A LOST OPPORTUNITY TO FOSTER E-DEMOCRACY AND SERVICE DELIVERY: E-GOVERNMENT IN SUB SAHARAN AFRICA

Patrick Ngulube
Department of Information Science, University of South Africa,
E-mail: ngulup@unisa.ac.za

Abstract

Electronic government (e-government) is an innovative attempt to take advantage of information and communication technologies (ICTs) to facilitate the citizens' access to government information and services in order to support social, economic and political development and provide an avenue for the public to interact with government institutions and processes in a democratic, transparent and equitable way. E-government has the possibility of improving service delivery and enhancing the relationship between the government and the public. It may also help to foster electronic democracy (e-democracy). However, Sub Saharan Africa (SSA) faces a lot of challenges when it comes to implementing e-government programmes. The ICT infrastructure is weak and is not widely available to rural populations. In most cases, both government officials and the people who may want to use government services online lack basic skills. Government information is not properly organized as records management systems in many countries are collapsing. E-government projects are deficient in many countries in SSA, and they are grossly under resourced. Consequently, SSA may lose the opportunities offered by ICTs to improve government service delivery and foster democracy and accountability.

Keywords: E-government, Service delivery, Sub Saharan Africa

Background and introduction

Electronic government (e-government) has the potential of changing the structure of power relations between governments and the governed. Relations are changed from being largely hierarchical and structured along rigid departmental lines with well-defined boundaries to being horizontal, networked and participatory. The structural transformation of power relations being experienced in many parts of the world is mainly driven by information and communication technologies. In the words of Castells (1996:29):

> We are living through one of those rare intervals in history. An interval characterized by the transformation of our "material" culture by the works of a new technological paradigm organised around information technologies.

Many governments in the world have responded to the opportunities offered by the network age[1] (Castells 2001) and ICTs to offer value-added services to their citizens through e-government. Consequently, some governments have been reinvented and they have shifted from being public bureaucratic-oriented and unrepresentative to being citizen-oriented as a result of the challenges and opportunities posed to government processes by the information revolution. The information revolution is another term we may use instead of information society and other related ones. Government processes, services and information have been made electronically available in many countries in an interactive and open manner as result of the information revolution and the use of ICTs.

However, countries in Sub Saharan Africa (SSA) have not adequately taken advantage of the opportunities offered by ICTs to make government information and services available to the citizens and business partners in an equitable and transparent way (Ngulube 2007). As a result many governments in SSA are still hierarchical and lacking accountability and transparency. Public bureaucracies still enjoy the monopoly of power and authority. Roles and responsibilities of citizens are still constrained by the use of manually paper-based systems in the conduct of government business. Elected officials rarely relate closely with the electorate, and only consult with them when they need their votes after every four or five years. Government information systems, which are the cornerstone of making government-held information accessible, are not well-managed (Ngulube

and Tafor 2006; Reid 2004). Furthermore, access to government information is constrained in many countries in SSA due to lack of laws, policies and standards for information access.

The situation in SSA is compounded by the fact that some governments have not fully embraced the potential of ICTs to improve governance and service delivery through online information and services. They are more comfortable with traditional power relations than with the citizen that the information society is likely to bring into being. They fear that the networked society associated with a different governing ethos may shift the boundaries of relations between the governed and the governing to the disadvantage of the bureaucrats and politicians. They fear that the power shift may usurp their influence and authority. Thus, bureaucrats and politicians view the ICT revolution as a "highly political affair and not a technical challenge" (Wilson III 2004:6). There is a need for change management and the change of the mindsets of many governments in SSA if e-government initiatives are to succeed. Bureaucrats and politicians should be aware that: "Leaders who fail to seize ICT opportunities may produce the same results as leaders who failed to build factories and railroads in the early stages of the industrial revolution" (Wilson III 2004:5).

Then, can we comfortably say that e-government has arrived in Africa as some scholars have led us to believe? Does e-government have the potential of reducing or increasing the "digital divide" in SSA, (for example, how will governments ensure that Internet access will be available for those people without access to personal computers and telephones), and what programmes of ICT awareness will governments put in place to ensure that people reap the benefits of ICTs in an e-government? Are there safeguards against the inappropriate use of personal information that would be available to government across the board? These questions are posed, but no conclusive answers are provided in this article. More research is needed to provide answers to most of these questions.

Defining e-government: blind men and the elephant

The response by governments to the challenges and opportunities posed to government processes by ICTs has been characterized as

e-government. There are different views as to what constitutes e-government. Although scholars are agreed that e-government is more than just making some public information and certain citizen services available or adding an "e" to government, there is a lot of confusion as to what e-government is (Basu 2004; Curtin, Sommer and Vis-Sommer 2003; Oliver and Sanders 2004; Yong and Koon 2005). The proverb of the blind men who described an elephant from the parts they touched is analogous to the various definitions used to describe e-government. Most definitions touch on part of what e-government is.

For instance, some definitions restrict e-government to Internet-enbled applications that deliver government services and information (Geiselhart, Griffiths and FitzGerald 2003; Gil-Garcia and Martinez-Moyano 2007; McClure 2001; United Nations 2002; World Bank 2007a). On the other hand, there are scholars that restrict their definitions to interactions between government and the public without mentioning the central role that ICTs play in the development and growth of e-government (Gibbins 2004; Liikanen 2003; Milner 2002). Although some definitions restrict e-government to "online" or "Internet-based" technologies, there are many non-Internet-based technologies such as telephone, fax, mobile phones, short message service (SMS), multimedia messaging service (MMS), wireless networks and services, Bluetooth, and television and radio-based delivery of government services that can be used in the context of e-government (Anttiroiko and Malkia 2006; Heeks 2004).

From the definitions given in the literature e-government may characterized as an innovative attempt to take advantage of information and communication technologies to facilitate access to government information and services in order to support social, economic and political development, improve the quality of public services, and provide an opportunity for government to government (G2G), government to business (G2B) and government to citizens (G2C) communication.

E-government: opening up spaces for citizens

E-government is appealing to many people because it offers many advantages to the governed and the governing. It facilitates government to government (G2G), government to employee (G2E),

government to citizens (G2C) and government to business (G2B) communication (Basu 2004; Yong and Koon 2005). E-government has the possibility of giving all stakeholders space to exercise their interests and may lead to (Basu 2004; Coleman 2005; Ebrahim, Irani and Al Shawi 2004; Korsten 2001; Lenihan 2002):

- Representative and participative democracy (e-democracy);
- Transparent, open and collaborative decision making;
- Development of networks and partnerships (close relation between government, business and citizens);
- Diffusion of power and governance;
- Enhancing service delivery - building a new infrastructure;
- Regarding information as a public resource;
- Integrated and seamless government services that promote the free flow of information between government and citizens (inter-departmental coordination and collaboration, no need to bounce from office to office looking for information); and
- Equity in the provision of government services.

It is evident from the foregoing that e-government has the possibility of increasing honesty, efficiency and effectiveness, justice, equity, accountability and participatory democracy in the interaction between the government and the citizens.

Many governments in SSA recognize the potential benefits they can get from the information society and knowledge economy that is driven by ICTs and globalisation. However, there are factors inhibiting their full participation in the information-intensive society that exploits new archetypes of knowledge creation and distribution. Some of the inhibiting factors include infrastructure development, law and public policy, digital divide, e-literacy, accessibility, trust, privacy, security, transparency, interoperability, records management, permanent availability and preservation of e-records, education and awareness raising and public sector and private sector partnerships (Information for Development Program 2002). Some of these factors were also identified in Hong Kong as hindering the development of e-government (Davison, Wagner and Ma 2005).

Challenges facing SSA in the road to e-government

The major challenges that hinder SSA from implementing e-government may be summed up as:

- Lack of e-readiness for e-government;
- Limited public sector and private sector partnerships;
- The existing telecommunications infrastructure does not reach the bulk of the population;
- ICT foundation is weak and there is no universal access to the Internet;
- Many countries lack an e-government strategy and vision;
- Many government websites do not have a privacy policy;
- Many citizens are concerned about the privacy and confidentiality of the personal data they may provide as part of conducting e-business with government;
- Many citizens are IT-illiterate;
- The quality of government information is poor largely due to the breakdown of records management systems;
- Standards to ensure interoperability and portability of government information systems are inadequate;
- Lack of commitment to e-government by many politicians; and
- Human resources are scarce due to the brain drain and lack of capacity building programmes.

These factors partly hamper SSA from exploiting the potential benefits offered by the information society in order to give citizens value-added services that are likely to make governments participatory and responsive to the political, social and economic needs of the citizens. The following sections selectively discuss some of the challenges outlined above.

Technology, politics and the law: major drivers of e-government

While the ITC infrastructure and available ICT expertise may influence the implementation of e-government, the support and active commitment of politicians in government is key to promoting e-governance "buy in" (Ebrahim, Irani and Al Shawi 2004). Technological determinism cannot fully explain the successful implementation of e-government. As Castells pointed out:

> ... technology does not determine society, it shapes it. At the same time, society does not determine technology, it uses it. It exists as a dialectic interaction between society and technology (Castells 1996:35).

Technology plays a great role in the implementation of e-government but it does not guarantee success of e-government uptake. It is neces-sary that any e-government initiative must be driven by sufficient resources, adequate infrastructure, management support, capable IT staff, and effective IT training and support (Ebrahim and Irani 2005). It is noteworthy that if the politics are wrong then the other major drivers of e-government will not work (Wilson III 2004:13). Politicians play a critical role as they influence the allocation of resources and e-government "buy in". However, African leaders do not seem to be committed to improving the ICTs infrastructure in order to transform the government processes and service delivery in SSA. The adoption of the African Information Society Initiative (AISI) in 1996 which aimed at providing an action framework to build Africa's information and communication infrastructure made limited progress due to lack of political will and resources (African Information Society Initiative 1996).

Perhaps, the New Partnership for Africa's Development (NEPAD) is going to pick up the pieces from where AISI left and forge ahead to transform SSA into a networked society. NEPAD has established an e-Africa Commission to promote its ICT programme for the purposes of accelerating the development of ICT infrastructure, as well as the use of the infrastructure for ICT services and applications to bridge the ICT disparities among African countries and between Africa and the rest of the world (Ndukwe 2004). The success of NEPAD in transforming Africa into an information society remains to be seen.

In addition to technology and politics, the legal framework in a particular country may influence the implementation of e-government (Hai Suan 2005). The absence of legal frameworks may hinder the implementation of e-government projects. Legal concerns mainly revolve around cyber-security, digital signatures and personal data protection and confidentiality for instance. Digital signatures are not generally recognised by the law and in some cases they do not have integrity in the same way as their paper-based counterparts. The need for government to provide better services should be balanced

with the individual's right to privacy. Guidelines on the protection of privacy in computerized data processing are required.

In that regard, there should be laws limiting the government's power vis-à-vis the individual in terms of the control of personal information. SSA has been very slow in enacting privacy laws and access to information legislation. In other words, principles of fair information practices and data protection laws are not prevalent in SSA. Citizens are likely to be confident to participate in e-government programmes and trust the system if their privacy is protected through regulatory policies (Layne and Lee 2001). Concerns about privacy and confidentiality may impede the development of e-government (Layne and Lee 2001). Levels of security of information also have a bearing on how much the public can trust online government information.

E-government is achievable: lessons from elsewhere

Singapore, Canada and New Zealand are among the top-twenty leading countries in relation to e-government (Curtin, Sommer and Vis-Sommer 2003; Department of Economic and Social Affairs 2003; United Nations 2002). Singapore's e-government project was built on a strong ICT foundation and a dynamic e-Government Action Plan (Lim and Yin 2003). Canada's e-government project tapped on the high level of connectivity of the users and high ICT literacy or e-literacy levels of Canadians (D'Auray 2003). The E-Government Unit (EGU) acted as a central coordinating organization in implementing e-government in New Zealand (Boyle and Nicholson 2003). The coordinating agency (i) developed an e-government strategy; (ii) formulated standards and guidelines; (iii) provided leadership to facilitate the achievement of the e-government vision and strategy; (iv) identified and coordinated opportunities for collaboration across government departments; and (v) monitored progress towards achieving e-government.

It is evident from these examples that e-government is attainable. The lessons from Singapore, Canada and New Zealand demonstrate that the implementation of e-government programmes mainly depend on a sound ICT infrastructure, a clearly defined e-government strategy, having an e-government vision and strong government commitment, literacy and e-literacy, and connectivity. Unfortunately, SSA

has a lot of challenges to deal with before she may achieve these ideals. As a result, SSA is lagging behind governments in the developed world in relation to e-government development. Citizens are not benefiting from participative, accessible and accountable government in SSA due to the underdeveloped nature of the e-government infrastructure.

E-government development as depicted by websites of governments in SSA

E-government development has been depicted through a number of models (Affisco and Soliman 2006; Elmagarmid and McIver 2001; Gil-Garcia and Martinez-Moyano 2007; Heeks and Bailur 2007; Layne and Lee 2001; Sahraoui 2007; Siau and Long 2005; United Nations 2002). The models are based on the level of development of governments' websites. The models are not prescriptive, but they can serve as a reference for governments to position where a project fits in the overall evolution of an e-governance strategy. Until recently, the model-based paradigm has dominated the theoretical framework used in e-government research (Heeks and Bailur 2007). Most of the models suggest that there are four major phases in the development of e-government (that is, information-interaction-transaction-transformation). Using this rather mechanistic characterisation of e-government, we may not agree with Heeks (2004) that "governments have been practising e-government for more than 50 years" as the use of the first mainframe in the Statistics Office in the UK was some form of e-government. Most of the web-based technologies are a phenomenon of the 1990s and the use of mainframe computers 50 years ago does not fit the e-government bill. Furthermore, the content of e-government is user-oriented and the technology that supports e-government is the client-server model that can operate on multiple platforms or machines (Access eGovernment Project 2006).

The four-part "web stage" e-government development model is characterised by basic information posted on the website and limited formal Internet presence during the first stage. At this stage, there is a one-way interface between citizens and the government (Elmagarmid and McIver 2001; Layne and Lee 2001; United Nations 2002; Watson and Mundy 2001). Countries such as Angola, Burundi, Cape Verde, Central African Republic, Ethiopia, Gabon, Gambia, Guinea,

Lesotho, Madagascar, Malawi, Mali, Niger, Seychelles and Togo are becoming e-government players and they are estimated to be at this stage (Department of Economic and Social Affairs 2003). Countries that have reached the second stage of e-government development are Botswana, Benin, Burkina Faso, Cameroon, Cote d'Ivoire, Ghana, Kenya, Mauritania, Mozambique, Namibia, Nigeria, Rwanda, Senegal, Sierra Leone, Swaziland, Tanzania, Uganda, Zambia and Zimbabwe (Department of Economic and Social Affairs 2003). Citizens, business and other stakeholders in these countries have access to interactive online information, but the communication is still mainly one way (United Nations 2002).

The third phase of e-government integrates "the complete range of government services, provides a path to them that is based on need and function, not on department or agency" (Symonds 2000). Two-way transactions between government and the public are possible at this stage. For instance, citizens may be able to register a birth or death, apply for a social welfare grant, pay taxes, access government legislation and find information on activities of their representatives in parliament and local government without having to leave their homes and offices. Mauritius and South Africa are believed to be reaching this stage of e-government development. However, Internet access is beyond the reach of many citizens in these countries.

No country has achieved the fourth stage of e-government develop-ment in SSA. The fourth phase offers more customized, seamless and secure services and a knowledge-based government. There is provision for passwords and other security features at that stage. The benefits of e-government such as fostering democratic processes, promoting accountability, increasing citizen participation and engage-ment and delivering of efficient and effective government services become a reality at this stage.

Using the scenario depicted above and the 2001 United Nations e-government index which classified countries as having high e-govern-ment capacity with a score of 2.00-3.25, medium e-government capacity (1.60-1.99), minimal e-government capacity (1.00-1.59) and deficient e-government capacity (below 1.00) one realizes that more than 60% of the countries in SSA have a score below 1.00 (United Nations 2002). In fact, e-government leading countries such as South

Africa (1.56) and Botswana (1.01) are among the few countries in SSA that have a minimal e-government capacity. The United Nations E-government Readiness Index of 2003 (Department of Economic and Social Affairs 2003) and the Economist Intelligence Unit e-readiness ranking of 2006 Economist Intelligent Unit 2006) further confirmed that South Africa is still leading the pack in relation to e-readiness and e-government in SSA.

Clearly, e-government is still in infancy in SSA. Many government websites are populated with information that does not enhance participatory democracy. In many instances citizens are still obliged to visit government offices even if they may download certain documents from government portals as they may not be processed online. The possibility of coming face-to-face with the bureaucratic red tape practices and an odd inefficient and corrupt government official still exist in many countries in SSA.

A government should not be perceived to be part of the e-government drive by simply having some information on a website (Tipu 2007). A government website should be fully functional for it to be considered to be e-government compliant. A fully functional e-government website should have an e-participation framework which includes e-information (offering information on policies and programmes, budgets, laws and regulations), e-consultation (explaining e-consultation mechanisms and tools) and e-decision making (indicating that the citizens' input counts in decision making) (Department of Economic and Social Affairs 2003). Governments with an e-participation framework are participatory, inclusive, and have a deliberative process of decision-making (Department of Economic and Social Affairs 2003).

Access to information and telecommunication technologies in Africa

Many scholars realize that ICTs provide information and services to the people cheaply, efficiently and effectively (Ebrahim Irani and Al Shawi 2004; Elmagarmid and McIver 2001; McClure 2001). The use of ICTs can "systematize the transparency of governance" by "providing relevant and timely information in large quantities" (Kim *et al.,* 2005). Consequently, this has made them popular in e-government development programmes. The Internet is the driving force behind

the implementation of e-government in the world (United Nations 2002). Internet technology penetration is relatively very low in Africa. According to the 2005 projections there were 1.3 Internet users per 100 inhabitants of SSA (Telecommunication Development Bureau 2005).[2] The lack of telecommunication infrastructure in Africa has seriously restricted the use of the Internet and the adoption of e-government in SSA. In 2005 fixed-line tele-density stood at around 3% while mobile penetration has reached 8% in the whole of Africa (Paul Budde Communication Pty Ltd Management Report 2006). Eighty to ninety percent of the people in SSA live in the rural areas and they do not have access to basic telecommunications services.

It is often argued that, "Manhattan in New York and Tokyo each has more telephone lines than sub-Saharan Africa put together" (Mbeki 2000). Internet and broadband penetration is very low due to limited fixed-line infrastructures. However, mobile handsets have the possibility of increasing access to the Internet in SSA. In 2006 there were more than 120 mobile networks in operation in Africa, compared with 33 in 1995 (Paul Budde Communication Pty Ltd Management Report 2006). The advent of Voice over Internet Protocol (VoIP) telephony has the possibility of reducing the high telecommunication costs in Africa, and that will make access to the Internet cheaper than the present case.

Electricity supplies are unreliable and that poses a major barrier to the use of the ICTs, especially outside the major towns in SSA. Power outages affect ICT businesses in many countries in SSA. For instance, a cyber café had to close shop in Kenya as result of unreliable power supply (Kathuri and Nyasato 2007). Bandwidth is also a problem is some countries in SSA. For instance, the World Bank Report on 'African Region Communications Infrastructure Programme' of 2007 pointed out that the east and southern African region suffers bandwidth deficiency as it accounts for less than one per cent of the world's international bandwidth capacity (World Bank 2007b). Limited connectivity and costly access hinders the potential of SSA to utilize ICTs to promote social participation and improve government efficiency and transparency (Department of Economic and Social Affairs 2003).

Governments in SSA have also to contend with the inequitable access to ICTs such as personal computers, Internet, telephones, cable and other Internet-related technologies by individuals or groups of people in their countries. The disparities related to accessing ICTs have been characterized as the "digital divide". The digital divide is a reality and the prospect of SSA being able to "leapfrog" old outmoded technologies and entire economic stages (African Information Society Initiative 1996; Wilson III 2004:15) is going to be extremely difficult. That will prevent citizens from benefiting from the government processes associated with the information revolution.

SSA is still rolling between the first and third stage of ICT development, according to the ICT indexes of the United Nations and the American Society of Public Administration. The low level of e-government readiness in SSA is a clear indicator that perhaps, the "leapfrog" approach is not bearing positive results. Using the United Nations E-government Readiness Index of 2003, Figure 1 shows that the top five leading countries in SSA in relation to e-readiness are lagging behind the top five leading countries in the world (Department of Economic and Social Affairs 2003). Moreover, only four countries from SSA were in the top 100 countries when it came to e-readiness.

Another factor that poses a barrier to e-readiness is the shortage of IT skills. The shortage of skills was ranked as the number one barrier to developing e-government by the e-government survey conducted in the USA in 2000 (Norris, Fletcher and Holden, 2001). The surveys by the Organisation for Economic Co-operation and Development (OECD) showed that one of the challenges of implementing effective e-government in OECD member states was also lack of technical skills of personnel as government tended to concentrate on improving project management and change management abilities, and contracting out of IT projects (OECD Policy Brief 2003).

The survey by the Government of Zimbabwe (2005) highlighted the fact that it was difficult to attract and retain IT staff. Some sectors offer more competitive incentives than government departments. That results in a high turnover of staff in the public services. SSA will not be e-ready without access to the required trained IT staff and the ICT infrastructure. The same trends were observed in other developing countries and Africa (Heeks 2002; Ndou 2004). Taking advantage of

the potential of ICTs to roll out efficient and participative democracy will remain a dream and a lost opportunity to tap on tools that may help to modernize and democratize government if barriers to the development of e-government are not addressed. A proper e-government vision and plan may help governments in SSA to deal with some of these barriers to e-readiness and e-government.

Figure 1: E-government readiness in top five countries in the developed and developing world
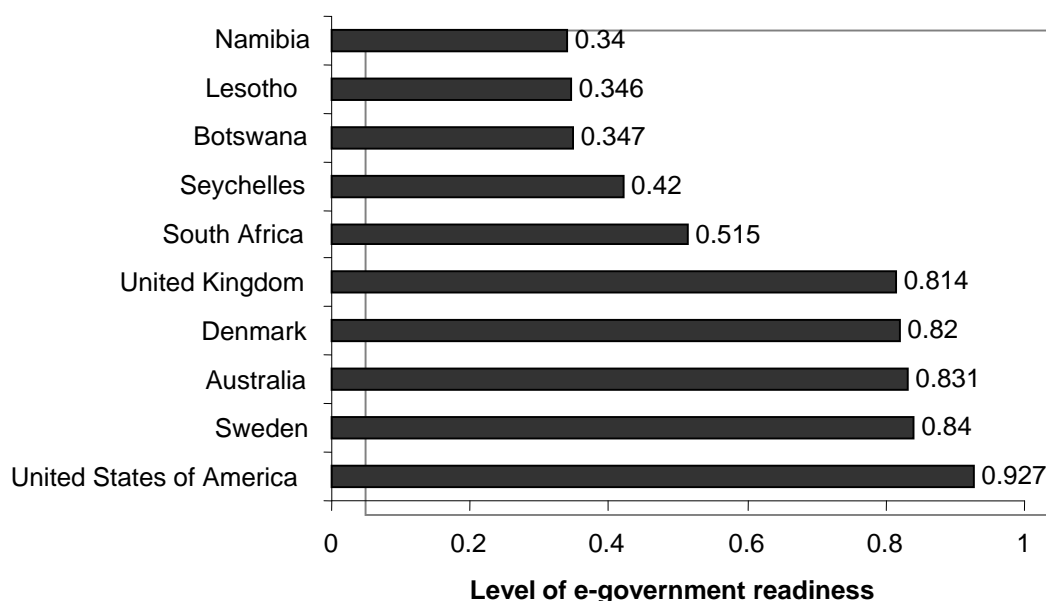
Rowing upstream: Information literacy and e-literacy

According to the United Nations:

> e-government readiness strategies and programmes will be able to be effective … only if, people at the very minimum, [had] functional literacy and education, which includes knowledge of computer and Internet use; all are connected to a computer; and all have access to the Internet (Department of Economic and Social Affairs 2003).

Internet access was discussed in the previous section. It was demonstrated that Internet access in SSA was problematic partly due to the "digital divide". We now turn to information literacy and electronic literacy. Information literacy is fundamental to the use of information

resources in the knowledge age (Braaksma 2004). Information literacy refers to the person's ability to "recognise when information is needed and have the ability to locate, evaluate and use effectively the needed information" (American Library Association 1989). Literacy today also means ICT literacy and skills (Department of Economic and Social Affairs 2003; Wallis 2005).

ICT literacy among the citizenry has a significant role to play when implementing e-government as it is fundamental to the ability of citizens to access electronic information. Although a new kind of literacy is required in the e-government era, the important thing to bear in mind is that "critical discernment and reasoning" better explains the kind of literacy that is required than focus on technological literacy and technological determinism (Bundy 2004). High rates of illiteracy in SSA make it difficult for SSA to seize the opportunities offered by e-government to foster participative democracy and efficient delivery of government services. Thus, establishing e-government programmes in SSA is like rowing upstream. Where initiatives to make government information and services available online have been taken, however, they have led to social exclusion and inequalities. The disabled, elderly, women and the poor are becoming increasingly marginalized in the e-government era as result of the illiteracy and e-literacy levels and their social circumstances.

Which government is governing us? Raising awareness about the value of e-government

Such questions arise when citizens are ignorant about the value and concept of e-government. To the ignorant citizens, there would be their elected government on one hand and the e-government on the other. The "two" governments are perceived to have competing demands. Citizens are likely to have confusion as to which one to obey and hold accountable between the "two". Raising awareness about the concept of e-government is likely to end all this confusion and lead to buy in into the whole programme by the citizens and government employees. E-government programmes would fail if citizens and business are not educated on the value of e-government (Dada 2006; Jaeger and Thompson 2003). To that end government employees and citizens should be made aware about e-government by proper communication and educational programmes (Ciborra

2005). That will ensure ownership of e-government initiatives by both the government and the citizens.

Information management: Achilles' heels of e-government in Sub Saharan Africa

Access to information created by government is the foundation of a democratic society (Ngulube 2007:6). Access to information promotes openness, accountability and transparency. Information management in general and records management in particular, are cornerstones to government information systems and effective access to information. Governments document their activities, actions, decisions and consideration in records. Records management ensures that comprehensive and complete records are created, inventoried, indexed, kept in secure storage, retrieved when required to conduct business, disseminated to the right recipient on time, and disposed of in a systematic and orderly manner by either destruction or transfer to an archive.

Good governance and accountability are fostered by well-managed records and information systems. Records management empowers citizens to hold government accountable and responsive by ensuring the integrity and availability of government-held information. Consequences of failing to manage records are vividly captured in the following statement:

> Wheels are reinvented, history repeats itself (for better or for worse), ministers receive incomplete advice, poor decisions are made, programs are easily politicized, the ability to audit expenditure is compromised, the historical record of our time is eroded and our important right of access to government-held information is undermined (Reid 2004:80).

Managing records is currently being complicated by the introduction of electronic records. Government administration and processes are increasingly becoming computerized and this is happening at a time when many records managers in SSA do not have the necessary professional capability to deal with electronic records (Ngulube 2007: 6).

Weak institutional capacity and the absence of comprehensive records management policies, guidelines and practical standards have aggravated the situation (Mnjama and Wamukoya 2007; Ngulu-

be 2004; Ngulube and Tafor 2006; Wamukoya and Mutula 2005). Building an e-government environment which provides authentic and reliable information for decision making and holding the government accountable would remain elusive if SSA does not have the "capacity to create, manage, share and use electronic information (and related technology) to improve governance as well as to sustain international trade and innovation; improve global security and support other activities in our increasingly inter-connected and inter-dependent world" (Lipchack and McDonald 2003).

Can bits and bytes govern into the future? Continued access to e-government

E-government information created, stored, retrieved and disseminated by means of information and communication technologies is in danger of becoming inaccessible in the long run if strategies to maintain its processibility and accessibility are not put into place. Accessibility and processibility of digital information resources is fundamental to sustainable development and the sustenance of e-government. The sustenance of e-government is not going to be possible if the electronic information driving the process is lost through obsolete hardware and software. Continued access to digital e-government information is not guaranteed in SSA.

Until recently the main focus has been on the potential opportunities offered by e-government without addressing the challenges associated with the long term processibility and access to the information which is stored electronically. As a result there is an impending crisis that might plunge Africa into the "digital dark ages" and jeopardize the chances of future generations to exploit e-government to deliver efficient services. Continued access to machine encoded bits and bytes depends on the choices that individuals and institutions make in addressing issues related to technological obsolescence and standards of preserving access to electronic records. The ability of government to provide information and deliver services may be impaired if issues of continued access to electronic government information are not addressed. Lack of information management and IT skills in SSA due to inadequate training is another barrier to the long-term access to e-government services.

Conclusion and recommendations

E-government is not a panacea but can be a means to support innovative approaches to networked, efficient, transparent, and participative communication between government departments (G2G), the government and the citizens (G2C), government and business (G2B) and government and its employees (G2E). In other words, e-government has the possibility of making government processes efficient, transparent and accountable. However, SSA has to overcome a number of obstacles before it can have fully fledged e-government programmes. The barriers include: low tele-density, exceptionally high bandwidth costs, high illiteracy levels, weak records and information management systems, lack of e-government vision and strategy, weak e-government awareness, limited access to the Internet and low connectivity, lack of government agencies to coordinate the implementation of e-government programmes, limited personnel with ITC skills and inadequate government commitment to e-government projects.

The obstacles outlined in the preceding texts may not be overcome overnight. It is recommended that governments in SSA should coordinate and utilize the existing information infrastructure to implement e-government programmes as a starting point. Some public libraries and telecentres are already providing information services and access to the Internet to many communities in SSA. Such facilities are accessible to many people and some of them are close to the rural population. Public libraries have become de facto e-government access points in states such as Florida in the United States. People in the United States are receiving both access to and assistance with online services from public libraries (Bertot *et al.,* 2006). SSA may use the same model to facilitate the development of e-government and its utilisation. Funds should be made available to public libraries and telecentres so that they will be able to provide access to computing and Internet services to support e-government. Such an initiative is likely to succeed if it is preceded by the formulation of e-government strategies based on a clear vision.

The education system also has a role to play. It should be sensitive to the challenges ushered in by e-government and come up with strat-

egies to equip students with skills required in e-government environ-ments. These skills include: management of records irrespective of format, infrastructure development and the dynamics of governance in a networked society. NEPAD e-schools may also be utilised to provide infrastructure for promoting e-government in rural communi-ties. For the first time in the history of ICT development in Africa, the NEPAD (2005) e-schools project brought together African govern-ments, the private sector, foundations, development agencies and civil society organizations. Such collaboration among the stake-holders holds promise for the development of SSA's ITC infra-structure. African governments must also try to further bridge the digital divide in order to deliver services and information using ICTs. That may be partly achieved by building public sector and private sector partnerships, and allocating more resources to an inclusive oriented ITC development programme.

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Endnotes

1. The network age is sometimes referred to as information society, or knowledge economy or informational era or digital economy. The creation, distribution, diffusion and use of infor-

mation is a major activity in the information society. It is a society where wealth is created through the economic exploitation of knowledge. Information technology is a central force in production. See Manuel Castells, *The end of the millennium, the information age: economy, society and culture,* Vol. III. Cambridge, MA; Oxford, UK: Blackwell (1998) (second edition, 2000), p. 21.

2. The figure excludes South Africa which has an index of 7.7 per 100 inhabitants.