings showed that citizen participation was still on a small scale, which was attributed to the immense challenges and competing priorities faced by the governments. The challenges included *inter alia*, poverty, lack of infrastructure, poor access to healthcare, and poor policies. The study

urges emphasis on the crucial importance of establishing innovative participation channels and citizen-centric policies to empower them to take advantage of the ICT-driven opportunities.

The PIWA/UNDP (2010) findings concurred with Ogbomo's (2009) in an earlier Nigeria-based study. Ogbomo (2009) conducted a questionnaire survey on the challenges to ICT diffusion in Akwukwu-igbo and Ibusa in Oshimili North local government area of Nigeria. The survey was based on a sample of 200 participants, representing five percent of the population of the area. The challenges to ICTs diffusion in local government included power supply, illiteracy, high e-illiteracy, the high cost of ICTs, and lack of information sourcing facilities such as cybercafés. It is not clear, however, whether this was a follow-up on a qualitative study, and whether policy interventions can be designed without a deeper understanding of the nature and dynamics of these challenges as would normally be afforded by a qualitative inquiry.

### **2.6.2 E-governance and marginalized communities**

The power of ICTs, particularly the Internet and mobile technologies, to transform the lives of disadvantaged people and marginalized communities has attracted significant interest among e-governance researchers. In a study conducted in the UK, Clayton and Macdonald (2013) investigated the extent and manner in which people in "socially excluded" areas of the city, the urban marginalized communities of Sunderland, England, engaged with technology, specifically personal computers and the Internet; and the impact of such engagement on quality of life and social inclusion. Using qualitative and quantitative approaches, the study revealed that there was a lot of hype about the wonders of ICTs. It was concluded that the manner in which technology is experienced by marginalized social groups does not fit neatly with a dominant discourse of digital inclusion, which emphasizes technology as a means for social inclusion, particularly in the realms of civic participation, educational achievement and employment.

The Sunderland study seemed to confirm the findings of another UK study of a decade earlier. In 2003, in a study to investigate the power of ICTs in integrating disadvantaged social groups and marginalized communities, Selwyn (2003) investigated public usage of public ICT sites. The sites were a network of over 7,000 "UK Online Centres" located in different public areas such as libraries, museums and colleges, which had been established by the state to provide the

public with universal access to ICTs at zero or little cost. Selwyn's (2003) study objectives were to explore: (i) who had access to what forms of public ICT sites; and (ii) who was (and who was not) making use of different forms of public ICT sites. Working with a survey sample of 1,001 individuals in twelve research areas, and a "booster" sample of 100 interviews with individuals in public ICT sites in the same areas, the study found that public access sites had a relatively lower profile than household and wider family access. On further examination of the use of these public ICT sites, there was little evidence that they attracted those social groups who might otherwise be excluded or marginalized from the information age.

These UK studies, however, contrast with those in the developing world where ICTs have a demonstrable positive impact on marginalized communities. Sreekumar (2011) explored the use of mobile phones among the fishers community in Kerala, a marginalized rural community in India. The thrust of the study was to understand the cultural and ecological factors that underlie adoption and domestication of mobile phones by fish workers. Data was collected from 114 working fishers through a structured questionnaire and face-to-face interviews of 25 persons including local officials, fish workers, union leaders, and social activists. The study revealed that the impulse toward cooperation had long been ingrained in the culture of Kerala fishers, as often happens among marginalized groups. It was concluded that the availability of mobile technologies had allowed for the amplification of this impulse and enabled new modes of cooperation, especially in the sharing of information on promising fishing spots and safety and rescue at sea.

In a Ghanaian study to show how e-governance mechanisms can support the delivery of mobile services to the poor and vulnerable groups and communities, Ojo, Janowski & Awotwi (2013) developed a conceptual framework based on the "choice framework and the structuration theory" to elaborate on the relationship between ICT, governance and citizen capabilities. The framework was used to analyze the livelihood needs of 45 female head porters and to determine the governance mechanisms that were needed to support the delivery of mobile services to them. All the women had access to mobile phones. The study results uncovered three governance mechanisms that enabled the contribution of mobile technology to meeting the livelihood needs of the women: (i) updating financial and telecommunication regulations enabled the provision of

mobile-based services such as mobile microfinance to vulnerable groups; (ii) mobilizing local communities in the production of local content; and (iii) engaging non-governmental organizations in building capacity of government agencies in mobile service delivery and in training vulnerable communities in the effective use of mobile technology to access information and services critical to their needs.

The South African government, out of the need to extend e-government and e-governance to the grassroots communities, established well equipped ICT-enabled community centres called Thusong Service Centres. The Centres were envisaged to promote the use of ICTs for participatory governance among small groups in the country. In 2012, Twinomurinzi, Phahlamohlaka and Byrne conducted action research to evaluate the Thusong Service Centres in realizing the government objective. Riding on the diffusion of innovations theoretical framework, the study found among other things that people in the communities preferred to work in groups rather than individually; that the collective inclination exhibited in the communities was typical of developing countries where people choose to come together to leverage the few available resources; and that individuals became apprehensive when made to work on their own using ICTs. This research thus points to the need for designers of e-projects in developing countries to move away from the normative ICT design that suits individual work styles: ICT projects in developing countries should be designed to suit small groups as part of participative e-governance.

### **2.6.3 SWOT analyses in e-governance projects**

A search for literature on the use of SWOT analyses for the design and implementation of ICT projects in local governments in Africa proved futile. Even outside Africa, the use of SWOT tools in informational projects has tended to be restricted to small units such as marketing departments (Riley, 2012), health units (Harrison, 2010), tertiary education institutions (Hung, 2006), and urban administrations (Penrith City Council, 1998).

One notable SWOT analysis for the design of an e-governance information system in a local government context was conducted in Romania (Bălan & Radu, 2012). The SWOT analysis was aimed at designing a solution for improving information management in local public



administration in the country. The results of the analysis informed the proposal to implement a computerized integrated system of information and communication technology at the local government level. The modernization of institutional communication resulted in increased efficiency of public administration, the elimination of bureaucracy and an increase in public service quality. The utility of this literature is to demonstrate the importance of a SWOT in such projects.

## **2.7 Summary of gaps in the literature and their implications**

The foregoing literature review reveals significant research gaps that were instructive for this research project. These gaps have got a number of serious implications for e-governance implementation in local governments in Uganda. These are summed up as: implications for the areas and aspects of e-governance considered important; for the ways e-information is sourced and configured to enhance e-governance in the local governments; for the design and conduct of research on different aspects of e-governance in the local governments; and for future research on related areas of e-governance in local governments.

This literature review has shown that there is a dearth of research particularly on the structuring and designing of information and ICTs to enable e-governance adoption in Uganda's local governments. There is also a serious shortage of empirical studies on the role of information and its configuration in e-governance processes in local governments. This dearth suggests that both academic and policy researchers have not held these aspects of e-governance as deserving research attention. Yet, without studies focusing on the configuration of information access and flow between the local governments and their constituencies, e-governance implementation in these governments can only remain a paper tiger.

Information is the driver of e-governance processes; the success of an e-governance information system project therefore depends so much on how information is sourced and processed, stored and retrieved, and effectively disseminated to its audience with assured feedback mechanisms. However, this review found no studies that visualize information access and flow in the e-governance context as holistic concepts encompassing the storage, retrieval, and mass communication functions. This lack of evidence on information storage and retrieval dynamics

in information-age public administration systems has got implications for the implementation of such systems. While the instant study articulates a model for an interactive e-governance information system, the success of such a system will depend on studies and successful modeling of information storage and retrieval functions of the e-governance information system.

A number of studies reviewed promise to focus on e-government, but their approaches and findings do not put a line between e-government and e-governance. E-government and e-governance are thus treated in much of the literature as synonymous concepts. More importantly, however, is the finding that much of the literature is preoccupied with concerns on technology factors, the cost of tools, and the requisite e-skills for access to information and services; there is less emphasis on electronic information needs and content. These are very important elements for an interactive information system: without a thorough mastery of the users' needs one cannot build useful content, and without such content the system will be ineffectual. Successful e-governance is more citizen-centric than techno-centric: it places more emphasis on the central role of information and social processes than on technology *per se*.

It is also notable that most of the e-government/e-governance literature reviewed is focused on G2C concerns while C2G issues seem to attract negligible attention. This does not bode well in e-governance. For an information system to serve the ends of e-governance, its establishment must be based on a thorough study of all the issues and concerns in the government-citizen-business communication relationships. In fact, the conditions that engender people's information needs and constrain their capacity to seek and access information in the communities are as important as those that influence the nature of communication in the local governments. In the instant study, both G2C and C2G information and communication concerns are very important, and both the local governments and the citizens were constructively engaged on the same issues.

Some of the studies reviewed are focused on issues of social disadvantage and marginalization. These are important issues in the context of development in which e-governance and ICTs are envisaged to play an intervening role. However, these studies do not relate social disadvantage and marginalization with overall citizen capacity to need, seek, access, and use electronic information; to own ICT tools; to acquire e-skills; and to engage their local governments.

Concerns over social disadvantage and marginalization are concerns over access to ICTs and participation in e-governance. Unfortunately, the literature search did not find empirical studies on how the disadvantaged have been enabled by ICTs to participate in e-governance.

In terms of the methods used, most of the studies reviewed used qualitative procedures (some did not even elaborate on how they used them) and derived their findings from qualitative data only. Yet some of them went ahead to generalize their findings. Most of these studies could have made more forceful findings and conclusions if they had used some quantitative data as well. Very few studies combined methods but did not explain the framework within which the methods were mixed.

## **2.8 Summary of the chapter**

This chapter has made a review of the literature related to the themes and objectives of the study. Most of the literature is conceptual; not many empirical studies were found. The purpose of the chapter is introduced in section 1.1 while the importance of literature review for research projects of this nature is highlighted in section 1.2. This section also conceptualizes a research map of the literature to guide the study. In section 2.3 the conceptual literature on matters of e-governance in local governments is reviewed, paying particular attention to the nexus between information, communication and e-governance; the information management function; and ICTs and the challenges to e-governance adoption in local governments. The section also focuses on e-governance information needs, on which not much literature is found. In section 2.4, a review of literature on the geometry of information flows is made, which focuses on the socioeconomic dimensions in ICT-centred communication. This literature brings out issues of social disadvantage and marginalization, and the power of ICT tools to integrate the marginalized communities in e-governance. Section 2.5 reviews literature on the importance of modeling information access and flow in e-governance projects, and the importance of SWOT analyses as necessary feasibility tools for successful e-governance information system design and implementation. Section 2.6 presents a review of empirical research on different aspects of e-governance in local governments. A summary of the gaps in the literature and their implications is made in section 2.7 of the chapter.

## CHAPTER THREE

### THEORETICAL FRAMEWORK

#### 3.1 Introduction

The preceding chapter on literature review makes it abundantly clear that e-governance offers a huge potential for improvement in all areas of public sector governance in developing countries. These areas include *inter alia* information management and the democratic activities of access to information and public participation (Scuppan, 2009:120). The UNDP (n.d.) has observed that democracy flourishes when people's voices are heard and deemed to be of equal importance, and when everyone participates in decisions affecting their lives as individuals and as communities. For people's voices to be effective, however, the UNDP acknowledges the need to apply ICTs in public sector governance. It has observed:

E-governance involves a public investment in information and communication technologies (ICTs) to strengthen governance processes. Access to and use of ICTs can provide new and innovative communication channels that empower people and give voice to those who previously had none, while allowing them to interact via networks and networking (UNDP, n.d.:1).

Innovative communication is extremely important for information exchange and good governance. As a joint study by the Communication Initiative, Food and Agriculture Organization (FAO) and World Bank observed, good governance is driven by free flows of information and communication; and communication for development must evolve beyond traditional propaganda to place greater emphasis on two-way communication flows, dialogue, and participation (Communication Initiative, FAO & World Bank, 2007). Undoubtedly, information and communication are very key aspects of governance: they shape the way citizens, leaders, businesses and public institutions relate to each other. Therefore, governments cannot meaningfully respond to public needs and expectations in the absence of communication structures and processes that enable a free exchange of information among all stakeholders.

Communication contributes to good governance primarily in the area of influence, that is, by increasing the stakeholders' support for governance reform objectives, influencing opinions and attitudes, and enhancing citizen engagement in political and governance activities (CommGAP, 2007). This potential has increasingly been harnessed through the adoption and diffusion of technology in government processes. It is important to note, however, that technology *per se* does not, and cannot, guarantee the benefits of enhanced communication in government – benefits of good governance – unless its application is informed by a thorough theoretical grounding of information and communication functions and processes.

This chapter examines the theoretical perspectives relating to information and its communication to enhance e-governance in local governments. In section 3.2, the chapter discusses the meaning of and interface between the various important concepts relating to digitization of information as a means to enhance communication and e-governance. Section 3.3 focuses on the importance of theories and models in research, while section 3.4 explores and analyzes various theories of information and communication in organizational and governance contexts. In section 3.5, the chapter evaluates the current e-governance information models, particularly identifying their robust features with the view of integrating them to build a hybrid model for adoption in Uganda's local governments. Section 3.6 provides a summary of the chapter.

### **3.2 Digitization, communication and e-governance**

E-governance works with information in digital format, which requires digitization of existing information and records. Digitization of information may be understood in two perspectives: the technical and the business (McDonald, 2011). The technical definition, which may be viewed as the standard definition of digitization, is based on what Mark McDonald calls the “representation of things with information” (McDonald, 2011:1). In this technical context, digitization has been defined as the process of converting information from a physical to a digital format in which it is organized into bits (discrete units of data), then bytes (Negroponte, 1995). The form of data in digital format is referred to as binary data (reading zeros and ones only), the only data format computers and other devices with computing capacity can process.

Information may be in the form of text, graphics, voice, or multimedia. Text data and graphics are scanned and converted to an image file (e.g., a bitmap), which is then analyzed by an optical character recognition (OCR) program and each alphabetic or numeric character converted into an ASCII (American Standard Code for Information Interchange) code. Likewise, audio and video data are subjected to conversion processes in which a continuously variable signal (analog) is converted into a multi-level signal (digital) without altering its essential content.

Scholars generally agree that technical digitization of information makes it easier to preserve, access, and share (El-Darwiche et al., 2012; Koss et al., 2012; McKay, 2003; McQuail, 2000; Vajcner, 2008). While appraising the role of digitization in the context of libraries and museums, for example, Kenney and Rieger (2000: 1) observed:

Cultural institutions are investing in digital projects for several reasons including; to provide access, to reduce over-handling of material in order to preserve it, and “public relations” to assist in promoting the collections and the institution. By creating digital surrogates of their collections, institutions continue to support the notion that there is value in the materials they house.

Kenney and Rieger’s observations can be easily illustrated. A physical document such as a book or painting in a traditional library can only be accessible to a person who physically visits that library. If such a document is loaned to a user who takes it out of the library, other users will be deprived of access to it for the entire loan period. In the same way, even when the document is being used inside the library, other users will be deprived of access to it for the entire time it is being used. Besides, the document may in time be damaged or lost due to wear and tear resulting from use, poor storage, mutilation or theft. However, if the document content is digitized, it is preserved and enabled to be accessed by many people worldwide; and if put on the internet, it can be accessed in real-time.

This same principle also applies in access contexts outside the library setting. E-governance is concerned with citizen-centric information and information services, and so involves extensive handling of documents that are critical for effective provision of information and delivery of

services (Newgen, 2011). As the National Archives and Records Administration (2014:2) recently observed, the mission of e-governance is “to drive openness, cultivate public participation, and strengthen democracy through public access to high-value government records.” Access to public information and records arising from routine government activities – including evaluation of and response to citizen needs and demands – is enhanced if such information and records are digitized and put online. Once online, such government documents are easily accessed through a local government information portal. Newgen (2011) observed that digitization of government information and services particularly provides greater access for rural populations, improves the quality of life for those with physical infirmities, and offers options for those whose work and lifestyle demands do not conform to typical daytime office hours.

The merits of creating digital surrogates of information content are quite varied, and have been equally widely discussed. In a nutshell, they include direct delivery to, and remote retrieval of, information by end-users (Conway, 2000; de Stefano, 2000); flexibility that enables users to reformat, edit and print (Smith, 2000:3); elimination of travel costs and travel time enabled by real time access (Ingram, 2000:19); extended data recovery (de Stefano, 2000:14); and preservation and extension of the life of old and fragile materials resulting from reduction in handling (de Stefano, 2000:21). This outline is by no means exhaustive.

Gartner Executive Programs researcher Mark McDonald has proposed an alternative perspective of digitization, that is, to define it in the “value and revenue” business context dictated by the information age (McDonald, 2011). This perspective is an extension, even a culmination, of the technical perspective. McDonald argues that technical digitization of information has given rise to information duality, a situation where information is concurrently held in two dissimilar formats: the physical format and the electronic format. Hence, where you have a physical library, for example, there is concurrently an e-library, a physical store and an e-store, direct physical business transactions and e-commerce, traditional government and e-government, etc. This duality has in turn given rise to alternative, innovative ways of accomplishing erstwhile undertakings, as well as the creation of new forms of business. In short, digitization has revolutionized business management, public administration, and innovation by facilitating new levels of efficiency, greater transparency, higher levels of participation, and presenting a greater

array of opportunities and choices.

It is in this context that McDonald (2011:1) has proposed a definition of digitization to focus on “the degree to which an enterprise’s products and service value and revenues are realized through technology.” The enterprise in question could be a business enterprise, a government enterprise, a social enterprise or any other formal organization. This definition thus represents a shift from “representation” to “value addition” on products and services and the “revenues” accruing from them as a result of digitization in an organization.

The process outcome of digitization, as already indicated, is electronic information, the form of information that drives ICTs and sustains e-governance. E-governance is a vehicle to good governance (Kalsi, Kiran & Vaidya, 2009; Sarfaraz, 2007; Schindlinger & Bergey, 2010; Shakya, 2007). According to Gramberger (2001), good governance has a number of characteristics: it is participatory and consensus oriented; it promotes accountability and transparency; it is responsive, effective and efficient; it is equitable and inclusive; and it is predicated on the rule of law. Good governance also ensures that corruption is minimized, and guarantees equality among all sections of people.

These characteristics constitute the focal ingredients of e-governance. E-governance entails the deployment of electronic technologies to enhance authority and control of public resources and their effective allocation to achieve a number of outcomes (Bhattacharya, 2002; Lambrinoudakis et al., 2003). The core outcomes include effective and equitable government interactions with citizens, business and industry, and other organs of government; better service delivery, citizen empowerment through access to information, and more opportunities for citizen participation in governance processes. Other benefits include reduction of corruption, increased transparency and accountability, rule of law, growth in public revenue and reduction in the cost of public management. Sarfaraz (2007) summarizes that “the purpose of e-governance is actually good governance using any means of ensuring stakeholder participation in public administration” (p.1), and concludes that e-governance is the new good governance (p.13).



### 3.3 Meaning and utility of theory in research

Theory has been defined generally to refer to a set of interrelated concepts that present a systematic view of phenomena by specifying relations for the purpose of explaining and predicting those phenomena (Buckland, 1991; Cragan & Shields, 1998; Tucker, Weaver, & Berryman-Fink, 1981). Griffin (2000:4) summarized the utility of theory to scholarship thus:

...the truth they depict may be objective facts ‘out there’ or subjective meanings inside our heads. Either way, we need to have theory to guide us through unfamiliar territory.

To Griffin, theories are maps of reality (see also, Nastasia & Rakow, 2010:3). This view is shared by Popper (1982:31), who metaphorically talks of theory as “the net that we throw out to ‘catch the world’ – to make it rational, to explain and become master of it” (quoted by Glaeser, 1995:146). Indeed, scholars deploy theory to achieve five goals: to promote understanding (comprehension), to make phenomena clear by describing them in detail (explanation), to give a glimpse of future events or processes (prediction), to provide certainty (control), and to provide a basis for evaluation and judgment (criticism).

However, theory cannot lead to the foregoing goals unless it is good theory. According to Wikibooks Contributors (2004-2006), good theory is characterized by at least six features, which are hereby summarized:

- i) Theoretical scope: a good theory should be general and capable of wider applicability;
- ii) Appropriateness: its epistemological, ontological and axiological assumptions should appropriately relate to the problem under hand;
- iii) Heuristic value: it should be capable of further development by other researchers;
- iv) Validity: it should exhibit accurate representation of the true world;
- v) Parsimony: it should provide the simplest possible explanation of a phenomenon; and
- vi) Openness: it should not absolutely exclude other theories; it should exhibit some compatibility with elements from other theories.

This source cautions against appraising theory in absolute terms, say, that a theory is “true” or “false.” There is indeed a tendency among some scholars to define theory in a very restricted sense as denoting fundamental laws that are formally stated and *falsifiable* (Buckland, 1991:18). Rather, theory should be appreciated in comparative terms as either better or worse at dealing with the phenomenon in issue and aiding its proponent to achieve the theoretical goals.

Quite often, theories are deployed concurrently with models, and the two have sometimes been erroneously thought of as being the same thing and achieving the same goals (McGrath, 2002). Reflecting on the paucity of agreeable formal theory in LIS, McGrath (2002:309) observed:

Any of the following have been used as the meaning of theory: a law, hypothesis, group of hypotheses, proposition, supposition, explanation, model, assumption, conjecture, construct, edifice, structure, opinion, speculation, belief, principle, rule, point of view, generalization, scheme, or idea (cited in Oltmann, 2009:38).

But, as Wikibooks Contributors (2004-2006) observe, models are also tools of inquiry, although not in the same way as theories. They define a model in a communication context as:

... a simplified representation or template of a process that can be used to help understand the nature of communication in a social setting ... [must] accurately represent the most important elements of the real world, and the dynamics of their relationship to one another (Wikibooks Contributors, 2004-2006:6).

The main difference is that the focus of models tends to be limited to issues and questions of the “what” and “how” of phenomena, and are unable to satisfactorily explain the “why.” This renders them not as satisfying as theories, although they play a big role of augmenting theories.

In academic parlance, theory is a very important tool in defining a discipline. As such, an academic discipline must be defined by a robust home-grown theoretical base; otherwise it remains just an “emerging field of inquiry” if it thrives on theories borrowed from elsewhere (Bates & Maack, 2010; Konrad, 2007; McKechnie & Pettigrew, 1998; Oltmann, 2009).

Unfortunately, the LIS field seems to clearly fit this description. McKechnie and Pettigrew (1998:125) observed:

... if fields such as library and information science (LIS) are to delineate their disciplinary boundaries and build a central body of knowledge, then they require their own theoretical bases for framing research problems, building arguments, and interpreting empirical results.

Although the LIS field has for long been viewed as an emerging field of inquiry, there does not seem to be any agreement as to any theory or conceptual scope that is LIS in nature. In fact, Konrad (2007:652-53) points out that there are occasional claims that the LIS field has no theory of its own. There are nevertheless a number of theories and models on information and communication that are popularly applied in LIS.

### **3.4 Information and communication theories**

LIS and its allied fields of media and communication studies were by mid-twentieth century clearly emerging fields of inquiry. Bates and Maack (2010) note that the emergency of LIS was as a result of the merging of the two related fields of library science and information science, a development that was triggered by the need for professional training programs in universities rather than evolving an academic discipline. Since then, the entwined concepts of information and communication have increasingly gained recognition as the foundations for research and development of e-governance theories and models. Information exchange has become permanently stamped as a basic human function in pursuit of different communication goals and in different communication contexts, such as the e-governance context.

This review provides a critical and systematic link between the related theories, concepts and models of information, communication, and ICTs. The review focuses on classical information theory and related theories, media theories of information and mass communication, information access theories, and ICT-oriented theories of organizational communication. None of these theories, of course, is LIS-specific – we have already noted that there is no consensus yet on a theory or conceptual scope that is LIS-specific – but they are hugely relevant to the subject under

study. The review therefore aims to provide insights into the character and utility of an effective e-governance information model of communication in local governments in Uganda.

### **3.4.1 Information theories**

Among the earliest theories of information is classical information theory, which was propounded by Claude Shannon and Warren Weaver in 1949, and further developed by Wilbur Schramm in 1954 and Robert Berlo in 1960. Classical information theory was the first ever to effectively model information communication in order to explain how a communicator could attain precise and efficient signal transmissions. Claude Shannon, the originator of the theory, sought to formulate a theory and model to guide the efforts of engineers at the Bell Telephone Company in transmitting electrical signals from one location to another in the most efficient manner (Shannon & Weaver, 1949). He developed a five-stage linear model, today popularly known as the Shannon-Weaver model of communication, to explain information exchange through cybernetic processes.

According to the Shannon-Weaver model, a communicator, who is the information SOURCE, subjects a message to a TRANSMITTER (an encoding device) which converts it into a signal and relays it through a CHANNEL. The signal then reaches a RECEIVER (a decoding device) which restores it to its original form as it reaches the DESTINATION (the recipient of the information). While within the channel, information may be contaminated and distorted by noise, although this may not actually lead to its loss. This model, it seems, was influenced by Harold Lasswell's five-stage analysis of mass media – WHO says WHAT in which CHANNEL to WHOM with what EFFECT? (Lasswell, 1948:37) – although Shannon does not address the issue of message effect on the recipient.

Clearly then, Shannon was concerned with how messages could be converted into electrical signals, and how those signals could be transmitted with a minimum of error to their intended recipients. It is important to reiterate that Shannon was not so much interested in the semantic meaning of a message or its pragmatic effect on its recipient as he was in solving the technical problems of “high-fidelity” transfer of sound (Griffin, 2000:48). Fidelity was about efficiency and accuracy of transmission and reception of sound: while efficiency referred to the bits of

information that could be sent and received per second, accuracy was to do with the extent to which signals of information could be understood so that information was not lost. Shannon in fact believed that for whatever communication problem, the solution lay in a model that minimized information loss. Unfortunately, the complex equations used to articulate the model were initially viewed as abstract notations, and nearly rendered the model inapplicable to fields of human communication. It took the intervention of Weaver to simplify and publish a commentary depicting the theory as “exceedingly general in its scope, fundamental in the problems it treats, and of classic simplicity and power in the results it reaches” (Shannon & Weaver, 1949: 114).

The Shannon-Weaver formulation distinguishes information and message. While “message” refers simply to the meaning of the sound being put across in a communication, “information” relates to the measure of uncertainty, or entropy, present in a given situation, and is defined as “the number of messages needed to totally reduce uncertainty” (Heath & Bryant, 2000:145 Littlejohn, 1983:116). Therefore, an individual’s communication behaviour is motivated by the need to *reduce* uncertainty, which is achieved by increasing information in the communication (Heath & Bryant, 2000; Littlejohn, 1983; Shannon & Weaver, 1949). The amount of uncertainty removed by a message is equivalent to the level of predictability of communication outcome. While uncertainty and predictability constitute a measure of correlation between the input and output of a communication channel used, entropy, usually referred to as “Shannon entropy,” quantifies the expected value of the information contained in a message (Heath & Bryant, 2000; Littlejohn, 1983; Shannon & Weaver, 1949).

Besides uncertainty and entropy, the theory introduces three other important concepts in communication. The first one is redundancy, which refers to the measure of duplication of information in the communication. Any components of a message, which have already made an appearance and therefore do not add new information, are redundant. The second one is noise, which refers to any extraneous signal that interferes with the reception of information. The third one is channel capacity, which is determined on the maximum amount of information a channel can carry.

The Shannon-Weaver model soon came to be of significant heuristic value. In 1954, Wilbur Schramm altered it from a linear to an interactive model, and emphasized decoding and encoding as very important simultaneous actions between the sender and the receiver. Schramm also provided for a two-way communication as well as an “interpreter.” The model was later adapted and reduced to “Source-Message-Channel-Receiver” by David Berlo in 1960. While retaining the linearity of the model, Berlo not only liberalized the idea of “source” to include oral, written, electronic, and any other form of originator of messages, but also emphasized the centrality of “message” as the object of communication and “receiver” as the communication target.

True to its heuristic value, classical information theory – which remains to-date the basis for modern digital communication – provided a gateway to theoretical research and the development of theories and models to explain or predict processes and behaviour in different contexts of human and organizational communication. Notably, it provided vital conceptual connections between information, uncertainty, entropy, and predictability in communication. These connections were utilized by later communication theorists such as Wiener (1954), Berger and Calabrese (1975), and Weick (1995) to develop their own theories on other aspects of information and communication.

In 1954, Nobert Wiener adapted the term “cybernetics” (coined earlier in his theory of communication and control – see Wiener, 1948) to the context of the existing information theory of transmission of messages to illustrate that people send messages within a system in order to control their surrounding environment. He argued that like machines, human communication is highly based on information processing; but unlike machines, individual communicators are possessed with a constant desire to control the communication environment. He reflected on the meaning and utility of information thus: “information is a name for the content of what is exchanged with the outer world as we adjust to it, and make our adjustment felt upon it” (Wiener, 1954:16). This implies that people communicate in order to become familiarized with a certain environment while simultaneously influencing aspects of it (see also, McGarry, 2008).

Like Shannon and Weaver, Wiener tackles the concept of entropy. Unlike Shannon and Weaver, however, he views entropy as the extent to which a system is lacking in capability of organizing

itself. He argues that a system will have a high level of entropy and become less organized if there are no means of control. To him, information is a form of control, and information processing is exhibited by controlling the environment (Wiener, 1954:20).

Critics think, however, that Wiener's cybernetic theory of communication and control suffers from a limited universe of application. McGarry (2008) observes, for instance, that the theory is useful only in situations where there is a clearly understood hierarchy by all members, where messages (e.g. orders) are sent to subordinates, who in turn implement those orders. Even then, it would be impossible to assume complete control over the decisions someone makes without becoming more controlled (feedback is itself a communication and thus capable of exerting some influence on the recipient), which is the paradox of control. As Watzlawick, Beavin and Jackson (1967:31) observed, "interpersonal systems may be viewed as feedback loops, since the behaviour of each person affects and is affected by the behaviour of each other person."

Another notable theoretical off-shoot of classical information theory was the uncertainty reduction theory propounded by Charles Berger and Richard Calabrese in 1975. According to this theory, people find uncertainty in interpersonal relationships unpleasant and are motivated to reduce it through interpersonal communication. As Health and Bryant (2000:153) state: "one of the motivations underpinning interpersonal communication is the acquisition of information with which to reduce uncertainty." As personal relationships develop, individuals develop a high need to understand both the self and the other in an interaction. Continued communication, which nurtures the development of the relationship, accumulates information, generates understanding, and reduces uncertainty. The desire for uncertainty reduction is particularly strong in the early stages of relationships when the parties know little about each another. As uncertainty reduces, the parties feel more comfortable with each other and become more intimate.

The concept of uncertainty reduction in the Shannon-Weaver formulation also influenced the development of the Weick model of organizing (Weick, 1995). Indeed, Weick's model of organizing as a system of processing equivocal information shares a striking similarity – at least initially – with classical information theory (e.g., defining information as the reduction of uncertainty) and uncertainty reduction theory (e.g., that people strive to increase predictability

when they meet someone new). However, Weick draws a clear distinction between uncertainty and equivocality (Griffin, 2000; Weick, 1995). He views the term uncertainty as denoting a lack of information, meaning that when people are uncertain, they will look for facts and ways to interpret them. Conversely, he views the term equivocality as referring to situations where people have to choose from two or more alternative interpretations. Weick suggests that the degree of complexity and diversity within the organization needs to match the equivocality of the data it processes.

### **3.4.2 Media communication theories**

Mass media can play – and have indeed played – a pivotal role in promoting access to information and enhancing information flows from governments to communities. Governments and other entities have used, in varying degrees and with varying effect, all available mass media such as newspapers, radio and television to promote their agendas.

Since early to mid twentieth century, communication researchers have developed theories and models to explain processes and rationales of media communication. The overarching paradigm guiding this cluster of theories has been premised on the popular but often controversial debate on the “power of the media” on society – the impact communication media have on people’s beliefs, attitudes, and behaviour. Dominick (2005) acknowledges, for instance, that although the media possess dramatic power to influence a person’s behaviour, a number of people remain unmoved by whatever they see in the media. He admits, nevertheless, that the media have the potential to influence audience behaviour.

The “search for the truth” about the power of the media was set in motion by the magic bullet theory of the mid-1930s, when communication researchers were preoccupied with examining World War I propaganda and the use of mass media by the Nazi dictatorship in Germany (Choukas, 1965; Lasswell, 1927). The theory, which has since been variously called the “bullet theory,” the “hypodermic needle theory,” or the “stimulus-response theory” suggests that media broadcasts directly shape the opinions and actions of listeners and viewers, since information is fired (like a bullet) or injected (like a needle) directly into the viewers, and then guides their actions (Berlo, 1960; De Fleur & Ball-Rockeach, 1982; De Fleur & Dennis, 1988; Schramm,



1971; Severin & Tankard, 1988). It holds that people are extremely vulnerable to mass communication messages because a message gets its desired effect once it hits the target audience.

Couched in the Darwinian evolution thinking that viewed humans as animals, the magic bullet theory holds that humans are controlled by instinct rather than reason, and are therefore predisposed to react accordingly to whatever stimuli (Lowery & De Fleur, 1995). It holds also that people remain passive and accept, rather than investigate, information presented by the media. The implication is that human populations are “irrational mobs” (De Fleur & Dennis, 1988:446; Lowery & De Fleur, 1995) which can be swayed and controlled by well designed mass media. In short, that the media exert direct, immediate, and powerful effects on the audience (Severin & Tankard, 1988: 197). Viewed in the context of the present study, the theory implies that any official local government communication through the media is bound to spread evenly through the population (audience) and have a direct impact because the audience would be “taken hostage” by the media messages (De Fleur & Dennis, 1988:446; Lowery & De Fleur, 1995).

Unfortunately, the magic bullet theory suffers some significant flaws, among which is the wrong assumption that the media reach everybody in the target audience equally and with the same impact. Sociological and psychological studies from the late 1930s and early 1940s indeed exposed this weakness. Sociological research concerned itself with social categories of people (e.g class, urban-rural, racial-ethnic, gender, etc), while psychological research focused on individual differences (e.g needs, values, intelligence, environment, etc). These categories reflected the extent of the differences in which the media could affect individual or social behaviour and attitudes (De Fleur & Dennis, 1988; Severin & Tankard, 1979).

Investigating the influence of the media on voter behaviour in the US Presidential campaigns in the 1940s, Erie County studies found that the media were just a part of a web of influences on voters (Katz & Lazarsfeld, 1955; Lazarsfeld, Berelson & Gaudet, 1944; Lowery & De Fleur, 1983, 1995). In fact, personal contacts were found to have been more frequent and more influential than any of the mass media, not only in politics but also in other areas such as

marketing, child health and fashion (Katz, 1957:63). The studies found also that the media did not always affect the people directly, neither did they in the same way. There always tended to be a “two-step communication” whereby information flowed from the media to opinion leaders, and thence to the wider population (Katz & Lazarsfeld, 1955; Lazarsfeld, Berelson & Gaudet, 1944; Lowery & De Fleur, 1983; Middleton, 1980). It was such revelations that motivated the development of the “two-step flow” theory of communication, which was first introduced by Paul Lazarsfeld and others in 1944 and further elaborated by Elihu Katz and Lazarsfeld in 1955.

The two-step flow theory asserts that information from the media flows in two distinct stages. It first flows to opinion leaders, who are people with most access to the media as well as a more literate understanding of media content, who can explain and diffuse the content to others. The opinion leaders then pass on the media content with their own interpretations to the wider audience, which they influence. Thus, unlike the magic bullet theory, which considers mass media effects to be direct, the two-step flow model stresses human agency. The term “personal influence” is very important in the model because it illustrates the process intervening between the time the media utter messages and the time the audience reacts as a result of those messages. When the media messages reach the audience, their influence is in one of the following forms: activation, reinforcement, or conversion.

Activation means that the media messages activate people’s latent predispositions, i.e., they get people to do that which they are already contemplating doing. This is done through four stages:

- i) the media campaign increases interest among the target audience, which is key to making people reach a conscious decision;
- ii) the increased interest increases exposure to information material;
- iii) increased attention to information material leads to the selection of information that is consistent with the underlying predisposition;
- iv) the interest eventually crystallizes in the appropriate direction, i.e., the latent predispositions become manifest.

Similarly, reinforcement means that media campaigns appeal and encourage members within the audience who are already doing what the campaign is calling for to keep on that path. However,

conversion is about the media persuading people to drop their predispositions (if different) and heed the campaign. It would thus appear that both activation and reinforcement are generally not significant influences on the audience because in the case of activation, the audience is already predisposed to act in a certain way. Therefore, if the issues within the campaign do not coincide with the predispositions, there will be no action. In the case of reinforcement, the people are provided with information material to encourage them to keep doing what they are already doing.

The two-step flow theory has been hailed for its contribution in explaining how the mass media influence decision making, and why certain media campaigns fail to exert influence on target audiences. However, other critics argue that the role of the opinion leader is overly stated since the media seem to influence audiences more directly than through opinion leaders, especially in the internet age (Bakshy et al., 2011; McQuail, 2002). Similarly, the Erie County studies clearly showed that the media could only provide information but not shape opinions and behaviour; and could more activate and reinforce than convert.

A more persuasive theory on the influence of the media is the agenda setting theory. The theory, which can be traced back to a 1922 classic research by American journalist Walter Lippmann, was formally propounded by Maxwell McCombs and Donald Shaw in 1972. Lippmann had in 1922 observed that the media dominate over the creation of pictures in people's memories, and that the public reacts not to the actual event produced but the picture of the actual event in their memories (Lippmann, 1922). To him therefore, real world events are projected into the public mind by the mass media. Lippmann's views were later amplified by Bernard Cohen, who observed:

[T]he press may not be successful much of the time in telling people what to think, but it is stunningly successful in telling its readers what to think about. The world will look different to different people ... depending on the map that is drawn for them by writers, editors, and publishers of the paper they read (Cohen, 1963:13).

In other words, by creating images of events in people's minds, mass media stimulate people's thoughts in regard to those images. For example, people will perceive an issue as important if such an issue is frequent and prominent in media coverage.

During the American presidential elections of 1968, McCombs and Shaw (1972) seized the historic opportunity to test Lippmann's (1922) and Cohen's (1963) ideas, and developed the agenda-setting theory – a theory that describes the ability of the news media to influence the salience of issues on the public agenda. McCombs and Shaw compared the issues in the media campaign with what the public perceived as the most important election issues as well as with the key issues among the undecided voters. Their findings showed that the salient issues in the media were highly correlated with those of the voters. They concluded that public issues are generated by the media, and the public not only learns about each issue “but also how much importance is attached to that issue from the amount of information in a news story and its position” (McCombs & Shaw, 1972:176). The theory was thus able to explain the correlation between the rate at which the media project an issue and the extent to which people think that that issue is important.

The agenda-setting theory operates on two basic assumptions: first, that mass media do not reflect reality – they simply filter and shape it; and second, that media concentration on selected issues leads the public to perceive those issues as more important than other issues. Thus, McCombs and Shaw's assessment of what voters in a given community considered as important issues vis-a-vis the content of media campaign messages showed that the media exerted a significant influence on what voters considered as the major issues of the campaign. Indeed, later scholars confirmed agenda-setting as a dynamic process in which selective and sustained media programming exerts an indelible impact on public awareness of issues and in which changes in media agenda lead to subsequent changes in public awareness of issues (Brosius & Kepplinger, 1990; Lang & Lang, 1981; Shaw & McCombs, 1977).

Agenda-setting theory is closely linked to that of “framing in organizations,” an emerging theoretical orientation viewed as extending research on agenda-setting from mere *salience* of issues to focus on the *essence* of the issues (Balmas & Sheafer, 2010; Fairhurst & Sarr, 1996;

McCombs & Evatt, 1995). According to framing theory, the media select issues to project on their agenda and then place those issues within a frame of meaning in an organizational context. The media gatekeepers (reporters, editors, etc) organize and present the events and issues on the media agenda in such a way as to enable audiences to interpret them.

There is some agreement among framing theorists, that agenda-setting manifests at two levels, and that framing constitutes agenda-setting only at the second level (Balmas & Sheaffer, 2010; McCombs & Evatt, 1995; McCombs, Shaw & Weaver, 1997). While agenda-setting at the first level is concerned with “salience of issues,” at the second level it focuses on “salience of attributes” and how the agenda of attributes affects public opinion (McCombs & Evatt, 1995; McCombs, Shaw & Weaver, 1997). Therefore, framing is a form of agenda-setting in which the media go beyond influencing the public on *what* to think about, to *how* to think about it (Balmas & Sheaffer, 2010).

However, some scholars view agenda-setting and framing as too distinct theories, although they deal with the same subject matter (Price & Tewksbury, 1997; Scheufele & Tewksbury, 2007; Scheufele, 1999, 2000). First of all, the two theories operate through distinct cognitive processes – accessibility in agenda-setting and attribution in framing. Secondly, they relate to different outcomes – the importance of issue in agenda-setting and the interpretation of issues in framing. Thirdly, the two exhibit clear differences in their news production and information processing functions.

### **3.4.3 Information access theories**

The concept of access to information belongs both to the LIS field and to law. However, while the discipline of law has developed a fairly robust theoretical and jurisprudential base to aid inquiry into access problems, LIS is largely viewed as merely an emerging field of inquiry (see section 3.3). That access to information is an important LIS research area is beyond dispute, but as Oltmann (2009:4) observes, this area is presently “conceptually, methodologically, and theoretically under-developed.” Not only is it predominantly normative or prescriptive, but it is also mired in contestation as to the nature of theory it espouses (Bates, 2005; McGrath, 2002; McKechnie & Pettigrew, 2002; Oltmann, 2009).

This disciplinary inadequacy has created a tendency, almost an imperative, among information access scholars to review information access theory from a legal perspective. It is important to note, though, that theory development in law has itself not escaped some criticism as to its rigour (Dagan & Kreitner, 2010; Scharffs, 2001). The basis of the criticism is that legal theory development methodology is largely qualitative, predicated mainly on examination of case law and *a priori* reasoning, rather than on explicitly stating hypotheses and testing them against scientific observations. Yet this methodology constitutes a legitimate tradition of inquiry in the law discipline, which, in my opinion, is no less useful to legal scholars than mathematical models are to natural scientists. Nevertheless, in keeping with the two disciplinary approaches to the study of access to information, two theoretical orientations are discernible: (i) the normative behaviour theory of information access developed in the LIS field, and (ii) the jurisprudential theory of free speech deployed by information access scholars in the law discipline.

The theory of normative behaviour was developed by Elfreda Chatman (2000) to analyze routine information behaviour among understudied, mostly minority and marginalized groups. To Chatman, such groups constituted “small worlds,” i.e., contexts in which group members are held together in a common social and cultural space, which enables them to conduct their routine business in predictable and expected fashion (Burnett, Besant & Chatman, 2001; Burnett & Jaeger, 2008; Chatman, 2000). Chatman thus viewed normative behaviour as that “behaviour which is viewed by inhabitants of a social world as most appropriate for that particular context” (Chatman, 2000:13).

Normative behaviour theory is based on four conceptual constructs – social norms, worldview, social types, and information behaviour – that facilitate analysis of how individuals’ everyday worlds shape their information actions (Burnett, Jaeger & Thompson, 2008; Oltmann, 2009). These constructs provide a framework for analyzing the complex relationship between information and the social world within which individuals relate and conduct their routines (Burnett, Besant & Chatman, 2001:545).

According to Chatman, social norms consist of “standards with which members of a social world comply in order to exhibit desirable expressions of public behaviour” (Chatman, 2000:13). With such standards, group members regulate one another’s behaviour in relation to the social norms. Social norms evolve from the activities, motives, and goals of the group itself (Burnett & Bonnici (2003:334), and are reinforced by the very group – the “small world” (Jaeger & Thompson, 2004:100). The concept of worldview refers to a system of shared experiences of group members – a system that provides an outlook, lens, or point of view about the nature of a people characterized by such group identifiers as language, values, meaning, and symbols (Burnett & Bonnici, 2003; Chatman, 2000).

Worldview is closely linked to the third concept, social typing or socialization, which is defined simply as “the process of coming into a world view ... where individuals begin to accept appropriate social roles or become typified within the larger context of community” (Turner, 2008:26). Thus, the concept of social types refers to how individuals are classified within a given social world and the social norms that enable them to behave and relate with others (Burnett & Bonnici, 2003; Chatman, 2000; Turner, 2008). Finally, information behaviour refers to “how individuals need, seek, give, manage and use information with respect to the source and channels of information” (Turner, 2008:27). Burnett, Jaeger, and Thompson (2008:58) summarize: “within specific contexts, information behaviour, like other day-to-day activities, must be seen as normative.”

Unfortunately, a thorough dissection of normative behaviour theory finds it wanting in terms of explaining the interactions between, and mutual influences among, different small worlds. The theory also does not explain the nature and impact of social forces of the larger world surrounding the small worlds. Moreover, the theory stands out clearly as concerned with information seeking behaviour (needs and use patterns) rather than information access issues (availability and structural patterns). Indeed, in her own admission, Chatman (2000:12-13) attests to the futility of studying information access “without first acknowledging one’s behaviour with respect to information,” which casts the two LIS research areas of information access and information behaviour as clearly distinct from each other.

In spite of the foregoing criticisms, however, recent researchers believe that normative behaviour theory can effectively be applied to information access. While appreciating that Chatman does not explicitly deal with issues of access to information, for example, Burnett, Jaeger, and Thompson (2008:57) argue that the theory's localization of the context in which information is used "offers a robust tool for analyzing the ways in which information is understood and valued in particular communities." In fact, their research found that individuals within one "small world" were capable of exhibiting sharp score variations on the conceptual constructs of the theory. Basing their observations on a public library, they found that library staff, individual patrons, and authors had very different understandings of information access.

The second theoretical orientation to the study of access to information is informed by the jurisprudence of freedom of speech and expression. The connection between access to information and freedom of speech is traceable to the First Constitutional Amendment of the United States of 1789, which was adopted in 1791. The Amendment, which was part of the Bill of Rights, was clearly driven by the realization of the need to incorporate the various rights relating to information and free speech. Ultimately, it entrenched constitutional guarantees on everyone's right to the free exercise of religion, freedom of speech, freedom of the press, and freedom of peaceful assembly, among others (Beeman, 2009; Lewis, 2007). By mid twentieth century, the connection was clearly recognized in international jurisprudence. The Universal Declaration of Human Rights (UDHR) states: "everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, retrieve and impart information and ideas through any media and regardless of frontiers" (UDHR, 1948: art. 19). This right was recaptured in Article 19(1) and (2) of the International Covenant on Civil and Political Rights (ICCPR), 1966, and has since been the focus of juridical enterprise in different legal systems and national jurisdictions.

Judicial decisions on matters incidental to the US First Amendment found the right to free speech so organically linked to access to information. In *Lamont v. Postmaster General* (381 U.S. 301, 1965), for instance, the appellant challenged the constitutionality of section 305(a) of the US Postal Service and Federal Employees Salary Act of 1962, which required the Postmaster General to detain foreign mailings of "communist political propaganda" until the addressee,



upon receipt of a notification card from the Post Office, endorsed it to request delivery of the material. If the card was not returned within 20 days, it would be assumed that the addressee did not want that publication or any similar one in the future. The Supreme Court held that the Act, as construed and applied, was unconstitutional because it imposed on the addressee an affirmative obligation which amounted to an unconstitutional limitation of his rights under the First Amendment. Similarly, in *Board of Education v. Pico* (457 U.S. 853, 1982), a School Board removed all books it characterized as “anti-American, anti-Christian, anti-Semitic, and just plain filthy” from school libraries. Some students and parents protested against this action that infringed on freedom of speech and violated their rights under the First Amendment. In his judgment, Supreme Court Justice Brennan said: “local school boards may not remove books simply because they dislike the ideas contained in those books ... Our Constitution does not permit the official suppression of ideas” (p.856).

The classical case of *Red Lion Broadcasting v. Federal Communications Commission* (395 U.S. 367, 1969) is an explication of the rule upholding the fairness doctrine. The Federal Communications Commission (FCC) had imposed an administrative requirement on broadcasters that the “discussion of public issues be presented on broadcast stations, and that each side of those issues must be given fair coverage” (p.369). The FCC also required that discussants be given equal time while those who suffer personal attack should be given time to respond. While Court concurred with the appellant that public broadcasters enjoyed constitutional protection with regard to their editorial speech, it nevertheless upheld the provisions of the fairness doctrine. In his judgment, Justice White reaffirmed the right of the public “to receive suitable access to social, political, esthetic, moral, and other ideas and experiences” (p.390).

The foregoing decisions promoted a realization that rights cannot be enjoyed in isolation. For example, for one to exercise one’s right to speak, the audience must as of fact have unfettered rights to access that speech; and for anyone to enjoy their right to receive ideas and information, the originator of such information and ideas must equally enjoy the right to disseminate them. As Justice Brennan was to observe later, freedom of speech has little power if others cannot receive, or access that speech (*Board of Education v. Pico*, 457 U.S. 853, 1982). Similarly,

information access and free speech scholars find the two concepts to be so entwined and self-reinforcing that one cannot utter quality speech unless one has accessed others' speeches that serve to inform, shape and influence one's choices and ideas (Balkin, 2004; Ross, 1999). Blitz (2006:800) succinctly summarized it thus: "it is now well established that the First Amendment protects not only the rights of people to engage in speech but also the right of audiences to receive it."

The evolving jurisprudence on freedom of speech as a corollary to information access has given rise to three theoretical perspectives on its utility: free speech as constituting a marketplace of ideas, free speech as an anchor to democracy, and free speech as a tool for individual empowerment (Oltmann, 2009; Smolla, 1992). As a marketplace of ideas, free speech promotes a *laissez faire* approach to information exchange whereby ideas are able to compete for attention and adoption; in a search for truth, all ideas should be heard and evaluated (ALA, 2008; Burden, 2000; Lievrouw & Farb, 2002; Rubin, 2004). As bedrock to democratic practice, free speech promotes public debate on governance issues (transparency, accountability, laws and procedures, service delivery) and citizen participation in public affairs (ALA, 2009; Balkin, 2004; Blakemore & Craglia, 2006; Jaeger & Burnett, 2005;). As Jaeger and Burnett (2005:646) observe: "the dialogue and deliberations that are essential to a democratic society rely on freedom of access to information and on the exchange of information between different social groups." Lastly, as an empowerment tool, free speech promotes citizen awareness of their rights and duties, and how to exercise them to realize their full potential and development (Raikka, 2003).

However, free speech theory has not escaped criticism. Some scholars think that its underlying theoretical assumptions are no longer tenable (McClain, 1992), and that it is "in a state of great ferment" (Bunker, 2001: xi). Such criticism has not been hard to justify. It has been argued, for example, that while the theory protects all manner of speech under the pretext of promoting the "litany of good" as above summarized, certain forms of speech, including hate speech and pornography, should not be protected because of their detrimental social impact (Matsuda et al., 1993). Moreover, there has been a global shift within legal theory, a shift that consists in the increasing use of vocabularies and paradigms borrowed from other disciplines. Although interdisciplinarity has got its positive side, the increased pace of interdisciplinary legal study has

accelerated the decline of legal autonomy (Bunker, 2001: xii). Yet, liberal free speech, which is more a body of philosophical than empirical reflections on the nature, purposes, and value of free speech, is interdisciplinary.

#### **3.4.4 IT-oriented theories of information and communication**

The advent of ICTs has transformed the ways in which information flows in society and within social organizations, and has introduced new opportunities and new modes of doing things. Alvarez (2011:180) has observed, for example, that:

...computer technology is common place in major cities and many of the surrounding areas throughout the world, many middle class schools teach word processing classes while the younger generations are teaching their parents and grandparents internet etiquette (“netiquette”), wireless communication abounds, cellular phones are growing in functionality, computers are getting smaller....

But this development has also brought challenges. The IT revolution has impacted social structures and social relations, a reality that often calls for an ethnographic approach to the study of the interaction between the techno-cultural systems created and the people that constitute and give meaning to such systems. Alvarez (2011) has argued, and I concur, that technological breakthroughs plunge people into a form of “modernization” that alters both the means and patterns of interaction in a variety of ways. Indeed, the adoption and diffusion of ICTs in organizations has called for a rethinking and reexamination of the communication dynamics in the new and emerging social organization.

One important theory, diffusion of innovations theory, has been propounded to explain how, why, and at what rate new ideas and technologies spread through social systems. The theory, which was articulated and popularized by Everett Rogers in 1962, models a process by which a technological innovation is communicated through certain channels over time among members of a social system (Rogers, 1962; 2003). An innovation may be adopted or rejected; and adoption refers to a decision of “full use of an innovation as the best course of action available” while rejection refers to an inverse decision “not to adopt an innovation” (Rogers, 2003:177). The

diffusion question then is: in what manner does a new technological idea, technique, or artifact come into use in an organization? This question points to the imperative for diffusion researchers to focus on the conditions that may affect the likelihood of the innovation being adopted or ignored by members of a system.

Diffusion of innovations theory articulates the innovation-decision process as “an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation” (Rogers, 2003:172; Sahin, 2006:15). This theory, which may be used to explain different levels of technology adoption and diffusion in local governments, provides a five-stage time-ordered diffusion path: (i) the knowledge stage, when members are exposed to the innovation and understand its functions; (ii) the persuasion stage, when members form a favourable attitude to the innovation; (iii) the decision stage, when the members commit to adopt the innovation; (iv) the implementation stage, when the members apply the innovation; and (v) the confirmation stage, when the members base on positive outcomes from the innovation to reinforce it.

Four elements are identified as the main influences on the rate of spread of an innovation: the innovation itself, communication channels, time, and the nature of the social system. Accordingly, the innovation must be technically and economically capable of fast and wide diffusion and adoption. Both the media and informal, interpersonal contacts are important channels for providing information and influencing decisions among the members of the system. The time element focuses on the rate of diffusion from exposure to the point an innovation reaches a “critical mass of adoption.” The theory categorizes adopters in respective sequence as innovators, early adopters, early majority, late majority, and laggards. The fourth element concerns a complex interface of factors that characterize and define the social system. These include, *inter alia*, levels of sophistication of members, density of formal and informal channels, and interaction networks.

Diffusion of innovations has been hailed as a robust theory, and successfully deployed by researchers in various disciplines and fields of study to discern present behaviour in terms of the rate and patterns of diffusion of ideas and techniques from other societies (Dearing, 2009; Sahin,

2006). However, the theory is not without its down side. For instance, although it defines an innovation broadly to include a new idea, technique, artifact, and new usage of an old one (Rogers, 1962), there has been a marked tendency to restrict diffusion research to technological innovations. Indeed, Rogers (2003) himself often uses the terms “technology” and “innovation” interchangeably. Similarly, it may be argued that technological innovation by itself is relatively easy to adopt if viewed in the context of a technologically affected social system. In other words, the rate of evolution and transformation of human societies and social organizations is more limited by the difficulties of acquiring new social cultures and institutions than technological innovations.

Another notable ICT-oriented theory is adaptive structuration theory (AST) developed by DeSanctis and Poole in 1994 to analyze the role of advanced information technologies in organization change. The AST is an off-shoot of British sociologist Anthony Giddens’ structuration theory, which he developed a decade earlier to explain the sociological evolution and development of groups and organizations (Giddens, 1984). According to him, structuration is “the structuring of social relations across time and space, in virtue of the duality of structure” (p. 376). Duality of structure is “... the essential recursiveness of social life, as constituted in social practices: structure is both medium and outcome of reproduction of practices” (Giddens, 1979:5; 1984:3). To Giddens, groups and organizations are social systems in which people engage in communicative interactions and create observable patterns and structures of interaction. These structures are largely sets of rules and resources put in place to enhance communication within the systems. The systems and their constitutive structures reinforce each other – they keep producing and reproducing each other in a cyclical process called structuration.

In 1994, one decade after Giddens’ work, DeSanctis and Poole undertook to study the interaction of social systems and structures with advanced information technologies (DeSanctis & Poole, 1994). They used the structuration theory to study the social aspects of IT in organizations, and in the process developed the AST. According to them, the AST was developed as “a framework for studying variations in organizational change that occur as advanced technologies are used” (DeSanctis & Poole, 1994: 2). There was at the time increasing diffusion and influence of IT in organizations, and there were two theoretical orientations in the study of the impact of IT on

organizational change. The first was the decision-making school of thought, a positivist school that viewed organizational decision-making as an elementary function. To this school, IT enabled the prediction of its effect on the organization. The second school was the institutional school, which viewed IT as merely providing an opportunity for organizational change. To them, organizational structure was critical to the manner in which technology affected the organization.

The AST was thus developed as an integrative theory. On the interface between technology and organizational dynamics, the proponents of the theory have observed:

adaptation of technology structures by organizational actors is a key factor in organizational change. There is a ‘duality’ of structure ... whereby there is an interplay between the types of structures that are inherent to advanced technologies ... and the structures that emerge in human action as people interact with these technologies (DeSanctis & Poole, 1994: 2)

Innovative information technologies and organizational structures affect each other and force themselves to adapt and accommodate each other. This therefore is a two-pronged change process. On the one hand, the innovative information technologies subject new types of structures onto the organizations, forcing the latter to adjust and accommodate the new structures in the way they operate. On the other hand, the structures that emerge in organizational action as a result of repositioning force the new technologies to reinvent themselves to suit those new social structures.

The appropriation process of the theory is arguably a good model to analyze the utilization and penetration of ICTs in government and business processes. The AST has heuristic value and is capable of a wider applicability in organizational and communication settings such as local governments and group decision making (West & Turner, 2007). However, critics think that the theory is difficult to read and understand; and that it lacks parsimony (Banks & Riley, 1993).

Besides the foregoing ICT-based theories, there is a simpler but coherent ICT systems approach to organizational communication known as contextual design, a new approach to designing user-

centered ICT systems in organizations. This approach was originated at Denmark's Digital Equipment Corporation (DEC) in the early 1980s by Karen Holtzblatt and Hugh Beyer as a response to the limitations of lab-based usability testing methods being faced in systems design at the time (Holtzblatt & Beyer, 2014). The originators thus articulated the theoretical foundation for using qualitative, ethnographic techniques to understand users' work practice for the purpose of systems design. The term "work practice" was used to refer to the complex and detailed set of behaviours, attitudes, goals and intents that characterize a set of users in a particular environment (Holtzblatt & Beyer, 2014, no pagination). As a scientific approach therefore, contextual design emerged from "contextual inquiry," a research process aimed at attaining maximum usability of industrial products based on the users' understanding of product function and reorientation of product structure (Beyer & Holtzblatt, 1998; Holtzblatt & Beyer, n.d.; Preece, Rogers & Sharp, 2002). The entire process of contextual design was originally published in 1997 (Beyer & Holtzblatt, 1997) and was later expanded upon and provided with more practical guidance in 2005 (Holtzblatt, Wendell & Wood, 2005).

Contextual design is a structured, well-defined and user-centered design process that provides methods to collect data about users in the field, interpret and consolidate that data in a structured way, use the data to create and prototype product and service concepts, and iteratively test and refine those concepts with users (Holtzblatt & Beyer, 2014). The underlying philosophy of contextual design is to understand users: their fundamental intents, needs, experiences and motivations. The contextual design approach is predicated on a number of principles, central of which is that any technology, product or system must be designed to support and extend its users' work practice. Other design principles include: recognition of users' expertise in what they do – but also of their inability to articulate their own work practice; partnership with and participation of users; and the creation of physical representations of the designers' concepts (models). In this latter principle, designers need models "to work out their ideas, capture their thinking, share it with others, discuss it, and identify weaknesses" (Holtzblatt & Beyer, 2014, no pagination).

In contextual design therefore, the element of "context" is of utmost importance, for every system – rudimentary or modern, big or small – has got its way of working. Users adapt to and

adopt strategies, language, and work flows dictated by the system's structure and function. Therefore, for a system to be successful, it must offer a way of working that users/customers want to adopt and are capable of adopting.

Since its original development, contextual design has evolved and has been applied in a variety of disciplines and real-world practice such as the teaching of user-centered design principles in engineering and industrial design. Contextual design was, of course, primarily used for the design of computer-based information systems. However, parts of the design theory were subsequently adapted and have been used as a usability evaluation method (McDonald, Monahan & Cockton, 2006). Contextual design has also been applied to the design of digital libraries and other learning technologies (Notess, 2004, 2005). Furthermore, the approach has been applied as a means of teaching user-centered design and human-computer interaction in tertiary institutions (Weinberg & Stephen, 2002).

#### **3.4.5 Theoretical framework for the present study**

The present study is informed by contextual design theory. Whereas a cursory glance at the foregoing theoretical review quickly points to normative behaviour theory of information access – the only LIS-specific theory – as the more suitable framework to guide this study, a deeper analysis soon rules it out. This study is focused on information access and flow in local governments, and is aimed at informing a model of an e-governance information system for the local governments. Analysis of normative behaviour theory reveals that it is limited to information seeking behaviour in a library use context and fails to apply to issues of information access and flow in public administration and ICT contexts. Besides, the “flow” aspect in the study denotes a stream of information flowing from one point to another, pointing to the element of communication or dissemination of electronic information, which normative theory does not address.

The choice for contextual design is guided by the theory's novel approach to designing user-centered ICT systems in organizations. Contextual design theory is predicated on the knowledge of user/customer needs, capacities, and experiences; and requires an in-depth understanding of information technology. This approach is very instructive in the present project, as the design of



an e-governance information access and flow model in local government cannot succeed unless it is based on a thorough understanding of the context. In Uganda's local governments, the context entails the socioeconomic dynamics of the citizens, their information needs, capacities, skills, diffusion of technology, government capacity, technology access, cost, etc.

### **3.5 Review of e-governance information models**

The thrust of this study is to propose a model of information access and flow to facilitate effective e-governance in local governments in Uganda. There are a number of generic models in place to explain different information dynamics in the e-governance contexts of governments. The important e-governance information models identified for this study fall into two categories. The first are those that generally explain the transition stages and strategies of e-government and e-governance adoption. These models basically focus on transition paths (Davidson, Wagner & Ma, 2005), stages (Siau & Long, 2005), and the application of IT (Korac-Kakabadse & Kakabadse, 2001). The second are those that focus on the configuration of electronic information and application of ICTs in government. These models were originated by Ramesh Chandra in 2003 and subsequently developed by Virkas Nath (n.d.) in significant measure. Later researchers (Halachmi, n.d.; Karmacharya, 2011; Nath, 2007; Prabhu, 2012) have since relied on these models as developed by Nath (n.d.). For purposes of this study, e-governance information models are information access and flow models belonging to this latter category; and only these are reviewed.

Under the e-governance information models, information architecture and the geometry of information flows are critical building blocks to the creation of effective and efficient e-governments and e-governance regimes. Access to information and information flow in society/government are critical attributes to e-governance, for they define the nature and objectivity of governance mechanisms, the people who control them, the users, the technology available, and the cost.

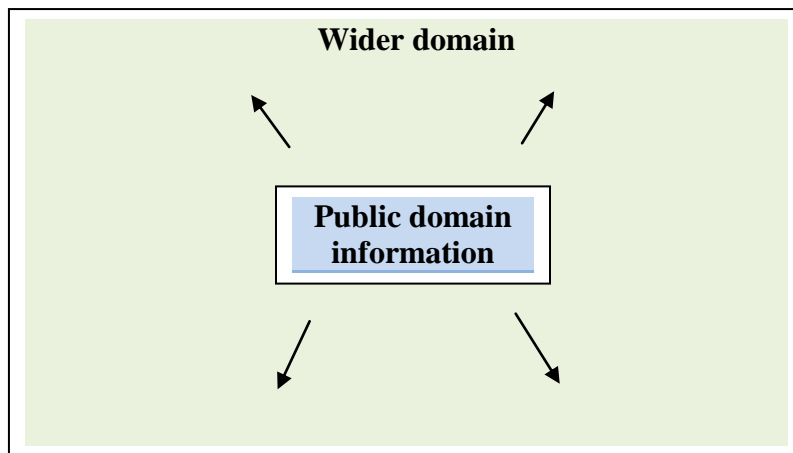
Five generic models have been identified: the Broadcasting/Wider-Dissemination model; the Critical Flow model; the Comparative Analysis model; the Mobilization and Lobbying (E-advocacy) model; and the Interactive- Service model. The review of these models shows that

they are characterized by different features, some appropriate for the Ugandan context and others not. No single model has been identified that exhibits all or most of the applicable features. The purpose of review of these models is to identify the relevant features of each of the models that can be integrated to inform the construction of a “hybrid” model out of them for the local governments in Uganda. And this model is articulated in chapter seven of this dissertation.

### 3.5.1 Broadcasting/wider-dissemination model

This model is based on the dissemination of governance information existing within the public domain to the wider public domain through the use of ICT tools and broadcast media. The model indicates that citizens benefit from available e-governance related information and services. Citizens are able to access alternative channels for e-governance related information and also to validate existing information from different sources. As a consequence, they may feel more empowered to voice their concerns and to impact these e-governance processes.

**Figure 2: Broadcasting model**



*Source: Nath (2007).*

The broadcasting model is appropriate where the e-governance information system is intended to put official government information online. Such information may include: governmental laws and policies; governmental plans, budgets, expenditures, and performance reports; key judicial decisions; and a database of names and contact addresses (physical, postal, email, fax numbers) of local, regional, or national government officials or agencies. This model is a critical stepping stone to the more complex information access and flow models. It is so critical because it

enhances both “access” and “flow” of information to all segments of the society, which is the foundation of good governance.

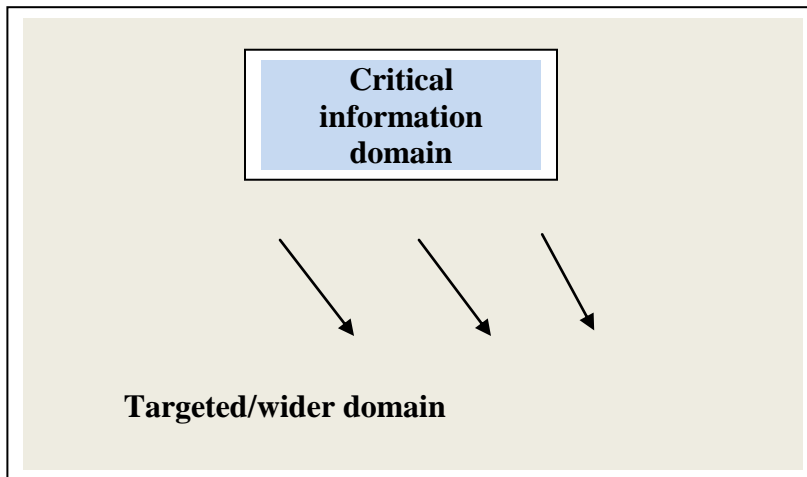
However, the problem with this model is that it is predicated on several assumptions, to wit: that citizens have access to the Internet; that the free-flow of information is objective and not restricted; that there is a rich information-sharing culture in the society; and that there is no “optimal ignorance” (a situation where injudicious decisions are taken, not due to the lack of information but because of disregard of available information by citizens and decision-makers). In developing countries like Uganda, which are characterized by poverty and functional illiteracy, lack of electricity and basic infrastructure, patronage by powerful local politicians, and general apathy, this model cannot be applied in its current fashion.

### **3.5.2 Critical flow model**

This model too is based on the dissemination of information through ICT tools and broadcast media. However, unlike the broadcasting model, critical flow model works through selective dissemination of “critical value” information to specific target audiences (media fraternity, political parties, the judicial bench, importers/exporters, commercial farmers, etc). The information system is thus concerned with the “critical and use-value” of a particular information set, how or whence this information is obtained, how strategically the information is used, and who the target groups are. Upon identifying the target groups, the information system then directs specific sets of information to the audience segments that require such information.

The critical flow model is more adaptable to different local government settings than the broadcasting model, depending on the aspect of e-governance to be addressed. By focusing on the critical aspect of information and locating its “right” users, the model corrects the problem of information failure, raises awareness about bad e-governance practices, and acts as a hindrance to bad governance. Similarly, the concepts of “distance” and “time” become redundant when information is hosted on a digital network, where it can be instantly transferred to its user group located anywhere or made freely available in the wider public domain.

**Figure 3: Critical flow model**



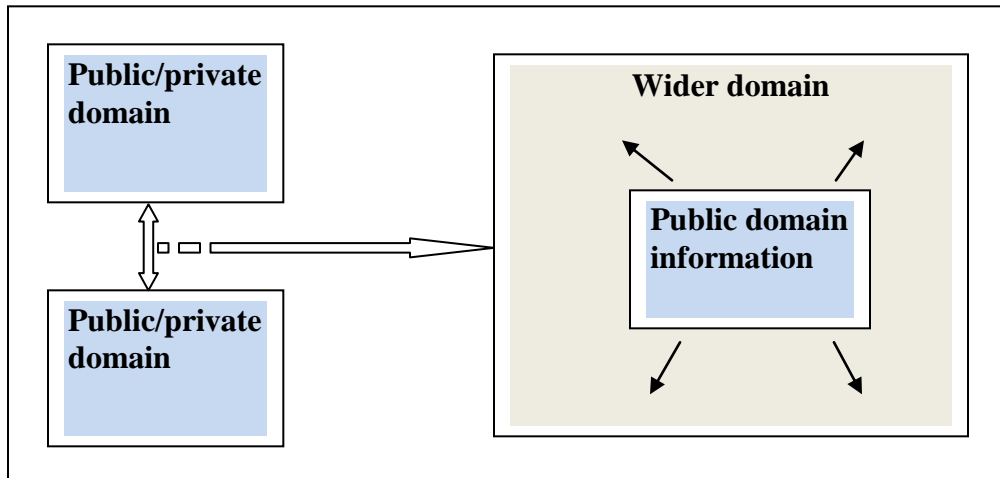
*Source: Nath (2007).*

Like the broadcasting model, however, critical flow model may not work in countries that do not allow public debates and opinions, and censure all information of critical nature. The model also assumes that citizens have access to the Internet, and that there is no “optimal ignorance;” it therefore faces similar applicability problems with the broadcasting model in poor local governments.

### **3.5.3 Comparative analysis model**

The comparative analysis model is based on the use of ICTs to explore the information available in the public and private domains and to compare it with other known sets of information. For example, it may be known that a given amount of money was used to build five private schools in one sub county; then information may come that the same amount of money has been used to build only two public schools of the same standard in another sub county! The model enables the citizens to compare, question, and demand explanation as to the disparity. Thus, on the basis of comparative information, the people are empowered to identify cases of bad governance, analyze the different aspects of bad governance, and demand accountability.

**Figure 4: Comparative analysis model**



*Source: Nath (2007).*

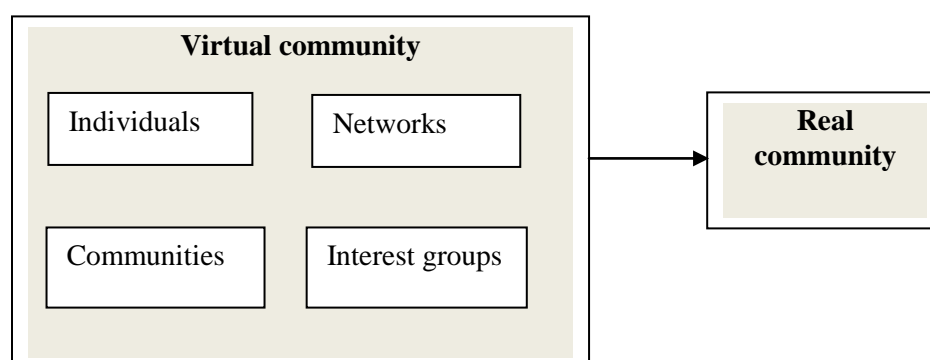
Under the comparative analysis model, governments can maintain databases of past policies and actions to help in deriving lessons for future policy-making; and can document the performance and track-record of decision-makers and decision-making bodies for purposes of public evaluation. The strength of this model lies in the infinite capacity of digital networks to store varied information and retrieve and transmit it instantly across all geographical and hierarchal boundaries. The model, however, thrives on the availability of comparative information sets; it is also ineffective in the absence of a strong civil society interest and public memory that are essential to force decision-makers to improve existing governance practices.

### **3.5.4 Mobilization and lobbying model**

This is one of the most frequently used e-governance information system models, and has often come to the aid of the global civil society to impact on global decision-making processes. Also popularly called e-advocacy, this model is based on setting up a planned and directed flow of information to build strong virtual alliances to complement actions in the real world that will have impact on international decision-making. Virtual communities are formed which share similar values and concerns, and these communities in turn link up with or support real-life groups and activities for concerted action.

The mobilization and lobbying (e-advocacy) model is appropriate if the information system is envisaged to foster public debate on issues of higher concerns (e.g., upcoming conferences, treaties, referenda, etc); galvanize pressure groups on key issues to force decision-makers to act on their concerns; bring views of marginalized groups into wider public domain; promote wider participation in decision-making processes; etc.

**Figure 5: E-advocacy model**



*Source: Nath (2007).*

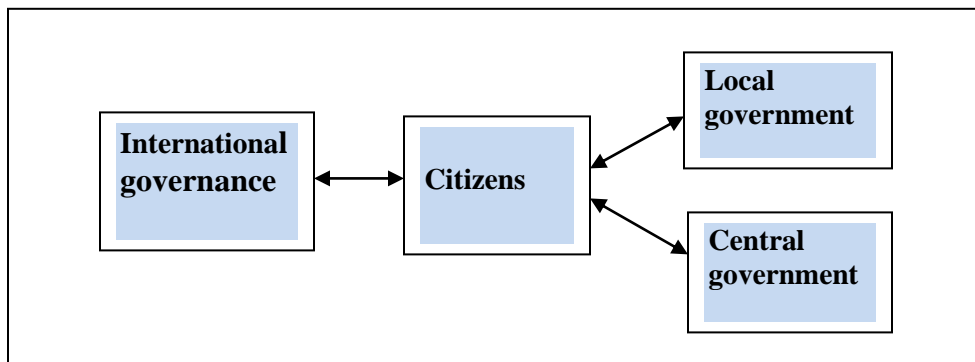
The strength of this model is in its diversity of the virtual community, and the ideas, expertise and resources accumulated through this virtual form of networking. The model is able to mobilize and leverage human resources and information beyond geographical, institutional and bureaucratic barriers, and use it for concerted action. The model can also be used by the governments in a positive manner to encourage public debate on issues where the opinion and expertise of civil society is of great importance; therefore it can become a tool to enhance democratic practice. However, its applicability in Uganda's local governments may be limited by the dire conditions of poverty, e-skills illiteracy, low ICT diffusion, and a weak civil society.

### **3.5.5 Interactive service model**

The interactive service model is basically a Government to Citizen to Government (G2C2G) model. It combines and consolidates several features of the foregoing models and opens up avenues for direct participation of individuals in the e-governance processes. Fundamentally, ICTs have the potential to connect every individual to a digital network and enable interactive (two-way) flow of information between government and citizens. Thus, information and the

various information-related services offered by the government become directly available to the citizens in an interactive manner. The potential of ICT is therefore fully leveraged and can lead to greater objectivity and transparency in decision-making processes.

**Figure 6: Interactive service model**



*Source: Nath (2007).*

This model is appropriate for interactive communication between citizens and key policy-makers and members of planning commissions; electronic voting; public debates and opinion polls on issues of wider concern leading to the formulation of policies and enactment of legislations; e-services such as revenue collection, filing of tax returns, government procurement, payment transfers, etc. This is obviously a technology-intensive model that requires a transition period before it can be adopted on a wider scale in the developing countries. It also requires optimum e-literacy among the citizens to fully benefit from this model.

### **3.5.6 Importance of the review of the models**

A review of the foregoing e-governance information system models has shown that the virtues to be offered by each single model are not within the reach of the local governments in Uganda. This is largely because these models are based on ICTs in general and the Internet in particular, whose cost is still prohibitive and diffusion very low in Uganda. However, as Nath (2005) observed, e-governance does not necessarily imply linking every citizen to a digital node or giving them access to Internet or computers. It implies ensuring that every community or village has easy access to information available on the digital network, and no one is excluded from accessing it. Therefore, this review has helped to identify the robust features in each model,

which this study has innovatively integrated, taking into consideration the strengths and opportunities available in Uganda's local governments, to come up with a hybrid prototype e-governance information model proposed in Chapter Seven.

### **3.6 Summary of the chapter**

This chapter has reviewed the popular theoretical frameworks governing information and communication research in LIS and allied fields. The allied fields are information systems, media and mass communication studies, organizational studies, and studies on ICTs in public administration. These are therefore theoretical frameworks that tend to cut across.

The chapter has given a detailed theoretical overview of the link between information, communication, and governance. It has also defined and discussed the interface between the various important concepts relating to digitization of information as a means to enhance communication and governance. Before delving into the popular theories of relevance to this study, the chapter discusses the meaning, character and utility of theories and models in advanced scholarship. It also highlights the problem issues regarding the status of theory in LIS as a field of study.

The theories discussed in this chapter are grouped into four: information theories, media communication theories, information access theories, and ICT-oriented communication theories. The information theories discussed include classical information theory of Claude Shannon and Warren Weaver, and its further development by Wilbur Schramm; cybernetic theory of communication and control by Nobert Wiener; uncertainty reduction theory propounded by Charles Berger and Richard Calabrese; and the Weick model of organizing. The media communication theories reviewed are: magic bullet theory, two-step flow theory, and agenda setting theory. The information access theories are the normative behaviour theory of information access, and the jurisprudential theory of free speech. The ICT theories of communication are diffusion of innovations theory, adaptive structuration theory, and contextual design. The chapter justifies the choice of contextual design as the framework informing this study.



Finally, the chapter has reviewed the common e-governance information models, pointing out their strong features as well as their weaknesses. The objective of this review is to identify the features in the different models that can be integrated, in a manner that mitigates their shortcomings, in order to come up with a model that is most suited to facilitate e-governance in local governments in Uganda.

## CHAPTER FOUR

### RESEARCH METHODOLOGY

#### 4.1 Introduction

Research methodology is a very important element in advanced research, concerned with the determination of the suitable methods and instruments to be developed and utilized in the pursuit of the research goal. There is considerable definitional confusion about the concept of methodology in the literature, with different scholars defining it variably in terms of methods, strategies, procedures, rules, principles, theories, values, etc. For example, Somekh and Lewin (2005:346) defined it as “a collection of methods or rules by which a particular piece of research is undertaken,” and as comprising “the principles, theories and values that underpin a particular approach to research.” Other scholars have defined it as the theoretical rationale or principles that justify the research methods appropriate to a field of study (Carr, 2006; Somekh, 2006). Yet others such as Walter (2006:35) view it simply as a frame of reference for the research, which is influenced by the “paradigm in which our theoretical perspective is placed or developed.” A synthesis of the different common definitions suggests that research methodology is concerned with the researcher’s overall approach to the execution of a research project, which must be linked to the research paradigm or theoretical framework.

Research is not designed to suit a given methodology. As Holden and Lynch (2004) observe, methodological choices should be consequential to the nature of the phenomenon to be investigated and the researcher’s philosophical stance in relation to such phenomenon. This is because methodology is grounded in *a priori* knowledge usually referred to as philosophy (Carr, 2006). It is important to note here that this relationship between methodology and philosophy is not a significant feature, nor even a necessary one, in the natural and physical sciences. However, it occupies a central position in all social science research. In fact, as Carr (2006:423) emphasizes:

[I]n social sciences, ‘methodology’ stands in a particular relationship to ‘philosophy’ such that research methods are justified by the former which is in turn justified by knowledge derived from the latter.

This instant study belongs to the LIS field, which is a social science field. The LIS field has developed considerably since the 1990s, not only as a result of the integration of computer technologies into the traditional functions of information service, but largely as a result of the gaps and overlaps created by the need to study the social aspects of information technology. Thus, the allied fields of library science, information science, information systems, informatics, etc) are considered to be of the social sciences rather than the physical sciences (Dick, 1995; Hirschheim, 1985; Sundstrom, 2001). Hence, this LIS-based study, belonging as it does to the social sciences, drew heavily on the organic link between philosophy and methodology to come to the choice of methods and procedures that were adopted, as this chapter explicates.

This chapter presents a systematic discussion of the research methodology of the study. Section 4.2 discusses the philosophical issues underlying research methodologies, while section 4.3 discusses research approaches and the mixed methods research (MMR) approach that the study is aligned to. Section 4.4 gives an overview of MMR designs and discusses convergent design as adopted by the research. Details of the study population, issues of sampling, data collection and data analysis are the subject of sections 4.5, 4.6, 4.7 and 4.8 respectively. Section 4.9 discusses ethical issues, while section 4.10 makes an evaluation of the methodology of the study. Section 4.11 gives a summary of the chapter.

#### **4.2 Philosophical orientation of the study**

Scientific inquiry into social phenomena was until the early 1900s conducted in an objectivist fashion molded upon the scientific approaches to inquiry in the natural sciences (Bogdan & Biklen, 1998). As time went on, however, these approaches were deemed incapable of sufficiently investigating unique human experiences: there was a need for more subjective approaches that emphasized direct understanding. The objectivist and subjectivist approaches were so diametrically opposed that they gave rise to two major philosophical orientations in social inquiry. These were positivism, which is objective-driven, and constructivism (also known as interpretivism), which is subjective-oriented (Saunders, Lewis & Thornhill, 2003; Ticehurst & Veal, 2000).

The positivist and constructivist philosophies played out as clear polar opposites, and this is evidenced in their core assumptions relating to ontology (reality), epistemology (knowledge), and methodology (principles, procedures and methods). Yet, it is these very philosophical assumptions that provide pillars for “holistic systems” of conceptualization, investigation and interpretation of social science research. As Holden and Lynch (2004:400) observe:

...whatever their sociological persuasion, the researcher will find that these assumptions are consequential to each other, that is, their view of ontology affects their epistemological persuasion which, in turn, affects their view of human nature, consequently, choice of methodology logically follows the assumptions the researcher has already made.

The said systems of conceptualization, investigation and interpretation of research constitute the defining philosophical blocs – the research paradigms.

American Scientist Thomas Kuhn defined a paradigm as a cluster of beliefs and dictates which, for a scholar in a particular discipline, influence what should be studied, how research should be conducted, and how results should be interpreted (Kuhn, 1970). To Kuhn, a paradigm embodies the practices that define a scientific discipline at a certain point in time. Bogdan and Biklen (1998:22) view paradigm as connoting a “loose collection of logically related assumptions, concepts, or propositions that orient thinking and research,” implying that there must be discernible like-thinking, like-practice and a commonness of the disciplinary field of application. Similarly, MacNaughton, Rolfe and Siraj-Blatchford (2001:32) identify three defining elements of a paradigm, namely, the perception of what constitutes reality (ontology), belief about the nature of knowledge (epistemology), and the process of its acquisition (methodology).

Some scholars view a paradigm as being synonymous with a theoretical framework, arguing that it influences the way knowledge is studied and interpreted (Mackenzie & Knipe, 2006; Mertens, 2005). For example, on the utility of a paradigm to scientific research, Mackenzie and Knipe (2006:195) observe:

It is the choice of paradigm that sets down the intent, motivation and expectations for the research. Without nominating a paradigm as the first step, there is no basis for subsequent choices regarding methodology, methods, literature or research design.

Mackenzie and Knipe (2006) are clearly not at variance with Kuhn (1970), who identified four major ways in which a paradigm influences the process of scientific inquiry. To him, a paradigm dictates the problems for research, the questions asked, the structure and nature of the questions, and the interpretation of the results.

There are three major research paradigms in social science research: the positivist paradigm, the interpretivist paradigm and the pragmatist paradigm. These paradigms evolved in succession as a result of developments and emerging challenges in social enquiry that could not be sustained by the prevailing mechanisms (Ormston, Spencer, Barnard & Snape, 2013). The positivist paradigm was born out of the rationalistic, empiricist and deterministic thinking of classical philosophers, which informed the scientific methods that were widely and successfully employed in the natural sciences (Creswell, 2003; Katebire, 2007; Mertens, 2005). Positivists believe that reality is stable and can be objectively observed, described, and predicted. Morgan (1989:393) described positivist prediction as "...the quest for a certainty of knowledge grounded in the idea that just as day is likely to follow night, condition A is likely to be associated with condition B in a regular and hence highly predictable manner." Positivists also believe that the world exists externally; it is measurable, controllable, replicable/predictable and explainable; therefore its properties should be measured through objective methods – the kind of methods that yield numerical evidence (Easterby-Smith, Thorpe & Lowe, 2002: 28).

Advocates of positivism believed that social phenomena could be studied in the same way as natural phenomena; that the scientific methods provided a value-free approach to the study of the social world; and that these methods could provide explanations of a causal nature (Mertens, 2005: 8). They thus advocated the transplantation of positivist approaches – the quantitative methods – from natural sciences to social sciences. These methods include experiments, statistical analyses of surveys, scales and measurements, and controlled observations.

From early 19th century, intellectual discourse roused questions as to the efficacy of empirical social analysis. It was argued that the social world, increasingly characterized by abstract meanings and symbolisms, was inconsistent with the positivist orthodoxy (Fagan, 2005; Tittle, 2004). By the turn of the 20th century, an alternative paradigm, adversarial in outlook, had emerged. This was the interpretivist paradigm, also called constructivism. This paradigm is largely an off-shoot of Edmund Husserl's philosophy of phenomenology and Wilhelm Dilthey's hermeneutics (Mackenzie & Knipe, 2006, citing Mertens, 2005). Phenomenology is an approach that is concerned with the study of consciousness and the objects of direct experience, while hermeneutics is the study of interpretation of literary texts.

Interpretivism thus evolved on account of the logic, even necessity, of directly understanding human experiences and socially constructing reality from those experiences (Mertens, 2005; Outhwaite, 2009). According to this paradigm, reality is socially constructed since the researcher observes phenomena through the lenses of the subjects of the research and interprets them from the subjects' perspective (Creswell, 2003; Mertens, 2005). This dictates that observations are done *in situ*, that is, in the environment where the observed behaviour is naturally occurring. The interpretivist researcher seeks not to prove a theory or test a hypothesis, but to inductively develop a pattern of meanings, leading ultimately to a theory that is grounded in the data. Interpretivists thus rely largely on the more "informal" qualitative methods of data collection such as ethnographic observations, intensive interviews, conversation analysis, content analysis, focus group discussions, and analysis of documents and artifacts.

Until the 1970s, interpretivism remained the sole alternative to positivism; and social research was described either as positivist-quantitative or interpretivist-qualitative (Ormston, Spencer, Barnard & Snape, 2013). By this time, there was growing dissatisfaction with these dominant research paradigms and practices in the manner they addressed – or failed to address – certain social issues such as marginalization and social injustice. The duality of paradigms increasingly led to serious polarization, which has been so evident in the polar use of quantitative and qualitative methods. Even the postpositivist and transformativist philosophies allied to positivism and interpretivism respectively remained so entangled in the quantitative-qualitative divide. This divide constituted an incompatibility, which runs right from the level of epistemology to research

practice. Howe (1988:10) summarized the thesis underpinning this incompatibility thus: “positivist and interpretivist paradigms underlie quantitative and qualitative methods, respectively; the two kinds of paradigms are incompatible; therefore, the two kinds of methods are incompatible.” This thesis, however, has been contested; and the contest is embedded in the pragmatist philosophy.

In 1872, American philosopher Charles Sanders Peirce originated the “maxim of pragmatism,” in which he articulated a logic that moves beyond the traditional polar epistemological alternatives, i.e., deduction from self-evident truths (rationalism), and induction from experiential phenomena (empiricism) (Campbell, 2011; Haack & Lane, 2006; Hookway, 2013; Houser & Kloesel, 1992, 1998). Rationalizing the pragmatic application of the two polar methods to scientific inquiry, for example, Peirce observed: “different minds may set out with the most antagonistic views, but the progress of investigation carries them by a force outside of themselves to one and the same conclusion” (Houser & Kloesel, 1992:138).

Building on Peirce’s maxim, William James and John Dewey elaborated the pragmatist paradigm (Biesta & Burbules, 2003; James, 1995; Ryan, 1995), which became increasingly influential in social science research throughout the 20th century. In 2003, Tashakkori and Teddlie published a book that earned pragmatism recognition as the legitimate third social research paradigm (Tashakkori & Teddlie, 2003). Today, pragmatism is widely acknowledged as the basis for MMR (Denscombe, 2008; Johnson & Onwuegbuzie, 2004; Onwuegbuzie & Leech, 2005).

The pragmatist paradigm is premised on, but also reinforces, the thesis of compatibility. This thesis holds simply that quantitative and qualitative methods are very compatible so they can both be used in a single research study (Howe, 1988; Onwuegbuzie & Leech, 2005; Tashakkori & Teddlie, 2003). Believers in compatibility thesis have argued, for instance, that abstract paradigms cannot – and indeed should not – determine research methods in their characteristic one-way fashion; rather, they “must demonstrate their worth in terms of how they inform, and are informed by, research methods that are successfully employed” (Howe, 1988:10).

Pragmatism thus advocates for the combining of quantitative and qualitative approaches in a manner that works the best in a real world situation.

**Table 1: Comparative descriptions of research paradigms**

<b>Positivist</b>	<b>Interpretivist</b>	<b>Pragmatist</b>
Experimental	Naturalistic	Consequences of actions
Quasi-experimental	Phenomenological	Problem-centred
Descriptive	Hermeneutic	Pluralistic
Correlational	Ethnographic	Real-world
Deductive	Participatory	Practice-oriented
Theory verification	Social and historical	Mixed methods
Causal-comparative	construction	
Deterministic	Inductive	
Normative	Theory generation (grounded theory)	
	Symbolic interaction	

*Source:* Adapted and slightly modified from Mackenzie and Knipe (2006).

Pragmatist scholars believe that what works is what is useful, and what is useful is what should be used irrespective of the philosophical or other assumptions. It is this stance of “what works” that forms the very foundation of the fundamental principle of MMR, which requires the researcher to use a mixture or combination of methods that has complementary strengths and non-overlapping weaknesses (Brewer & Hunter, 2006; Creswell, 2003; Greene, 2007; Johnson & Christensen, 2012; Johnson & Onwuegbuzie, 2004; Onwuegbuzie & Johnson, 2006; Somekh & Lewin, 2005; Tashakkori & Teddlie, 2003).

It should be noted here that “mixture” in the pragmatist perspective should be distinguished from its usage in other methodological senses. For instance, some so-called mixed methods researchers align themselves philosophically with the transformativist approach (Mertens, 2005), while others insist that mixed methods can be used with any paradigm (Mackenzie & Knipe, 2006). This calls for a clarification about mixing methods within paradigms (multi-methods) and



mixing methods across paradigms (mixed-methods). Multi-methods research is practiced by purists in the positivist and interpretivist paradigms, while mixed methods research (or just mixed research) is practiced under the pragmatist orientation (see also, Tashakkori & Teddlie, 2008: 22; Terrell, 2012: 256).

This study was conducted in the pragmatist tradition, and was motivated by the benefits that pragmatism offers. Pragmatist researchers argue that pragmatism bypasses the contentious issues that fuel the paradigm wars, acknowledges the existence of both singular and multiple realities, and routes for “what works” to solve real world problems (Creswell & Plano Clark, 2007; Feilzer, 2010). They also argue that pragmatism places the research problem at the centre, and allows the research question to determine the data collection and analysis methods to be applied; and that it allows the collection of both quantitative and qualitative data and the integration of the data at different stages of the inquiry (Creswell, 2003; Creswell & Plano Clark, 2007; Crossan, 2003). Crossan (2003:48) has particularly observed:

If we ... examine how research based on a positivist philosophy differs from that based on a post-positivist philosophy, the appropriateness to the research needs is simplified and the nature of the most appropriate approach clarified. From this we can see that the choice of approach may be dependent on the context of the study and the nature of the questions being asked.

This observation makes a lot of sense with regard to the research pursuit in the instant study, which was to articulate an information access and flow model for e-governance in Uganda’s local governments (see sections 1.4 and 7.5 of this dissertation). To be able to come up with the appropriate model, a number of questions had to be asked – questions about the nature of the model itself; about who the users would be, their needs, their levels of sophistication, their diversities, and their capabilities; about the resources available within the local governments and within the communities; and about the political, legal and technological environments within which the system would operate. These are questions that could not be resolved exclusively by the positivist or interpretivist approaches, hence the choice of pragmatism.

However, the choice of the pragmatist paradigm was not determined solely by the nature of the problem under investigation. As already noted, this paradigm provides researchers with the opportunity to deploy different strategies, different worldviews, different assumptions, and different data collection and analysis techniques in a single study. There are also multiple reasons for pragmatist researchers to justify their methodological choices. For example, besides the justifications based on philosophical assumptions and the nature of the problem, Creswell (2003, 2014) identified another two important considerations: the training and experience of the researcher to manage the pragmatist-driven research process; and the nature of the audience to warrant the pragmatist approach. Both these considerations were made in this study.

### **4.3 Research approach**

The term “research approach” refers to a plan and the attendant procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis, and interpretation (Creswell, 2014:3). When selecting a research approach for the study, researchers base their choices on three important considerations: the underlying philosophical assumptions of the research, which are based on the nature of the research problem or issue being addressed; the strategy of conducting the inquiry (also called research design); and the specific methods of data collection, analysis, and interpretation. A research approach therefore can simply be said to involve “the intersection of philosophy, research designs, and specific methods” (Creswell, 2014:5). There are three distinct research approaches in social and behavioural sciences namely, quantitative research, qualitative research and MMR, which are briefly discussed in the following subsections.

#### **4.3.1 Quantitative research**

Quantitative research involves the systematic, empirical investigation of social phenomena using statistical, mathematical and/or computational techniques (Anderson & Taylor, 2009; Given, 2008; Katebire, 2007). Based as it is on the positivist paradigm, quantitative research aims to develop and test theories, hypotheses and models pertaining to social phenomena. Its design and execution makes use of representative samples that are scientifically drawn from large target populations, and the findings are generalized to those populations.

The quantitative research approach was originally developed in the natural sciences to study natural phenomena, but was later, with the influence of positivist scholars such as Emile Durkheim, adopted in the social sciences. This approach is thus “scientific” in nature because it uses methods that are tested and proven, systematically codified, and verifiable. Quantitative researchers use random methods of sampling, collect and analyze data through measurement, tests, and statistical manipulations, and the results are expressed in numeric and statistical terms. Given (2008) has observed that the process of measurement is central to quantitative research because it provides the fundamental connection between empirical observation and mathematical expression of quantitative relationships. Quantitative researchers will therefore engage in measurement to establish correlations, causality (cause-effect relationships), statistical significance, deviation, regression, variance, etc about variables.

This research approach is hailed among its users as, among other strengths, producing quantifiable, reliable, replicable, and generalizable findings; and as enabling researchers to test specific hypotheses and making predictions (Burns, 2000; Creswell, 2003; Hughes, 2006; Johnson & Onwuegbuzie, 2004). However, its critics bash it for its tendency to de-contextualize human behaviour by de-linking a phenomenon from its real world setting; ignoring the effects of variables that have not been included in the inquiry; and ignoring the environment and individual circumstances of the participants in a study (Burns, 2000; Creswell, 2003; Hughes, 2006; Johnson & Onwuegbuzie, 2004).

#### **4.3.2 Qualitative research**

The transplantation of the rigid and formalistic approach to inquiry from the natural sciences to the social sciences laid bare the major shortcoming of that approach, i.e., its inability to study human experience and socio-cultural processes generally. The qualitative research approach was thus developed by interpretivist scholars (such as Wilhelm Dilthey) to enable researchers to study social and cultural phenomena (Katebire, 2007; Ormston, Spencer, Barnard & Snape, 2013). Its impetus was (and still is) to gain an in-depth understanding of human behaviour and the motivations and processes that drive such behaviour. Qualitative research is thus conducted in naturalistic settings seeking to understand human behaviour and its socio-cultural contexts,

and to interpret phenomena from the perspective of the people or communities (Denzin & Lincoln, 2005; Merriam, 2009; Myers, 2009, Thomas, 2010).

This research approach is popular among its users on account of its demonstrable benefits: among others, that it leads the researcher to understand (i) what the research participants make out of events, situations, and their own lived experiences; (ii) the participants' contexts and those contexts influence their actions; and (iii) the processes by which events and actions occur. The qualitative approach also enables the researcher to identify new phenomena, new theories (usually grounded in the data), and new causal explanations. The strengths of this approach have been succinctly summarized by Thomas (2010:304) thus:

The researcher engages the situation, makes sense of the multiple interpretations as multiple realities exist in any given context as both the researcher and the participants construct their own realities ... attempting to study real-world situations as they unfold naturally without predetermined constraints or conditions that control the study or its outcomes.

The above endearing qualities notwithstanding, qualitative research is associated with some clear weaknesses. Overall, qualitative studies are laden with bias, which is intricately associated with the researcher's subjective stance. Such studies are also constrained by a limited scope of generalization of findings, which is a result of dependence on small unrepresentative samples of participants that are selected on the subjective whims of the researcher. Qualitative research is also averse to replication.

#### **4.3.3 Mixed methods research**

The differences in the philosophical stance of quantitative and qualitative traditions of research fueled tension between them, which Tashakorrie and Teddlie (1998:3) called paradigm wars. Denzin and Lincoln (2011:6) have in fact observed that qualitative researchers often defined their approach in opposition to the perceived tenets of positivism and the "scientific method" while quantitative researchers did not recognize the methods of qualitative researchers. It was not until the 1960s and 70s that methodological debate intensified and scholars increasingly viewed

quantitative and qualitative methods either as complementary or alternative approaches to research (Tashakorrie & Teddlie, 1998). This debate laid the foundation for MMR as a third research approach.

Mixed methods research involves the collecting, analyzing, and “mixing” of both quantitative and qualitative data in a single study, and using distinct designs that may involve philosophical assumptions and theoretical frameworks (Creswell, 2014:4). By taking a middle ground on the quantitative-qualitative continuum, the MMR approach offers the best of both worlds: it combines objectivity, efficiency and predictive power of quantitative research with the in-depth, contextualized, and naturalistic insights of qualitative research.

Although many proponents of MMR link it with the adoption of a pragmatist paradigm (Creswell & Garrett, 2008:327), there is no consensus yet regarding the manner of mixing “across different philosophical positions and what it means to create a position that can do justice to the variety of philosophical perspectives” (Romm & Ngulube, 2015: 158). There is considerable literature nevertheless, arguing that no single research methodology can be said to be intrinsically better than another, and that it is prudent to combine research methods in order to improve the quality of the research (Fearon & Laitin, 2008; Leech, Dellinger, Brannagan & Tanaka, 2010; Pickard & Dixon, 2003; Waring, 2000). Waring (2000:2), for example, argued that it is a mistake for a researcher to adopt only one approach in some form or another because “methodologies are best used in a complementary way.” Similarly, Pickard and Dixon (2003) dismissed a fanatical loyalty to paradigmatic dictates. To emphasize the need for researchers to check their insistence on using a single research method, Pickard and Dixon (2003:2) rhetorically asked: “does the choice of a methodology imply adherence to the axioms of an individual paradigm or is it [not] possible to mix and match methodologies to achieve a research goal?”

The utility of the MMR approach has been extensively discussed: that its application diminishes the weaknesses inherent in each distinct method; and that it increases confidence in the results and generates more valid inferences than any single method can do (Bennett & Braumoeller, 2006; Brewer & Hunter, 2006; Denscombe, 2006; Fearon & Laitin, 2008; Gorard, 2004). These sources generally acknowledge that MMR requires a greater level of skill than quantitative or

qualitative research alone, but emphasize nevertheless that once skillfully planned and executed, MMR is associated with a number of benefits as here below summarized:

- growth and expansion of the social science discipline resulting from the use of a variety of methods;
- less waste of potentially useful information,
- increased ability of researchers to make appropriate criticisms of all types of research,
- greater research impact (figures are persuasive to policy-makers whereas stories are easy to remember),
- improved accuracy of the data,
- combining information from complementary kinds of data or sources to give a more complete picture,
- avoidance of biases intrinsic to single-method approaches (way of trading-off strengths and weaknesses associated with particular methods),
- aiding sampling and screening of potential participants for inclusion in a study.

Despite the foregoing benefits of MMR, some scholars advise of the need both for caution and rigour in the design and execution of MMR studies. Ahmed and Sil (2012: 936) have for instance warned that “any claim that the use of multiple methods reduces errors or increases the validity of a finding is defensible only to the extent that the methods used proceed from proximate foundational assumptions.” However, it would seem that Ahmed and Sil’s (2012) concerns are unwarranted if we consider that the mutual buttressing of methods is a subject of triangulation, which is a “best practice” in interpretivist and transformivist studies. What is undisputed, though, is that a blend of paradigmatic differing methods brings with it a different set of expectations and benefits, including those associated with tackling the same problem from different ontological, epistemological and methodological perspectives – a pragmatic approach that guarantees a holistic inquiry.

**Table 2: Comparison of research approaches**

Research issue	Quantitative research	Qualitative research	Mixed methods research
Major research objective	Description, explanation, prediction	Description, exploration, discovery	Multiple objectives
View of human behaviour	Regular, predictable	Fluid, dynamic, situational, social, contextual, personal	Somewhat predictable
View of reality (ontology)	Objective (different observers agree on what is observed)	Subjective (personal and socially constructed)	Commonsense realism and pragmatic view of world reality (i.e. what works is what is 'real' or true)
Setting of the research	Controlled environment.	Natural environment. Behaviour is studied <i>in situ</i> , i.e., in the context in which it naturally occurs	Behaviour is studied in more than one context or situation
Structure of tools (methods & instruments)	Structured, rigid, standardised	Unstructured, flexible	Combination of structured, semi-structured and unstructured
Number of tools	Possible with one tool	Better with many tools (triangulation)	Uses mixed tools
Form/type of data	Numeric, statistical	Text, descriptive, verbal	Mixed forms
Approach to data analysis	Deductive analysis (top-down). The researcher uses data to test the original hypothesis	Inductive analysis (bottom-up). The researcher generates new hypothesis and grounded theory from data.	Both inductive and deductive
Analysis	Identify statistical relationships	Search for patterns, themes and holistic features	Qualitative and quantitative
Results	Generalizable findings. Representation of outsider (etic) viewpoint	Particularistic findings. Representation of insider (emic) viewpoint	Corroborated findings
Form of final report	Statistical, with correlations, comparisons of means, and statistical significance of findings	Narrative, with contextual description and verbatim quotations from participants	Eclectic and pragmatic

Source: Katebire (2007:11-12).

According to Table 2, quantitative research and qualitative research are clearly distinct on all of the items indicated in column one. This shows the polarity of these approaches stemming directly from their underlying philosophical assumptions. The middle-ground position of the

mixed methods approach summarized in the last column implies that it combines the quantitative-qualitative strengths and neutralizes their weaknesses.

#### **4.3.4 Approach adopted in the study**

Rather than adopting a fully-fledged MMR, this study adopted the use of methodological triangulation within the pragmatist epistemology. Some authors think of methodological triangulation as synonymous with MMR, referring to the use of more than one kind of method to study a phenomenon (Bekhet & Zauszniewski, 2012; Casey & Murphy 2009; Wolf, 2010). Ngulube (n.d.) attributes this tendency to the fact that methodological triangulation was a prelude to MMR which used multiple methodologies in a single study. Methodological triangulation may either be “within method” if the combination of methods is restricted to either the quantitative or qualitative methods; or it may be “across method” if it combines quantitative and qualitative methods. The latter form – which is the form adopted in this study – is the more adventurous and more challenging because it involves the combination of different underlying methodologies, and actually combines methods that are based on opposed philosophical bases (Downward & Mearman, 2005). To this extent, the study is MMR leaning.

The choice of methodological triangulation was informed by the fact that the research question was not framed as a purely MMR one, yet the research sought to tap into the benefits of triangulation. Methodological triangulation enables the use of two research methods to minimize the weaknesses of an individual method and strengthen the benefits of the other for better research outcomes (Bekhet & Zauszniewski, 2012; Hussein, 2009). Indeed, like MMR, methodological triangulation has been found to be beneficial in confirming study findings, providing more comprehensive data, enhancing increased validity, and enhancing the understanding of the studied phenomenon (Bekhet & Zauszniewski, 2012; Casey & Murphy 2009).

Successful research depends, among other factors, on the researcher’s ability to blend and use methodologies and methods that are appropriate for each individual research project (Creswell, 2014). Seale, Gobo, Gubrium and Silverman (2007:7) advocate for a flexible approach to research that takes into account the aims and context of the study, and argue that pragmatism



forces researchers to be cautious and self-conscious about what they do. It was indeed out of the need to take advantage of the benefits offered by the blend of quantitative and qualitative research approaches that the study at hand was aligned to pragmatism, which in turn informed the choice of “across methods” methodological triangulation.

#### **4.4 Research design**

A research project, whether executed in a single phase or as multi-phased, is a “system” made up of research aims, procedures, activities, and outcomes, all neatly woven together in a definite structure. This structural framework is the research design, defined by Katebire (2007:12) as the overall layout of a study, from conceptualization and topic analysis to study objectives to sample selection and data collection to data analysis and presentation of the research findings. This definition captures what Trochim (2006) views as the essence of research design – to provide the glue that holds the research project together. Thomas (2010:308) likens a research design to an architectural outline, which must therefore entail systematic planning, structuring and execution of the research to ensure maximum validity of the findings.

Since the publication of Tashakkori and Teddlie’s (2003) work that brought formal recognition to pragmatism and MMR, there has been considerable discourse on the subject that has led to the development of different MMR designs (Angell & Townsend, 2011; Cameron, 2009; Creswell & Plano Clark, 2007; Mertens, 2005; Morse & Niehaus, 2009). For instance, Creswell and Plano Clark (2007:85) developed a four-type categorization of MMR designs basing on the timing of collection of each data type, the relative weight or importance of each data type, and the stage of data integration. These designs are convergent, explanatory, exploratory, and embedded. These same designs are often given other descriptive names in the literature, the common ones being: concurrent/parallel designs if quantitative and qualitative data are collected and analyzed concurrently; sequential designs if one data set builds on the other; embedded or nested designs where the less dominant data type is embedded in the more dominant one; and multilevel designs where researchers employ different techniques at different levels of data aggregation (Angell & Townsend, 2011:15; Creswell, Klassen, Plano Clark & Smith, 2011: 8; Leech & Onwuegbuzie, 2009:273). There are, of course, considerable overlaps within these designs.

Mixed methods research has gained momentum in LIS, education, psychology, and related social and management sciences; and with this momentum has been considerable synthesis and refinement of its ethos. As such, six specific designs are now clearly elaborated (Caruth, 2013; Creswell, 2014). These are:

- a) convergent design (also known as concurrent/parallel design), where the researcher simultaneously and with equal priority collects, analyzes, and integrates quantitative and qualitative data;
- b) explanatory sequential design, where the researcher first gathers and analyzes quantitative data; then gather qualitative data to explain the quantitative findings;
- c) exploratory sequential design, where the researcher first collects and analyzes qualitative data; then collects quantitative data to enhance the qualitative findings;
- d) embedded design (also known as concurrent nested design), where the researcher gathers quantitative and qualitative data at the same time, but gives more prominence to one data type over the other. The less prominent data type is embedded in the dominant one with the purpose of supporting the findings made by the dominant data;
- e) transformative design (distinguished between sequential transformative design and concurrent transformative design), where the researcher uses any of the foregoing design types with the purpose of employing the methods that will best serve the transformative theoretical perspective of the researcher; and
- f) multi-phase (or multi-level) design, where the researcher employs sequential designs in several phases of a study or employs different techniques at different levels of data aggregation (see Table 3).

This study used methodological triangulation crafted on a convergent design, which is a single phase design in which both quantitative and qualitative data are collected and analyzed concurrently, but separately, and with equal weight, and merged at the time of interpretation (Caruth, 2013; Creswell, 2014; Creswell & Plano Clark, 2007). Mixed methods researchers use the convergent design to obtain different but complementary data on the same issue in order to better understand the problem. The major endearing quality of this design is its ability “to bring together the differing strengths and non-overlapping weaknesses of quantitative methods (large sample, trends, generalization) with those of qualitative methods (small sample, details, in-

depth)” (Creswell & Plano Clark, 2007:62). Researchers also adopt convergent design when they seek to directly compare and contrast quantitative and qualitative findings (comparison), and to “confirm, cross-validate, or corroborate findings within a single study” (Creswell et al., 2003: 229).

**Table 3: Mixed methods research designs**

<b>Design</b>	<b>Orientation</b>	<b>Notation</b>	<b>Ultimate design act</b>
Convergent	Concurrent/parallel	QUAN + QUAL	Data merged during analysis or interpretation
Explanatory	Sequential	QUAN → qual	Data connected between the two phases
Exploratory	Sequential	QUAL → quan	Data connected between the two phases
Embedded	Concurrent	QUAN + qual or QUAL + quan	One data type embedded within the more dominant data type
Transformative	Concurrent, sequential or embedded	Any of the notations	Application of transformative theoretical framework
Multi-phase	Sequential	QUAN → qual QUAL → quan	Multiple data collection and aggregation phases

*Source:* Adopted from Cameron (2009: 144) and modified.

The notations indicate the importance or weight and priority of the data types. Upper case shows the major data type and vice versa. The (+) sign shows that the data types are collected/analyzed at the same time. The (→) sign shows that one data type is collected and analyzed before the other.

Methodological triangulation was initially practiced by the more quantitative researchers such as Paul Lazarsfeld who varied their methods in an attempt to achieve convergent validity (Fielding, 2010). Fielding (2012:124) also traces the beginnings of triangulation in qualitative studies, thus:

... following Campbell’s papers on “triangulation” as a means of convergent validation ... and the emergence of grounded theory ... whose “constant comparative method” involves comparing data from different sources, the triangulation metaphor also became established in qualitative research.

Triangulation came to be treasured both as a corroborative and complementary measure against the limitations posed by the perceived “unscientific” practice of qualitative research (Afzal, 2006; Glazier, 1992; Mcvilly, Stancliffe, Parmenter & Burton-Smith, 2008). According to Denzin (1970:310), the triangulation procedure involves the combination of “multiple observers, theoretical perspectives, sources of data, and methodologies” all aimed at enhancing confidence in the findings of the research.

Ngulube (2013:6) has observed that triangulating methods in a single study is not new; for a long time researchers have employed semi-structured tools (e.g., by including both closed and open-ended items in one questionnaire) in a single study – and this constituted a mixed methods approach to research. In MMR oriented studies, however, triangulation serves more than just the need to seek convergence: it is dictated by the researcher’s desire to employ all the methods and tools at his/her disposal to interrogate the philosophical assumptions and answer the research questions (Teddlie & Tashakkori, 2009).

The choice of methodological triangulation was also motivated by the fact that it was both viable and consistent with growing practice. Scholars have increasingly advocated the mixing of methods to the extent that works, arguing that this provides more perspectives on the phenomenon being studied and yields holistic results (Bazeley, 2004; Driscoll, Appiah-Yeboah, Salib, and Rupert, 2007; Johnson & Onwuegbuzie, 2004; Mason, 2006; Tashakkorri & Teddlie, 2006). Being a common, tested and versatile technique, methodological triangulation facilitates the overall realization of the purposes of pragmatist and MMR studies, which Caruth (2013:113-114) has outlined as complementarity, completeness, development, expansion, corroboration, compensation, and diversity (see also Venkatesh, Brown & Bala, 2013).

The study collected and analyzed quantitative data from a cross-section of the population in Mbarara municipality and Isingiro district. At the same time, it collected qualitative data from members of interest groups within the same population, and local government officials and private actors in information and IT services within the local governments. (See sections 4.5 and 4.6 for details on population and sampling respectively). The population in both local governments is a mixture of ethnic Banyankore, Bakiga, Bahororo, Banyarwanda and other

smaller groups from elsewhere (Sengendo, Banduga, Obita & Awuzu, 2012; AmanigaRuhanga & Iyango, 2010). These people experience different life realities – from their socioeconomic life to the education opportunities and health services available to them to the technology products they can afford, etc. Quantitative data was collected on their information needs, capabilities, resources, available/accessible technologies, etc to gauge the extent to which the people can use the proposed local government information system and what the designers of the system must consider. The collection and analysis of qualitative data afforded the study deep insights into the uniqueness and patterns of convergence in the information needs and capabilities of the people as a reflection of the differences in their circumstances – including especially the circumstances of the disadvantaged groups. The study also gained insights into the needs and capacities of the local governments in relation to a vibrant e-governance information system.

The use of quantitative and qualitative methods led to the same end: their blend into a convergent design yielded sufficient information upon which a robust e-governance model was proposed – a model that can effectively connect everybody to the local government e-governance information system and enhance citizen participation in local governance.

#### **4.5 Population of the study**

The population of the study refers to the total number of objects, whether animate or inanimate, which is the focus of research and about which the researcher seeks to determine some characteristics (Ngulube, 2005:129). These may be people, events, social groups, or institutions. The population of the study is of utmost importance to the researcher, for not only does it provide “evidence” that is so crucial in quantitative research, but it also acts as a looking glass through which the qualitative researcher learns and understands the socio-cultural realities, experiences and behaviour of the people. Therefore, a researcher must in principle gain a thorough understanding of the nature and character of the population in which the study is located, and recruit participants in a manner that guarantees access to the most reliable information.

While it is important that the researcher reaches every individual or object of the population (as in a census), for practical reasons this may not always be possible or even necessary. Where the

population in question is of people, for instance, some individuals may be incapable of offering information; or the people may be widely dispersed and difficult to locate; or the population size may be too large and unknown. In such cases, the researcher will usually target the members of the population that are “tied together” by some specific characteristics of interest to the study (Katebire, 2007:37). This is the target population.

In the instant study, the target population consisted of three categories of respondents. These were, first, members of the general population drawn from the grassroots of the local governments in the study sites. These were targeted to provide quantitative data on the governance information being accessed in the communities, the available media of communication, the resources and technologies available, as well as the people’s capacities to access and use them. They also provided information on their e-governance information needs. The second category included members of local interest groups drawn from the general population, which included women’s groups, youth groups, farmers’ groups, and traders. This category provided qualitative data on related e-governance information issues such as the information needed and the information accessed by the groups, access to technology, skills and resources, etc. The third category consisted of key informants (KIs) drawn from among district and municipal government officers, both technical and political, at different levels; and ICT operators (broadcasters, Internet service providers, and end-use operators) in the private sector. These KIs also provided qualitative information on e-resources in the local governments; extent of application of e-resources; categories of people/groups targeted with official information; information content; communication media; communication environment; and the challenges to government communication of electronic information.

#### **4.6 Sampling procedures and techniques**

The American Heritage College Dictionary (1993:1206) defined sampling as the process of selecting “a portion, piece, or segment that is representative of a whole.” In social and behavioural research, sampling involves the selection of cases (e.g., individuals, institutions), materials, and other elements in the social situation for a research study (Teddlie & Yu, 2007:78). Sampling is an important step in the research process because, as Onuegbuzie and Collins (2007:281) observed, it helps to inform the quality of inferences made by the researcher

that stem from the underlying findings. Ngulube (2005:132) has also observed that sampling is key to the effective description of the characteristics of a population; and that the sampling techniques employed by a study have crucial implications for the generalizations that can be made and the confidence that may be assigned to those generalizations.

Pragmatists and MMR researchers oftentimes choose sampling procedures that focus on generating representative samples when addressing a QUAN strand of a study, and those that yield information-rich cases when addressing a QUAL strand of a study (Teddlie & Yu, 2007:85). Combining the two orientations affords the researcher information that has both breadth and depth regarding the phenomenon under study. In convergent sampling, these procedures involve the simultaneous use of both random and purposive sampling schemes. Random sampling involves “selecting a relatively large number of units from a population, or from specific subgroups (strata) of a population, in a random manner where the probability of inclusion for every member of the population is determinable” (Tashakkori & Teddlie, 2003:713). In purposive sampling, however, the researcher deliberately determines which units of the population (normally a small number) to include in the study (Grinnell & Unrau, 2010; Katebire, 2007; Trochim, 2006). Random sampling aims to achieve representativeness and increase external validity, while purposive sampling aims to increase transferability.

In the instant study, the sampling procedure had two components: selection of the study sites and selection of the participants. The study was based on two purposively selected local governments – Isingiro district, a rural local government, and Mbarara municipality, an urban local government. However, because district and municipal local governments are not at the same political level,<sup>\*</sup> only Isingiro county was purposively selected from Isingiro district to be studied alongside Mbarara municipality. The choice of Isingiro county was based on the fact that it is

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<sup>\*</sup> According to Uganda’s Local Governments Act 1997, a district local government is equivalent to a city, a county to a municipality, a sub-county to a division or town council, and a parish to a ward. Uganda has got only one city, Kampala; and Kampala is the only urban authority equivalent in political status – not governance status – to a district. It is divided into five divisions each with municipal status. It is the municipal local governments that are comparable to the district local governments in terms of governance and service delivery to the citizens. Isingiro district is made up of two counties: Bukanga county and Isingiro county, each of which is equal in status with Mbarara municipality.

ethnically, economically and culturally more diverse than Bukanga county, and in that sense more comparable with Mbarara municipality. Isingiro county covers an area of 2,655.5 square kilometers. By the time of fieldwork for this study, it was made up of 11 sub-counties and had a total population of 273,361 people while Mbarara municipality had three divisions with a total population of 112,847 people (Uganda Bureau of Statistics, 2014). The sub-counties and divisions are shown in Table 4.

Trochim (2006) has advised that when researchers have to sample a population that is dispersed across a wide geographic area, it is helpful to sample along area clusters (usually based on administrative boundaries). After obtaining the area clusters, a researcher performs random sampling of the clusters and then goes on to sample the units within the sampled clusters. In this study, clustering was based on the existing sub-counties and parishes in Isingiro county, and the divisions and wards in Mbarara municipality. Isingiro county had 11 sub-counties (which have since been increased to 12) while Mbarara municipality had three divisions (which have since been increased to six). The researcher decided to select two sub-counties and two municipal divisions, which were randomly selected using the lottery method; and again selected two parishes from each sub-county and two wards from each division still using the lottery method.

**Table 4: Sub-counties and divisions**

<b>Sub-counties in Isingiro county</b>	<b>Divisions in Mbarara municipality</b>
Birere	Kakoba
Isingiro T.C.	Nyamitanga
Kaberebere T.C.	Kamukuzi
Kabingo	Biharwe*
Kabuyanda	Kakiika*
Kabuyanda T.C.	Nyakayojo*
Kikagate	
Masha	
Nyakitunda	
Nyamuyanja	
Ruborogota	
Oruchinga*	

\* Units that were added after data collection.



From the sub-counties, Birere and Masha were selected; and from the divisions Kakoba and Kamukuzi were selected. Table 5 shows the parishes and wards selected from these sub-counties and divisions.

**Table 5: Parishes and wards selected for the study**

<b>Sub-county/Division</b>	<b>Parishes/wards</b>	<b>Selected parishes/wards</b>
Birere sub-county	Kahanda Kasaana Kikokwa Kishuro Kyera	Kasaana Kyera
Masha sub-county	Kabare Nyakakoni Nyamisindo Nyarubungo Rukuuba Rwentango	Kabare Rukuuba
Kakoba division	Kakoba Nyamityobora	Kakoba Nyamityobora
Kamukuzi division	Kamukuzi Ruharo	Kamukuzi Ruharo

As Table 5 indicates, the selected study sites were Kasaana, Kyera, Kabare and Rukuuba parishes; and Kakoba, Nyamityobora, Kamukuzi and Ruharo wards.

After selecting the study sites, the task at hand was to select the study participants; and this was also done with the concurrent use of both random and purposive sampling schemes. Section 4.5 of this chapter has outlined the population categories from which samples were drawn for the study. For each category a choice had to be made of the optimal sample size. Onwuegbuzie and Collins (2007:287) observed that the choice of sample size is as important as the choice of a sampling scheme because it also determines the extent to which the researcher can make statistical or analytic generalizations. In pragmatist and MMR contexts, Teddlie and Yu (2007:83) talk of “a classic

methodological trade-off” involved in the sample size difference between random sampling and purposive sampling – that the former leads to greater breadth of information from a large, representative sample, and the latter to greater depth of information from a small number of carefully selected cases.

The first population category for this study was the general population of citizens in the grassroots communities in the selected study sites. Random sampling was used to select an optimal sample size of participants from this category to provide quantitative data. There is a general perception among quantitative researchers that a random sample size should be based on some percentage of the population from which it is drawn (Ngulube, 2005:134). Indeed, some scholars approve of a 10% sample size based on the sampling frame (Neuman, 2003) while others think that a view of a possible application of a fixed percent sample to all kinds and sizes of populations is not practical (Fowler, 2002). Braunstein (2003) thus advised that sample size does not entirely depend on the size of the population. Similarly, Israel (2009) has argued that in determining sample sizes for quantitative surveys, no fixed percentage can be said to be accurate for every population: what matters is the actual number. However, Ngulube (2005) has cautioned against too large samples that could result in a waste of resources, and too small samples that could diminish the utility of the results.

In view of the foregoing considerations, this study targeted a total sample size of 360 participants from the general population in the eight study sites. However, there was no sampling frame of the households in the study sites, yet the participants were to be drawn from the households (one participant per selected household). The study employed random sampling using the interval sampling scheme – the kind Bailey (1994: 90) called “systematic sampling with a random start.” Bailey (1994: 90-91) viewed this type of sampling as a practical approximation to random sampling because it is much more practical when one does not have a sampling frame. This procedure involved a blind selection of Number 4, which provided the interval between households, meaning that every 4th household was selected (whichever direction one took) up to 45 households in each of the eight study sites. This made a total of 360 participants for this population category.

The second category was that of the members of the local interest groups selected from the same general population. These were purposively selected to participate in focus group discussions (FGDs) to provide qualitative data. Sample sizes in qualitative research are usually small, but they should not be so small as to make it difficult to achieve data saturation, theoretical saturation, or informational redundancy; just as they should not be so large that it is difficult to undertake a deep, case-oriented analysis. In MMR samples using FGDs, the average number of participants in an FGD is 6-9 (Onuegbuzie & Collin, 2007:289),\* while the recommended number of focus groups is 3-6 (Onwuegbuzie, Dickinson, Leech, & Zoran, 2007). In the instant study, four interest groups were considered in each local government: a women's group and a youth group (on the basis of gender); and a farmers' group and a traders' group (on the basis of major occupations). Eight members were recruited in each of these eight groups, giving an overall total of 64 participants.

The third category was the KIs from among local government officials and information/ICT workers from the private sector. These were also purposively selected for in-depth interviews. In purposive sampling for KIs, participants are selected on the basis of some specific qualities they are deemed to possess – qualities that make the selected individuals stand out as particularly knowledgeable and able to provide “expert information” or “expert opinion” about the issues under investigation. Katebire (2007:41) elaborates such qualities as including one's qualifications, experience (lived or accumulated), position or office, social standing, and other socio-demographic characteristics. Guest, Bunce and Johnson (2006) recommended an average of 12 participants for in-depth interviews. The KIs for this study were local government officials (technical and political), service providers (mobile phone services, internet services, radio and television), and independent IT professionals – 12 in Isingiro and 13 in Mbarara (see Appendix IV).

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\* These authors cite the following ranges: 6-9 participants (Krueger, 2000); 6-10 participants (Langford, Schoenfeld & Izzo, 2002); 6-12 participants (Johnson & Christensen, 2004); 8-12 participants (Baumgartner, Strong & Hensley, 2002).

## **4.7 Data collection**

Data collection is the process of gathering data on variables of interest for the study, in an established methodical fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes. To ensure the collection of accurate and appropriate data, the researcher must match and deploy appropriate data collection methods, which should be determined by the paradigm and research question (Mackenzie & Knipe, 2006; Mertens, 2005). Therefore, a number of issues pertaining to data collection must be taken seriously to reduce or eliminate the likelihood of errors. Issues of procedure and ethics, accuracy and a balanced mix of data, as well as data collection methods and instruments (existing, modified, or newly developed) are in point.

### **4.7.1 Data collection procedures**

The research proposal for this study, as approved by UNISA, was submitted to the UNCST, which approved it on 20 July 2012. Once approved, the UNCST forwarded it to the Office of the President for security clearance to allow this research to be conducted in Uganda. The clearance was made on 11 September 2012. Letters were then issued introducing the research team to the Resident District Commissioners (RDCs) of Isingiro and Mbarara districts, who in turn informed the police and other authorities in the areas of study about the coming data collection exercise.

The researcher made pre-fieldwork visits to the study sites to identify the field dynamics necessary to enable procedural decisions such as where to begin, whether guides are necessary, and where to get food and accommodation. The same reconnaissance visits were made at Isingiro district headquarters and Mbarara municipal offices to familiarize with the offices and individual actors that would be recruited into the study. After these arrangements, field work began. Data was collected during the period from September to December 2012, but follow-up interviews were conducted during subsequent trips or over telephone up to May 2013.

### **4.7.2 Data description**

Both primary and secondary data were collected. Primary data included both quantitative and qualitative data, which were collected and analyzed concurrently. The study collected mixed data from the general population on issues specified both in section 4.5 and Table 6. Qualitative data

was collected from members of interest groups participating in FGDs and KIs from the local governments and private sector. Secondary data was extracted from the official records of the local governments, and focused on issues such as establishment, ICT integration, ICT resources (including internet), budgetary support for information management and ICT, information and communication policies, information content and audiences, etc.

#### **4.7.3 Methods and instruments of data collection**

In line with the categories of participants and the required data sets, three methods of data collection were employed to obtain primary data: a semi-structured questionnaire (Appendix I), informal, in-depth interviewing using an interview guide (Appendix II), and FGDs using a discussion guide (Appendix III). Primary data was augmented by secondary data obtained through document analysis.

The questionnaire survey was conducted on a cross-section of people in the eight study sites using a semi-structured questionnaire. A semi-structured questionnaire is a mix of unstructured and structured items on one data collection instrument. The questionnaire method was used because it is generally time saving and cost effective, especially in studies conducted on large populations and in wide geographic areas (Babbie, 2008; Bailey, 2008; Neuman, 2007; Robson, 2002). This means that questionnaires enable researchers to collect large amounts of information from a large number of people in a short period of time and in a relatively cost effective manner. They are also relatively easier to analyze while maintaining a higher level of objectivity than do most of the other data collection tools. Particularly, a semi-structured questionnaire was preferred because it allows the collection of both outright quantitative data and qualitative data that may later be quantified as the researcher deems necessary.

The second method, the informal in-depth interview, was used to collect data from the KIs. This method was employed because in-depth interviews are a very handy method of collecting qualitative information from small-sized samples of respondents deemed to have knowledge or a particular experience on which they can elaborate (Grinnell & Unrau, 2010; Katebire, 2007; Trochim, 2006). Also, instead of basing on tight, rigid schedules of questions, informal interviews are conducted with the use of interview guides, which are just lists or outlines of

topics the researcher aims to explore. The endearing quality of this method is captured by Katebire (2007:85) (citing Nichols, 1991: 131) as the latitude given to the researcher “to deal with the topics of interest in any order and to phrase their questions as they think best.” Thus, with the use of an interview guide, in-depth interviews were conducted with KIs to obtain data on the issues indicated in section 4.5 and Table 6.

Finally, FGDs were employed to obtain qualitative data from members of interest groups. FGDs are qualitative data collection methods geared toward obtaining in-depth information on concepts, perceptions and ideas from study participants in the shortest time possible. People with common backgrounds or experiences, representing a particular segment of the population, are brought together to discuss a specific subject in the context of their world of knowledge, practice or experience (Krueger & Casey, 2000; Bloor, Frankland, Thomas & Robson, 2001; Stewart, Shamdasani & Rook, 2007). Thus, with the help of a discussion guide on issues of interest, FGDs of 8 participants each were conducted with a farmers’ group, a traders’ group, a women’s group, and a youth group in each of the 8 study sites.

#### **4.7.4 Validity and reliability of the instruments**

The related concepts of validity and reliability are very important in determining the overall quality of a research study. Validity generally refers to the extent to which a data collection instrument collects data with the attributes that the research intends to measure (Katebire, 2007:29). It is concerned with the trustworthiness, utility and dependability that the researchers place into the data collection instruments (Zohrabi, 2013:258). Accordingly, the quality of the instruments is very critical because the conclusions researchers draw are based on the information they obtain using these instruments. Reliability, on the other hand, deals with the consistency, dependability and replicability of the results obtained from a study (Katebire, 2007:32; Zohrabi, 2013:259). The reliability of the results of a study depends on the validity of the instruments used.

There seems to be no consensus yet on the meaning and ways of determining validity and reliability in MMR due perhaps to the fact that consensus on nomenclature and terminology in MMR is still emerging. For example, Onwuegbuzie and Johnson (2006) use the term

“legitimation” to refer to validity while Tashakkori and Teddlie (2008) use “inference quality” for the same concept. Similarly, Tashakkori and Teddlie (2008:28) think that “generalizability of findings” is not MMR-like, and prefer instead to use “inference transferability” to mean the extent to which the conclusions from an MMR study may be applied to other settings.

Nevertheless, the question of validity was as important in this methodological triangulation study as it usually is in purely quantitative or qualitative studies. Bazeley (2004) observed that mixed methods are inherently neither more nor less valid than the traditional approaches to research. Therefore, to ensure maximum quality of the results of this study, due diligence was directed to every methodological procedure governing sampling and matching of methods and instruments to data sources in order to elicit authentic evidence. This was only imperative because, as Bazeley (2004) pointed out:

...validity stems more from the appropriateness, thoroughness and effectiveness with which those methods are applied and the care given to thoughtful weighing of the evidence than from the application of a particular set of rules or adherence to an established tradition (quoted by Terrell, 2012:274).

In other words, mixing methods does not take away the rigour required of a researcher to maximize the validity and reliability of the research. Later scholars have indeed advised that the same established rules governing validity and reliability in standard quantitative and qualitative research must be followed when these methods are combined (Onwuegbuzie & Johnson, 2006; Terrell, 2012).

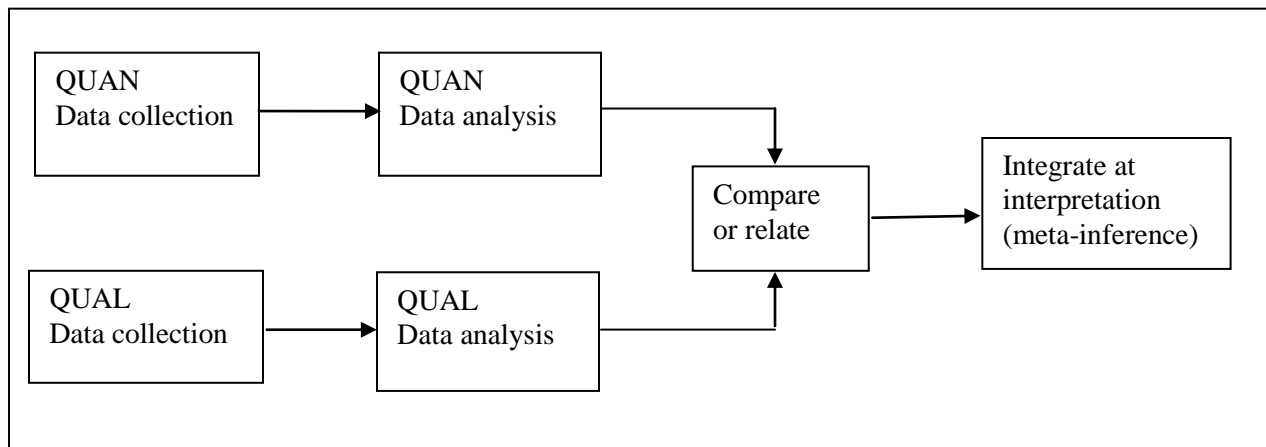
In order to achieve the desired validity and reliability for the study, at least three activities were undertaken. The first was the standardization of the questionnaire and identification of the topics for interviews and group discussions, which was done through a peer review process. The second was recruitment and training of field assistants – two fresh graduates of social sciences were for two days given rigorous training in various aspects of data collection (interviewing, probing, questionnaire administration, facilitating and recording FGDs, data coding, etc). The third measure was the pre-field arrangements, which were made to ensure against time wastage and

also that the right participants were recruited. However, other measures were taken which fall in Zohrabi's (2013:259) three-technique scheme for enhancing validity and reliability. These are: a detailed explanation of different processes of the study (investigator's position), the use of different procedures, instruments and sources of data (triangulation), and a detailed description of the data collection and analysis procedures (audit trail). All three have been duly presented in the preceding sections of this chapter.

#### 4.8 Data analysis and presentation

The process of data analysis for this study was based on the laid-down procedures of mixed methods data analysis that involve the concurrent use of quantitative and qualitative data analysis techniques within the same framework (Onwuegbuzie & Combs, 2011). The study worked with three primary data sets: one quantitative data set obtained after coding and quantifying the mixed data generated by the semi-structured questionnaire; one qualitative data set from in-depth interviews; and one qualitative data set from FGDs. In terms of design and analytical approach, however, these three data sets were reduced to two data strands: the quantitative strand, and the qualitative one resulting from merging the interview and FGD data into one strand. The two data strands were analyzed in line with the MMR tradition: "... analyzing the quantitative data using quantitative methods and the qualitative data using qualitative methods" (Creswell & Plano Clark, 2007:128).

**Figure 7: A mixed analysis model of the study**



Source: Adopted from Angell and Townsend (2011:17).



After collecting the questionnaires back, they were checked for completeness prior to the coding of the mixed data. The coded data was then entered into the computer and analyzed with the SPSS software application to generate descriptive statistics. The analysis was systematically done in line with the key concerns of the inquiry, which made integration with qualitative data (also analyzed in line with these concerns) quite easy.

The process of qualitative data analysis, however, was more demanding, and often required further visits to the study sites for additional interviews to respond to some emerging and important issues. Fortunately, the analysis of the two qualitative data sets (from interviews and FGDs) was somewhat eased by the use of the QDA Miner software (with the assistance of a data analyst experienced with this software). This made it relatively easy to integrate this data strand with quantitative data at the time of writing Chapter Six.

#### **4.9 Ethical considerations**

After reporting to the RDCs in the districts of the study and getting introduced to police and local authorities in the study sites, the research team set about recruiting the participants into the study. Ethically, this meant obtaining their consent to participate. For the respondents who participated in the study using the questionnaire, consent was requested in the introductory communication on the questionnaire, which made assurances about the confidential handling of the information that was being sought. For the other categories of participants, consent was obtained at the time of recruitment and fixing of appointments for the interviews or FGD sessions.

During the data collection process, the research assistants were constantly urged on the need to respect the participants' homes, socioeconomic status, attitudes, etc as the purpose of the visits was simply to collect data. This meant that they had to avoid any behaviour that might offend, flatter or give false expectations to the participants, which could compromise the response rates or quality of responses. The researcher met with the research assistants at every end of day to review the progress and discuss the challenges faced during the data collection exercise, and to formulate strategies to confront the challenges ahead. This helped to keep a good working rapport with the participants, as well as to keep the morale and effectiveness of the research assistants high.

**Table 6: Overall methodology matrix**

Research objective	Research question	Required data	Data sources	Sampling and data collection	Data analysis
1. To review the current state of e-governance in Uganda's local governments, and to identify their e-governance information needs.	What is the state of e-governance in Uganda's local governments, and what are the e-governance information needs in these governments?	<ul style="list-style-type: none"> <li>- Quantitative data on respondents; required information; media of communication; resources; technologies; user capacities.</li> <li>- Qualitative data on e-resources in local governments; extent of application of e-resources.</li> <li>- Secondary data on all above issues.</li> </ul>	<ul style="list-style-type: none"> <li>- Cross-section of people from general population.</li> <li>- Local government officials (technocrat, political); service providers; IT experts.</li> <li>- Official reports; circulars; studies</li> </ul>	<ul style="list-style-type: none"> <li>- Random; questionnaire</li> <li>- Purposive; intensive interviewing.</li> <li>- Document search and analysis.</li> </ul>	<ul style="list-style-type: none"> <li>- SPSS software facilitated frequency distributions &amp; other statistical analyses.</li> <li>- QDA Miner software to facilitate data coding, classification of resources and needs, analysis of patterns in use of resources, etc.</li> <li>- Thematic analysis of secondary data.</li> </ul>
2. To map out the current geometry of information flows in order to establish imbalances or gaps in the geometrical framework that need to be plugged into.	What are the imbalances and/or gaps in the current geometry of information flows, and how can they be plugged into?	<ul style="list-style-type: none"> <li>- Quantitative data on respondents; group interests; information received; information required.</li> <li>- Qualitative data on group interests; information received; information required.</li> <li>- Qualitative data on categories of target groups; information content; media; communication environment; challenges.</li> <li>- Secondary data on all above issues.</li> </ul>	<ul style="list-style-type: none"> <li>- Cross-section of people from general population.</li> <li>- Members of interest groups.</li> <li>- Local government officials (technocrat, political); service providers; IT experts.</li> <li>- Official reports; circulars; studies</li> </ul>	<ul style="list-style-type: none"> <li>- Random; questionnaire</li> <li>- Purposive; FGDs</li> <li>- Purposive; intensive interviewing.</li> <li>- Document search and analysis.</li> </ul>	<ul style="list-style-type: none"> <li>- SPSS software facilitated frequency distributions &amp; other statistical analyses.</li> <li>- QDA Miner software to facilitate data coding, classification of group interests, patterns in needs.</li> <li>- QDA Miner software to facilitate data coding, classification of target group and their interests, patterns in information needs, information seeking behaviour, etc.</li> <li>- Thematic analysis of secondary data.</li> </ul>

<p>3. To perform a SWOT analysis of local governments, and review common information access and flow models in order to determine features for the most appropriate model.</p>	<p>What, in the context of common information access and flow models, are the strengths, weaknesses, opportunities and threats in Uganda's local governments?</p>	<ul style="list-style-type: none"> <li>- Qualitative data on e-readiness of local governments: strengths, weaknesses, opportunities, and threats.</li> <li>- Secondary data on e-governance models; SWOT analyses.</li> </ul>	<ul style="list-style-type: none"> <li>- Local government officials (technocrat, political).</li> <li>- General literature.</li> </ul>	<ul style="list-style-type: none"> <li>- Purposive; intensive interviewing.</li> <li>- Literature review</li> </ul>	<ul style="list-style-type: none"> <li>- QDA Miner software to facilitate data coding, analyze patterns in e-readiness strengths, weaknesses, opportunities, and threats.</li> <li>- Thematic analysis of secondary data.</li> </ul>
<p>4. To propose and rationalize an appropriate information access and flow model for e-governance in Uganda's local governments.</p>	<p>What is the most appropriate information access and flow model of e-governance for Uganda's local governments?</p>	<ul style="list-style-type: none"> <li>- All forms of data</li> </ul>	<ul style="list-style-type: none"> <li>- Analysis and synthesis of all primary and secondary data.</li> </ul>	<ul style="list-style-type: none"> <li>- Synthesis</li> </ul>	<ul style="list-style-type: none"> <li>-</li> </ul>

In the practical world of research, the data collection process can be abused through deliberate falsifications by unscrupulous field assistants; but it is sometimes also affected by inadvertent errors as may occur during data entry. In the face of such inaccuracies, the research not only fails to correctly answer the research questions, but it also misleads other researchers pursuing investigations on related topics. Moreover, when the research results from data that lacks integrity are used to support public policy decisions, they lead to considerable distortion and harm. Thus during data collection, a number of measures were taken to eliminate inconsistencies and guard against any compromises to the integrity of the data. These included probing during interviews and cross-checking information during contact with the participants. Cross-checking was particularly a routine, and was extended beyond data collection to the draft data reports in order that any inconsistencies, extreme values or invalid codes could be identified and rectified. Another measure was the follow-up phone calls to the KIs aimed at cross-checking and ascertaining facts.

#### **4.10 Evaluation of the research methodology**

Every research methodology has got its strengths and pitfalls, and the identification and management of these traits has got very important implications for the authenticity of the results achieved by their execution. It is important for a researcher to beware of the strengths of a methodology in order to maximally exploit them, and its weaknesses in order to mitigate or turn them to his or her advantage. Ngulube (2005:139) advised that researchers should evaluate their methods in procedural terms as well as in terms of their efficiency and effectiveness. He gives the scope of the evaluation as including an account of unexpected changes to the research design, limitations of the research design, the acknowledgement of shortcomings of the execution of the study and ethical issues.

This research used methodological triangulation on the consideration that no single research approach or method can be said to be intrinsically better than another; and that “methodologies are best used in a complementary way” (Waring, 2000:2). Combining methods offers a researcher sufficient data, a wider perspective for explanations, and enhanced confidence in the findings (Ngulube, Mokwatlo & Ndwandwe, 2009). Above all, it allows for the minimization of the limitations of each purist approach while the strengths are built upon, thereby providing

stronger and more accurate inferences (Bennett & Braumoeller, 2006; Brewer & Hunter, 2006; Denscombe, 2006; Fearon & Laitin, 2008).

In line with the practice of methodological triangulation, the study worked with a quantitative dataset from the general population and a qualitative dataset from interest groups and KIs; the data was gathered through a questionnaire, informal interviews, group discussions, and secondary sources. While such a quantitative-qualitative balance is consistent with the mixed methods approach, the semi-structured questionnaire used on the general populace generated a considerable amount of qualitative data, which was then coded and quantitized. Quantitizing qualitative data has been observed to lead to loss of flexibility and depth of the data, which is the hallmark of qualitative research (Bazeley, 2004; Driscoll et al., 2007). Driscoll et al (2007) in fact advise against quantitizing qualitative data. Unfortunately, the study could not have used a fully structured questionnaire on a population and subject that had not been already qualitatively studied. Nor was it possible for the research team to do a prior qualitative phase in the face of the limited time and resource envelope. Despite this challenge, however, the study benefitted from the complementary strengths and non-overlapping weaknesses of the individual methods that triangulation offers.

Mixed methods research is an emergent research approach, and that being the case, there are a number of emerging concepts and procedures, as well as changing view points on which there is no consensus yet. For example, mixed methods researchers are yet to agree on how to interpret conflicting results or how to analyze quantitative data qualitatively. While the latter was not an issue of interest to this study, the former was quite important. As such, wherever a divergence of viewpoints was found between quantitative and qualitative data, it was simply reported as a divergence (yet triangulation seeks convergence!). Fortunately again, such instances were very few and not on important issues and therefore did not affect the conclusions of the study.

Ethical considerations are as important as scientific ones, and should therefore be factored into the evaluation of the research methodology (Cohen, Manion & Morrison, 2000: 246; Ngulube, 2005:40). There were no major ethical issues in the study beyond those concerned with consent of the participants and confidentiality of information. The study engaged participants of majority

age, and their consent was fully secured. Interestingly, participants showed enthusiasm to be part of the study, which contrasted greatly with the researcher's earlier experiences, where general reluctance among the population to respond to a questionnaire was very apparent. While this is not attributed to the design and methods used, it is nevertheless acknowledged as a success factor.

All in all, in spite of the identified shortcomings, the methodological triangulation technique adopted in this study provided a great and enriching experience. Triangulation was particularly effective, as the researcher is well versed in both quantitative and qualitative research methods. Some of the minor challenges to the design, e.g. the lack of a perfect balance between the qualitative and the quantitative elements, were mitigated by the greater benefits of triangulation.

#### **4.11 Summary of the chapter**

This chapter has focused on the research methodology of the study and discussed the interconnectedness of its major components. A discussion of the current research paradigms and their underlying philosophical orientations has given the basis for the researcher's choice of the pragmatist paradigm, and hence the methodological triangulation strategy. With the choice and justification of methodological triangulation, the chapter identifies this with convergent design. Under this design, the study combines random and purposive sampling schemes to respectively cater to the quantitative and qualitative components of the research. Considerable attention is paid to the scientific and procedural details of the use of these different schemes. It is thus shown how purposive and random area sampling schemes were concurrently applied to select the study sites; and how random interval and purposive sampling were used to select participants for quantitative and qualitative data respectively. Secondary data was sourced from studies and institutional documents. In fact, the chapter relies on empirical evidence to emphasize and justify the analysis of quantitative data using quantitative methods and qualitative data using qualitative methods as methodological triangulation demands. The chapter also discusses the important questions of validity and reliability, as well as of ethical issues. Finally, an evaluation of the methodology is given.

## **CHAPTER FIVE**

### **ANALYSIS AND PRESENTATION OF THE FINDINGS**

#### **5.1 Introduction**

This study was driven by the manifest e-governance challenges in local governments in Uganda, which triggered the need to investigate critical issues in information access and flow within these local governments. The ultimate goal was to develop an adoptive information access and flow model to support e-governance in the local governments. Four specific objectives were set and pursued, which provided a pedestal for the realization of the above goal. The first objective was to review the state of access to e-governance information in the local governments, and to identify the e-governance information needs of these governments. The second was to study the geometry of information flows in the local governments in order to establish imbalances or gaps that needed to be plugged into. The third was to perform a SWOT analysis of the local governments, and then review the common information access and flow models in order to determine features for the most appropriate model for Uganda. The fourth was to propose and rationalize an information access and flow model that is appropriate for e-governance in Uganda's local governments.

Two data sets were collected: quantitative data from the questionnaire survey and qualitative data from FGDs and KI interviews. Data collection and analysis were guided by the contextual design theoretical framework (see subsections 3.3.4 and 3.3.5), and conducted over a period of seven months. This chapter presents the findings of the study. The findings based on quantitative data are presented with the use of tables indicating frequencies and percentages, while those based on the qualitative data are presented thematically. Individual verbatim expressions are only used in Chapter Six to support the discussion of the qualitative findings.

This chapter is divided into seven sections. Sections 5.2 and 5.3 present the findings on the response rate and socio-demographic characteristics of the study participants respectively. Section 5.4 presents the findings on objective 1 of the study, which focus on G2C and C2G communication issues such as content of communication, intensity of communication, media of communication, and information management. Section 5.5 presents the findings on objective 2

of the study, which focus on evenness in the flow of information, issues of social disadvantage and social groupings in the communities, and the diffusion of ICT skills, tools and resources within the communities. Section 5.6 presents the findings of a SWOT analysis conducted in the local governments, while section 5.7 makes a summary of the chapter.

## **5.2 Response rate**

In survey research, response rate measures the rate of completion of the data collection instruments by the study participants (AAPOR, 2008; Babbie & Mouton, 2003; Groves, 2006). It is given as a percentage of the people that are sampled to participate in the study who actually complete the survey. In this study, questionnaires were administered to a sample of 360 participants randomly drawn from a cross-section of the study population (see Table 7). Of these, 17 questionnaires were not returned while 23 were rendered invalid by the participants not responding to some items, or putting answers to wrong questions, or supplying unintelligible responses. Altogether, 40 (11.1%) questionnaires were excluded from the final analysis of the responses. The quantitative analysis and reporting made in this chapter is thus based on a total of 320 questionnaires, representing 88.9 percent response rate. The quantitative findings are corroborated by qualitative data from 25 KI interviews and 8 FGDs.

## **5.3 Demographic characteristics of the participants**

Demographic information is information about the important characteristics of a population, such as ethnicity, gender, age, education, profession, occupation, income level, and marital status. In survey research, the distribution of such characteristics within the population constitutes a very important consideration (OECD, 2013; Wyse, 2012). According to Wyse (2012), such information serves two important purposes: firstly, it helps the researcher to break down overall survey responses into meaningful groups; and secondly, it facilitates data analysis in the form of cross-tabulations to compare survey data across multiple demographics if such comparison meets the researcher's interests.

The questionnaire had four items on the demographics of the participants that were deemed essential to the analysis and interpretation of the participants' responses. These were: area of



residence, gender, highest education level attained, and occupation. The distribution of these demographic characteristics within the sample is presented in the following subsections.

### 5.3.1 Area of residence

The questionnaire participants were asked to indicate their sub-county and parish or the municipal division and ward in which they lived. This was intended to enable a comparison of survey completion between participants in rural and urban local governments. The distribution of the participants that completed the questionnaire survey is presented in Table 7 below.

**Table 7: Distribution of participants by area of residence (N = 320)**

Area	Parish/ward	Sample	Participants	Percent
Urban (municipality)	Ruharo	45	39	86.7
	Kamukuzi	45	43	95.6
	Kakoba	45	38	84.4
	Nyamityobora	45	38	84.4
<b>Sub total</b>	<b>4</b>	<b>180</b>	<b>158</b>	<b>87.8</b>
Rural (district)	Kasaana	45	40	88.9
	Kyera	45	45	100.0
	Kabare	45	37	82.2
	Rukuuba	45	40	88.9
<b>Sub total</b>	<b>4</b>	<b>180</b>	<b>162</b>	<b>90.0</b>
<b>Total</b>	<b>8</b>	<b>360</b>	<b>320</b>	<b>88.9</b>

The results in Table 7 indicate that 158 (87.8%) participants in the urban local government successfully completed the survey compared to 162 (90.0%) participants in the rural/district local government. Although the rural areas had a higher completion rate, the figures in both areas are very comparable. This variable was not important for qualitative data as all the 25 KIs and 64 FGD participants were purposively recruited into the study.

### 5.3.2 Gender distribution

Of the 320 participants that completed the survey, 180 (56.2%) were male and 140 (43.8%) female (difference of 40 (12.5%) more men than women). Qualitative data (observed from records) also showed gender imbalance in favour of the males. The record of interviews showed that of the 14 KIs in Mbarara municipality, 9 were men and 5 women (4 more men than women); and of the 11 KIs in Isingiro district, 7 were men and 4 women (3 more men than women). This made a total difference of 7 (28%) more men than women. Similarly, there was gender imbalance in favour of the men in FGDs, save for the women’s focus groups that were women-only groups. The gender distribution in FGDs is presented in Table 8 below.

**Table 8: Gender distribution in FGDs (N = 64)**

Focus Group	Population type	Male	Female	Total
Mbarara	Farmers	3	5	8
	Traders	5	3	8
	Women	0	8	8
	Youth	4	4	8
Isingiro	Farmers	5	3	8
	Traders	6	2	8
	Women	0	8	8
	Youth	6	2	8
<b>Total</b>		<b>29</b>	<b>35</b>	<b>64</b>

As Table 8 indicates, membership in the two women’s FGDs is exclusively female. Discounting the two women’s FGDs, the result for the remaining six FGDs is that there were 29 men as compared to 19 women. The overall gender distribution thus showed an imbalance in favour of the males.

### 5.3.3 Education levels

Attainment levels of education are considered a good measure of functional literacy – the level of reading and writing skills required for a person to get along on a day-to-day basis\* (Asia-Pacific Programme of Education for All, 2001; Knighton & Bussière, 2006). It has also been noted that advocacy and action-oriented research must take cognizance of the education and literacy levels of the population as a basis for the design of interventions (OECD, 2013). Thus, in the questionnaire survey, education was a crucial demographic characteristic, for it was deemed an important determinant in the extent to which participants could access and utilize information. Table 9 summarizes the education attainment levels among the questionnaire participants.

**Table 9: Education levels of participants (N = 320)**

<b>Education level</b>	<b>Frequency</b>	<b>Percent</b>
No formal education	8	2.5
Primary	101	31.6
Secondary	134	41.9
Tertiary	77	24.0
<b>Total</b>	<b>320</b>	<b>100.0</b>

According to Table 9 above, 77 (24.0%) of the participants had attained tertiary (post-secondary, professional, technical or vocational) education; 134 (41.9%) had secondary education; 101 (31.6%) had primary education; while only 8 (2.5%) had no formal education at all. The study did not seek actual education levels of the KIs as all of them were by virtue of their jobs deemed to have the minimum requisite education. Similarly, the identification and selection of FGD participants was purposively guided by their ability to participate in the study.

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\* Functional literacy underlies the other forms of literacy. In the context of this study, the relevant literacies include: (i) information literacy – the ability to know when there is a need for information, and to be able to identify, locate, evaluate, and effectively use that information for the problem at hand; (ii) media literacy – the informed, critical understanding of the mass media; (iii) computer literacy – the ability to use a computer and its software to accomplish practical tasks; and (iv) information technology literacy – the ability to use new media such as the Internet to access and communicate information effectively.

### 5.3.4 Occupation of participants

Occupation was also considered an indispensable demographic variable in the survey at least in two ways. Firstly, it would point to the nature of content required by each participant in a given occupation. Secondly, it would be an indicator of a participant's financial capacity to own or rent ICT tools, or to meet subscription or access fees for e-information. This question generated a wide array of responses among the questionnaire participants, which are reduced to the categories indicated in Table 10.

**Table 10: Occupation of participants (N = 320)**

<b>Occupation</b>	<b>Frequency</b>	<b>Percent</b>
Trading	87	27.2
Farming	63	19.7
Teaching	46	14.4
Civil service	25	7.8
Technician	24	7.5
Casual labour	22	6.9
Student	21	6.6
Transportation	10	3.1
Crafts	10	3.1
Health services	7	2.2
Unemployed	5	1.5
<b>Total</b>	<b>320</b>	<b>100.0</b>

The results in Table 10 show that the survey participants were widely spread out across occupations, with 87 (27.2%) participants reporting that they were in trade business, 63 (19.7%) in farming,\* 46 (14.4%) in school teaching, and 25 (7.8%) in civil service. Other categories representing less than 10% each include technicians (7.5%), casual labourers (6.8%), students (6.6%), transporters and artisans (3.1% each), and health workers (2.2%). Only 5 (1.6%) participants reported that they were unemployed.

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\* All "farmers" in the questionnaire survey were categorized as peasant/subsistence farmers; otherwise commercial farmers as an interest group were engaged in two FGDs.

Regarding the qualitative research component, occupation was the major criterion for the selection of participants. Thus, the KIs were spread across the occupations of interest to the study, as indicated in Appendix IV. Similarly, 16 participants in the two farmers’ FGDs were farmers, and 16 participants in the two traders’ FGDs were traders. Unfortunately, the occupations of 16 participants in two women’s FGDs and 16 participants in two youth FGDs were not captured.

#### **5.4 Access to e-governance information in local governments**

This section makes a presentation of the research findings on a number of e-governance issues in local governments in the study area. The issues relate to the communication of e-governance information between the government and citizens, information content, electronic media, intensity of government communication, and the diffusion of ICT resources. The assessment of e-governance information needs begins with the analysis of the gaps left by the differences between G2C and C2G communications, and extends to issues in information management.

##### **5.4.1 Government to citizen communication**

The hallmark of a good government or governance regime is an appropriate system of communication and feedback between the government and its citizens. Participants who completed the questionnaire responded to a simple but very basic question: whether their district or municipal local government officially communicated to the people. The responses to this question are captured in Table 11.

**Table 11: Whether local governments communicate to citizens (N = 320)**

<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Yes	292	91.2
No	8	2.5
Don’t know	20	6.3
<b>Total</b>	<b>320</b>	<b>100.00</b>

According to the findings reported in Table 11, the local governments in the study areas obviously communicated to their people. An overwhelming 292 (91.2%) majority of the survey

population acknowledged that their governments did communicate to them. Eight (2.5%) participants said the local governments did not communicate, while 20 (6.3%) said they did not know.

The same question was put to the KIs and participants in the FGDs, all of who reported that the local governments communicated to the people. In follow-up interviews, the study sought to discover why in a survey where over 90% participants reported that their local governments communicated to the citizens some people had never received any communication. The findings are summarized as follows:

- Some people are illiterate and do not easily interact with government information;
- Government information does not reach certain people or certain areas;
- There are communication lapses so some people cannot recall past communication;
- Some people do not have the means to access information;
- Some people do not have the time or interest to seek information;
- Some people do not pay attention to or mentally register broadcast information.

These responses seem to offer credence to earlier responses to the questionnaire, namely that 2.5% of the participants reported in Table 9 said that they had no formal education (suggesting limited need or ability to access information resources) while 6.8% and 1.6% of the respondents in Table 10 reported that they were casual labourers and unemployed respectively, suggesting that they had limited means to access information resources.

#### **5.4.2 Content of information communicated by local governments**

Although access to information in the public domain is the mainstay of an e-governance information system, Wakabi (2011) has emphasized that such access may not be of much consequence if not matched with relevant and usable content. Inquiry into local government communication content in this study was thus focused on the governance areas or issues in the communication to the people. In the questionnaire survey, this question was directed only to those who acknowledged that their local governments communicated to the people. Table 12 shows their responses on the areas on which communication content in the local governments is built.

**Table 12: Content in government communication (n=292; multiple responses)**

<b>Content</b>	<b>Frequency</b>	<b>Percentage</b>
Policies/politics	186	63.7
Infrastructure	171	58.6
Health	156	53.4
Taxation	154	52.7
Education	135	46.2
Agriculture	115	39.4
Other	56	19.2

According to Table 12, information on government policies and mainstream politics predominates in government communication, with a frequency of 186 (63.7%), followed by infrastructure with a frequency of 171 (58.6%). These were followed in very close ranges by information on health reported by 156 (53.4%) participants, taxation by 154 (52.7%), education by 135 (46.2%), and agriculture by 115 (39.4%). The remaining areas (security, elections, corruption, land, identity, rights, etc), which posted very low frequencies, were lumped together and coded as “Other” with a count of 52 (19.2%).

Qualitative data was sought on the question of content, which attracted considerable interest and responses from both KIs and FGDs. The responses on content in G2C communication are summarized in Table 13.

**Table 13: Qualitative responses on G2C communication content**

<b>Interviews</b>	<b>Focus Group Discussions</b>
<ul style="list-style-type: none"> <li>• Government programmes</li> <li>• Service delivery</li> <li>• Weather forecasting</li> <li>• Health</li> <li>• Security</li> <li>• Agriculture and veterinary</li> </ul>	<ul style="list-style-type: none"> <li>• Disease outbreak</li> <li>• Weather</li> <li>• Planting and harvesting tips</li> <li>• Storage, preservation and marketing of produce</li> <li>• Elections</li> </ul>

<ul style="list-style-type: none"> <li>• Value addition</li> <li>• Elections</li> <li>• Government policy</li> <li>• Taxation</li> <li>• Education</li> <li>• Infrastructure</li> <li>• Corruption</li> <li>• Identity and citizenship</li> <li>• Patriotism</li> </ul>	<ul style="list-style-type: none"> <li>• Ruling party manifesto</li> <li>• UPE and USE (education)</li> <li>• Empowerment fund/programme</li> <li>• Immunization</li> <li>• Markets</li> <li>• Licenses and taxes</li> <li>• Household wealth creation</li> <li>• Roads</li> <li>• Electricity</li> <li>• HIV/AIDS</li> <li>• National identity cards</li> </ul>
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The results show a fairly expansive range of areas/content and a clear overlap between KI and FGD responses (there are a number of different terms that refer to the same content, e.g. government programmes and party manifesto).

**5.4.3 Electronic media used in G2C communication**

Communication entails at least four basic elements: the sender of information, the information being sent, the medium through which the information is channeled, and the receiver of the information. Elements such as encoder and decoder (also known as moderator and de-moderator, or modem), feedback, and noise are also important but only incidental. Therefore, no discussion or analysis of communication can be effective without a discussion or analysis of the medium of communication, among other basic elements. More importantly however, and especially in the context of this study, no design or implementation of an information/communication system can succeed if not predicated on a thorough study and analysis of the medium of information communication.

In this line, the questionnaire survey investigated the electronic media commonly used by the local governments to communicate to the public. Question 7 asked the 292 participants who acknowledged that their governments communicated to the people to check all electronic media used from the supplied list. The result is presented in Table 14.



**Table 14: Electronic media used in G2C communication (n=292; multiple responses)**

<b>Electronic medium</b>	<b>Frequency</b>	<b>Percentage</b>
FM radio	275	94.2
Television	85	29.1
Mobile phone/SMS service	39	13.4
Web portals	29	10.0
Electronic billboard	9	3.1
Mobile public address system	5	1.7

As Table 14 indicates, FM radio was the most popular electronic medium of G2C communication, reported by 275 (94.2%) of the survey participants. This was followed by TV, which was reported by 85 (29.1%), mobile phone SMS by 39 (13.4%), web portals by 29 (10.0%), e-billboards by 9 (3.1%), and mobile public address systems by 5 (1.7%) in that order.

Qualitative data was also sought on the media used in G2C communication, and particularly why the media that were popular were so considered. Like the questionnaire participants, both the KIs and FGD participants said the radio was the most popular tool for sourcing electronic information; and that the more static media were much less popular than broadcast media (radio and TV). However, unlike the KIs who generally attributed the popularity of radio to affordability by most households, the FGD participants said people in rural areas did not optimally use radios because this required replacing batteries very often or charging their mobile phone batteries daily, which was expensive. Reasons were given for the (un)popularity of other media as well, especially why broadcast media were generally more popular than static media. Table 15 presents a summary of these reasons.

**Table 15: Reasons for popularity of media used in G2C communication**

KI interviews	FGDs
<ul style="list-style-type: none"> <li>• Radio sets very cheap and affordable to most households</li> <li>• F.M. radios available on mobile phone sets</li> <li>• Radio and TV broadcasts reach people wherever they are, at no user fees</li> <li>• TV more popular in urban and peri-urban areas, which have electricity</li> <li>• SMS broadcasts not used by LGs due to lack of initiative.</li> <li>• SMS usage has potential to reach every mobile phone user</li> <li>• People’s access to web portals limited by concentration in towns, low skills</li> <li>• Web portals not up-to-date</li> <li>• E-billboards used by business</li> <li>• Mobile public address systems suitable for instant mass mobilization.</li> </ul>	<ul style="list-style-type: none"> <li>• More radios in homes than any other e-gadgets</li> <li>• Radio usage in rural areas curtailed by cost of buying or charging batteries</li> <li>• TV usage limited to towns, where users can afford them</li> <li>• Usage of SMS by local governments would be hampered by language diversity</li> <li>• People have no or poor skills to access websites</li> <li>• Access to websites requires user fees</li> <li>• Internet on mobile phones possible with expensive handsets (e.g. Smartphone)</li> <li>• Information on websites only in English</li> <li>• There are limited places where to access public information.</li> </ul>

**5.4.4 Intensity of G2C communication**

The media is considered a strong instrument in shaping the opinions and actions of the listeners and viewers because it “fires” information directly at the viewers, which guides their actions (De Fleur & Dennis, 1988; Lowery & De Fleur, 1995). More importantly, selective and sustained media messages are said to exert an indelible impact on public awareness of issues (Brosius & Kepplinger, 1990; Lang & Lang, 1981; Shaw & McCombs, 1977). It has also been observed that the frequency of a message is a good indication of the importance of the information content embedded in that message (Hansen, 2009; Entrepreneur Media, 2014). This study thus

investigated the intensity of government communication by establishing how frequently the local governments communicated to the people using electronic media.

A structured question (question no. 8) was asked requiring the participants to check one of the alternatives provided that indicated the intensity of government communication. The alternatives were: *occasionally*, if communication was made once in a while, using any electronic medium and following no pattern; *regularly*, if communication was through radio or TV programmes aired once or twice every week; *instantly*, if communication was made through news broadcasts or mobile phone SMS as breaking news; and *permanently*, if information was readily available in an electronic database or on a website.

**Table 16: Frequency of communication (n = 292)**

<b>Response</b>	<b>Frequency</b>	<b>Percent</b>
Occasionally	33	11.3
Regularly	156	53.4
Instantly	74	25.3
Permanently	29	10.0
<b>Total</b>	<b>292</b>	<b>100.0</b>

The data in Table 16 indicates that a 156 (53.4%) majority of the participants reported that their local governments communicated to the people regularly, followed by 74 (25.3%) who reported that their governments communicated instantly. Thirty-three (11.3%) reported that government communication was occasional, while only 29 (10.0%) said the governments used permanent communication media (database or website).

Qualitative data reflected much the same findings. Both the KIs and FGD participants were guided on the communication intensity or frequency benchmarks as provided to the questionnaire participants. The KIs generally agreed that the local governments were constrained in their communication programmes. The following is a summary of their statements:

- There are few communication channels available for the local governments to reach the people. Limitation is experienced in terms of language barrier, target audience segment, skills and access tools in the audience, etc.
- Citizen access to government information retrieval systems (static media) is extremely limited.
- Establishing, maintaining and updating websites that are not optimally utilized by citizens is not cost-effective.
- Broadcast media are so expensive to engage intensively: radio and TV airtime is very costly, and this limits the frequency of communication.
- Coverage of government functions and events is left to private broadcasters, which imposes limitations on government control of the content and frequency of information reaching the people.

Similarly, the FGDs revealed that local government communication to the citizens was more occasional than otherwise. Participants were particularly concerned about the *ad hoc* nature of G2C communication as reflected in the following observations:

- There is heightened G2C communication on weather during prolonged rains or dry spells, after which the communication stops.
- Issues on government service delivery are intensively communicated during election time, after which they are rarely communicated.
- Local government communication is influenced by central government communication.
- There is active local government communication in an area where there is an on-going project.
- Local governments tend to cede communication of important governance matters to private actors.

#### **5.4.5 Citizen to government (C2G) communication**

Governance is an interactive and participatory process that is predicated on a free flow of information on which all the governance objectives, activities and outcomes are based. Therefore, the governors and the governed are bound in a relationship based on sharing and

exchange of information. It was with this realization that to the study investigated citizen initiative and input in the communication process.

In a structured yes/no question (question no. 9), the participants were asked whether they ever initiated electronic communication (volunteered or requested information electronically) with their local governments. The responses showed that of the 320 participants, only 78 (24.4%) had ever initiated a communication with the local government. The remaining 242 (75.6%) had never initiated any such communication.

Qualitative data showed that of the 25 KIs, only 8 (32%) said they had received unsolicited information or requests for information from citizens. Similarly, of the 64 participants in 8 FGDs, only 12 (18.8%) (3 youth, 5 traders, 4 farmers, and 0 women) had ever volunteered or requested information from their local governments.

#### **5.4.6 Content of information in C2G communication**

To design an appropriate e-governance information system, it is imperative that the designer knows the content areas and depth of information that is of interest not only to the government but also to the citizens. Thus, a follow-up question about the information that was commonly volunteered to or requested from the local governments was posed to be answered by only those participants who reported that they had initiated communication with their local government. Table 17 presents a summary of their responses.

**Table 17: Content of C2G communication (n = 78; multiple responses)**

<b>Content of information</b>	<b>Frequency</b>	<b>Percent</b>
Agriculture	36	46.2
Education	32	41.0
Taxation/licensing	29	37.2
Security	27	34.6
Elections	27	34.6
Infrastructure	25	32.1
Electricity	24	30.8

Travel documentation	20	25.6
Health	19	24.4

The results in Table 17 show that information on agriculture was the most sought after, having been requested by 36 (46.1%) of the participants. Information on education was requested by 32 (40.0%) of the participants. Other areas followed in close ranges, from taxation and licensing by 29 (37.2%), security and elections by 27 (34.6%) each, infrastructure by 25 (32.0%), electricity by 24 (30.8%), travel documents/passports by 20 (25.6%), and health by 19 (25.6%).

A comparison of the areas on which the people communicated to the local governments and those on which the local governments communicated to the people provides interesting insights into the loopholes in e-governance information flow. The comparative statistics are presented in Table 18.

**Table 18: Comparative analysis of content in C2G and G2C communication**

Content of information	C2G	G2C	Observation
Agriculture	46.1	39.4	Citizen requests higher than government communication
Education	41.0	46.2	Citizen requests lower than government communication
Taxation/licensing	37.2	52.7	Citizen requests lower than government communication
Security	34.6	--	Government communication too low; lumped in "Other"
Elections	34.6	--	Government communication too low; lumped in "Other"
Infrastructure	32.0	58.6	Citizen requests lower than government communication
Electricity	30.8	--	Government communication too low; lumped in "Other"
Travel documentation	25.6	--	Government communication too low; lumped in "Other"
Health	24.3	53.4	Citizen requests lower than government communication

Follow-up interviews were conducted to seek qualitative insights into the above comparative findings, which showed inadequate content both in G2C and C2G communication. An analysis of the responses revealed the following issues:

- C2G communication is largely a response to G2C communication
- There is no local government commitment to information dissemination
- There are serious challenges facing the local government information and communication infrastructure and resources
- Leaders play politics at the expense of service delivery, so they do not communicate – and citizens do not respond
- There is very low IT diffusion, so most people do not access G2C content
- Current local government communication is almost made for its own sake – there is scant attention to citizen information needs
- There is poor budget prioritization, so communication is no priority
- The local governments have poor communication planning/programming.

Focus group participants were not engaged in follow-up issues.

#### **5.4.7 Electronic media for C2G communication**

It was observed in subsection 5.4.3 that no communication can take place without a medium; and that no design or implementation of an information/communication system can succeed unless it is based on a thorough study and analysis of the prospective communication medium. That subsection presented the findings on the media used by the local governments. It is also true, however, that the media at the disposal of the receiver of the communication are as important, both for enabling the receipt of the message and for communicating back. Citizen communication serves as a feedback to government, but also as a legitimate avenue for citizens to initiate interactions with the government. This subsection presents data on the electronic media used by the people to send or request information from their local governments.

**Table 19: Electronic media for C2G communication (n = 78; multiple responses)**

<b>Medium</b>	<b>Frequency</b>	<b>Percent</b>
Mobile phone	62	79.5
FM radio*	34	43.6
E-mail via PC & modem	13	16.7
Web portal	4	5.1
Television*	3	3.8

\* Communication through these media was also facilitated by mobile phone, by people calling in the studio during talk shows.

Table 19 indicates that of the 78 participants who had communicated to their local governments, 62 (79.5%) used the mobile phone, 34 (43.6%) used the FM radio, and 13 (16.7%) electronic mail using PCs and mobile modems. The use of web portals and TV, however, was extremely low, having been used by only 4 (5.1%) and 3 (3.8%) participants, respectively.

Qualitative data from KI interviews on the citizens' use of various electronic media indicated that:

- Citizen use of mobile phones is on the rise.
- Mobile phones can be used simultaneously with other media such as radio and social media.
- Official telephone and e-mail contacts of government offices are available to the public.
- Radio penetration in the communities is very high.
- TV penetration in the rural communities is very low.
- The level or extent of use of electronic media in rural communities is influenced by access to electricity.
- Electronic databases and websites are “absence” in the communities.
- Citizen use of electronic databases and websites is limited by low skills and high cost.

#### **5.4.8 Citizen awareness of information access places**

Information management is an organizational function that entails the acquisition, processing, organization and communication of information and knowledge for use by others within an



organization to enhance their effectiveness and productivity (Gray, 2000). In organizations, there are designated places – the information centres (herein referred to as information access places) – where information is managed, and it is here that information is accessed by the users.\* An information access place may take the form of a library, a resource centre, a registry, or just an office.

In a yes/no question (item no. 12), the questionnaire survey investigated the participants' awareness of the public information access places in their district or municipal local governments. Of the 320 participants, only 68 (21.3%) said they were aware of such places; the remaining 252 (78.7%) reported that they did not know of such places. The participants who reported awareness about the public information access places were further prodded in question 13 to mention the places they knew.

**Table 20: Awareness about public information access places (n = 68; multiple responses)**

<b>Information access place</b>	<b>Frequency</b>	<b>Percentage</b>
District information office	42	61.8
Public library	38	55.9
Sub county office	17	25.0
NAADS office	13	19.1
URA office	5	7.4

Table 20 indicates that 42 (61.8%) of the participants were aware that information could be sourced from or forwarded to the district information office, 38 (55.9%) from or to the public library, and 17 (25.0%) from or to their sub counties. In the same way, 13 (19.1%) participants were aware that agricultural information was handled by their local National Agricultural Advisory Services (NAADS) office and 5 (7.4%) participants that tariff and related information could be handled by the Uganda Revenue Authority (URA) office in their area. No other place was suggested.

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\* An exception to this is in more virtual systems, where information can be accessed online and from anywhere.

Both the KI interviews and FGDs examined all available information access places – the government designated ones and other available/alternative places, whether public or private. Table 20 presents a synthesis of the findings from these qualitative engagements.

**Table 21: Information access places in local governments**

<b>Government information access point</b>	<b>Alternative access point</b>
<ul style="list-style-type: none"> <li>• Local government office</li> <li>• Registry in health centre/hospital</li> <li>• Public library</li> <li>• Government agency</li> <li>• Community telecentre</li> <li>• Police public information desk</li> <li>• Local council offices at all levels</li> <li>• Central government office in district/municipal area</li> </ul>	<ul style="list-style-type: none"> <li>• NGO and CBO offices</li> <li>• NGO and CBO library/resource centre</li> <li>• School/academic library</li> <li>• Internet café</li> <li>• Community telecentre</li> <li>• PC and mobile modem</li> <li>• Media house/e-media</li> <li>• Mobile phone service provider</li> </ul>

Some overlaps are noticed in governmental and nongovernmental places at which participants could access information.

#### **5.4.9 Usage of the information access places**

Awareness of the existence of a resource or service is important, but it is inconsequential if that awareness cannot lead to the usage of such a resource. To analyze this connection, questionnaire items 14 and 15 sought respectively to establish whether the participants who were aware of the existence of information access places in their local governments had ever visited them to report and/or request for information.. The findings are provided in Table 21.

**Table 22: Usage of information access places (n = 68)**

<b>Form of usage</b>	<b>Frequency</b>	<b>Percentage</b>
Reporting information	0	0
Requesting information	12	17.6
Never visited	56	82.4
<b>Total</b>	<b>68</b>	<b>100.0</b>

Table 22 indicates that of the 68 participants that had reported awareness of the existence of an information access place, not a single one had ever visited that place to report any information, while only 12 (17.6%) had visited to request for information. The remaining 56 (82.4%) had never visited any information access place. This rate of usage of the information access places was extremely low. If we consider that the 12 participants who had requested for information were a part of the survey sample of 320, then we find that they represented only 3.8%.

Qualitative information from both the KI interviews and FGDs provided helpful insights into this disconcertingly low level of usage of the information access points. Both methods helped the study to explore the limitations to public access. These limitations were variously expressed as summarized below:

- User fees are quite minimal and limited to the cost of photocopying, but not many people see the need and justification for such expenses.
- Most government information is accessed free of charge via broadcast media save for the cost of batteries and electricity to keep radios and mobile phones usable.
- Information access points operated by NGOs and civil society organizations are free or highly subsidized but are too few and/or far away.
- All documented government/governance information is in English, whose use by the public is very limited.
- Most government information access points are located at the headquarters and are thus far away from most users.
- Procedures for accessing information in a government office are not well known to the people.

Follow-up interviews emphasized the fact that government information access places are in principle open to the public but in practice they are not easily accessible. The following points were notable:

- Government offices as information sources are generally intimidating to citizens.
- Access to government registries is restricted.
- The local governments lack public libraries (only one public library exists in Mbarara municipality; Isingiro district has none).

- The public library has remained very traditional.
- School library stocks are limited to subject textbooks.
- Government information kiosks exist only in name.

#### 5.4.10 Information services accessed by participants

Questionnaire item 16 was a follow-up question for those who had visited the information access places to request for information and services. All 12 participants who reported ever requesting for information also reported that they had received the information requested for. And in all cases, the information access places that they had accessed were government offices. The following Table presents the services they accessed at the offices.

**Table 23: Services accessed at government offices (n = 12; multiple responses)**

Service accessed	Frequency	Percentage
Computer	1	8.3
Information retrieval	8	66.7
Internet surfing	1	8.3
Secretarial services	2	16.7
Printing	5	41.7
Photocopying	3	25.0
Binding	1	8.3
Scanning	1	8.3
Faxing	1	8.3
Reading space	1	8.3

According to the statistics, information retrieval was the most sought information service at government offices, sought by 8 (66.7%) participants. This was followed by printing, sought by 5 (41.7%) participants, photocopying by 3 (25.0%) participants, and secretarial services by 2 (16.7%) participants. The rest of the services were sought and accessed by only one participant each. None of the 12 participants reported that they were satisfied with the services they accessed.

The question of satisfaction with the available information access places and services was also addressed to the KIs and participants in FGDs. These participants were generally not satisfied with the facilities and services offered. A number of reasons precipitating their dissatisfaction as given are summarized as follows:

- The layout of the offices makes them unsuitable as providers of information services to the public.
- Offices do not have sufficient staff to attend to public information seekers.
- Office facilities are envisaged for routine office chores only.
- There is language restriction to the information service function.
- There is space restriction at the information service facilities.
- Information service access places are located far away from the users.
- Current public library resources are obsolete.
- The public library in Mbarara municipality has remained as it was in the 1960s.
- Information services are not fully integrated with IT services.

### **5.5 Geometry of information flows**

It has been pointed out that the primary concern of e-governance in local governments is the involvement of the local people in determining the direction of government; and this involvement must take cognizance of the people's local needs, capabilities, problems and priorities (Misuraca, 2007; PIWA/UNDP, 2010). It has also been noted that e-governance is based on the digitization of information and use of ICT tools to enhance the communication of that information. It must be pointed out however, that enhancement of communication *per se* cannot lead to successful e-governance: great attention must equally be paid to the content of information and information flows within the communities (Nath, 2005). The question of information flows is very important, for it directs focus to the ubiquitous social issues of disadvantage and marginalization in society. In developing countries, those people that accurately fit the tag "disadvantaged" constitute a significant proportion of the total populations (Nath, 2005). Therefore, information flows must be concerned with the identification of disadvantaged groups and communities and the extension of the benefits that accrue out of the use of ICTs to the communities.

To understand the geometry of information flows in the local governments, the study investigated issues of equity and evenness in the current flow of public information; social disadvantage; social aggregation as a means of countering disadvantage; and the diffusion of ICT skills, tools and resources within the communities. This was meant to gauge the potential of the communities to be integrated in a dynamic e-governance information system.

### 5.5.1 Information flows

Participants in the questionnaire survey were asked whether they thought that information that was officially and electronically communicated from their district or municipal local government flowed evenly to the people within their communities. This question was answered by 292 participants who had earlier acknowledged that their local governments communicated to the people (see Table 13). Of these, only 79 (27.1%) participants thought that electronic information flowed evenly into their communities. The 213 (72.9%) majority participants thought that there was no evenness in the flow of e-governance information into the communities. This latter group was then probed for the reasons they thought could explain this unevenness. Table 24 summarizes the reasons given.

**Table 24: Reasons for uneven flow of information (N = 213; multiple responses)**

Reason	Frequency	Percent
Language	163	76.5
Communication media	146	68.5
Deliberate government restriction	128	60.1
Target audience segments	119	55.9
Nature of information	94	44.1
Inability to extract information	89	41.8
Nothing new in the information	47	22.1

According to the statistics above, the top most important challenges to the even flow of information into the communities included the language of communication, cited by 163 (76.5%) participants; the media of communication, cited by 146 (68.5%) participants; government restriction in communication, cited by 128 (60.1%) participants; and audience segments, cited by

119 (55.9%) participants. Other challenges included the nature of information, cited by 94 (44.1%) participants; people’s inability to extract information, cited by 89 (41.8%) participants; and there being nothing new in the information, cited by 47 (22.1%) participants.

Both the KI interviews and FGDs addressed two interrelated questions on information flow: whether information flow into the communities was open or deliberately controlled; and whether the flow was free or had unintended impediments. A synthesis of the responses and discussions brought out the points presented in Table 25.

**Table 25: Controls and impediments in information flow**

Whether flow is open or controlled	Impediments to free flow
<ul style="list-style-type: none"> <li>• Although certain governance information is audience-specific, it is indiscriminately disseminated.</li> <li>• Current local government communication is incapable of audience segmentation.</li> <li>• Local governments control the flow of information for political expedience.</li> <li>• Local governments use all possible media to reach every citizen possible.</li> <li>• Information of strategic and/or security nature cannot be indiscriminately disseminated.</li> <li>• Local governments often deliberately withhold information or communicate false information to cover failures.</li> </ul>	<ul style="list-style-type: none"> <li>• Political considerations of the elected leaders.</li> <li>• Security concerns of both local and central governments.</li> <li>• Media resources available in the local governments and within the communities.</li> <li>• Structure of the population and the abilities of the people to access information.</li> <li>• Language restrictions (official information is in English, majority of the population speak local languages).</li> <li>• Limited IT resources and skills.</li> <li>• Poor information communication infrastructure.</li> <li>• Limited budget.</li> <li>• Influence by central government</li> </ul>

<ul style="list-style-type: none"> <li>Some government information is communicated in more controlled forums.</li> </ul>	communication interests.
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According to the findings in Table 25, the views in the first column show that information flow is largely controlled by the local governments, while those in the second column show that the flow is impeded by different factors.

### 5.5.2 Disadvantage in access to e-governance information

In the context of the geometry of information flows, disadvantage is understood in a dual perspective: it has a digital aspect and a social one (Dutton, Shepherd & di Gennaro, 2007; Helsper, 2008). Digital disadvantage is measured in ICT terms based on indicators such as an individual’s location of access, quality of access, skills, and information sought or activities undertaken using the Internet. Social disadvantage on the other hand is measured on the basis of social indicators such as education, health, employment, and income. The two aspects of disadvantage are self-reinforcing: people who are most deprived socially are also least likely to have access to digital resources and to use electronic information (Helsper, 2008: 9).

Considering, then, that there are different socially-oriented factors that disadvantage people from equitable access to e-governance information, the participants were asked to state the categories of people in their communities that were considered disadvantaged in accessing electronic information. Table 26 captures the survey responses.

**Table 26: Disadvantaged groups (n = 213; multiple responses)**

Group	Frequency	Percent
Unemployed	83	39.0
Uneducated and ill-educated	71	33.3
People in hard-to-reach areas (HRAs)	66	31.0
Non-natives	54	25.4
People living with HIV/AIDS (PLWA)	48	22.5
Widows and orphans	15	7.0



People with disabilities (PWDs)	06	2.8
Others	09	4.2

As the figures in Table 26 indicate, the unemployed were the most disadvantaged social category, reported by 83 (39.0%) participants; followed by those with no or too low education, reported by 71 (33.3%) participants; and those from HRAs by 66 (31.0%) participants. People coming from outside the area, and PLWA were also considered remarkably disadvantaged, having been reported by 54 (25.4%) and 48 (22.5%) participants respectively. Widows and orphans, PWDs, and other categories (terminally ill, single mothers, etc) each posted negligible figures.

The KI interviews and FGDs were also brought to bear on the same question of disadvantaged persons in regard to access and flow of e-governance information. These qualitative methods generated a number of categories of people considered disadvantaged: those who are not educated or poorly educated, those without jobs, those living in remote and isolated areas, minorities and refugees, those living with HIV/AIDS, vulnerable groups (widows, orphans, rape victims, etc), and those with physical mobility challenges (PWDs, elderly, terminally ill, etc). A synthesis of these categories and the nature of disadvantage they suffer brought the following observations to the fore:

- Unemployment constrains a person’s financial ability to acquire digital devices and skills to enable him or her access electronic information and services;
- Lack of education or a half-baked educational attainment tends to generate a vicious cycle: it cripples the ability of the affected people to access information and resources on education and learning on the Internet;
- Physical disability, HIV/AIDS, old age, and terminal illnesses impair a person’s versatility: these conditions tend to create isolation from social networks and information networks, and negatively impact the likelihood of the affected people to benefit from social media;
- Social isolation imposes a limitation on access to sophisticated technical devices and services because the affected persons have not seen these devices and services within their own social networks.

### 5.5.3 Membership to advocacy groups

The goal of the “geometry of flows” is the application of ICTs to governance processes to transform the lives of the disadvantaged individuals and communities (Digital Governance Initiative, 2005; Nath, 2005). Social aggregation into advocacy groups leads to empowerment of members of those groups (MacIntyre & Stewart, 2011), which in turn offers the members the opportunity and confidence to participate (Featherstone & Fraser, 2012). Thus, in a yes/no questionnaire item (question no. 20), the participants were asked whether they were members of any advocacy groups. The findings showed that of the 320 participants, only 142 (44.4%) belonged to advocacy groups while 178 (55.6%) did not.

For the 142 participants that belonged to advocacy groups, the study inquired into the kinds of groups they belonged to. The responses are summarized in Table 27.

**Table 27: Advocacy groups belonged to (n =142)**

<b>Group</b>	<b>Frequency</b>	<b>Percent</b>
Savings and credit cooperative (SACCO)	63	44.4
Youth association	25	17.6
Women’s association	24	16.9
Transporters’ association	11	7.8
Traders’ association	8	5.6
Political think tank	5	3.5
Teachers’ association	5	3.5
Health workers’ association	1	0.7
<b>Total</b>	<b>142</b>	<b>100.0</b>

As Table 27 indicates, 63 (44.4%) participants reported that they were members of a SACCO, followed by 25 (17.6%) participants who belonged to a youth group and 24 (16.9%) participants to a women’s group. The rest of the groups posted very low frequencies and percentages of membership to them (30 participants spread out into 5 groups).

Qualitative data was sought from both the KIs and participants in FGDs on issues of group advocacy and people's participation in e-governance. An analysis of their responses and discussions yielded the following observations:

- People's membership to associations is low and is not based on visible "hard" benefits.
- Groups/associations tend to operate at the grassroots (village level) only, and so retain a local outlook and remain economically unviable.
- Youth and women's groups are weak: some of them run small and unviable projects; others have no projects at all.
- Youth and women's bigger interests are catered to in the more occupation-oriented groups and associations (e.g. traders, teachers, transporters, etc).
- Women's membership to associations is often subject to approval by their spouses.
- Most groups' objectives are parochial, consumerist, and short-term.
- Some groups are only seasonal – they are set up with a short-term and time-bound objective, and then allowed to expire (major example: youth associations during election time).
- The masses are not mobilized thanks to the inaction of the local leaders and community development offices.
- Membership to advocacy groups is monopolized by the rich and educated, and the disadvantaged are ironically left out.
- Traders' associations are more of social than business groups.
- There are no farmers' associations in the communities.

These statements lead to the same observation as in the questionnaire survey – that group advocacy in the local governments studied was very low. This finding has got serious implications for G2C and C2G communication.

#### **5.5.4 Electronic information literacy**

For the geometry of information flows to effectively link disadvantaged individuals and communities onto an e-information system, the individuals must have the minimum proficiency in the use of ICTs and the Internet. This proficiency is referred to as "e-information literacy" or

simply “e-literacy” – the convergence of information literacy and IT literacy (Secker, 2004:58).<sup>\*</sup> For, as Secker (2004:56) observed, “to assume that because information is available on the web, people will have the skills and knowledge to find, access and use it effectively is naïve.” Therefore, users must develop e-information literacy skills to enable them to make efficient and effective use of the e-information sources (see also Issa, 2009).

Questionnaire item 22 was a yes/no question that inquired into the participants’ ability to search and access electronic information from any public access medium. This would provide a window into the e-literacy skills within the communities, which would in turn help to establish the nature of e-governance information system to build as well as the user skills to nurture in anticipation of the new system. Of the 320 participants in the questionnaire survey, only 93 (29.1%) reported that they could search and access electronic information from any public access medium. The remaining 227 (70.9%) participants indicated that they did not have such proficiency.

Analysis of qualitative data brought out viewpoints that supported this finding. These included the following:

- Free flow of electronic information in the local governments was impeded by limited IT resources and skills in the communities.
- Unemployment as a form of social disadvantage affected people’s ability to acquire e-skills.
- Many people entered Internet cafés seeking information but not knowing how to search for it.
- Many library users entered the public library but never asked for electronic resources due to inability to use them.
- Skills for basic computer and Internet use among the communities in the local governments were much below average.

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<sup>\*</sup> Information literacy was defined by Orr, Appleton, and Wallin (2001) as the ability to locate, manage, critically evaluate and use information for problem solving, research and decision-making. IT literacy was defined by Hague and Williamson (2009:5) as “the functional skills required to operate and communicate with technology and media” and as entailing “knowing how technology and media affect the ways in which we go about finding things out, communicating with one another, and gaining knowledge and understanding.”

- Most personal laptop and desktop computers were used for word processing and a few office applications: not many owners used them for information retrieval and communication purposes.
- Diffusion of e-literacy skills in the communities was very low.
- E-skills training was not mainstreamed in formal education; it was left to the private actors whose fees were often very prohibitive.

### 5.5.5 Access to e-information tools and resources in the communities

The study sought to establish the electronic information tools and resources accessed within the communities that would enable them to interact with the envisaged e-governance information system. In the context of this question, “access” meant any of the following three: one, that a person owns the electronic tool/resource and so has unlimited access to it (e.g. a mobile phone); two, that the tool/resource is available in a household so a member therein is not restricted from its use (e.g. a radio or TV set); three, that the tool/resource is available in the community for public access, either freely (e.g. a public library) or at a fee (e.g. an Internet café). The questionnaire participants were asked to check all applicable tools/resources they could access from a list provided in question 23. Table 28 captures their access capacity.

**Table 28: E-information tools/resources accessed (N=320; multiple responses)**

<b>Electronic medium</b>	<b>Frequency</b>	<b>Percent</b>
Radio	275	85.9
Mobile phone	261	81.6
Television	128	40.0
Public library/resource centre	38	11.9
Internet café	29	9.1
PC & modem	13	4.1
Home/landline phone	8	2.5
Community telecentre	2	0.6
None	13	4.1

According to Table 28, the most accessed electronic information tools/resources were the radio reported by 275 (85.9%) of the participants, the mobile phone by 261 (81.6%), and television by 128 (40.0%). Access to the rest of the tools and resources was extremely low, with only 38 (11.9%) participants having access to a public library or resource centre, and 29 (9.1%) to an Internet café. Thirteen (4.1%) participants did not have access to any electronic information tool/resource at all.

Qualitative data was sought from both the KIs and FGDs on a number of questions relating to people's access to electronic information tools – questions such as the kinds of tools accessed, affordability of tools, skills requirements to manipulate the tools, etc. A synthesis of the responses and discussions showed, *inter alia*, that:

- Radios and mobile phones were the major electronic information tools in the communities.
- Radios and mobile phones had become cheaper and quite affordable [but also: the Smartphone was too expensive for the average citizen].
- There were no community/public libraries.
- Access to TV in homes was constrained by lack of electricity.
- Computers and accessories were very expensive and out of reach for the majority of the people.
- Internet cafes were very few, private, and expensive.

A comparative analysis of citizen access to electronic information tools and the media used in C2G and G2C communication was made to gauge the potentialities of the different media for adoption in the e-governance information system. The comparative figures in Table 29 show that of the 320 participants, 275 (85.9%) had access to radio, 261 (81.6%) to mobile phones and 128 (40.0%) to TV. Those with access to radio also represented 94.2% of those who received government information electronically, a figure that contrasts sharply with TV at 85 (29.1%) and mobile phones at 39 (13.4%). However, among those who initiated communication with government (C2G), the mobile phone was the most popular at 62 (79.5%) as compared to radio at 34 (43.6%) and TV at 3 (3.8%). The Internet café was accessed by 29 (9.1%) participants; and

all 29 accessed government information through this medium. Only 4 (5.1%) of those who initiated communication with the government had access to the Internet café.

**Table 29: Comparison of access and usage of media**

Medium/resource	Access to tools N = 320		G2C media n = 292		C2G media n = 78	
	Freq	%	Freq	%	Freq	%
Radio	275	85.9	275	94.2	34	43.6
Mobile phone	261	81.6	39	13.4	62	79.5
TV	128	40.0	85	29.1	3	3.8
Library/information centre	38	11.9	--	--	--	--
Internet café	29	9.1	29	9.9	4	5.1
PC & modem	13	4.1	--	--	--	--
Landline phone	8	2.5	--	--	--	--
Community telecentre	2	0.6	--	--	--	--
E-billboards	--	--	9	3.1	--	--
Mobile PAS	--	--	5	1.7	--	--

Some of the electronic information tools accessed by the participants were not used both for G2C and C2G communication. These included library/information centre accessed by 38 (11.9%), PC and mobile modem by 13 (4.1%), landline phone by 8 (2.5%), and community telecentre by 2 (0.6%). It should be noted here that “Internet” has not been used as a medium category to avoid obvious overlaps because it can be accessed on a mobile phone, in an Internet café, in a library/information centre, in a telecentre, and on a PC with a mobile modem.

### 5.5.6 Access to electricity

Individuals and communities cannot be linked to a digital network if they have no access to electricity. The participants in the questionnaire survey were thus asked whether or not they had access to electricity in their homes or in their immediate neighbourhoods. The responses showed

that of the 320 participants, 229 (71.6%) had access to electricity, while 91 (28.4%) did not. It is important to note, however, that having access to a resource is sometimes different from having control over it, and this difference has got implications for the extent to which a person can enjoy that access. Therefore, the participants who had access to electricity were further prodded about their sources of power. Table 30 presents the findings on this issue.

**Table 30: Source of power in the communities (n=229)**

<b>Source</b>	<b>Frequency</b>	<b>Percent</b>
Hydro	152	66.4
Solar	49	21.4
Batteries	17	7.4
Generator	11	4.8
<b>Total</b>	<b>229</b>	<b>100.0</b>

As Table 30 indicates, the major source of power was hydro, cited by 152 (66.4%) participants. Solar was cited by 49 (21.4%) participants, batteries by 17(7.4%), and generator by 11(4.8%) participants.

The KIs and FGD participants were intensively engaged on issues relating to the people’s sources of power, and their viewpoints are summarized here below.

- Hydroelectricity is the major electricity source in the entire country
- Expansion of hydroelectricity to rural areas is based on its comparative advantage
- Solar energy is increasingly becoming a formidable alternative source of electricity in rural areas
- Expansion of solar energy is constrained by the high cost of installation
- The use of generators is affected by the high cost of fuel
- All sources of power are under government control [meaning that government controls the cost of solar equipment, cost of fuel, load shedding schedules, etc]



## 5.6 SWOT analysis of the local governments

The goal of e-governance is to improve efficiency and effectiveness in service delivery, and this involves *inter alia* the collection, management and exchange of information to enable all stakeholders participate in the e-governance process. The modernization of public administration in the e-governance context entails the application of ICTs to governance functions. Successful modernization therefore can only be realized if anchored on a well-organized and efficiently directed information system. The information system serves as the e-governance implementation support and simplifies rules and administrative procedures, resulting in wider and non-discriminatory public access to public information and services.

The establishment of an information system to support information access and flow is such an important venture that it requires as a prerequisite the conduct of a SWOT analysis. In the instant study, this analysis involved conducting an inventory of the strengths and weaknesses within the local governments, and the opportunities and threats in the external environment that would determine the success or failure of the new e-governance information system. The strengths, weaknesses, opportunities and threats were identified through KI interviews, and are summarized and presented in the matrix below.

**Table 31: SWOT analysis of the local governments**

<b>Strengths</b>	<b>Weaknesses</b>
<ul style="list-style-type: none"> <li>• a largely computer literate staff;</li> <li>• professional information workers;</li> <li>• staff willingness to adopt new ways of engagement with information;</li> <li>• reliable and expanding tax base;</li> <li>• enabling financial policy framework (regulations on budgeting, taxation, procurement, audit, etc);</li> <li>• skilling programmes and skills development vote;</li> <li>• modern building facilities;</li> </ul>	<ul style="list-style-type: none"> <li>• very low investment in standard ICT resources;</li> <li>• weak administration of ICT resources;</li> <li>• a lack of vibrant computer network;</li> <li>• a static website;</li> <li>• undiversified ICT skills among staff;</li> <li>• politicians, senior bureaucrats and some staff who are reluctant to change;</li> <li>• lack of ownership of broadcast media;</li> <li>• reliance on external financial resources (donations and grants) for some</li> </ul>

<ul style="list-style-type: none"> <li>• extensive ICT equipment and infrastructure;</li> <li>• budget flexibility and provision for development capital;</li> <li>• large stock of information resources;</li> <li>• reliable power supply in municipality and district headquarters;</li> <li>• availability of tertiary training institutions.</li> </ul> <p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• strategic location;</li> <li>• interests in neighbouring districts requiring collaboration and information exchange;</li> <li>• global changes in IT;</li> <li>• well-developed e-information systems in other regions;</li> <li>• access to multi-broadcast channels;</li> <li>• low number of broadcasters in neighbouring districts;</li> <li>• proliferation of ICT tools in the country;</li> <li>• central government policy on rural electrification;</li> <li>• central government policy on ICT diffusion;</li> <li>• national communication strategic framework; and</li> <li>• strategic partnerships in private sector.</li> </ul>	<p>important programmes;</p> <ul style="list-style-type: none"> <li>• insufficient budget allocations to the information/communication sector;</li> <li>• very low diffusion of ICT tools and skills in the local communities;</li> <li>• poor power supply in rural communities;</li> <li>• information access places limited to headquarters.</li> </ul> <p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Global and national economic downturns;</li> <li>• increases in costs of ICT products and services;</li> <li>• advances in IT research and development;</li> <li>• competition and devastating media messages;</li> <li>• unethical hi-tech conduct and experiments; and</li> <li>• the democracy threat.</li> </ul>
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## **5.7 Summary of the chapter**

This chapter has presented the findings of a field study that was conducted in Uganda's Isingiro district and Mbarara municipality between September 2012 and May 2013. The study was driven by the need to develop an adoptive information access and flow model to support e-governance in local governments in Uganda. Both quantitative and qualitative data were collected and analyzed, and the findings thereof have been presented. The findings are based on the analysis of 320 out of the initial 360 semi-structured questionnaires, which has afforded the study a high response rate of 88.9%. Qualitative data from 25 KIs and 64 participants in eight FGDs are also analyzed and presented. The chapter is organized along the themes of the study drawn from the study objectives. These are: the state of e-governance and e-governance information needs in local governments; the geometry of information flows and flow imbalances; and the strengths, weaknesses, opportunities and threats relating to e-governance information access and flow in the local governments.

On the state of e-governance and e-information needs in local governments, the chapter has presented the findings on the communication of e-governance information between the governments and the citizens (G2C & C2G communication), the issue of information content, the media, the intensity of government communication, and the diffusion of ICT tools and resources in the communities. The chapter has also presented the findings on electronic information management and resources within the local governments, and the people's capacity to interact with the e-informational system. On the geometry of information flows within the communities, the chapter has presented the findings on the free and equitable flow of public information into the communities, i.e., whether information flows freely and evenly into the communities. The chapter has focused on issues of social disadvantage and exclusion in the context of the ability of the poor and disadvantaged citizens to source, access and use information to improve their lives. It has also presented the findings on the affordability and diffusion of ICT tools within the communities, as well as access to electricity – all these to gauge the potential of the communities to be integrated in a dynamic e-governance information system. Finally, the chapter has presented the findings of a SWOT analysis and identified the salient issues to put into consideration when designing and implementing the system.

## **CHAPTER SIX**

### **INTERPRETATION AND DISCUSSION OF THE FINDINGS**

#### **6.1 Introduction**

This chapter presents the interpretation and discussion of the research findings presented in Chapter Five. While Chapter Five presents statistics from quantitative analysis and outline summaries of qualitative data, the current chapter reflects on the meanings and implications of those statistics and qualitative responses. In most instances, specific voices and expressions of individual participants in interviews and group discussions are provided in the form of verbatim quotations to galvanize the discussion. It has been observed that unguided and unsupported discussions may lead to incorrect interpretations and inaccurate conclusions even if the data are properly collected and analyzed (Kalusopa, 2011:218). It has also been observed that interpretation is highly intertwined with data analysis and cannot be “distinctly separated” (Kothari, 2004:345).

Kothari (2004:344-345) discussed the importance of interpretation of research findings, emphasizing that it reinforces the interaction between theoretical orientation and empirical observation, and that it provides opportunities for originality and creativity in the research. Accordingly therefore, interpretation and discussion need not only be done with due care and in an objective manner, but they should also be done within correct theoretical perspectives. Thus, the interpretation and discussion of the research findings made in this chapter are made in the order of the specific objectives of the study stated in section 1.5 and reiterated in section 5.1 with reference to the literature.

This chapter is divided into seven sections. Section 6.2 makes a brief discussion of the response rate while section 6.3 discusses the demographic characteristics of the participants. Section 6.4 discusses the findings on objective one of the study, focusing on the various aspects of e-governance communication and information needs in the local governments. Section 6.5 discusses the findings on objective two on the geometry of information flows in the local governments. Section 6.6 discusses the findings on the SWOT analysis of the local governments. Section 6.7 provides a recap of the chapter.

## **6.2 Response rate**

The findings presented in section 5.3 indicate that a high response rate of 88.9% was achieved. This was largely because the field assistants remained on the ground and in most of the cases took the participants through the instrument. Although the survey was designed as a household drop-off, there were impressions at the very outset that some of the participants did not possess sufficient functional literacy (defined in subsection 5.3.3) and would need to be guided through the questionnaire. In fact, it later turned out, as Table 9 indicates, that as many as 101 (31.6%) participants had only primary school education while 8 (2.5%) participants had no formal education – suggesting that as many as 109 participants representing 34.1% of the sample did not have sufficient functional literacy.

It has been argued that overall response rate in a survey is a good guide to the representativeness of the sample of the study (Babbie & Mouton, 2003:261). Basing on a review of literature, Babbie and Mouton (2003:261) found that a response rate of 50% was adequate for analysis and reporting; 60% was good; 70% was very good. Evans (1991) had earlier made a similar finding, that getting a high response rate of over 80% from a small, random sample is considered preferable to a low response rate from a large sample. Accordingly, if a high response rate is achieved, there is less chance of significant response bias, and vice versa. In fact, Schull (2006:142) emphasized that the results of a study can only be generalized if the rate of non response is below 30%. It may thus be stated that the interpretations and generalizations made in this chapter and the subsequent conclusions are reasonable.

## **6.3 Demographic characteristics**

Section 5.3 highlighted the importance of demographic characteristics of the participants and why researchers interest themselves in the distribution of these characteristics in a study. The findings about the important demographic characteristics in this study were also presented on four areas: the area of residence, gender, education levels, and occupation.

The findings presented in subsection 5.3.1 show that only four more participants in Mbarara municipality, an urban local government completed the survey compared to those in Isingiro district, a more rural local government. This completion difference of only four suggests that the

rural-urban divide in the rate of participation in and completion of the survey was not so visible. Although no further inquiry was made into the implications of this finding, a review of recent research suggests that the distance between rural and urban communities in Uganda has been narrowing due to the growth in mobile Internet and telephone penetration (CIPESA, 2012; UCC, 2011), expansion of rural electrification (Republic of Uganda, 2011b; Republic of Uganda/Ministry of Energy & Mineral Development, 2012), and expansion of physical infrastructure network across the country (Booth & Golooba-Mutebi, 2009; Ogwang, 2013).

The findings on gender distribution (subsection 5.3.2) indicated that 40 (12.5%) more men than women participated in the questionnaire survey, 7 (28%) more men than women participated in the interviews, and 10 (20.8%) more men than women participated in FGDs. Subsection 5.3.2 also indicates that there was no gender preference in the distribution of the questionnaire, and that apart from women FGDs, there was no gender preference in the recruitment of KIs and FGD participants. The lower distribution of women across the data collection methods in the study contradicts the trend in national gender statistics where women are the majority. In the 2013 national demographic estimates (Republic of Uganda, 2013; UBOS, 2013), women were estimated at 50.1% and men at 49.9%, representing a difference of 0.2%. Similarly, IndexMundi (2014a) has estimated women to be 50.3% and men 49.7%, representing a difference of 0.6%.

The gender distribution in this study suggests that more men were available to participate than women since the study did not target the same number of women and men. The low participation of women may imply that women do not participate in research studies (and in public activities generally) as much as men, a situation that is likely to affect the need and ability of the women to seek and interact with formal/public information. Although this study did not probe the reasons for the women's low participation, it agrees with earlier findings that the participation of women in public affairs is limited by historical, structural, and systemic gender inequalities (Aliu, 2001; Evertzen, 2001; Katebire, 2012). In a study on information access and gender mainstreaming in local governments in Uganda, for example, Katebire (2012:18) found that if during a survey both man and wife were found in a homestead, the man was more likely to be the respondent; women tended to volunteer withdrawal in favour of their husbands because they did not consider it their space to participate in public debate before their husbands. In an earlier study on women's

participation in governance, Evertzen (2001:3) had observed that “women are still hampered by many barriers, individual as well as institutional factors related to the organization of society and the political system, with the risk that they will not reap equal benefits.”

The findings on education levels of respondents are presented in subsection 5.3.3. In Uganda, a person with no formal education is considered functionally illiterate, while one with low formal education is deemed to have insufficient functional literacy (Ministry of Gender, Labour and Social Development, 2011: 2). These categories of people face serious reading and writing challenges that affect their ability to identify, locate, evaluate, and effectively use information to deal with their day-to-day problems. With a 65.9% education attainment beyond primary school level (see Table 9) therefore, it may be safe to suggest that the population in the local governments studied possessed sufficient education and functional literacy.

Researchers elsewhere have reported a strong association between high education levels and high information seeking behaviour. In a US consumer health information study, for instance, Tu (2011) established a historical trend that a consumer’s education level was the factor most strongly associated with information seeking; and that information seeking rose sharply as the level of education increased. He also found that a reduced tendency to seek information was most pronounced among vulnerable American subgroups – the older persons, people with chronic conditions, and people with less education. In a similar study of the Hispanic population in New York City, Lee (2013) found that a high level of education was positively associated with the respondents’ online health information seeking behaviour. Going by these findings, it may be suggested that the high education attainment by the population in the current study presents a high potential for them to effectively interact with an e-governance information system.

Finally, the statistics on the occupation of the participants presented in subsection 5.3.4 suggest that the population has got the minimum capacity to own or access digital tools. Capacity to afford the means to access electronic information is extremely important for the realization of the goals of an e-governance information system; it makes the participants generally predisposed to easy access to such information. Thus, as the statistics in subsection 5.3.4 indicate, only casual labourers (surviving on too low and irregular earnings) and the unemployed (not earning at all)

may be presumed not to have the financial capacity to afford access to certain forms of electronic information – although these, too, may often afford access to digital tools courtesy of their financially able relatives (Twebaze, 2015:32).

Mazur (1993) observed that in a technology-driven information system, information access requires four conditions for the user:

- (i) knowing that the information or information service is available;
- (ii) owning or having access to the equipment necessary to connect to the information source (e.g., computer, television, telephone, software, modem);
- (iii) gaining access to the information service (e.g., afford cable or online charges); and
- (iv) knowing how to operate the necessary hardware and software (e.g., be computer literate).

While some users with no income may with the support of relatives and friends access information and digital tools (Twebaze, 2015:32), it is generally not easy for a user to effectively meet the above four conditions without a sufficient command over the financial means to afford the costs of tools, subscription and the requisite training. Personal income is thus a very important factor in the access and use of electronic information. In a study of inhibitors of women's use of ICTs in Mozambique, for example, it was found that people who were so poor as not to own even the basic digital tools such as a radio also did not even bother about such tools (Macueve, Mandlate, Ginger, Gaster, & Macome, 2009). A woman head of a household particularly said she never used any technologies, and she wouldn't like to have a radio or a telephone because they meant more costs: all she wanted was to have something to eat every day. In a population with a big proportion of people living from hand to mouth such as those in this Mozambique family, the implementation of an e-governance system can be an uphill task. The findings in the present study suggest, however, that the people in the local government areas studied have an income to afford them access to basic ICT tools.

#### **6.4 Access to e-governance information in local governments in Uganda**

For any development project to succeed, it must utilize all available information and existing structures as a basis to reflect on the weaknesses and challenges in the current state of affairs, and to assess the needs and opportunities for a better system (NOAA, 2009). The assessment of needs is particularly important. According to NOAA (2009:7), such an assessment is:



“... a tool for determining valid and useful problems which are philosophically as well as practically sound. It keeps us ... from using time, dollars and people in attempted solutions which do not work.” (citing Kaufman & English, 1979: 31).

Thus, the design and implementation of an e-governance information system in the local governments must be informed by the current state of access to e-governance information, the felt needs of the users of the system, and the available e-information and communication resources. This section discusses the findings on the various aspects of e-governance information in the local governments as presented in section 5.4 of the previous chapter. The discussion retains the order and flow of the presentation of findings, which was done according to the objectives of the study.

#### **6.4.1 Government to citizen communication**

The findings presented in subsection 5.4.1 show that the local governments did officially communicate to the citizens. The question, however, was limited to *whether* the governments communicated and so was not able to enable the understanding of why 28 (8.8%) of the participants were not alive to the fact that the local governments communicated to the citizens. Data from follow-up interviews suggested that the people who did not receive or access government information may have genuinely lacked the means to do so (e.g. no access to a radio), or may have been inhibited by individual personal inability to register and internalize information or even by just lack of interest in public information. In a March 2013 interview for this study, for example, the Isingiro district information officer said:

*... of course some people hear or even see government programmes on radio or TV, but they don't listen, they don't register the messages. Even right there in the course of a programme one may tell you he [or she] has not heard what is being communicated.*

Likewise, a staff at Greater Africa Radio (in Mbarara municipality) said that some people listen to a programme but soon forget what they heard in the programme, either out of lack of interest or just due to memory lapses. He wondered:

*How does a person say that for all the time he [or she] has been in this district he [or she] has never heard of any of the government programmes that we air every now and then?*

These possibilities are real; but until one reflects on the role of government in empowering people through information, one may spare the local governments the blame for the people not receiving or recalling the communications. It was noted from the interviews, for instance, that even if they much wished, certain people might not receive government communication because of where they live (remote areas) or, in extreme cases, of their physical circumstances (immobility due to infirmity or like-factors). In the words of the Isingiro district community development officer, “*a person that is permanently confined to a routine from the house to the courtyard and back to the house has nothing else to look forward to.*” But the more poignant issue was that the local governments did not do much to promote communication and remove the barriers that prevent the people from accessing that communication. An inconsistent flow of G2C communication was noted as one such a barrier.

A search for literature on why people tend to think that their local governments do not communicate to them was futile. However, some studies have shown that a disruption in communication between local governments and citizens represents an obstacle to citizen participation because it affects the level of citizens’ knowledge about mechanisms, reasons and goals of participation at the local level, and encourages political apathy and mistrust of citizens towards local government (Jusic, 2010:13; Mistic-Mihajlovic & Jusic, 2010:191). In the ultimate, people generally fail to appreciate the importance of communication for the efficient operation of the local government itself.

#### **6.4.2 Content in government to citizen communication**

The results presented in subsection 5.4.2 show a close range of areas on which local government communication is based (see Tables 12 and 13). The statistics in Table 12 particularly suggest that government communication content was fairly balanced in the six cited areas, although matters of policy/politics and infrastructure took clear leading positions. Besides the content in the outlier responses lumped in “Other,” content on agriculture and education respectively registered the lowest frequencies. This is quite surprising considering that farming and teaching were indicated in Table 10 as leading occupations.

The disparity in the leading occupations shown in Table 10 and the leading contents shown in Table 12 suggests a mismatch in government interests and citizen interests. The leading occupations were trade, agriculture and education – implying that the citizens would be interested in content on these areas. However, the governments’ top interests were in policies, infrastructure, health and taxation, leaving education and agriculture at the periphery. Clearly, content was not prioritized and matched with the people’s needs, given that the areas that are normally of higher interest to the people were subordinated to those that are of higher interest to the governments. It should be noted, of course, that the frequencies on content reflect the participants’ recall of *issues usually communicated* and are a useful indicator of what issues bore more content than others.

The mismatch between content and citizen needs, however, does not diminish the relevance of the content. Content is relevant if it serves the interests of the user (Brito, 2011; Falls, 2011). Although Table 12 displays content in ranking order, it does not imply that content with more frequencies is more relevant than that with less: all content is relevant to the citizens. Rodik (2012) has observed that content is relevant if the user finds it informative, engaging, helpful, or entertaining. In general audience communications – as the case in the instant study – not every user may find specific content relevant: content may be relevant to one user and not so to another user; and the fact that one user does not find it relevant will not affect its relevance to other users. According to Falls (2011), there are three criteria to determine the relevance of content: first, it must add value to the user; second, it must position the communicator as a trusted party or partner; and third, it must be authentic and believable.

Naturally, local governments will communicate to citizens content that they deem relevant to them, but more importantly, if such content also serves their own interests. Local government governance interests are institutional and long-term. Considering, as the analysis of data from the interviews and group discussions suggests, that the local governments generally lacked comprehensive communication programming, it might be said that content building for their communication function lacked vision and sustainability. The analysis indeed uncovered three tendencies that drove content building for local government communication: (i) where content was dictated by the natural or social dynamics of the time; (ii) where it was based on a central government programme; and (iii) where it was necessitated by a planned or ongoing government activity.

The first tendency was for the local governments to build and communicate content to respond to the needs and challenges created by natural conditions such as weather, epidemic, and natural catastrophe, or social conditions such as insecurity and lawlessness. Interviews and group discussions indicated, for example, that there was more content on agriculture during heavy rains or prolonged dry spells than at other times. The second tendency was to build or acquire and relay content on a central government programme. Content on civic matters and government achievements, for instance, was communicated more during campaign time for general elections than at other times. Similarly, content on immunization, population census, national identity cards, etc was relayed from the central government communication programme. The third tendency was to communicate content on a planned or ongoing government activity in the district or municipality. For example, there was much content on infrastructure when there were ongoing road works; on electricity only when there were rural electrification activities; on education when classroom blocks were being constructed in schools where the Universal Primary Education (UPE) or Universal Secondary Education (USE) programmes were implemented; etc.

The foregoing tendencies suggest that G2C content and communication were based more on *ad hoc* than formal programming. *Ad hoc* programming has got serious implications: the communication lacks continuity, and this in turn limits its impact on the audience and limits citizen response and action. It limits citizen participation in e-governance. The tendencies also

suggest that G2C content and communication were more reactive than proactive contrary to the goals of the national communication strategy (Republic of Uganda, 2011a: 8). The strategy places emphasis on the need for government to adopt a proactive and coordinated approach to handling the communication function. Unfortunately, a search for literature on content building, content management and communication programming in local governments was futile.

### **6.4.3 Electronic media used in G2C communication**

The findings on the most popular electronic media used by the local governments are reported in subsection 5.4.3. These media are, in order of popularity, the FM radio and TV, and after a wide margin, the mobile phone and the web portal. Electronic billboards and mobile public address systems were the least used.

The popularity of the FM radio may be considered normal and realistic, considering that the cost of radio sets has gone so low that almost every household in Uganda can afford one. Moreover, radio is now also accessed on mobile phone handsets. Similar local studies have indeed found that up to 83.3% Ugandans listen to radio in their homes or on their personal mobile phones (Natabaalo, 2015; UCC, 2014). This implies that radio has got a very powerful communication potential, which the local governments can harness. Television was also quite popular, although its popularity, as qualitative information and other studies indicated, was limited to urban and peri-urban audiences. The UCC (2014) access and usage survey found that television audience in Uganda was at 44.9% in urban areas compared to only 9.0% in rural areas, and attributed this difference to higher levels of access to electricity and affordability of TV sets in urban areas.

These findings are also consistent with those of Uganda Radio Network (URN: 2014), that in Uganda, radio and television are the e-media most used by government to reach the people, and that they are the most effective in terms of audience reach and message impact. The current government policy on rural electrification, in fact, seeks to harness the potential of rural TV penetration and of TV as a powerful communication medium in local governments (URN: 2014). Elsewhere, studies based on India's experience also found that TV was an ideal medium for communicating with the rural masses, but that TV reach in rural areas was seriously restricted *inter alia* by uncertain or costly power sources (ILO, 1984; Singh & Pandey, 2005).

The mobile phone SMS and web portals were next in popularity although their usage to relay e-governance information to the public was quite low. This was in spite of the national ICT policy that is geared towards maximum online availability of all government information and services (MoICT, 2011; MoICT, 2012(a)), and a growing array of national initiatives aimed at improving ICT access in rural areas (NITA-U, 2010). The low usage of mobile phone SMS services was largely attributed to the local governments' lack of initiative. An operator at MTN Isingiro office, for example, said in an interview:

*The leadership here lacks the initiative to innovatively use technology to reach the people.... They could use our bulk SMS service to communicate to our subscribers at a minimal cost.*

This view was echoed by the Systems Administrator in Mbarara municipality, who blamed the Municipal Council government for the reluctance to explore novel ways of reaching the people. He observed:

*We have told our bosses to no avail that we can exploit the mobile SMS service to the maximum to communicate to the people. [President] Museveni exploited this service to appeal to the voters in 2011... people thought the President knew them personally ... it worked for him.*

The reluctance and low initiative of the local government authorities notwithstanding, the low usage of both the mobile phone SMS and web services is a reflection of the low mobile penetration and low Internet connectivity in the country. Earlier surveys on ICT diffusion in Uganda found that national telephone penetration was still much lower than 50%, Internet diffusion was at a 14% low, while the local government web presence of 53.6% was largely static (CIPESA, 2012; CIPESA/Hive Colab/WOUGNET, 2011; UCC, 2011). Although the CIPESA (2012: 6) survey of the use of ICT tools in election campaigns in 22 organizations found that mobile phone SMS and web portal usage was at 68% and 50% respectively, this difference does not water down either CIPESA's findings or those of this study if one considers

the sampling and analysis context in which CIPESA's findings are made (see section 1.2 of this dissertation).

The use of electronic billboards and mobile public address systems by the local governments was extremely low. Billboards are effective tools in carrying campaign messages, while mobile public address systems are good mobilization tools. Yet, none of these was popular in local government communication. Qualitative information provided some light on why such important communication tools were not utilized. Electronic billboards are more (cost)-effective in business contexts and are therefore popular in urban settings where they are largely used by the business class. As for mobile public address systems, they used to be popular in mobilizing people for community causes such as immunization. Today, their use is almost limited to public mobilization by the political class for rallies, mostly during national and local government elections.

A general assessment of the use of electronic media in G2C communication shows that the local governments were highly reliant on broadcast media although these broadcast media were not optimally exploited. Follow-up interviews offered insights into the factors that gave broadcast media their enviable edge over the other forms of electronic media. First of all, the local governments recognized the fact that citizen capacity to access government information from e-databases and web portals was very limited. This limitation was imposed by a combination of factors such as low Internet accessibility, the low speed of connectivity, the high cost of access, language limitation, and lack of requisite ICT skills. It was noted, for instance, that although the Internet could be accessed on mobile phones, this required expensive handsets such as the Smartphone, which most people could not afford.

The second factor was the shortage of information access places in the local governments where electronic information and information services could be accessed by members of the public. There were quite a number of private Internet cafés in Mbarara municipality, and only a handful in Isingiro district – including two in the town of Kaberebere, the biggest town in the Isingiro area of study. However, these cafés did not provide instant information from the municipal or district local government about issues of interest to the citizens. An Internet café attendant at

Infoworld Data Centre in Mbarara municipality said in an interview: *“Apart from general information about the district, there is nothing much on the district website.”* Moreover, with the people increasingly accessing the Internet on their cell phones, the role of the Internet cafés had reduced considerably; they were mainly visited for services such as downloading attachments, printing, scanning, and faxing. There was a public library in Mbarara, but this too did not provide information on e-governance matters of the local government. There was no public library in Isingiro district.

The third factor that made broadcast media popular in G2C communication was because they enabled citizens to receive information at no direct cost, except for electricity charges and the cost of buying or charging batteries for the radio or mobile phone. These being indirect costs, they were not really felt as information access costs; and being relatively low, they generally did not pinch the users. This point came out in different interviews and discussions, but it was this farmer in Isingiro district that succinctly expressed it:

*I do not receive farming-related information because I have looked for it. In many cases, I just bump into it as I randomly tune in search of entertainment. When I charge my phone therefore, it's more like because I cannot afford to miss my favourite DJs [disc jockeys]. I don't feel that I have incurred a cost to get information on farming.*

Another member of the same FGD said that people did not receive information only from their district local government: *“some useful information usually comes in through radios of neighbouring districts.”* Thus, radio broadcasts also enabled the people to receive information in the convenience of their homes, workplace, in taxis or in the marketplace anywhere even in remote villages in the countryside.

It may be observed in conclusion, that the popular use of broadcast media was largely a reflection of their dynamic nature that promoted the *flow of information towards the people*, while in contrast the low usage of web portals (and e-databases generally) resulted from their static nature that instead required the *flow of people towards the information media*. This latter



category of media required the people to spend time searching, which had both cost and e-skills implications. The divide between broadcast media and the more static web-based media is fortunately being bridged by social media (Twitter, Facebook, Google +, LinkedIn, Instagram, YouTube, WhatsApp, and Viber), the more versatile platforms based on the convergence of broadcast, telecommunications and Internet technologies. Although these tools are now accessible on most mobile phones, Harrison (2015) has shown that in Uganda they are still mostly concentrated among the urban users. Harrison's (2015) study nevertheless acknowledges their great potential to penetrate the rural areas, given the fast rate of penetration of mobile phones in the rural areas.

#### **6.4.4 Intensity of G2C communication**

The preceding subsection shows that radio and TV were the major G2C electronic communication media, followed by the mobile phone SMS service. Yet, the data in Table 16 suggest that these media were not optimally exploited for instant G2C communication – only 74 (25.3%) of the participants acknowledged that these media were used for breaking news. This markedly low frequency of instant G2C communication implies that the governments did not keep the citizens fully abreast of what was going on. Although the government use of radio and TV was higher during regular communication to the citizens (as acknowledged by 53.4% of the participants), it was nevertheless still limited to no more than two programmes of 30-60 minutes each per week. Clearly, the most popular G2C communication media were quite infrequently deployed. Viewed alongside the governments' dismal use of electronic databases and websites that are capable of providing more permanent access, one can safely infer that G2C communication was not intensive.

The interviews with KIs afforded this study some ample insights into this apparent limitation on the part of the local governments to communicate more frequently to the people. Both the political and technical officers in the local governments showed that the governments faced significant challenges with communication channels in terms of availability, affordability and suitability. With limited electronic information resources and facilities at their disposal, they could not serve the public in a meaningful manner. Mbarara municipal government had a web portal that was static and much less effective for public communication than broadcast media.

Isingiro district local government did not have a web portal. None of the local governments owned a radio or TV station, so they had to pay private broadcasting stations to air their programmes. This made it expensive and forced the governments to limit the frequency of those programmes.

It was noted also that the local government communication programmes did not include news broadcasts. In fact, the radio and TV news broadcasts covering government activities were entirely at the expense of those broadcasters. This was confirmed in an interview with the spokesperson of Mbarara municipal council:

*We normally alert individual journalists and broadcasting houses when important events are due. The broadcasting houses are always glad for such an easy source of news, but we are also glad to receive free coverage.*

All the broadcasters said that news coverage of local government activities was free. Unfortunately, such reliance on free coverage meant that the local governments did not have much control over the specific aspects of the events/activities to be covered, the depth and frequency of the coverage. Moreover, this “free” coverage did not automatically extend to individual political actors in the local governments who wished to get radio or TV coverage of their upcountry activities. Consequently, the media programmes did not have much impact on the audiences to the extent that some people did not even remember having watched or listened to a local government media programme.

These findings are consistent with Hansen’s (2009) and Entrepreneur Media’s (2014) observations, especially with regard to the importance of the frequency of a media message. In both the aforementioned studies, the researchers wanted to establish the average time it took individual consumers in a target audience to respond to an advertising message. It was observed that it took an average of three or more exposures before consumers could take action. In Hansen (2009) particularly, it was found that advertisers needed to put up a sustained media campaign to build up awareness and break through the consumer’s selection process. Hansen’s (2009) and

Entrepreneur Media's (2014) studies are thus quite instructive for the present study – that the frequency of media communication is key to successful media outcome.

#### **6.4.5 Citizen to government (C2G) communication**

According to the findings presented in subsection 5.4.5, C2G communication did not match G2C communication. It is shown that 75.6% of the questionnaire participants had never initiated any conversation with their local governments. This means that the local governments dominated the communication relationship with the citizens, but also received limited feedback from the citizens. This communication imbalance constitutes e-governance information asymmetry.

Recent research on communication flow in local governments in Uganda indeed reveals that it is largely unidirectional (Republic of Uganda, 2011a, 2011b; Tumushabe, Tamale, Ssemakula & Muhumuza, 2013). In a unidirectional communication model, governance information tends to flow from the government to the citizens, but the reverse is hardly ever the case (Chong, De La O, Karlan & Wantchekron, 2010; Hongladarom, 2007). This asymmetry has got the effect of turning the citizens into passive recipients of government information. That way, they cannot effectively participate in the determination of the information and services they need, and are thus limited in the extent to which they can monitor and appraise government performance.

Hongladarom (2007) observed that information asymmetry is a precursor to the problem of information divide that is responsible for structural inequalities in society. Therefore, the problem of information divide is a development problem which can only be tackled by dealing with information asymmetry. As Hongladarom (2007: 4) puts it:

Instead of the one-directional flow ... information needs to flow in and out in both directions, including among the [citizens] themselves. In order for the [communities] to be actually strengthened, information needs also to be able to travel from one part to another all within the [communities].

In other words, communities cannot afford to sit back and wait for information to flow from those who control its production and dissemination, while the information that is already there in

abundance within the communities remains static and unused. Unfortunately, current discourse on e-governance information flow does not seem about to begin shedding the tendency to position government as the source and the citizens as the recipients of public information. Even the recent national communication strategy for Uganda (Republic of Uganda, 2011a), launched in June 2013, is clearly a unidirectional strategy of government communication to the public.

#### **6.4.6 Content of information in C2G communication**

The findings on the content in C2G communication are presented in subsection 5.4.6. These findings suggest that citizen information requests were fairly spread out to the different areas. However, the findings also suggest that information seeking behaviour in these communities was quite low. In the first instance, the proportion of people seeking information was itself very low, at a mere 78 (24.4%) of the questionnaire participants. Secondly, even within this proportion, actual information requests were much below average, with the highest requests for information on agriculture made by just 36 (46.1%) participants.

A comparative analysis of the content in C2G and G2C communication is made in Table 18. The comparative statistics reveal a largely asymmetrical picture of communication of e-governance information in the indicated areas. The C2G and G2C communication imbalances are manifested in two ways: first, where citizen requests and feedback were lower than government communication; and second, where they were higher. The first instance showed in the areas of education, taxation and licensing, infrastructure, and health. In the area of health, for example, government communication was at 53.4% but citizen requests at only 24.3%. In the second instance, citizen requests and feedback were higher than local government communication. This was the case with agriculture, the only area where C2G communication surpassed G2C communication. In some cases such as security, elections, electricity, and travel documentation, only the citizens communicated.

The high rate of citizen requests for agricultural information points to the importance of agriculture as a major economic activity in the area of study, and in the whole country. According to IndexMundi (2014b), agriculture employs 82% of the population and accounts for 23.1% of the Gross Domestic Product (GDP). However, the fact that the requests of the citizens

surpassed government communication reinforces our earlier observation that local government communication was not guided by the information needs of the people. The same observation holds in the cases of citizen requests for information in the areas where the local governments did not communicate at all. In other words, what the local governments communicated was not necessarily what the people needed. There are a number of consequences from such communication imbalance. Firstly, the local governments fail to capture and utilize vital e-governance information from the citizens. Secondly, they fail to provide the e-governance information needed by the citizens. Thirdly, they supply information that the citizens do not need.

There emerged an impression from follow-up interviews that local government communication to the people was a sort of a “ritual” that had to be performed. Commenting on health information, for instance, one KI in Mbarara municipality observed:

*People do not come here to ask for health information; they go to health centres to ask for health services ... here we [do] occasional radio programmes. ... We communicate our success in health infrastructure improvements at health centres but beneath the gloss of that success is a lack of doctors, essential drugs and basic equipment.*

The irony in this testimony is that the local government officials were aware of the service delivery limitations in the health sector (and other sectors, of course), but still conducted inconsequential “occasional radio programmes.” In fact, KIs seemed to share a view, almost a conviction, that there could not be any meaningful communication in the absence of a clear communication and budgetary framework.

A needs assessment is essential for any public communication programme, and it must be done within a clear and viable communication and budgetary framework. Yet, the findings of this study suggest that G2C communications were not based on baseline assessments of the people’s information needs; and there were no feedback mechanisms to gauge the effect of the communications on the citizens. The findings therefore seem to concur with earlier observations

(made at a joint leadership forum of ministers and permanent secretaries sitting in Kampala in 2006) that government communication in Uganda lacked a well thought-out strategy of collection and analysis of information and effective monitoring of its dissemination and impact (Republic of Uganda, 2011a: 4). Observing further that Uganda's government communication function faced serious management and coordination problems that in turn impacted G2C and C2G communication, the forum recommended the establishment of a government communication strategy (Republic of Uganda, 2011a).

The government of Uganda published a government communication strategy in 2011 and launched it in Kampala in June 2013. The strategy was therefore not in place at the time of data collection and analysis for this study (September 2012-May 2013), and is yet to be popularized for full implementation. Nevertheless, a review of this strategy reveals that it does not address itself to the problem of information asymmetry in the information flow path. The strategy emphasizes coordination among different government agencies for purposes of harmonization of the messages reaching the people but fails to provide for a feedback mechanism.

#### **6.4.7 Electronic media for C2G communication**

The citizens and the local governments did not use the same electronic media to communicate to each other. Whereas the governments used radio as the topmost medium, the citizens used the mobile phone; and whereas TV was the second most used by the governments, it was the least used by the citizens (see Tables 14 and 19). Similarly, a few citizens used e-mail while the governments never did. The mobile phone was doubly used: it was a direct communication medium where a person made a voice call or sent an SMS directly to the officer concerned; it was also indirectly used with radio and TV, where listeners called into the studio during talk shows to communicate to the local government authorities.

The popularity of the mobile phone among the citizens can further be explained by their relatively high penetration in the communities, although their overall diffusion was still below 50 percent (CIPESA/Hive Colab/WOUGNET, 2011; UCC, 2011; Harrison, 2015). But it may also be attributed to their ability to be used simultaneously with radio during call-in talk shows, and the fact that most official G2C communications indicated contact phone numbers of the relevant

offices. The G2C communications also indicated e-mail contacts of officers, which explains some e-mail usage in C2G communication and not vice versa. It may be argued also that the low TV usage by the citizens reflects the low TV diffusion in the communities: not many homes owned TV sets, especially in the rural areas. This limitation may also be linked to citizens' limited access to electricity. The low usage of the websites can equally be explained in terms of the low capacity of both the local governments and the citizens to exploit this modern medium. The local governments did not have information access places for easy public access (they relied on the district information offices), yet the people who sought alternative in the Internet cafés did not find much on the government websites. More importantly however was the general limited capacity among the population to interact with e-databases and the Internet.

The findings on the use of broadcast media in C2G communication somewhat contradict those of URN (2014) on the popularity and importance of radio and television in Uganda. While URN found that radio and television were the most effective media, this study indicates that television was the medium least used by the people. Low usage of a medium is inconsistent with its effectiveness. However, the finding on limited access to electricity as an impediment to television usage is consistent with earlier findings on the use of television to communicate to rural populations in India (Singh & Pandey, 2005). This India study found that although television was an ideal medium, its reach in rural areas was seriously curtailed by costly or uncertain power sources in the communities.

The finding on the use of the mobile phone is also consistent with those in earlier studies (CIPESA/Hive Colab/WOUGNET, 2011; UCC, 2011), which found that national telephone penetration was still much lower than 50%. That mobile phones in the instant study were used by 79.5% of those who had communicated to their local governments does not take away the fact that these were only 62 participants, representing a mere 19.4% of the questionnaire survey sample. Equally consistent is the finding on the very low usage of Internet-based tools (e-mail and websites). Both CIPESA/Hive Colab/WOUGNET (2011), UCC (2011) and Harrison (2015) found that national Internet diffusion was as low as 14%; while Harrison (2015) and URN (2014) found that the use of social media tools (now largely accessible on mobile phones) was still quite low because these tools were still concentrated among urban users.

These findings have got important implications on the future of electronic communication media in Uganda's local governments. The local governments are likely to continue relying heavily on broadcast media for their communication agenda. Radio is already well adapted; and with the increase in rural electrification and the number of mobile phone handsets with built-in TV, it may be expected that TV will soon become a popular communication tool (Harrison, 2015). The local governments will also need to step up the campaign and initiatives to promote the diffusion of modern ICT tools within the populace and increase citizen capacity to exploit the benefits of ICTs.

#### **6.4.8 Citizen awareness of information access places**

Subsection 5.4.8 presents the findings about citizen awareness of the public information access places in their local governments where one could access or volunteer information. The findings show that this awareness was very low: only 68 (21.3%) of the questionnaire participants reported that they were aware of such places. If majority of the participants did not know of the existence of public information access places in their local governments, then obviously they did not source information from them. This in turn suggests that the available government information access places were not popularized, so majority of the people were neither aware of them nor of their right to access them.

Each local government had a government information/public relations office. Interviews with information officers in both local governments revealed that the information office is *ideally* the official information gateway from the local government to the public. This office transmits information in three ways: by relaying it through a broadcaster in the form of talk shows, media briefings or official announcements; by formatting and storing it in an electronic database or uploading it onto the government website; and by availing it directly on request to individuals such as journalists, researchers and private citizens. The office is thus ideal, because if information was to be allowed to regularly and freely flow through these laid down avenues and in both directions, e-governance would be greatly enhanced. Unfortunately, citizen awareness of office-based avenues – including those in sub-county, NAADS, URA and other offices – was extremely low.



All the participants that mentioned the public library were referring to the Mbarara public library, located within the municipality, because there was no public library in Isingiro district. Yet, much as the Mbarara public library provided limited public Internet access at a nominal fee, it did not provide local government e-governance information. In the words of the library officer that was interviewed:

*We have not built a collection on local governments because our patrons do not ask for it (sic), and we do not have a budget to build redundant collections, print or electronic. ... That is office information ... you can go to Kamukuzi [local government headquarters] for such information.*

This officer's response reflects the institution's reactive approach to library service and confirms the finding in two separate studies in 2012 that public libraries in developing countries have in this digital age not repositioned themselves to play a steering role in e-governance (IGF, 2012; TNS RMS East Africa, 2012). Both studies attributed this failure partly to the marginal role of the public library resulting from poor funding and limited resources (see also Boule, 2011).

#### **6.4.9 Usage of the information access places**

Citizen usage of the information access places in their local governments was extremely low, and in fact worse than their awareness of the existence of those places. Subsection 5.4.9 presents both the statistics and qualitative findings on the factors precipitating this low usage. The following voices from follow-up interviews are worth noting:

*"Offices are not an attractive place for an ordinary citizen from the countryside to seek information; they are characterized by officialdom"*

*"...offices exude an intimidating aura..."*

*"There is no streamlined procedure for accessing information in offices"*

*“Information can be accessed more conveniently from personal contacts at Council Hall [district offices].”*

These voices point to the limitations associated with accessing information from offices, which were the major information access places. Table 20 in fact shows that apart from the public library, every other government information access place was an office (community telecentres are nongovernmental). Yet, besides the low usage of the offices as information access places, the usage of the public library in Mbarara municipality was also very low. This was attributed to the fact that it was still a “traditional” public library, not yet concerned with electronic-age forms of information provision.

This particular finding on the public library contrasts with that in earlier studies based in the United States, that public libraries were fast metamorphosing into free public internet access points (Bertot, McClure & Jaeger, 2008a, 2008b). The finding also contrasts with that of a comparative study of public libraries in some developing countries that the new role of the public library reflected in the US-based studies was being played by alternative public internet access points (Wahid et al., 2006). This was not the case in Mbarara municipality.

#### **6.4.10 Access to services at information access places**

There are a number of information services provided at information access places, but public access to them is extremely low. Table 23 presents these services as including access to a computer, assisted information retrieval, internet surfing, secretarial services, printing, photocopying, binding, scanning, faxing, and reading space. Although the findings indicate that government offices were the most known places for accessing public information (see Table 20), these offices were faced with enormous challenges in providing information services. The Isingiro district information officer explained that the challenges emanated from the fact that the services were not envisaged for public access and use, but rather to support routine office chores. He emphasized that *“photocopying and similar services that require papers [sic] and drain [printer and copier] cartridges are provided to staff only, and only for office work.”* Thus, while it was possible for a member of the public to request and access information from these offices, there was no indication at all that such a person was entitled to information services; and the

office lay-out, available staff, and general environment did not suggest that these offices were envisaged to provide any public information services.

The failure of the local governments to enable citizen access to information and services portends information failure. Also called asymmetric information, information failure is defined in economic terms as existing when one participant in an economic exchange knows more than the other (Economics Online, 2015; Riley, 2014). According to Riley (2014:1), information failure occurs when people have inaccurate, incomplete, uncertain or misunderstood data and so make potentially “wrong” decisions or choices. In the local government context, information failure manifests in poor citizen access and use of information, which alienates the citizens from governance processes. The importance of access to information and a free flow of information and knowledge between a government and its people is well acknowledged (Banda, 2008; Chitumbo & Kakana, 2010). According to Chitumbo and Kakana (2010:188), freedom of access to information enables individuals and institutions to make appropriate choices and to meaningfully participate in the decision-making processes of their governments. The local governments will thus do well to promote citizen access to information and information services through a functional e-governance information system.

## **6.5 Geometry of information flows**

The local people cannot influence the direction of their government unless they are involved in the governance processes; and their involvement must be guided by their local needs, capabilities, problems and priorities. In the e-governance context, these considerations must be viewed in light of the potential and extent of citizen adoption of ICTs and use of digital information resources. The flow of public information, the extent of social disadvantage, and the diffusion of ICT tools and skills within the communities constitute useful indicators of this potential.

### **6.5.1 Evenness in information flows**

The findings reported in subsection 5.5.1 indicate that the flow of electronic information from the local governments to the people was not even; that is, the people were not equally exposed to government communication and did not equally access government information. This was

attributed to a number of challenges such as language differences, differences in access to media, deliberate government restriction of information, and indiscriminate communication.

The challenges of language and media were vehemently brought out both in the interviews and group discussions. English and Runyankore-Rukiga are the “official” languages in the areas of study while radio and television were the major government communication media (see Table 14). The nexus between the language and electronic media of government communication created a major shortcoming: whenever official programmes were broadcast in English through these media, people who did not understand English were left out; and whenever Runyankore-Rukiga was used to broadcast, those citizens from outside the region were left out. Language restriction therefore imposed restrictions on citizen access to official G2C e-communication media. This finding concurs with an earlier one in Wang and Lim’s (2011) online survey of official and unofficial channels in both G2C and C2G communication in China. In that survey, majority of the participants preferred unofficial channels because those channels posed less language restrictions.

Clearly, the challenge of language is considerably linked with that of the type of G2C communication media used. However, there are other factors that dictate the use or avoidance of certain electronic media. Communicators consider such things like cost (e.g. the cost of TV airtime), accessibility at destination (e.g. how many people with TV sets), ability to access information (e.g. how many people can access a website), etc. For example, the information officer in Isingiro district local government said in an interview: *“We do not use TV to reach our people because they do not have TVs.”* But if the Isingiro local government communicators preferred radio broadcasts because radios were more common in the communities, still not everyone in the audience communities had access to a radio.

During a Farmers’ FGD in Isingiro district, a participant remarking on web communication argued that no person could travel over 5 km from the countryside to the district just to look for information on a government website – only those in the vicinity could afford to access such information. This argument was made against the backdrop of the rural nature of Isingiro district, and the fact that it was only at Kabingo (the town hosting the district headquarters) and a few

other towns that one could be sure of accessing the Internet via an Internet café. This was a realistic argument, notwithstanding the fact that the Internet is now increasingly accessible in rural areas via Smart phones (Harrison, 2015; URN, 2014). After all, both Harrison (2015) and URN (2014) have pointed out that the cost restrictions associated with Smart phones and Internet access fees still dictate the concentration of Smart phones and Internet in urban areas. Therefore, unevenness in G2C information flow was unavoidable no matter what electronic medium was used.

Another reason behind unevenness in information flow was deliberate government restriction of certain information. Some information, especially that of operational or security nature, could not simply be subjected to a blanket communication to the public. However, there were instances when a local government decided not to communicate certain information not disallowed by the law. During KI interviews in Mbarara municipality a councilor in Nyamityobora ward observed:

*At times, our bosses at municipal hall, for their own reasons, refuse to release some information. When you discover the reasons ... it is the very reasons that characterize bad governance.*

The reasons mostly cited for the local governments' refusal to communicate what they were expected to communicate were those related to incomplete reports, missing or incomplete financial accountabilities, unjustified or unapproved expenditures, inaction on petitions, etc. Thus, most of the information not communicated was on such matters as tendering, resource allocations, staff appraisals, and budget performance. This finding particularly renders credence to a 2012 global survey on the relative availability of government information on budgeting, where the International Budget Partnership (2012) found that most countries do not freely disclose budget information especially with regard to expenditure of public funds.

There is another perspective to restriction that relates to the nature of information. Certain types of information can be legally exempted from public access in keeping with legal guarantees to personal privacy, security and integrity. Atwell (2014:1) has identified some categories of information that is unsuitable for open consumption, to wit, financial details of homeowners in

arrears; personal details of children in foster care; financial particulars of people applying for welfare relief; confidential inter-governmental correspondence; etc. The quest for such information under access to information laws can constitute an infringement on those people's rights to privacy. Uganda's legislation on access to information of 2005 provides for public access to information held by government but makes the following types exempt: Cabinet minutes and those of its committees (section 25), personal privacy information (section 26), commercial information of third parties (section 27), confidential information of a third party (section 28), information relating to safety of persons and property (section 29), law enforcement and legal proceedings (section 30), records privileged from production in legal proceedings (section 31), information on defense, security and international relations (section 32), and information on operations of public bodies (section 33).

Another serious challenge to the even flow of information arose from the need for audience segmentation. Audience segmentation is itself an effective strategy among public communicators, intended to direct specific information to sections of the public to whom it is best suited. According to the KI interviews, the problem with audience segmentation was that the targeting of information at certain audience segments was not matched with the targeting of equivalent or alternative information at the other segments. For example, the stream of information from NAADS to subsistence and small commercial farmers on various aspects of agriculture was not matched by an equal flow to those engaged in animal husbandry.

An even flow of information from the local governments into the communities through electronic media was also inhibited partly by the inability of many people to extract information. This includes electronic information stored on any medium such as an electronic database, a CD-ROM or a website. Interview information from an Internet café attendant suggested that a number of patrons at the café were not proficient enough in Internet searching. She said: "*most of our customers come here to use e-mail,*" and "*many customers come here to search for information but do not know how to do it.*" This information rhymed with that of the librarian at the public library, that many library users required guidance to search the Internet while others never asked for CD-ROMS, which possibly points to their inability to use them. Hongladarom (2007:2) observed that:

... the disparity in information ... is not simply a matter of one side having more information than the other. On the contrary it is actually a matter of the capability of 'harvesting' or 'mining' the information that is already there everywhere.

Although the findings of the instant study have already indicated that the local governments did not have well organized and efficient information systems, one can nevertheless agree with Hongladarom that there is fairly sufficient information in the public domain but the users generally lack the capacity to extract it.

### **6.5.2 Disadvantage in access to e-governance information**

A critical examination of the findings reported in subsection 5.5.2 leads to the conclusion that the extent of social disadvantage in the observed communities was not alarming. The proportions of the top three socially disadvantaged categories ranged from 39% to 31% while those for the lowest three categories all fell far below 10%. This is not to suggest, however, that these levels of disadvantage can be ignored in the design and implementation of e-communication programmes for the local governments. As the analysis of qualitative information especially on the nature of disadvantage suffered generally showed, the statistical extent of social disadvantage was as important as the individuals' personal experiences of it. Disadvantage was manifested as immobility, isolation, and the inability to seek, afford and utilize electronic information and resources.

The observations from qualitative analysis suggest that people who suffer specific social disadvantages tend to fail to benefit from ICTs which are otherwise envisaged to empower them. However, there are also a considerable number of socially advantaged persons that are likely to be digitally disadvantaged. Taking the example of the UK digital inclusion study again, Helsper (2008:10) found that people who were generally socially advantaged but were unemployed or lived in rural areas or were older or did not live with children in the households tended to be digitally disadvantaged. If therefore socially advantaged persons can be digitally disadvantaged, then the aspects of social disadvantage unearthed in the present study must be taken seriously. Measures geared at improving education and health, creating employment opportunities, enhancing access to HRAs, etc should include a digital empowerment component aimed at

enhancing people's ability to engage with ICTs. In other words, initiatives towards social and economic empowerment need to incorporate e-skills training in order to lead to increased digital engagement. All in all, conditions of social disadvantage can easily be catered to, and should indeed be factored in the interventions meant to improve e-governance communication in the local governments.

### **6.5.3 Membership to advocacy groups**

The findings reported in subsection 5.5.3 show that membership to interest groups in the local governments under study was quite low. Interest groups are advocacy groups, concerned with supporting and enabling their members to access information and services, express their views and concerns, explore choices and options, and make informed decisions. In the e-governance context of social disadvantage, advocacy groups seek to empower their members with information and skills to enable them articulate their interests and participate in the processes of making decisions that affect their lives (MacIntyre & Stewart, 2011). According to the findings in subsection 5.5.3, Savings and Credit Cooperatives (SACCOs) were by their very nature the most popular development or advocacy networks for the people in the study area. SACCOs are financial associations focused on saving money in a pool and later extending credit from the pool to the members at very low and liberal interest rates. These SACCOs exist in different sizes and have different member compositions, and they also attract government funding.

The popularity of the SACCOs has steadily grown out of the limited financial sourcing opportunities for the ordinary citizen following the collapse of the cooperative movement in the 1990s (Msemakweli, 2012). The collapse of the cooperative societies and cooperative unions, and the privatization of the cooperative bank led to a serious limitation in small-scale production, marketing and financing options for low income people, especially in rural areas. This vacuum led to the emergence of commercial microfinance institutions (MFI) to provide small and quick loans, secured by small items as collateral, for a wide range of purposes to the borrowers (Carlton, Manndorff, Obara, Reiter & Rhyne, 2001). However, the MFI soon became too costly for the borrowers. People who could not afford collateral for the MFI loans, which loans now attracted very high lending interest rates, resorted to *nigiina* networks. These were small, informal associations of friends, relatives or neighbours who would pool their meager resources



on a regular basis, mostly monthly, and “gift” them to one member on a rotational basis (Akurut, 2011; Kalema, 2012; Nakirya & State, 2013). These networks gained popularity, with some attracting members with bigger and more stable incomes, which led to significant financial and material improvements among the members. They soon attracted the attention of government, which encouraged them, provided a framework for their operations, and even capitalized the bigger ones (Kato, 2010). The *nigiina* groups were thus transformed into SACCOs.

Following the SACCOs in popularity were youth groups and women’s groups respectively. In spite of the youth groups’ rating as the second most popular advocacy groups, however, the youth FGDs both in Mbarara and Isingiro indicated that these groups were generally weak and organized around small and largely unviable projects. The more viable of the youth associations were *bodaboda* (motorcycle taxis) associations, which however were categorized as transporters’ associations. Another somewhat viable youth group was a cultural troupe in Isingiro, which was hired to entertain people at social functions. And according to the women FGDs, women’s groups were much of the same character as youth groups, coalesced around small and generally economically unviable projects.

There was no clear tendency for the people in the area of study to associate for purposes of reclaiming space to exert their group interests: groups generally remained fragmented, informal, and short term. In the words of the clerk to the municipal council, “*many associations pop up like popcorn and make two things, a statement and a brief stay, and die away.*” He explained that commonly, schemers who wanted political capital or wanted to attract the political leaders’ attention for possible job placements would mobilize others to get a platform. This was common among educated but unemployed youth. But there were also views that the masses were generally not mobilized by the local leaders for development causes, and that this tended to leave the disadvantaged among them in the periphery. While membership to the eight groupings shown in Table 27 does not suggest that these were groupings of disadvantaged persons (to the contrary, save for women and youth groups, the rest were clearly associations of professionals and business people), it nevertheless shows that group advocacy was low. In fact, this is better implied by the 178 (55.6%) majority participants who reported that they did not belong to any groups.

These findings clearly indicate that group advocacy in the study area was very low. If majority of the people did not belong to advocacy groups, they certainly missed out on the benefits of group advocacy. According to Global Forum on Agricultural Research (2008), group advocacy is a vehicle to the empowerment of members of groups, and operates primarily through improving the flow of information on group interests and ensuring its equitable access and effective use by all group members. The focus of advocacy is thus on information flow and information sharing. And as Global Forum on Agricultural Research (2008) pointed out, when information is integrated with experience and learning it transforms into knowledge; and knowledge is the engine of empowerment for purposes of participation and making choices in governance processes.

Going by the findings in subsection 5.5.3 and the above definition of group advocacy, it is quite clear that the population in the study area generally did not enjoy the benefits of empowerment. Yet, earlier research suggests that the future of development and governance in Uganda lies in effective advocacy. The Uganda Youth Network (UYONET) has for example observed:

The youth when empowered, should be the pillar of citizen participation and engagement. ... Increased visibility and voices of the youth is ... believed to be Uganda's biggest asset for political and socio-economic change (cited in Youth Advocacy Campaign Project & International Republican Institute, 2010: 2).

UYONET is a platform for the youth to advocate for their interests at the local government level, with a special focus on unemployment. As if convinced by this UYONET persuasion, a community development officer in Isingiro said that the local government was planning a campaign towards community development through mobilization of the population into common interest groups. This plan represents a potential for the future of e-governance and can be adopted in all local governments in Uganda.

#### **6.5.4 Electronic information literacy**

The statistics in subsection 5.5.4 show that majority of the people in the local governments under study did not know how to search for electronic information on the Internet and in electronic

databases. This inability to interact with electronic libraries was also acknowledged both in the qualitative interviews and focus group discussions. A synthesis of the qualitative viewpoints projects this inability as a function of three interconnected factors: low or lack of income, poor or lack of access to e-resources, and poor or lack of e-skills. While it was not uncommon for people without own income to access e-resources and acquire e-skills (mostly facilitated by richer relatives), lack of income was generally associated with lack of access to e-resources and skills. The Mbarara municipality local government IT specialist elucidated this connection as follows:

*If you don't have a job, and you don't have enough cash for food and rent and other basics, you can't enroll for computer classes or visit Internet cafés ... you remain both needy and computer illiterate ... no means, no need, no ability to acquire [electronic] devices. It is a vicious circle.*

But it was also common to find people with means who were not proficient in electronic information search and use. An operator in an Internet café in Mbarara said that most of her clientele came to send and receive e-mail, and that a few of them who came to “research” did not know how to search.

This general limitation of the people to exploit e-information resources has got negative implications for information flow and e-governance in the studied local governments. In the first instance, it puts a limitation on the diffusion of important government information into the communities as well as the reverse flow of information from the communities. The limitation on the reverse flow of information particularly implies that the citizens are not able to articulate their interests and impose demands on the government. Secondly, the failure to exploit electronic information resources imposes constraints on citizen participation in e-governance and limits e-service delivery. The end result is a redundant information system with its attendant wastage of resources, which is characteristic of bad governance. As it is therefore, e-governance implementation efforts must incorporate the crucial component of e-skills training.

The foregoing findings and analysis resonate with those in a 2013 study of the national e-governance project in India and in a 2014 study of constraints to e-government implementation

in Nigeria. In the India study, Rajput and Nair (2013:136) found that the implementation and success of e-governance depended on digital literacy; and that “e-governance and digital literacy are related closely with each other.” They particularly observed:

... e-governance project failed in India because of lack of proper IT education. More than 60% people live in rural areas who do not have digital literacy, and they cannot understand and operate e-governance system (sic) (p. 140).

In the Nigeria study, Omeire and Omeire (2014:484) found that a low ICT literacy rate poses a serious impediment to e-government/e-governance adoption because it hampers the appreciation and appropriation of e-services. Both studies thus concluded that lack of proper IT education, e-awareness, training and support after the completion of automation were among the major reasons for the failure of e-governance projects. This conclusion is very instructive for the instant study that is geared towards the establishment and implementation of an e-governance information system.

#### **6.5.5 Access to e-information tools and resources in the communities**

The results reported in subsection 5.5.5 show that radio, mobile phone and TV were the most accessed e-information tools in the local governments under study. This is hardly surprising, considering the increasing rate of mobile phone penetration in the country, and more particularly given that some mobile handsets have built-in FM radio and FM television. Radio and TV can thus be accessed using a family set at home or a personal mobile handset.

All the participants who reported having access to the radio had also received information from the local government through radio programmes. Radio therefore had the greatest potential as an organ of the e-governance information/communication system. Television was also quite popular. Up to 128 participants (representing 40% of the total survey sample) owned or had direct access to TV, while 85 (66.4%) of these received local e-governance information from TV. A community TV diffusion rate of 40% is quite fair considering, as we have already seen, that TV spread in rural areas was curtailed by limited electricity supply. Similarly, a 66.4% reception rate of TV communication among those with TV sets was quite good. However, that

only 3 people communicated back to government by participating in interactive TV programmes suggests that the programmes were either infrequent or were not properly designed to accommodate public participation and feedback.

Like the radio, the mobile phone was a popular tool among the participants, but unlike the radio, its great potential was not harnessed by the local governments. As many as 261 participants (representing 81.6% of the total survey sample) owned mobile handsets, and 62 participants (representing 79.5% of only those who communicated to the local governments) sent information via mobile phones, but only 39 participants (representing a mere 13.4% of those who received government communications) received information via the mobile. The mobile phone was thus greatly under-utilized by the local governments. This was in spite of its great potential to reach the citizens via voice call, text broadcast, and social media. The local governments must therefore be challenged to innovate ways of tapping into this huge potential and integrate mobile communication in the e-governance information system.

Ownership of and access to the more static media and resources by the citizens was as low and almost negligible as their utilization by the governments. Access to a library or information centre was at 11.9%, to the Internet café at 5.0% and to a personal computer and mobile modem at 3.1%. Only 29 people had received Internet-mediated government information, and only 13 had sent Internet-mediated information (e-mail) to government. Compared to broadcast media, the potential for Internet-mediated access and flow of e-governance information was too low. Yet, whereas broadcast media are indispensable for their mass communication function, it is information processing, storage and retrieval that form the basis of a functional e-information system. The Internet, computers, modems, and other input-output devices constitute the core tools used to operationalize the e-library upon which an e-governance information system is built. Therefore, poor access to these tools among the communities poses a great challenge to the implementation of the e-governance information system: it means that e-governance information remains redundant in the databases or on the websites without being accessed by the citizens, while also the system fails to capture information from the citizens.

### **6.5.6 Access to electricity**

The data presented in subsection 5.5.6 indicate that 229 (71.6%) of the questionnaire participants had access to electricity, while 91 (28.4%) did not. These figures suggest that access to electricity in the local governments studied was well above the national average. According to the Rural Electrification Strategy and Plan 2013-2022 (Government of Uganda, 2012), public access to electricity in rural areas is still less than 10%. There is thus a huge disparity between the area of study and the national average, which calls for further scrutiny. Nevertheless, the figures suggest that there is sufficient access to electricity to guarantee the successful implementation of an e-governance information system in these local governments.

It should be noted, however, that hydro power – the most accessed source of electricity in Uganda – is controlled by three public limited companies all under central government regulation. The companies control the generation, transmission and distribution of electricity and determine the tariffs and schedules of load-shedding. The consumers therefore do not enjoy sufficient control over the use of the resource as compared to the other three power sources. If then the consumers have limitations on the extent to which they can access this most used power source (in terms of cost and time of use), it may be said that they are also limited in the extent to which they use it in information-related pursuits. This means they cannot in their own time search for electronic information, share it with others on a network, or reproduce it in other formats such as print because all these actions require electricity. And this is not merely a limitation to information flow: it also affects the extent to which information is used to enhance e-governance. This corroborates an earlier research finding on the importance of electricity in e-governance implementation. Omeire and Omeire (2014:486) found that when only very few citizens have access to electricity – since there are currently no computers or ICT devices yet that can run without electricity – it becomes very difficult for an e-information system to succeed.

It has already been noted that the 71.6% level of access to electricity in the areas of study is a sufficient guarantee for the local governments to establish and implement an e-governance information system. However, it may be said that this level of access was not optimum considering especially that most of the people constituting this percentage were urban-based. Fortunately, this fact was alive to the authorities in the local governments. According to

information from the planning office, Isingiro district local government, there was a government plan to extend hydro electricity to every part of the district. This, of course, was not the case with Mbarara municipality, which, being a strategically located urban local government, already enjoyed hydro electricity from the national power grid in its every corner. Also, there was a deliberate policy by the central government to encourage the diffusion of solar energy in rural areas by lowering tariffs on imports of solar equipment and accessories. These measures are consistent with the national rural electrification strategy and plan, whose overall objective is to position the electrification development program on a path that will progressively advance towards the achievement of universal electrification by the year 2040 (Government of Uganda, 2012: 2).

## **6.6 SWOT analysis of the local governments**

According to the SWOT findings presented in section 5.6, the study identified and differentiated the factors potentially underlying the success or failure of e-governance information system implementation in the local governments. The subsections below present the discussion of the findings of the SWOT analysis.

### **6.6.1 Strengths**

In a SWOT analysis, strengths are those attributes and resources internal to an organization that enable smooth and effective operations and lead to the attainment of organizational goals (Dunleavy, Rainford & Tinkler, 2012). Strengths are usually considered in terms of human, financial, material and technological resources. Thus, in the context of this study, the analysis of strengths focused on human capital, finances, and other resources at the disposal of the local governments that might support the successful establishment and implementation of an e-governance information system. The identified strengths are here below discussed.

In terms of human capital, the local governments have a relatively well trained and skilled workforce. The cadre of information workers possesses professional qualifications, while majority of the rest of the workers are both qualified for their positions and fairly computer literate. The computer literacy element is emphasized during staff recruitment, and the personnel that get into the system without the minimum computer literacy are encouraged to take computer

lessons for basic IT functions. In fact, senior personnel are as a matter of policy facilitated to undergo ICT training and are provided with modems, laptops and charging equipment. This has enabled the local governments to fill all established positions with a work force that possesses the minimum e-literacy skills for a functional e-information system and the potential to respond to the changing nature of information and information needs.

Human capital is a particularly important factor in an organization, which when properly motivated controls and directs the rest of the resources towards a successful operational outcome (Marshall, 2015). The importance of skilled human resources has been underscored by Bianca (2015), who observes that it is the people in an organization that carry out many important work activities, who therefore must be viewed as human assets, not costs to the organization. Research has indeed showed that viewing people as assets is a precursor to building an effective human resource – which is more than just hiring and retaining talented employees, but involves helping them to grow and stay committed to organizational goals over the long term (Bianca, 2015; Marshall, 2015). The training and skills development function in the local governments under study is commendable, and concurs with Marshall's (2015) finding that providing employees with ongoing training enables them to keep pace with ever evolving legal, regulatory and technological landscapes. Marshall (2015) particularly finds that not only does ongoing training help meet organizational objectives, but it is also a significant factor in employee motivation and morale.

Another source of strength for the local governments under study is the fairly solid and stable financial position that they enjoy. This is evidenced by the local tax base that is both expansive and reliable. This revenue source is supplemented by donations and grants from development partners as well as annual releases from the central government. The local governments also have in place sound financial policy frameworks (policies and regulations on taxation, budgeting, tendering, procurement, audit, etc); and have provision for development capital, which they are free to use to cater to the information and communication sector. They thus enjoy significant financial autonomy, which they can exploit further towards establishing and implementing an effective e-governance information system. In fact, they have already made some strides in this direction, notable of which is the skills development initiative implemented through training at



Uganda Management Institute (UMI) and Mbarara University of Science and Technology (MUST). This initiative has also benefitted from funding provided by the central government.

Financial autonomy, which derives partly from reliable revenue sources and partly from sound financial policies, constitutes a condition *sine qua non* to successful organizational performance. According to Bowman (2011), genuine financial autonomy yields financial sustainability – the ability to maintain financial capacity over time. In local governments (nonprofit organizations that use surplus revenues to achieve organizational goals rather than share them as profits or dividends), financial capacity consists of the availability of resources and opportunities in the governments to enable them to react to unexpected threats while maintaining core operations. Bowman (2011) argues that such capacity reflects the degree of managerial flexibility to reallocate resources in response to emerging opportunities and threats. Going by Bowman's (2011) postulation, it may be reiterated that the local governments under study enjoy relative financial sustainability, for they have demonstrated some capacity to maintain and in some cases expand service delivery – what Hackler and Saxton (2007) call the social mission – while developing resilience to occasional economic shocks.

There are also a number of material resources, information resources and IT infrastructural resources that the local governments of this study boast of. Among these are quality tertiary education and training facilities within the communities, which are continuing to grow at a competitive rate to warrant the support of a strong e-governance information system. The buildings at the headquarters are well designed for standard cabling, which is important for the physical components of the information system as well as system upgrade, and for enabling an easy flow of e-information across the nodes of the electronic network. The buildings are also connected to alternative power sources in case of interruption with the main (hydro) power supply. The envisaged electronic information system therefore faces no threat of power failures. It is also notable that the local governments possess large stocks of information and electronic information resources (ICT equipment and infrastructure), and a number of staff in different departments are willing to adopt new ways of engagement with information. Equally important is the fact that there is a data back-up system for all official information in each local government. In contemplating an e-governance information system, the foregoing factors are clear points of

strength for the local governments to reckon with. Unfortunately, no studies have been identified to illustrate the role such factors have played in facilitating information access and flow.

### **6.6.2 Weaknesses**

In business and organizational appraisal, weaknesses are internal attributes and resources which, although they represent areas capable of improvement, work against a successful operational outcome (Dunleavy, Rainford & Tinkler, 2012). Like strengths, weaknesses are also usually considered in terms of the human, financial, material and technological resources required for the execution of tasks. For the purposes of this project, weaknesses are the significant and identifiable problems within the local governments that are likely to constrain e-governance information access and flow, and ultimately the establishment and implementation of the electronic information system.

The weaknesses relating to human resources in the local governments under study are twofold. In the first instance, there is considerable reluctance among senior policy makers and implementers to embrace ICTs, which affects the manner and extent to which the local governments can achieve their social mission of service delivery. There is indeed a general perception that the local governments do not sufficiently collaborate with business and public institutions on a number of important issues. This is partly the cause and partly the result of the fact that many politicians in local government service are ignorant or lack enthusiasm on how to use ICTs, and this hampers the prospects of e-governance. Equally inhibitive is the inability of the bureaucrats to recognize and deal with the rate of change in the information industry. For instance, the local governments do not see the need, at least not yet, of establishing their own broadcast media. The second aspect is the weak administrative control of ICT resources. For example, there is fairly sufficient IT expertise both at the municipality and in the district local government but the computers are not sufficiently networked, which leads to slow internal communication. Interview information revealed *inter alia* that modems and printers are misused, some information is lost due to viruses, and ICT equipment is frequently stolen by those who service the computers. This suggests that the local governments lacked efficient administrative machinery.

These findings resonate with earlier studies on the effect of technology-shy and reluctant leadership on organizational health. Although no local government-specific studies have been identified, library-based studies have shown that a leadership characterized by non adaptation or slow adaptation of ICTs tends to stall the organization (Dobbs, 2010; Oyelude & Oladele, 2014). Oyelude and Oladele (2014:8) particularly found that many library professionals in leadership positions in Africa are shy of ICTs and would “rather pretend that they know and slow down or ground the work in their section of the library.” Similarly, the effect of inefficient administrative control of ICTs on organizational performance, particularly on information management and information systems, has been well documented. Laudon and Laudon (2013) elaborated organizational administrative controls as entailing the segregation of functions, written policies and procedures, and supervision; and as aiming to ensure that the entire control framework is instituted, continually supported by management, and enforced with proper procedures, including audits. They also found that in the context of an information system, lack of such controls leads to errors and deviations from standard procedures – which is obvious in instances, such as the one in the local governments of the study, where the political leadership (policy makers) lacks sufficient ICT proficiency to steer or supervise.

Regarding financial resources, while the local governments under study enjoy considerable financial autonomy enabled by a broad source of local revenue and an enabling financial policy framework, they are also bogged down by notable weaknesses. One of these is that there is much reliance on external financing for certain important development programmes and projects. It has for example become habitual that the budgeting process leaves items such as major road works, primary healthcare, and IT projects to the central government and external donors. Similarly, insufficient budget allocations to the information/communication sector have become chronic. For example, at the time of the interviews for this study, Mbarara municipality needed just 10 million Uganda shillings (US \$ 4,000) to network the computers, but this money was not available because of under-budgeting and so the activity could not be conducted. Thus, although there is a fairly extensive stock of ICT equipment and infrastructure thanks to donor support, there is low investment in the ICT sector which manifests in poor maintenance, slow system upgrade, and insufficient network.

Over-reliance on external funding of core budget items has limited the local governments from attaining full financial sustainability. This is evident in the limitation in financial capacity and the lack of flexibility in reallocation of resources to respond to seemingly negligible cases of oversight – such as the vote to network computers. Literature on ICT implementation in (local) governments shows that their failure to reallocate funds to crucial ICT areas has got serious implications both for information flow and the sustainability of the information system (Gichoya, 2005; Nieto, Luna & Ramos, 2010). Drawing on the Kenyan context, for instance, Gichoya (2005:176) examined the various challenges that affect the successful implementation of ICT projects and found among others that governments overly rely on donor funding, that donor funding is not guided by thorough prior consultations, and that once the project phase ends the governments fail to sustain the operational costs of the system. All these challenges clearly point to the governments' lack of financial capacity.

With regard to ICT resources and the infrastructure to drive them (power supply, information access places and facilities, etc), the local governments are grappling with a number of weaknesses. One of these concerns the level and variety of computer skills. While the workforce generally boasts of possessing the minimum computer literacy (Operating Systems, Microsoft Office, e-mail/internet, etc), it nevertheless faces considerable limitations about the more specialized computer applications. Moreover, some departments use different applications for the same function, so that for example one Accounts staff using Microsoft Office Accounting Professional finds difficulty working in another department that uses Oracle or Pastel. Another weakness is that there are fewer computers than are actually needed for the successful operation of the information system. The current stock of ICT equipment and infrastructure is indeed quite extensive – but only as far as office routines are concerned. If one considers the ICT requirements for a functional e-information system, one clearly acknowledges the inadequacy of the current stock. These foregoing weaknesses are compounded by very low levels of proficiency, access to and/or ownership of ICT tools within the local communities. Moreover, the local governments do not have their own broadcasting facilities, and this makes it very expensive to broadcast official programmes.

Studies have established the importance of ICT resources and e-skills training to the functioning of an electronic information system (BRIDGES, 2010; Kundishora, n.d.; Lewis, Hodge, Gamage & Whittaker, 2011). It is shown that the introduction of new ICT systems will usually require organizational restructuring, dictate new ways of working, and call for new staff skills. On restructuring, Kundishora (n.d.) explored the foundations for establishing a viable and sustainable e-governance system. Focusing *inter alia* on ICTs and the e-governance sector, he emphasized the need for staff in government service to be e-literate in order to competently manage and monitor the ICT sector. The question of skills training is particularly underscored because, as BRIDGES (2010) pointed out, technology *per se* cannot sufficiently impact organizational change unless the people know how to put it into effective use. Accordingly therefore, as long as ICT resource and skills-based weaknesses such as those unearthed in the local governments under study are in place, such governments cannot establish and implement an effective e-governance information system.

### **6.6.3 Opportunities**

In a SWOT analysis, opportunities are defined as the external factors that an organization (government, business, institution, or project) can capitalize on or use to its advantage to achieve its goals (Dunleavy, Rainford & Tinkler, 2012). Opportunities provide the organization with a means to improve its performance and competitive advantage. In the context of this study, opportunities are the factors outside the local governments that might advantage the operations and sustainability of the local governments' e-governance information systems.

Opportunities may at times appear as internal factors, but their advantage is more manifest in an external environment. A case in point is the strategic location within the region, which provides Mbarara municipality local government with the opportunity to promote itself as the regional information hub. Other opportunities however are typically external. One of these is about the neighbouring local governments being engaged in similar activities, which provides an opportunity for collaboration and information exchange. For example, the agriculture sector, particularly in terms of fresh food, meat and dairy production, offers opportunities in both domestic and export markets, and such an opportunity provides a pedestal for a strong e-governance information system.

Other opportunities lie in the changing nature of business and public administration triggered by global advances in information technology. Advances in information technology present an opportunity for the local governments to develop strong, modern e-governance information systems. Fortunately, there are already myriad cases of well-developed e-governance information systems in different regions of the world (UN, 2014) that provide benchmarks and lessons for the local governments. The opportunity to implement an e-governance information system is also made real by the fact that there are many broadcast channels in the local governments (11 FM radio and 4 TV stations in Mbarara; 1 FM radio and 0 TV stations in Isingiro) which can be integrated in the information system. These channels are also received in neighbouring districts, which have a very low number of broadcasters.

The local governments under study also stand to benefit from favourable central government policies and goodwill. It is notable, for example, that the twin policies on ICT diffusion and rural electrification have resulted in a proliferation of ICT tools in the communities and this is steadily triggering an increase in e-skills. There is also a national communication strategy that enjoins local governments to step up concerted communications to the local communities. The communities already enjoy a heavy presence of NGOs and CBOs operating therein. These organizations offer potential for strategic and development partnerships with the local governments and other actors. Once exploited, this potential will enhance the governments' e-information systems and communication efforts.

#### **6.6.4 Threats**

Threats are anything from the external environment of an organization that can adversely affect its performance or achievement of its goals (Dunleavy, Rainford & Tinkler, 2012). They may emanate from national policies and regulations, competitors, global challenges such as terrorism or climate change, new technologies, etc. In the context of this study, threats include the factors and circumstances external to the local governments that might negatively affect the implementation (or even survival) of the e-governance information system.

Threats to the e-governance information systems in the local governments are mostly located in the global and national economic and policy trends whose effects the local governments cannot

control. For example, global and national economic downturns create policy shifts that dictate harsh measures such as austerity, restructuring and downsizing in the public sector. Uganda's recent experience of inflation serves as a good illustration of the spill-over effect of an economic threat. That experience showed that when inflation remains high, it causes an upsurge in food and commodity prices while people's formal incomes, particularly in the public sector, remain static. This leads to continuous increases in the cost of ICT products and services by suppliers, which threatens routine system maintenance and regular upgrades. But it also affects the purchase power parity within the communities and curtails access to ICT tools and electricity. The information system bears the brunt.

It should be noted that threats do not only emanate from negative events: even manifestly positive phenomena such as bumper harvests can affect agricultural commodity prices and lead to serious losses in agricultural export earnings. As such, developments in information technology research are steadily "leapfrogging" ICTs, which is a positive thing, but this poses serious threats to the longevity of e-information systems in developing countries. It implies that after an organization has invested heavily in an e-information system, ICT products and services will become obsolete much ahead of the pay-off period. For the local governments that are already grappling with the cost of networking and maintaining office computers, the rate of obsolescence caused by the rate of IT research may be a big impediment to system implementation.

Uganda is a liberalized economy, so there is less government control over the information that goes into the public domain. The country also has a number of electronic media outlets, from FM radio stations to TV stations to telecommunications services. Consistent with liberal democracies and economies, Ugandan citizenry is characterized by different shades of political, social and economic identities and interests; and these are often competing or conflicting – citizen against citizen or citizen against state. It is possible therefore for competitors to use the media to send information and messages that contradict government communication objectives. Similar to this point is the negative attitude of political opponents (members of the opposition political parties) viewing "official" government communication as propaganda; they may thus use alternative media to de-campaign it as promoting party rather than national interests.

Globally, the ICT sector is currently facing increasing security concerns, some of which present as external threats to organizations. Research has shown for example, that hi-tech experiments with viruses and other bugs and unethical behavior by hackers can ground an entire organization to a halt, beginning gradually by delaying services and finally shutting down operations (Page, 2015). In the local government context, the envisaged e-governance information system entails the digitization of all governance information to make it readily accessible to the users. Any compromises on the databases through hacking, viruses, and other e-threats therefore will adversely affect the system. Much as the local governments under study have data backup mechanisms in place, downtime can nevertheless deal a crippling financial blow to these governments.

Fortunately, research and practice show that threats can often be turned into opportunities (Stack, 2014). Observing that embracing a threat may actually be the best thing a business entrepreneur can do, Stack (2014:1) states: “Sometimes you need a threat to shake you up, jar you out of complacency, and change your perspective.” She elaborates her TOP formula (Think, Open, Push) to illustrate how one can turn organizational threats into opportunities.

## **6.7 Summary of the chapter**

This chapter has discussed the findings of the field study presented in Chapter Five. Like the previous chapter on the findings, this interpretation and discussion chapter is organized along the themes of the study as laid out in the study objectives. The details of the design and methods used for research and analysis have been discussed in Chapter Four.

On the state of e-governance and e-information needs in local governments, the chapter has discussed the research findings on the communication of e-governance information between the governments and the citizens, the issue of information content, the intensity of government communication, and the diffusion of ICT resources in the communities. It has also discussed electronic information management and resources within the local governments, and the people’s capacity to interact with the e-informational system. All these are discussed in the context of the viability of an e-governance information system for the local governments.



On the geometry of information flows within the communities, the chapter has discussed the findings on the equitable flow of public information into the communities: does information flow evenly into the communities? The chapter has identified and discussed issues of social disadvantage and exclusion, and their implications on the ability of the poor and disadvantaged to source, access and utilize information to improve their lives. The affordability and diffusion of ICT tools within the communities is discussed to gauge the potential of the communities to be integrated in a dynamic e-governance information system.

On the ability of the local government to establish, implement, and maintain an e-governance information system, the chapter has discussed the findings of a SWOT analysis and identified the salient issues to put into consideration when designing and implementing the system. A review of the common e-governance models has been done in Chapter Three. The review of the models, the findings of the field study and the SWOT analysis have together provided the basis for the conclusions upon which the model of a hybrid and interactive e-governance system is based. A summary of the major findings, the conclusions and recommendations of the study and the proposed model of an e-governance information system are the subject of the next chapter.

**CHAPTER SEVEN**  
**SUMMARY OF THE FINDINGS, CONCLUSIONS, RECOMMENDATIONS**  
**AND THE PROPOSED MODEL**

**7.1 Introduction**

The previous two chapters have respectively dealt with the presentation of the findings collected from the field and the discussion of those findings. This instant chapter provides a summary of the research findings, the conclusions derived from those findings and the recommendations. Some of the recommendations relate to the conclusions of the study while others relate to the establishment and implementation of the e-governance information system. The chapter further proposes and rationalizes an interactive hybrid e-governance model of information access and flow for use by the local government in Uganda.

It has been observed that when writing the conclusions and recommendations, the researcher should ensure that they clearly relate them to the research findings, and that they answer the research questions (Williamson, 2000:300). Researchers are also advised against “over-concluding,” that is, making unwarranted conclusions and generalizations, although some conclusions and recommendations may be manifestly specific (Kalusopa, 2011:263). A conclusion is a re-statement of the finding with emphasis on the implication(s) of that finding in relation to the research question at hand (Bouma & Atkinson, 1995:227). Good conclusions therefore go beyond merely restating the research findings and constitute what Levine (2005:19) calls the “so what statements” that help to point to areas that require action; it is on these that recommendations are based.

This study was focused on four specific objectives:

- i) to review the current state of access to e-governance information in Uganda’s local governments, and to identify the e-governance information needs;
- ii) to examine the current geometry of information flows in order to establish imbalances or gaps in the geometrical framework that needed to be plugged into;

- iii) to review the common e-governance information access and flow models; and to perform a SWOT analysis of local governments to determine the features for an appropriate model; and
- iv) to propose and rationalize an information access and flow model that is appropriate for e-governance in Uganda's local governments.

The findings on objectives (i) and (ii) and on the SWOT analysis part of objective (iii) are presented in Chapter Five and discussed in Chapter Six. The review of the common e-governance information models is done in chapter three. The proposed model as per objective (iv) is presented and discussed in section 7.5 of this chapter.

## **7.2 Summary of the findings**

This section presents a summary of the empirical findings. The presentation is made thematically, in the order followed in chapters five and six. A summary of the features of the models reviewed in section 3.4 is also presented.

### **7.2.1 Access to e-governance information**

The local governments do communicate to their citizens, but some citizens do not access the communications due to factors such as lack of access tools and facilities, lack of interest, and memory lapses. The G2C communication function however endures serious challenges regarding availability and affordability of communication media; the local governments are thus forced to reduce the frequency of the communication programmes, which leads to communication lapses and affects citizen alertness and interest in government communication content. G2C communication is dominated by content on government policies and politics, followed by infrastructure, health, taxation, education and agriculture. There are considerable disparities in citizen access to government content, but these are more to do with individual information preferences and abilities than a lack of desired content in the public domain.

The local governments rely more on broadcast than other media for G2C communication. This is largely due to the high diffusion of radios in the communities (which are also accessed on mobile phones), and high diffusion of TV in urban and peri-urban communities. The use of mobile phones and web portals is limited by low national telephone and Internet diffusion. This also

affects the use of social media tools. As such, G2C communication is not intensive: its frequency is constrained by a lack of readily available, affordable and suitable communication media at the command of the local governments. Reliance on costly broadcast media forces the local governments to limit the frequency of the programmes, which leaves much of the communication under the mercy of private broadcasters.

In terms of C2G communication, very few citizens communicate *to* the governments (a 75.6 percent majority of the participants had never initiated any communication with their local governments). Communication of e-governance information is thus largely unidirectional, flowing predominantly from the governments to the citizens. Unfortunately, the local governments are not guided by baseline assessments of the e-information needs of the citizens; and there are no feedback mechanisms to gauge the effect of the communication on the citizens.

Common C2G media are mobile phones, radio and e-mail. The use of TV is very low due to the low TV diffusion in rural communities. The use of websites is also very low due to the low capacity of both local governments and citizens to exploit this modern medium. Citizen awareness of public places where to access information and information services is very low. Government offices are the most popular information access places, but citizen access to services (such as printing, photocopying, etc) in offices is extremely limited.

### **7.2.2 The geometry of information flows**

There is a popular view that there is no evenness in the flow of e-governance information into the communities. This is attributed to factors such as language differences, a mismatch between language and e-communication medium, the cost and accessibility of the e-media, deliberate government restriction of information, failure by the local governments to balance information to different segments of the audience, and inability of the users to extract electronic information. These factors also relate to issues of inequality and disadvantage in access to electronic information.

On the issue of disadvantage in access to e-governance information, the most disadvantaged social categories are the unemployed, followed by those with no or very low education, then

people from HRAs, those from outside the region, and PLWA. However, the extent of social disadvantage in the observed communities is generally not alarming. Most of the citizens do not belong to any development or advocacy group, so they do not benefit from group advocacy. Those who belong to groups are mainly members of a SACCO, while very few belong to youth and women groups, which are small and weak.

Majority of the people in the local governments lack the minimum e-skills to search for information in electronic libraries, be it via the Internet or in databases or even on CD-ROM. The most popular electronic tools accessed in the communities are the radio, the mobile phone, and television. The use of the public library, Internet cafés, and community telecentres is extremely low, and so is ownership of a PC and a modem. Thus, access to the more static media and resources in the communities is as low and almost negligible as their utilization by the local governments. Regarding electricity supply, there is the minimum required supply in the communities to guarantee the functionality of an e-governance information system.

### **7.2.3 E-governance information models and the SWOT analysis**

On e-governance information models, five common models were reviewed: broadcasting model, critical flow model, comparative analysis model, e-advocacy model, and interactive service model.

The broadcasting model is a simple and basic model of G2C communication, based on disseminating information in the public information domain of government to the wider public. The strong attributes of this model are that it is multi-channel, so it employs both broadcast and online media to disseminate information. It also allows a free flow of information to everyone in society thereby enabling citizens to access information and to use other media to cross-validate it. However, the problem with this blanket dissemination is that it is prone to information failure, a situation where there is a lot of information that nevertheless fails to achieve the goal of its dissemination. It also lacks a feedback mechanism, which means that it is an effective system only in G2C communications.

The critical flow model is based on the dissemination of information of critical value to specific segments of the audience. This is a very important feature that addresses the problem of blanket dissemination suffered by the broadcasting model. In critical flow model, information is both broadcast and accessed from online databases via the Internet, which makes access to transcend the barriers of distance and time. The model, however, is too reliant on ICTs and the Internet, which are still alien in many local governments in Uganda. It also works well in governments with a vibrant civil society, which is lacking in Uganda's local governments.

The comparative analysis model uses ICTs to explore and compare information from both the private and public domains. The model enables the documentation and construction of databases on specific governance information, which are uploaded online. This means that citizens and civil society groups can access this information anywhere anytime, which will help them to question and demand explanation from their governments. The major problem with this model, however, is that it thrives on comparative information sets and the ability of the users to analyze and make sense of them. And, like critical flow model, this model is too reliant on the Internet, and requires a strong civil society network.

The mobilization and lobbying model is based on a planned and directed flow of information to civil societies in developing countries for purposes of building strong virtual alliances to strengthen actions in the real world and impact international decision-making. The positive attributes of this model are the ideas, expertise and resources accumulated through this virtual form of networking. However, this is largely a non-governmental model, which is reliant on the Internet and may not be applicable in Uganda's local governments which are characterized by poverty, low e-skills literacy, low ICT diffusion, and a weak or non-existent civil society.

The interactive service model exhibits many features of the foregoing models, and provides avenues for citizens to participate in the e-governance processes. The problem with this model, however, is its technology-intensive character that fails to take the citizens' financial and technological capacities into account. The model therefore would require a transition period before it can be adopted on a wider scale in the developing countries. It also requires minimum e-literacy among the citizens to fully benefit from this model.

A SWOT analysis of the local governments showed that they have the capacity to establish and maintain electronic information systems of information access and flow to support e-governance.

### **7.3 Conclusions**

From the foregoing findings of the study, a number of conclusions are hereby made. Like the findings, the conclusions are also drawn and presented systematically following the objectives of the study.

#### **7.3.1 Access to e-governance information**

The findings indicate that the challenges regarding affordability of the suitable electronic media have forced the local governments to reduce the frequency of communication to the citizens. This implies that there is disruption and inconsistency in information flow between the local governments and the citizens. These effects represent an obstacle to citizen participation because they affect the level of knowledge of the citizens about the mechanisms, reasons and goals of participation in the local governance processes, and encourage political apathy and mistrust of the citizens towards the local governments.

G2C communication in the local governments is based on *ad hoc* rather than formal programming, and is more reactive than proactive. This is contrary to the goals of the national communication strategy which emphasizes the need for the government to adopt a proactive and coordinated approach to handling the communication function. There is limited citizen access to e-governance information as evidenced by under-communication by the local governments and lack of adequate and readily accessible e-information in retrieval systems. This is both a cause and consequence of the local government communication content not being informed by a thorough assessment of the electronic information needs of the people.

The communication relationship between the local governments and the people is dominated by the local government side; and there is limited feedback from the receiving side of the people. This dominance constitutes e-governance information asymmetry that is characteristic of local governments in Uganda. The flow of information is largely unidirectional, implying that the citizens have been reduced to passive recipients of government information who cannot

effectively exploit that information to their advantage to participate in and influence governance decisions.

There is a disconnection between the electronic media used in C2G and G2C communication. The media most preferred by the local governments are not the same as those most accessible to the citizens. For example, interactive broadcast programmes are either too infrequent to effectively engage the citizens in information exchange or are not properly designed to accommodate public participation and feedback. Mobile phones have a great potential but are greatly under-utilized by the local governments. This implies that the governments strive to disseminate information, but the information does not effectively reach its audience. It also points to the failure on the part of the local governments to assess the communication environment and identify the resources (media, tools and skills) within the communities to enable a well matched media usage.

On public information access places, majority of the people do not source for information because they do not know where to source it from. The appropriate information access places are not popularized among the people; and government offices are not conducive access points for ordinary citizens. The citizens thus experience difficulties in identifying where e-governance information may be sourced, and which information and services accessible on the Internet (for the very few that are able to access this medium) are legitimate government sources. As it is now, there is no system in the local governments – however rudimentary – to help the citizens to find and use e-governance information. This implies that the governments cannot engage with the citizens or share critical information on any e-governance programmes and projects when the citizens do not know where to access or submit information

The findings thus far indicate that communication channels between the local governments and the citizens are not properly matched, and there are many information access places which are not utilized by the citizens. This implies that the local governments lack collaboration and coordination of all information exchanges with their citizens across all communication media. This is a management vacuum, which further implies that there is a lack of collective and streamlined decision making in information services in the local governments. The existing



information access places are alienated from one another. The local governments are thus denied such benefits as reduced costs in operations, reduced information redundancies, more accurate information and higher quality services that come with integrated information management and dissemination.

### **7.3.2 The geometry of information flows**

There is no evenness in information flow from the local governments to the citizens: an even flow is hampered by disparities in language, unavailability of access tools, inability to access a medium, cost, deliberate government restriction of information and a heterogeneous audience. The effect of these combined factors is that some people have access to some information and others do not; and no people have access to all the information they want and whenever they want to. Therefore, the problem of uneven flow of information is intricately linked with that of social disadvantage. Whenever only a few citizens have access to certain information while others do not, it shows that the society is differentiated; and this differentiation further predisposes some people to receive information and others not to.

Disadvantage in the local governments is experienced on the basis of unemployment, lack of education, immobility due to infirmity and living in HRAs. It has been argued that the people who suffer specific social and economic disadvantages tend to fail to benefit from electronic information tools and resources which are otherwise envisaged to help them tackle their disadvantage. This implies that information tools and resources such as the Internet, mobile phones, TV, radio, etc cannot positively influence the lives of those who suffer disadvantage if not properly integrated with the measures geared at improving education and health, creating employment opportunities, and enhancing access to HRAs. After all, there is much underuse of the Internet and mobile technologies in addressing social exclusion and economic disadvantage in the local governments. Yet, these tools provide a platform for social networking applications, which the local governments and other actors can use to tackle social exclusion and support the socially and economically disadvantaged.

On interest groups and associations, there are not many of them in the local governments. Where such groupings exist, the group members do not associate for purposes of reclaiming space

where to exert their group interests. Save for SACCOs, most of the remaining groups are generally fragmented, informal, and short term. As such, people in the communities do not enjoy the benefits of group advocacy.

The citizens' e-skills proficiency and access to electronic information tools are quite low. Access to public information services is also very low. Information processing, storage, retrieval and dissemination form the basis of a functional e-information system; and the Internet, computers, modems, and other input-output devices constitute its core tools. Therefore, low access to these tools and limited e-skills literacy within the communities pose a great challenge to the functioning of the local government information system. The problems of access are cultural as well as economic – implying that even when basic access to the Internet and mobile technologies is resolved, other barriers may remain for socially disadvantaged groups seeking to access electronic resources.

### **7.3.3. E-governance models and SWOT analysis**

A review of the five e-governance models reveals that not a single one of them can be adopted *as is* in Uganda's local governments. While two of them, broadcasting and critical flow models, utilize both broadcast and convergent media, they are unfortunately unidirectional and so preclude citizen participation in the communication function – and in e-governance. The rest of the models rely only on convergent media, especially the Internet and e-databases. They are therefore ICT-intensive and not readily suitable for Uganda's context where investments in ICT projects and citizen e-skills are very low. The models also have strong civil society leanings, and this alienates them from the Ugandan context where civil society is weak and patronized by the state.

The findings from the SWOT analysis of the local governments show that the governments enjoy relative financial sustainability supplemented by central government and donor support. They also have the minimum human, material and ICT resources to enable the implementation of an e-governance information system. However, the weaknesses of the local governments coupled with the weak attributes of the current e-governance models militate against adopting any of these models. The local governments therefore can establish and sustainably implement a hybrid,

home-grown e-governance model based on integrating the strong attributes of the current models with the strengths and opportunities of the local governments.

## **7.4 Recommendations**

There are a number of recommendations made on the basis of the conclusions arising from the findings. However, this section also makes recommendations for the implementation of the e-governance information system whose model is proposed in section 7.5. This section ends by making recommendations for future actions.

### **7.4.1 Recommendations about the findings**

Media challenges to the local governments have forced them to reduce the frequency of G2C communication. Reduced communication frequency results into reduced media impact on the citizens and in turn affects citizen participation. It is recommended that the local governments set up their own broadcasting media services and entrench the use of alternative media such as Internet and information retrieval systems.

Local government communication is not programmatic, and content is not informed by the assessment of needs of the people. The citizens do not effectively participate in the determination of the information they need, and are thus limited in the extent to which they can monitor government. It is recommended that the local governments design communication programmes based on the assessment of the electronic information needs of the people. There is a need for an interactive system where the citizens send queries, initiate debate, etc., which would serve as an avenue for the governments to keep abreast of citizen interests.

There is information asymmetry in the local governments: the current flow of G2C communication lacks a feedback mechanism. It is recommended that the local governments establish interactive information systems based on a two-way communication to enable either party to initiate a communication and get a feedback. This is particularly important since the government communication strategy of 2011 lacks such a provision.

There is a mismatch between the media most used in G2C communication and those most accessed in the communities. This leads to information not being optimally received by its

audience (low access to information). It is recommended that the local governments sponsor a project on media synchronization: the information system or communication strategy should use media according to their accessibility in communities. For example, use radio because people have easy access to radios, encourage people to acquire TVs if you want to tap into the benefits of TV, use text broadcasts on mobiles because many people have them, etc. This requires a thorough assessment of the media resources available in the communities and the promotion of the proliferation of tools such as pocket radios, cheaper mobile phones, etc. The dissemination function of the information system should also innovatively design for the optimal use of these different media tools.

There is limited knowledge and awareness among the population about where to access e-governance information, and there is no mechanism in the local governments of helping citizens to access information. This means that under the current state of affairs the citizens cannot effectively engage e-governance issues. It is recommended that the local governments launch and support intensive promotion campaigns to educate the citizens about how to contact government, what information and services are available from the government, and how to identify official government websites and public information access points.

Public libraries should in this information age play a very crucial role as public Internet access points, and should facilitate good governance by providing e-governance information. However, the local governments under study have not established public libraries to serve the information needs of the communities. It is thus recommended that public libraries be established in different parts of the local governments and equipped to play this role. They should be integrated with the local government information system through a web portal.

The locations of access to electronic information resources in the local governments and in the communities are not coordinated. This lack of coordination is contributory to the unevenness of the flow of information into the communities, for it denies the people the opportunity to appreciate the information that can be sought and the need for acquiring the e-literacy skills necessary for access to such information. This in turn exacerbates social disadvantage. It is recommended that the local governments take measures aimed at close collaboration between the

information access points and integration of the services offered; and, more importantly, at empowering the people through education and e-skills acquisition. Addressing the educational needs of the socially and digitally disadvantaged can increase their capacity to engage with digital tools and the Internet; it has the potential to tackle other forms of social disadvantage such as unemployment and inaccessibility to electronic information resources. There is thus a continued need for the local governments to support people within their homes and communities in accessing information and ICTs, and in acquiring the necessary skills to consume and produce electronic information. Access to these resources in the community is important, but it is even more important to access them at home.

The local governments should mobilize citizens into common interest groups towards community development. This will enable the aggregation of interests, and will help the dissemination function of the e-governance information system to target information at specific segments of the audience. Information flow within a community can be strengthened if the people in that community get more connected to one another.

#### **7.4.2 Recommendations on the implementation of the system**

The implementation of an electronic information system in the local governments is the way to go for electronic age participatory governance. However, before embarking on a project to establish an e-governance information system, the local governments need among other things to put in place a regulatory framework to facilitate the operationalization of the different aspects of the system. Such a framework will ensure that there are policy guidelines and provisions governing decision-making on which data to acquire and openly publish, and which data to classify; provisions on data updating and formatting; provisions on dissemination mechanisms such as broadcasting and online publication; provisions on oversight authority to deal with sensitive information, requests and complaints, programming and risk; etc. Therefore, there are a number of issues to consider for the establishment and implementation of an effective e-governance information system.

The findings of this study indicated that government information does not equitably reach the socially (who are also digitally) disadvantaged people and communities. This implies that no

online development initiatives can by themselves equitably reach such people and communities unless the local governments deliberately design information communication systems to that effect. Increased online participation and electronic access to information are mostly undertaken by the socially and economically advantaged. It is important therefore that designers of the e-governance information system in the local governments ensure a multi-channel system with a feedback mechanism that is capable of providing the disadvantaged citizens with alternative ways of accessing electronic information and initiating communication with the government. A multi-channel system means that the same information accessible via broadcast media would also be accessed through mobile phone interfaces, information retrieval systems and websites.

On the management of the information system, it is recommended that there be established a hierarchy in information directing in the local governments. The information system should have a senior information professional responsible for facilitating improved information access and flow between the local government and the citizens. This officer may be the head of the information system, responsible to the Chief Administrative Officer (CAO) in the district local government or to the Town Clerk in the municipal local government. At each level of local government, there should be an information professional responsible for coordinating all points of access to information regardless of the medium of access. This will promote intra-sectoral and interdepartmental collaboration and information sharing, as well as linking to higher and lower levels, and will ensure that the citizens have adequate access to all government information and services.

The information system will provide information and services both to the local government personnel and members of the public. The local government personnel are the key players in the implementation of the e-governance functions, and they need the information system to support the performance of their duties. According to Verboncu and Nicolescu (2008:458), an e-governance information system performs three important functions within a local public administration. First of all, it provides the informational elements needed to fundament administrative documents and all categories of administrative decisions. Secondly, it ensures the enforcement of administrative documents (laws, policies, resolutions and all manner of administrative decisions). Thirdly, it documents the information needed by the dedicated

personnel in order to create the basis for administrative objectives and the administrative decisions deriving from those objectives. To this list should be added the provision of information and skills to the citizens to empower them towards effective participation in the affairs of the local government. It is recommended that the proposed information system acts as a point of intersection between the government and the citizens by providing a wide array of information services. The services should include, among others, inquiry services, searching and access to e-records, reprographic services, computational services, e-mail and facsimile services, and ongoing training in basic computer use and ICTs.

The recommendation to include training and e-skills development in the information service package is based on the observation that many of the citizens of developing countries are computer illiterate (Backus, 2001; Saha, Bhattacharyya, Kim, & Bandyopadhyay, 2010). The latter source particularly observes that citizens in these countries may be reluctant to use the web based services offered by the information system due to poor skills, lack of confidence, as well as security and privacy concerns. It is also possible, however, that citizens with minimum skills-proficiency may be oblivious of the procedures for interaction with the information system. The training and support function should therefore also address information request procedures and procedures for volunteering information or lodging complaints and appeals.

Maintenance of the e-governance information system should be considered a core and routine function. The information system includes data in databases, information circuits, information flows, and information processing equipment (hardware and software), all of which are involved in the foundation of e-governance decisions. The system maintenance function should ensure that all these components at different levels of information service are at all times fully functional in their roles of satisfying the general needs of the users (Andoniceanu, 2006). Maintenance of e-databases, websites and ICT equipment is a vital component for the successful implementation of e-governance, yet the local governments have seldom paid attention to this as the interviews suggested. It is recommended that the local governments contract expert staff for routine system maintenance or conclude maintenance contracts with reputed IT firms.

In the course of implementation and maintenance of the system, attention must not only be paid to the efficiency and effectiveness of the system in its e-governance support functions, but also to its security concerns. These include security for the information itself and for the information system's assets (Mazumdar, Kaushik & Banerjee, 2009; Saha et al, 2010). Saha et al (2010:20) define information security as “the ongoing process of exercising due care and due diligence to protect information, and information systems, from unauthorized access, use, disclosure, destruction, modification, or disruption or distribution.” The system assets include system servers and accessories, client computers and accessories, the messages on the communication channel, the database and the website. Every single asset of the system is indispensable for the system's functionality and must be highly secured. It is thus recommended that the information system security policy provides for ongoing security assessment, software protection and upgrade, insecurity monitoring and detection, incident response and repair, documentation, and ongoing training.

There is a tendency for electronic information systems in public administration contexts to stall on account of the failure to reconcile institutional system interests and political interests (Cordella & Iannacci, 2010). System sustainability is undermined if the design of the system and choice of its technology platforms are influenced by short-term policies laden with political interests rather than long-lasting values inscribed in pre-existing technologies. It is thus recommended that the design of the system takes into account the need for it to outlive the transient political interests at the helm of the local governments. The information system should be built on programmable and upgradable technology platforms, and should embody the long-lasting institutional interests of the local governments.

#### **7.4.3 Recommendations for future research**

This study does not claim to have exhausted and made full-proof findings on all the salient issues regarding access and flow of e-governance information in the local governments under study. Nor does it recommend direct implementation of the proposed system in the local governments. As such, a number of recommendations are made for further research into certain aspects of information access and flow, and on the implementation of the proposed system.



During the study for this project, findings were made about issues of content and programming of local government communications. However, no literature was identified on content management in local government systems for comparative reference. There is thus a need for further research on content management and communication programming in local governments. There are other areas where literature for comparative reference was not sufficient. Likewise, since this study was limited to information flow between the local governments and the citizens (G2C and C2G), it is recommended that further research be conducted on government to government (G2G) and government to business (G2B) communications, and how these may be integrated in the proposed hybrid model.

It is also important to bear in mind that this study was based on only two out of Uganda's 112 local governments. Although this was methodologically justified, there is still a need for replication studies to be conducted in other local governments to confirm, refute or refine the findings and conclusions made in this study. Similarly, it is recommended that the proposed system be implemented on a pilot basis as a prototype e-governance system of information access and flow in local governments.

### **7.5 The proposed model of e-governance information system**

An information system consists of the information itself, the handling equipment, technology and expertise. In the context of local government, an effective information management system is a system of well-organized and efficiently directed information infrastructure that serves as the e-government implementation support (Balan & Radu, 2012; Verboncu & Nicolescu, 2008). Such a system, normally characterized by abundant, accurate, accessible and timely information, as well as competent human resources and appropriate technology, must be able to guarantee free and non-discriminatory access to public information and services.

The proposed hybrid model is conceived against a backdrop of a comprehensive scansion of the information communication environment obtaining in the local governments under study in particular, and the entire country in general. Thus, the model does not only consider the needs and capacities of the local governments and citizens, but also the nature of system that would stand the test of ever-changing technological landscape. The model proposed therefore is one of

an e-governance information system that will easily adapt to the fast-changing technology by its ability to easily upgrade technology platforms and its compatibility with other technologies.

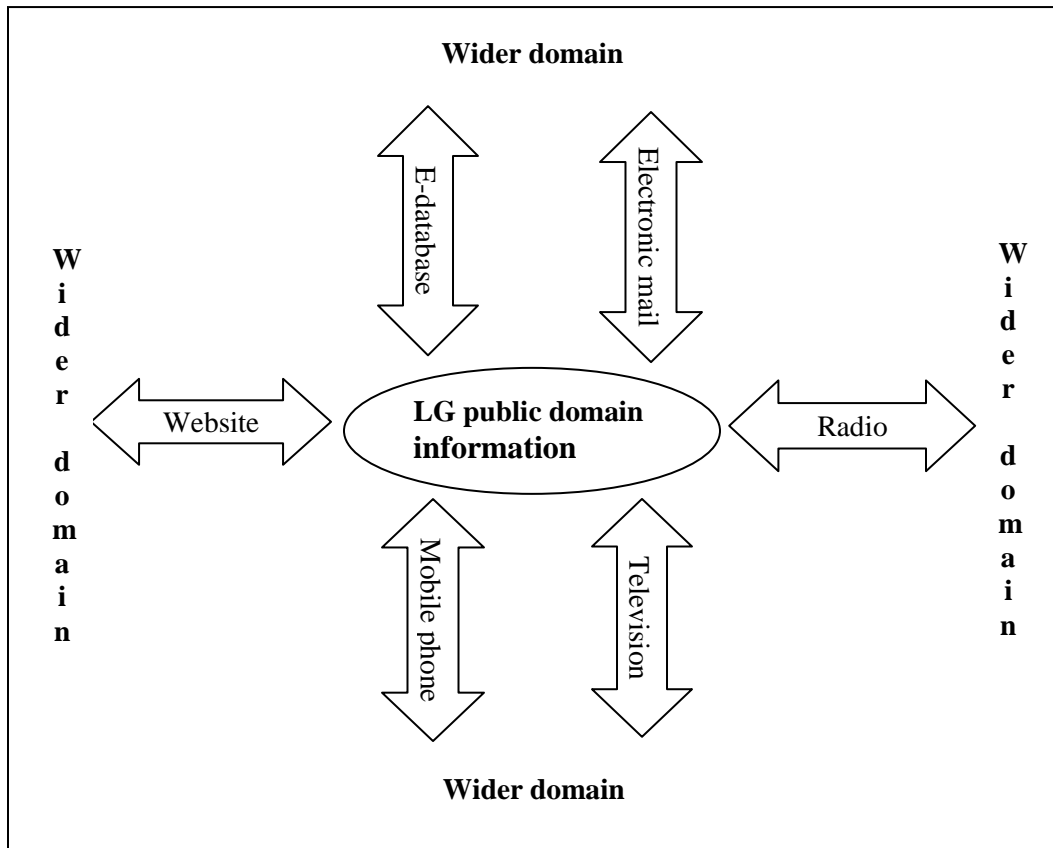
### **7.5.1 The hybrid e-governance information system model**

The review of the current e-governance information models revealed that they are ICT-intensive (relying largely on the Internet), and more suited to developed countries. Others are largely one-way and facilitate information flow only from the governments to the citizens, and not the other way round. Yet others are civil society-driven and well beyond the control of the local governments. All the reviewed models lack instant feedback mechanisms and linkages between traditional broadcast media and convergent media. These are extremely important shortcomings that the proposed hybrid model shown in Figure 8 below seeks to address.

The hybrid model is an adaptive, multi-media, and two-way model of information access and flow. It is adaptive because other forms of electronic communications will easily be integrated in the system. All possible forms of electronic media will be used to relay information from the local governments to the wider domain (which includes the citizens) and vice-versa. The wider domain is made up of the different constituencies of the local governments, who are both the consumers and providers of local government public domain information. These constituencies include the following five: citizens, business, central government, other local governments, and the virtual/international community.

The system will encompass diverse media technologies, from conventional media (radio and TV broadcasting) to convergent media which includes computing, networking, and telecommunications (landline, mobile, wireless devices and broadband fibre networks). The ability of the system to use multiple channels and in a two-way fashion represents a built-in feedback mechanism, which will ensure that the local governments disseminate information to the citizens and at the same time access feedback from them. This will enable the local governments to use the feedback mechanism to assess the e-governance information needs of the citizens and design content accordingly. This will go a long way to deal away with information asymmetry.

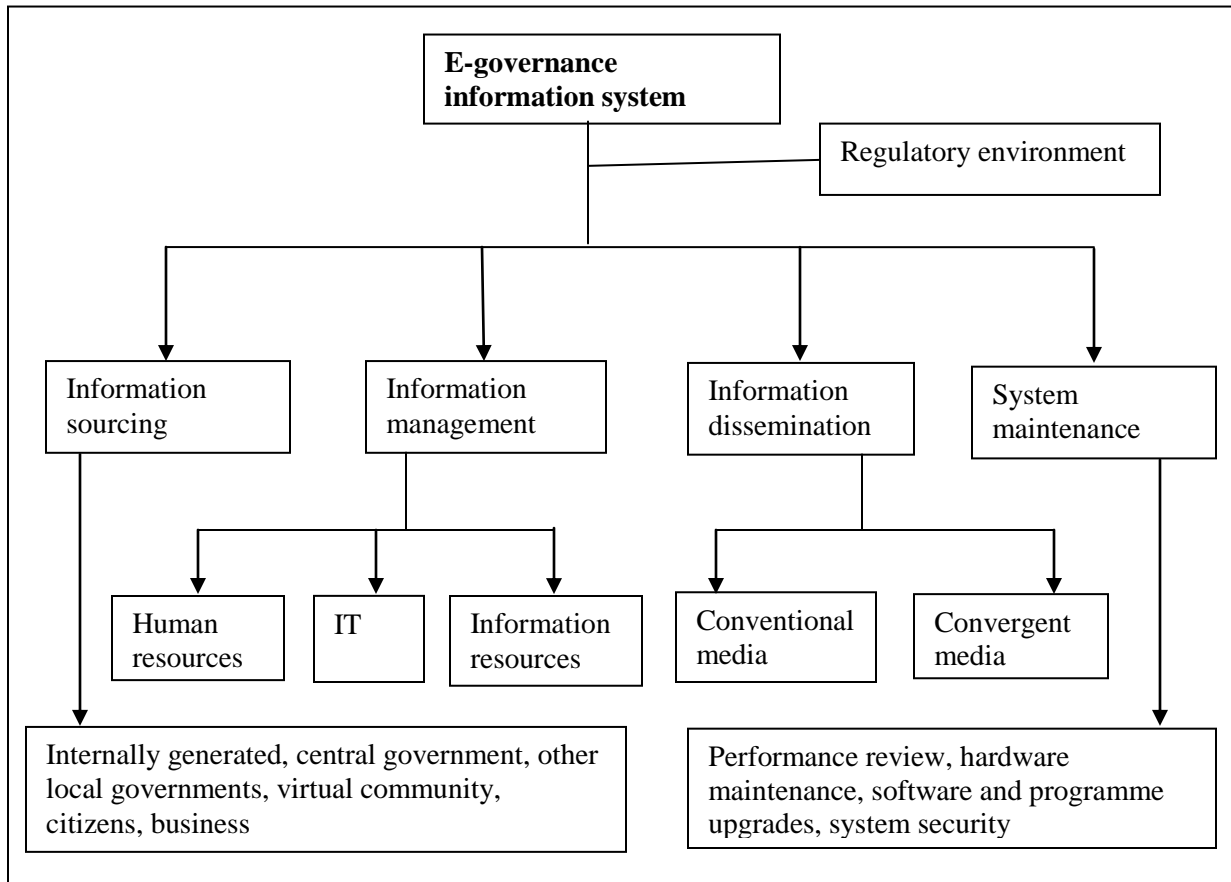
**Figure 8: Hybrid model of e-information access and flow**



As already noted, the wider domain consists of the citizens, business sector, central government, other local governments, and the virtual/international community. These are both the sources of information within the public domain of the local governments and consumers of that information.

The hybrid e-governance information system for the local governments is conceived to be designed and implemented within the legal and policy framework governing information, communication and ICTs (see section 1.7). Within that framework, the envisaged information system has got four components, which define its key functions as shown in Figure 9. The components are information sourcing (acquisition), information management (processing, storage, retrieval), information dissemination (broadcasting, online publishing, information retrieval service), and system maintenance (repairs, upgrades, security). These components are interconnected via backward and forward linkages.

**Figure 9: Layout model of the e-governance information system**

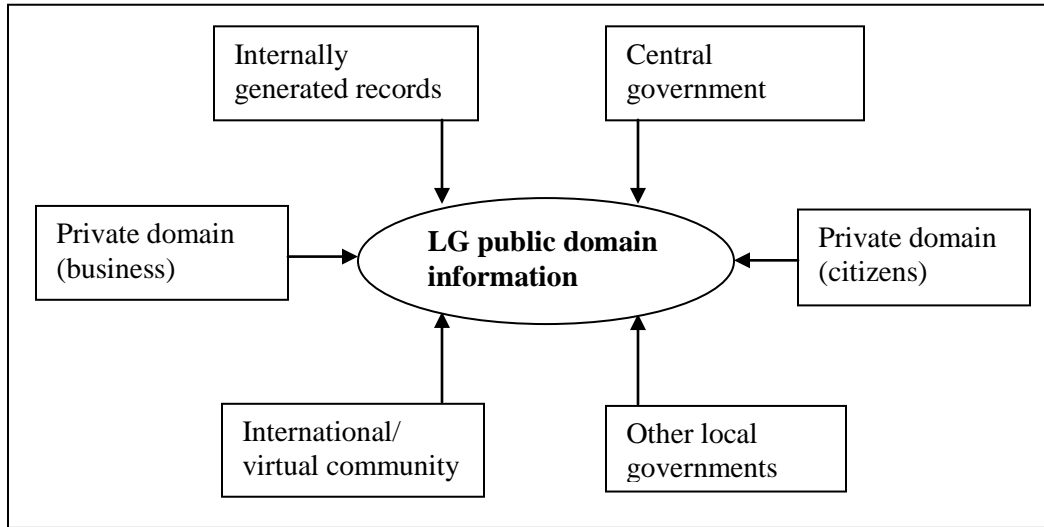


This layout model is a simple operational framework of the envisaged e-governance information system. The breakdown under each of the four key system functions points to the diverse activities, resources and skills required for the functioning of the system.

**a) Information sourcing**

The information sourcing function defines the sources of information for the local government public domain. Public information that constitutes the official local government domain information is generated from a variety of sources as shown in the local government information sourcing function shown in Figure 10 below. The function identifies six sources of information.

**Figure 10: Local government information sourcing function**



The first and major source is the internally-generated information in the form of official records of the activities and deliberations of the local governments. These include policy debates, planning meetings, budgeting, tendering, monitoring and evaluation reports, circulars and memos, etc. The local governments must keep records of these activities for purposes of reference and continuity, and as a way of providing accountability of what has been accomplished. Similarly, the citizens expect to source such information and records to acquaint themselves with what is happening in the government and to be able to question.

The central government is also a major source of information for the local governments. Most of the programmes implemented at the local government level are extensions of central government programming. As such, the local governments receive electronic information and records from the central government in the form of policies, ministerial directives, budget allocations, etc. Although this information is almost always communicated in formal, print mode, it is also accessed electronically through different media. This will be readily available through the information system.

The local governments also source information from the private domains of citizens and business. The citizens are direct consumers of local government communication, both as individuals and as members of interest groups or of the business domain. The business domain

encompasses nongovernmental business undertakings such as business enterprises or community development activities. As communication targets of the local governments, both the citizens and business are also sources of information for the local governments – information on very many different areas such as tax compliance, agricultural output, access and utilization of health services, education, financial/economic health, participation in government programmes, etc. The information system's use of multi-media and built-in feedback mechanisms will facilitate government access to this information.

Other local governments are also very important sources. These sources may include public domain information in those local governments, but may also include information from players in the private sector who are engaged in similar pursuits, e.g. private broadcasters. Finally, the local government information system will also acquire e-governance information from international and virtual sources via the Internet. This is information on all aspects and contexts of e-governance and from everywhere in the world, which will serve as reference material for case study or best practice benchmarking.

#### **b) Information management**

The information management function points to the very essence of an information system. According to Alter (2006; 2013), an information system is a special type of work system in which people or machines perform processes and activities using resources to produce specific products or services for customers. Information management thus focuses on the processes (policies and protocols) and activities devoted to capturing, manipulating, storing, retrieving, displaying, and transmitting information; and the core management functions are the management of human resources, management of information resources, and management of information technology resources.

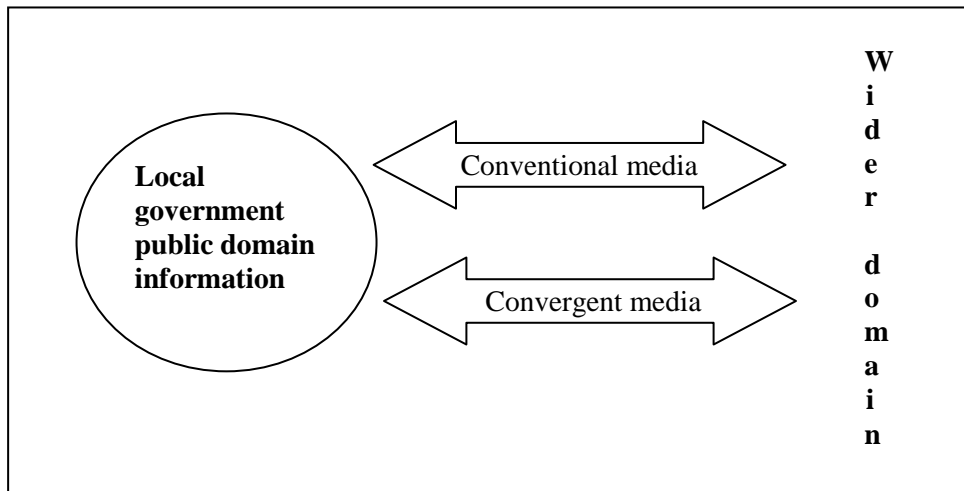
Human resources are the information workers and include all those who operate and service the computers, those who source and process the data, and those who support the network of computers (Kroenke, 2015). Their role in general is to capture data and transform it into content and make it available to the system's users – in this context, the local government personnel and the citizens. Information resources include the data itself and the data holding devices, while IT

encompasses all ICTs – the computers (hardware and software), the databases and networks, the Internet, telecommunications infrastructure (landline, mobile, wireless and broadband fibre devices and networks), and broadcasting devices.

**c) Information dissemination**

The information dissemination function of the proposed information system is concerned with availing e-governance information to the citizens (and other users), and thus deals with the modes of information access and flow. Information is made accessible to the public through the concurrent use of conventional and convergent media as depicted in Figure 11.

**Figure 11: Information dissemination function**



Conventional media are the traditional broadcast media – radio and television. Convergent media are those that execute their information-related functions by combining industries in mutually supporting and self reinforcing fashion, and include the computer, the Internet, media content, and the mobile telephone (Jenkins, 2006; Wilkinson, 2003). The concurrent use of conventional and convergent media technologies is aimed at “swarming” the users with e-governance information. This study showed that e-governance information flows unevenly to the citizens, and that this unevenness is associated with unequal access to digital tools and electronic resources by the citizens. The use of multiple media in a two-way fashion will increase interaction between the local governments and the citizens, which will in turn enable the local

governments to closely monitor the information needs of the citizens and repackage content accordingly.

#### **d) System maintenance**

System maintenance is a technical function concerned with the overall functionality of the information system. It involves hardware repairs and replacements, software upgrades or replacements, reprogramming of system parts, and system security. Security is particularly crucial as it concerns the protection of the system from multiple threats. The processing, storage, retrieval and dissemination of information and the management of access to information are all chores that require reliability, privacy and security of the system. System attacks by predatory software may result in damage to computer systems and loss of data, while unauthorized access to the system may lead to the release of confidential information – and all these threats result in financial loss and loss of trust. The system will thus require IT staff for routine check of hardware and software to ensure their functionality and overall integrity of the system.

#### **7.5.2 Rationale for the hybrid e-governance information system**

There is a fairly robust e-information infrastructure to empower and enhance citizen participation in e-governance in Uganda, but the local governments are still grappling with the ways of harnessing this infrastructure. Some local governments have attempted to implement public e-governance information access programmes. However, these programmes have largely stalled because their design was not informed by the profiles and information needs of the users as well as their capabilities to afford the cost of access to information, ICT tools, e-skills, and other resources. Research suggests that the failure of e-governance information access programmes in local governments is partly responsible for the low participation levels of citizens in civic matters (CIPESA, 2012).

In an e-governance information system, the citizens must be at the centre of any given e-governance initiative. Ideally, the citizens should view the planners of the e-governance initiatives, the information and communication actors (the implementers of the information system), and the local government officials generally as partners who are equally committed to the goals of e-governance. One such goal is to enhance citizen participation and community



mobilization (Scuppan, 2009:120). Citizen participation is achieved through raising awareness and promoting confidence among the citizens, which culminate in positive changes in their attitudes, behaviour, lifestyles, and overall empowerment to participate (Castello & Braun, 2006:4).

The goals of e-governance are realized through a functional e-governance information system, which essentially is the e-governance implementation support (Scuppan, 2009:120). An e-governance information system allows the citizens to communicate with the government, to communicate among themselves, and to participate in government policy and decision-making processes; and through such participation, the citizens reflect their true needs and welfare (Vaisla & Pant, 2011:486). Therefore, as Castello and Braun (2006:3) suggest, such a system should aim to put government personnel in a position to access the necessary information for informed decision-making and to arm the citizens with the relevant information and skills to improve their livelihoods.

Evidence from this study lays bare the need for an e-governance information system in the local governments to govern access and flow of electronic information. According to the study, G2C flow of information in the local governments is constrained by limited resources at the command of those governments, which creates communication lapses. Content in G2C communication is fairly balanced but not exhaustive of citizen needs and interests because the citizens are not consulted. Government communication is more *ad hoc* than programmatic, and relies a lot more on traditional broadcasts than convergent media. Citizen usage of convergent media to access information is limited by low citizen capacity (in terms of costs and skills) to access them and low government capacity to use them. Consequently, C2G information flow is too low owing both to the limited communication avenues and citizen apathy. Information flow is largely one-directional (G2C) and not well contemplated; and there are no formal information centres for public access in the local governments. The available information in the local government domain lacks an egalitarian flow into the communities. This lack is a result of language differences, inaccessible media, government restrictions on information, and social differentiation in the communities. These factors imply that some social groups are

disadvantaged. Yet there is limited group advocacy in the communities, suggesting that citizens are not empowered to search for information and to participate in e-governance processes.

The proposed e-governance information system is envisaged to transform the citizen-governance relationships in a number of ways, some apparent and more direct and some more subtle. In any case, with the new interactive information system in place, it will be more difficult for a few individuals to monopolize information for political expedience; the system will also insulate disadvantaged citizens from exploitation by those in government. As Nath (2005:13) put it: "... the power-equations [will] shift from being concentrated and restricted at selected nodes to [a] more even and timely distribution among citizens, opposition parties and watch-guard groups." More avenues will be opened for information flow, which will provide a broad and solid pedestal for optimal citizen participation.

The increase in the avenues of information flow is particularly important, for it will enable the achievement of a greater density of information flow vertically between government and citizens, and horizontally within the community of citizens and beyond. Ultimately, the right of citizens who wish to engage in the political processes will get more firmly and frequently exercised. This citizen empowerment is not just a latent or knock-on effect of flow: it is a direct effect of the benefits that an interactive, two-way system of flow offers. The citizens will easily and instantaneously access information, and easily and instantaneously react to the information: they will no longer be passive recipients but active participants in the informational system. They will participate through collective opinion casting and debates on issues of public importance.\* Inevitably, policy-makers will become more aware of the voices of the people and will effectively involve them in policy-making mechanisms.

### **7.5.3 The technological basis of the hybrid model**

Advances in digital communication have since late 20th century enabled electronic information disseminators to transmit text, audio, and video material over wired, wireless, or fiber-optic connections. This has been made possible by digital convergence – the technological merger of

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\* In Uganda, these open debates are called *bimeeza* (round tables) which are broadcast live on FM radios and TV. With a solid, interactive information system in place, these *bimeeza* can become formidable citizen advocacy tools.

computing, telecommunications, media content, networks, and other information technologies enabled by the Internet. Digital convergence manifests in different specific domains such as network convergence, media convergence, and mobile phone convergence. Network convergence occurs when IP-based networking enables easy and seamless integration of disparate systems, a situation that has been unfolding very fast as IP-based networks replace legacy network technologies (Ajit, Ashish & Shettin, 2010: 25). Media convergence and mobile phone convergence have even almost become fused together.

Media convergence refers to the coming together of the personal computer, the Internet, the mass media, and the mobile telephone (Jenkins, 2006; Wilkinson, 2003). Jenkins (2006:2) described this convergence as:

... the flow of content across multiple media platforms, the cooperation between multiple media industries, and the migratory behaviour of media audiences who would go almost anywhere in search of the kinds of [information] they wanted.

Mobiles, particularly the Smartphone and the tablet, are an epitome of this convergence. These devices provide the functions of different industries: they are telephones; they send and receive e-mail with multimedia attachments; they download multimedia files; they play music and video games; they have radio, TV, camera, and social media platforms; and they perform many other functions. These different aspects of digital convergence are very important factors to consider in the design of an e-information system.

An information system – whether envisaged to support industry, organizational business management, local government administration – is itself an arena and practical expression of digital convergence in its complex manifestation. In the opening paragraph of his article on the contents of digital convergence, Akshay (2010:3) observes:

The digitally converged landscape is huge. How do we know what suits us best? How do we know which business model to adopt? To understand the emerging

trends better, it is important to do an objective analysis of the digitally converged scenario before business decision-makers zero-in on an option that suits them best.

Akshay's counsel is particularly germane to developing countries where technology solutions designed for the developed countries have failed to fully apply (Heeks, 2002, 2003). There is clearly a need to customize solutions to fit the circumstances in the developing countries. In the context of information systems, this calls for developing system models based on the analysis and internalization of the circumstances in those countries.

The model proposed in this study is a model of a system of information access and flow to support e-governance in local governments in Uganda. The development of an e-governance information system for a local government in a developing country must be contemplated upon a critical analysis of the context within which the system is to be implemented. It must also ensure that there is coherence within the process of sourcing and managing electronic information – including the technologies applied in the processing, storage, retrieval, and communication of information. More importantly, however, there must be a demonstrable readiness among the system users to adapt to an ethos of electronic engagement. In some cases, this adaptation may require to be promoted by designing and incorporating an interface between modern and traditional methods in a transitional manner (Castello & Braun, 2006).

Speaking in the context of developing a rural development media strategy (which we nevertheless find very instructive to the current undertaking), Castello and Braun (2006:49) observed:

Although digital technologies are more and more available, bringing about behaviour change at both the individual and organizational level can take a long time. This means that there can be long lead times into interventions. Recognizing this and designing media strategies which take account of the situation is likely to be more successful.

Indeed, the envisaged system of information access and flow is not only concerned with strategies of sourcing and processing information but also with a media strategy for the system to successfully engage with the citizens. Thus, issues such as user needs, capacity, and environment are very important dimensions for both the local governments and the citizens. User needs are about information content, while capacity is about the e-skills and access to technology and electronic information resources. The environment entails information technology platforms, prevalence of ICT tools among the citizens, community access points, power supply, social networks, as well as legal and policy provisions.

### **7.6 Summary of the chapter**

This chapter has summarized the findings of the study as presented in Chapter Five and discussed in Chapter Six. A number of conclusions derived from the findings have generated several recommendations, which the chapter categorizes into those related to the findings, those focusing on the establishment and implementation of the proposed system, and those on future research on aspects of the problem that were not investigated or exhausted. The chapter has also proposed a hybrid model of information access and flow for e-governance in the local governments. A justification for the hybrid model and the technological basis of its establishment are also made. The analysis of the findings on the strengths, weaknesses, opportunities and threats (discussed in section 6.6) suggests that an e-governance information system for the local governments is feasible.

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## APPENDICES

### APPENDIX I: QUESTIONNAIRE FOR THE MEMBERS OF THE PUBLIC

Dear participant,

We are a team of researchers from Makerere University conducting a field study for a project entitled: *Modeling information access and flow for electronic governance in selected local governments in Uganda*. The project is being conducted under the auspices of the University of South Africa doctoral programmes.

We are investigating various issues relating to electronic communication of official local government information in Isingiro district and Mbarara municipality. The research is intended to lead to the development of a prototype e-governance information access and flow model for these two local governments, which may eventually be adopted in all of Uganda's local governments. You have been selected to participate in this study, and we would like to request you to respond to all the questions on this document as frankly as you can. All information will be treated with utmost confidentiality, and will be used only for the purpose it is being sought.

Any further issues regarding this exercise can be addressed to Mr Denis A. Katebire, the team leader, at 0752-465185.

Thank you.

**A. Demographic information**

- 1. Sub-country & parish/Division & ward.....
- 2. Gender.....
- 3. Level of education attained.....
- 4. Occupation.....

**B. Access to e-governance information in local governments**

- 5. Does your district or municipal local government electronically communicate official information to your community?
  - a) Yes .....
  - b) No .....
  - c) Don't know .....

- 6. If yes to question 5, on what issues does it usually communicate to the people?  
.....  
.....  
.....  
.....

- 7. For the information most communicated to the people, what are the major electronic channels of communication commonly used? (tick all applicable from the list).
  - a) f.m. radio
  - b) community radio
  - c) T.V.
  - d) mobile phone
  - e) landline phone
  - f) internet/web portals
  - g) mobile public address system
  - h) video.
  - i) other (specify)

8. Which alternative below best describes how often government communicates?
- a) Occasionally (once in a while, using any electronic medium)
  - b) Regularly (e.g in bi-weekly or weekly radio/TV programmes)
  - c) Instantly (e.g. in news broadcasts, mobile phone SMS, etc)
  - d) Permanently (in electronic database or website)

9. Have you personally ever sent information to or requested for information **electronically** from your local government?
- a) Yes .....
  - b) No .....

10. If yes to question 9, on what issues have you reported or requested information from your local government?
- .....
- .....
- .....
- .....

11. Which of the electronic media listed in question 7 have you used to send or request information from your local government? (list all applicable)
- .....
- .....
- .....
- .....
- .....

12. Are you aware of any specific places in your local government where people go to volunteer or request for information?
- a) Yes .....
  - b) No .....

13. If yes to question 12, which places are these?

.....  
.....  
.....

14. If yes to question 12, have you personally ever visited such places to volunteer information?

- a) Yes.....
- b) No .....

15. If yes to question 12, have you personally ever visited such places to request for information?

- a) Yes.....
- c) No .....

16. If yes to question 15, comment on the services offered at the information access places and your satisfaction or dissatisfaction with those services.

.....  
.....  
.....

**C. Geometry of information flows**

*Questions 17, 18 and 19 should be answered by only those who answered YES to question 5.*

17. Do you think official information communicated electronically from your district or municipal local government flows evenly to the people in your community?

- a) Yes .....
- b) No .....
- c) Not sure.....

18. If no to question 17, what do you think are the reasons for this?

.....  
.....  
.....  
.....

19. What categories of people in your community do you think are disadvantaged in accessing electronic governance information? (list all that you know)

.....  
.....  
.....  
.....

20. Are you a member of any advocacy group(s)?

- a) Yes .....
- b) No .....

21. If yes to question 20, what group(s)? (list all applicable)

.....  
.....  
.....

22. Do you know how to search and access electronic information from any public access storage medium?

- a) Yes.....
- b) No.....

23. Which of the following electronic information tools and resources do you have access to? (tick all applicable)

- Mobile phone
- Home/landline phone
- Radio set

- Community radio
- T.V set
- Public library/resource centre
- Community telecentre
- Internet café
- PC and modem (mobile internet)
- none

24. Do you have access to electricity in your home/community?

a) Yes.....

b) No.....

25. If yes to question 25, what are the sources of power? (mention all applicable)

.....  
.....  
.....

Thank you for participating.

## **APPENDIX II: INTERVIEW GUIDE**

**(for in-depth interviews with local government policy makers and implementers and actors in the private sector)**

### *Information flow between governments and citizens*

- Communication target (categories of people or groups)
- Information content (issues in the communication)
- Electronic media used (broadcast, retrieval systems)
- Frequency/volume of communication
- Timing of information
- Citizen information requests
- Frequency of citizen request
- Citizen use of media

### *Information access*

- Designated information access points
- Alternative access points
- Public access limitations
- Diversity of collection and services
- Usage of available information resources
- Technology and equipment
- Satisfaction with information centres
- Suggestions for improvement

### *Disadvantage and information flows*

- Whether information flow is open or controlled/targeted
- Whether flow is free or impeded; if impeded, by what?
- Disadvantaged citizens in context of flows
- Advocacy issues (people participation, forms and levels)
- Capacity to own/access technology and resources (skills, tools, power, etc)



*SWOT analysis of local governments*

- Human resources (skills, e-literacy, training, attitudes, etc)
- Financial resources
- Material resources; infrastructure
- Information and ICT resources and technologies
- ICT diffusion (internal networks, websites, community resources, etc)
- Strategic issues
- Political and policy issues
- E-communication environment (bye-laws, infrastructure, electricity, budget)
- Efficiency in service delivery (cost of governance, delivery time, etc)
- Players in private sector (broadcasters, NGOs, Internet service providers, etc)
- Collaboration and networking
- Global and national trends
- Problems/challenges hindering e-communication

## **APPENDIX III: DISCUSSION GUIDE FOR THE FGDS**

### *Communication with local governments*

- Initiation and direction of communication
- Issues in the communication
- Electronic media used (broadcast, retrieval systems)
- Frequency/volume of communication
- Timing of information

### *Information access*

- Designated information centre (offices, library, registry, website, etc)
- Alternative access points (cafés, telecentres, private resource centres)
- Public access issues (fees, language, format, proximity, procedures, etc)
- Diversity of collection
- Information resources
- Technology and equipment
- Satisfaction with information centres
- Suggestions for improvement

### *Disadvantage and information flows*

- Whether information flow is open or controlled/targeted
- Whether flow is free or impeded; if impeded, by what?
- Disadvantaged citizens in context of flows
- Advocacy issues (people participation, forms and levels)
- Capacity to own/access technology and resources (skills, tools, power, etc)

## **APPENDIX IV: KEY INFORMANTS**

### **A. Mbarara municipality**

#### a) Local government officials – technical (6)

- Town Clerk
- Planner
- Clerk to council
- Public Relations/Information officer
- Librarian
- Systems Administrator (IT specialist) (not substantive)

#### b) Local government officials – political (3)

- Mayor
- 2 councilors

#### c) Service providers (5)

- mobile phone service providers (Warid)
- internet café operator (Infoworld Data Centre)
- 2 radio operators (Western radio, Greater Africa radio)
- TV operator (TV West)

### **B. Isingiro district**

#### a) Local government officials – technical (5)

- Chief Administrative Officer (CAO)
- District Planner
- Clerk to council
- Information officer
- Community development officer

#### b) Local government officials – political (3)

- LC 5 Chairperson
- 2 councilors

c) Service providers (3)

- mobile phone service provider (MTN)
- internet café operator
- radio operator (Millennium Radio)