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Utilizing the e-Government framework as principles for the development of digital libraries and archives

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Abstract:
Information Communication Technologies (ICTs) have been embraced in most developing countries as a vehicle to provide government information and documents through the e-government concept. This paper attempts to give highlights of Kenya's 2006 ICT strategy, Strategic Plan (2004), e-Government Strategy (2004), ICT Investor Guide, Draft Freedom of Information Bill (April 2007), Freedom of Information Policy (April 2007) and e-Transaction Bill 2007, and how these can guide the development of digital libraries and archives. It concludes by discussing hindering factors and challenges in the development of digital libraries and archives. These include infrastructure, finance, copyright and human resources, and gives highlights on the way forward and recommendations.

Introduction

Any country that possesses and masters the information it has, easily promotes economic growth through e-commerce, e-government, social and cultural integration and e-health through the appropriate organization and guaranteed free access to information for its citizens. Trained librarians and archivists possess unique skills in selecting, acquiring, processing and administering information. This makes it possible for members of the public to gain access to knowledge and to use it. For many libraries and archives all over the world, the new Information and Communication Technologies (ICTs) are already having a great impact on the acquisition, storage and access of information resources.

Cultural heritage institutions such as libraries, museums and archives require a major physical and technical preservation effort. They must adapt and change with the pace of society and store growing quantities of educational and cultural materials on networks or in some other digital form, and facilitate access to them. This involves converting large quantities of documents from one format to another, often transferring them to some other storage medium. In modern societies, libraries are particularly important as a means of ensuring that all citizens have access to the knowledge and culture they

wish. It is extremely important to organize access to their material. Without such services, society cannot be democratic, open and transparent, because it cannot be assumed that all citizens will acquire a wide range of material.

Why digitize?

Digitization has proved possible for nearly every format and medium presently held by libraries and archive centres. Managers of cultural institutions and those responsible for policy matters related to digitization are often faced with the challenges of understanding the new technologies and their implications for their collections, their institution, their patrons, and the public. According to the Wikipedia, the term "digital library" is diffuse enough to be applied to a wide range of collections and organizations. To be considered a digital library, however, an online collection of information must be managed by and made accessible to a community of users. Wikipedia further states that digital preservation is the management of digital information over time.

Digital information has transformed the way we learn, the way we communicate, even the way we think. It is also changing the way that libraries and archives not only work, but, more fundamentally, the very work that they do (Smith, 1999). Information and communication technology, the Internet and digitization have an enormous impact on society in promoting social equality of knowledge. People are able to access the same information, making it easier to define knowledge and culture as common values.

Advantages

The advantages of digital libraries and archives as a means of easily and rapidly accessing books, archival materials and images of various types are now widely recognized by commercial interests and public bodies alike. These advantages can be outlined as follows:

- Traditional libraries and archives are limited by storage space. However, through digitization much more information can be stored, simply because digital information requires very little physical space to contain it. This greatly reduces the cost of maintenance.
- A traditional library must spend large sums of money paying for staff, book maintenance, and additional books. Digital libraries do away with these costs. Digital libraries may be more willing to adopt innovations in technology, providing users with improvements in electronic and audiobook technology as well as presenting new forms of communication such as wikis and blogs.
- The barrier of physical boundary is overcome. People from all over the world can gain access to the same information, as long as an Internet connection is available.

- Limited access time is replaced by round the clock availability. A major advantage of digital libraries and archives is that people can gain access to the information at any time, night or day.
- The same resources can be used simultaneously by a number of institutions and patrons. This may not be the case for copyrighted material: a library may have a licence for "lending out" only one copy at a time.
- Information retrieval is enhanced as the user is able to use any search term (word, phrase, title, name, subject) to search the entire collection.
- Though digitization is not a long-term preservation solution for physical collections, it does succeed in providing access copies for materials that would otherwise fall to degradation from repeated use.
- Certain characteristics of objects, primarily the quality of images, may be improved. Digitization can enhance legibility and remove visible flaws such as stains and discoloration.

ICT and its relationship to governments

ICT refers to diverse set of technological tools and resources used to communicate, create, disseminate, store, and manage information (Wikibooks, 2008). ICT is an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software and satellite systems, among others. In government offices, these technologies are connected to the Internet, with the aim of fulfilling information processing and communications functions such as videoconferencing, e-commerce, e-health and e-learning.

Over the years ICT has emerged as an important medium for computing, communication and exchange as well as a tool for development by governments at all levels. These are facilities and features that variously support a government's range of activities. They support most government operations to citizens through engagement of its citizens in provision of government services. According to Sato (2003) almost any country or region has a national ICT plan, programme or strategy. However, bridging of the digital divide should be a priority for any country. In most developing countries there is a gap between the urban and rural population be overcome. Thus, each country/region must create its own "bridging a digital divide" programme.

Effective use of ICT tools to support e-government services heavily depends on the availability of affordable, reliable, relevant technology infrastructures, skilled manpower and a well-developed national ICT policy. Several African countries have taken various measures towards meeting these basic requirements. In Kenya, for example, the short messages service (SMS) offered by mobile phones, resource centres and information "kiosks" are some of the ICT tools used to deliver services directly to citizens, wherever they are.

For e-documents to be used by both the government and the citizens, analysts have established that there are five phases of growth in e-government. e-Documents are documents that exist only in electronic form such as data stored on a computer, network, backup, archive or other storage media (Kane, 2005). e-Documents are also referred to as electronic data transmitted electronically through automated fax, email, web postings, server storage and wireless delivery.

Once citizens are able to access government information in an interactive manner through two-way online communications between the citizen/business and the government IT system, the interaction phase is achieved. The integration phase is achieved when the various systems and processes that determine government operations are recognized as a means to provide seamless services. The transformation phase refers to the stage when e-government results in entirely new and innovative ways of providing services online and carefully deriving the benefits.

Kenya (http://www.kenya.go.ke/)

In the rural areas of Kenya where 80% of the population lives ICT services are largely unavailable. About 20% of the Kenyan population lack the basic skills necessary for accessing and utilizing ICTs. It is therefore important that the ICT policy addresses the need for universal access alongside ICT development. Universal access aims at community access to publicly available communication facilities. ICT services should be provided to all citizens and other stakeholders regardless of their gender, geographic location, economic and social status.

Universal access was originally defined as the availability of a public fixed telephone at a walking distance (International Telecommunication Union, 1998). With technological development in ICTs, universal access has now come to mean community access to both "old" and "new" ICTs in a location that is convenient to the majority of the population. In Kenya there is only one state owned postal service, The Postal Corporation of Kenya (PCK), which is also mandated to offer universal postal services across the country. There are however other courier service providers and other technologies like e-mail and cellular technology.

Telkom Kenya Ltd. (TKL) had a monopoly in fixed lines services until June 2004. Most of the fixed lines are found in the urban centres. The two mobile service providers, Safaricom and Celtel, have over 3,000,000 subscribers. The two mobile operators have each surpassed the fixed line services, covering 60% of the population with signal distribution but only 20% of the land mass (Kirui and Muhatia, 2006).

In 2006, the Ministry of Planning and National Development implemented a draft ICT Framework/ proposal. The mission of the draft is to improve the livelihoods of Kenyans

by ensuring the availability of accessible, efficient, reliable and affordable ICT services. This policy seeks to facilitate sustained economic growth and poverty reduction; promote social justice and equity; mainstream gender in national development; empower the youth and disadvantaged groups; stimulate investment and innovation in ICT; and achieve universal access.

Guiding principles for ICT policy in Kenya

The policy is based on four guiding principles:

- Infrastructure development
- Human resource development
- Stakeholder participation
- Appropriate policy and regulatory framework.

Related policies

These are the 2006 ICT Strategy; Strategic Plan (2004); e-Government Strategy (2004); ICT Investor Guide; Draft Freedom of Information Bill (April 2007); and Freedom of Information Policy (April 2007).

e-Government

"e-Government" refers to the use by government agencies of information technologies (such as Wide Area Networks, the Internet, and mobile computing) that have the ability to transform relations with citizens, businesses, and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens; improved interactions with business and industry; citizen empowerment through access to information; or more efficient government management.

e-Government is part of the government's administrative agenda aimed at making it simpler for citizens to receive high quality services while reducing the cost of delivering those services. It applies information technology in the provision of government information and services with an aim of minimizing the burden of public administration and the business activities to its citizens. It also plays a significant role in bridging the gap between the urban and rural population in any country. With e-government, information about the services offered by the government through the different ministries can be disseminated fast as far as the grass-root level through public funded digital libraries and archives. This is intended to avail and improve the delivery of government services to the citizens wherever and whenever needed. (Kamar and Ong'ondo, 2007)

Having e-Government at the centre of disseminating information at all levels (global, regional, national & local) is a way of tapping unrealized potential for high quality government (Okuttah, 2007). It emphasizes that while the centre of government needs

to create the right conditions for e-government, it is the role of government agencies to actually deliver government information and services through the use of information technology.

Objectives of e-government

The objectives of e-government in most cases are set to achieve efficiency in delivering government information and services to citizens; to promote productivity among public servants; to encourage participation of citizens in government; and to empower citizens in line with development priorities. The major objectives of e-government can be summarized as being to

- improve collaboration between government agencies by minimizing duplication of services and enhancing efficient and effective utilization of resources;
- improve competitiveness by providing timely information and delivery of government services;
- reduce transaction costs for the government, citizens, and the private sector through the provision of products and services electronically;
- provide a forum for citizen participation in government activities;
- ensure that services are available to citizens over a wide range of access tools commonly used by citizens and businesses.

From the above objectives it is clear that e-government aims to utilize ICT to effectively deliver public information, government services and transactions to the convenience of citizens, business and the global community (Kiangi, 2005). Apart from servicing citizens, e-government helps in enhancement of transparency, accountability, and good governance, and is attainable through equipping government personnel at all levels with relevant training

e-Health

Health has three Millennium Development Goals. One is to reduce by two-thirds the mortality rate for children under five by 2015; a second calls for reducing by three-quarters the number of women dying in childbirth by the same date; the third targets the arrest and reversal of the spread of HIV/AIDS, malaria and other diseases. e-Health involves using media empowerment as a tool for achieving these health goals.

Africa's e-health vision is to ensure the delivery of the right information about the right individual to the right person at the right place at the right time to enhance health outcomes and improve system efficiency. To achieve this people need access to information that they can understand, not just because the information is presented in their own languages, but because it is rooted in their cultures, even if it challenges some of the habits of those cultures. ICTs provide opportunities for individuals, medical professionals and health care providers to obtain information; communicate with

professionals; deliver first-line support especially where distance is a critical factor; and promote preventive medicine programmes.

Africa is at an early stage of using ICT to improve the delivery of health care. Investment in ICT in the health services could complement basic health services through enhancement of administration, access to information and decision-support systems for curative and preventive health and improved distribution of medical supplies. Health services can benefit from using ICTs to improve health care at Referral Hospitals, regional hospitals, district and other lower levels. Digitized information can be used to create more effective planning; efficient movement of necessary data to clinicians; integration of clinical information across the health system; consistent and shared views of patient data; matching of resources to activity levels through relevant up-to-date information; reliable and timely evidence-based decision-making; and more effective resource management**.**

e-Health is about modernizing health system methods and technologies to increase the quality, safety, timeliness, and efficiency of health service to all Africans. The strategy therefore is to deal with e-health as a long-term project requiring clarity, ownership of direction, strong collaboration and accountability among all key stakeholders, and attention to specific achievable deliverables. For patients the particular value from improved information systems includes development and use of electronic patient records, leading to electronic, shareable, health records using multi-media decision support systems that allow remote monitoring. The patient's notes are updated using wireless Personal Digital Assistants (PDA)

The strategies for achieving e-health include having strong leadership capable of solving conflicts between and within organizations. New skills will need to be developed and new practices adopted. There is a need to create ICT Portals in order to improve patient-provider communication, provide reliable health information, reduce medical errors, and enhance efficiency, access, utilization and collaboration. This is an opportunity for digital libraries and archives. The emergence of e-health has been shown to reduce the cost of health care and increase efficiency through better retention and retrieval of records. It allows better management of chronic diseases, shared health professional staffing, reduced travel times, and fewer or shorter hospital stays.

e-Education

In the education sector, libraries at schools and other educational establishments provide access to educational, recreational and research materials in all formats, both print and non-print. The use of ICT in the education process and for storage of information has resulted in growth in the higher and adult education sector. Libraries are therefore vital support services for lifelong learning, bridging traditional information media and digital media.

ICT can be used to help improve the quality of education and training. Digital literacy for everyone is the new challenge for the knowledge society. Experts say that bridging the digital divide between North and South and between urban and rural populations in Africa can best be achieved through e-learning. e-Learning can help improve education and training and achieve a society of lifelong learning. With e-learning people can easily refurbish their skills and competences for better employment opportunities and can independently build personal knowledge, confidence, and self-esteem.

e-Transactions

ICT plays a big role in the e-Transactions Bill. Information relating to any e-transaction can be easily collected, stored, transferred and even manipulated for use at any access point when digitized. In Kenya the e-Transaction Bill 2007 refers to legislation for e-commerce. It addresses e-commerce issues and is expected to spur growth in the e-commerce subsector and attract investors (Alare, 2007). It is meant to enhance online business.

The e-Transaction Bill addresses shortfalls of the e-Government Strategy 2004 and National ICT Policy 2006. These shortfalls include among other things the legal recognition of e-signatures, cybercrime, data protection and privacy. The Bill ensures the protection of intellectual property rights and also paves the way for the establishment of an institution to authenticate electronic signatures, among other things. The Bill addresses issues of reducing distance by enhancing use of ICT tools in business transactions. This will ensure efficiency as well as access to new markets and new opportunities for businesses (globalization).

Challenges:

These include inadequate or inaccessible complementary infrastructure and services (electricity, telephone, data services, financial services, technology dispersion and disparities).

- Inadequate and inequitable information infrastructure and facilities;
- Inadequate human resource capability;
- Lack of complete and adequate policies, regulatory frameworks, legislations and guiding strategies (more so in storage and communication). For example, in Kenya, e-documents are not recognized in the current legal framework.
- East African countries (Kenya taking the lead) are now trying to connect to the global network of fibre optic cables;
- Classification of government information and inadequate information or gaps in information generated by government offices (most of it is archaic in nature).
- e-Government needs to be publicized. This has not happened. Citizens need to be told about e-government so that they can participate or get involved.
- Lack of a clear demonstration of political will to mobilize resources for e-government.

- The e-government strategy has numerous disjointed parts, and is likely to experience challenges in its implementation. The following observations support this statement about the e-government strategy:

    - It quotes best practices from other countries without outlining how these will be achieved here in Kenya.
    - It applauds general standards to be observed and does not outline them or refer to any existing document. This poses an obstacle to implementation. Where implementation is already done, or ongoing, integration will be the challenge.
    - It fails to emphasize public-private partnership in the rollout of e-services.
    - It does not mention outsourcing among its key methods of supporting e-government rollout.
    - It lacks an evaluation or audit mechanism.
    - Finally, government officers developed it independently. Other stakeholders did not have an opportunity to participate in its formulation, yet they are expected to participate in its implementation for its success.

Way forward

For effective and efficient implementation of these ICT and related policies and framework there is need to:

- Partner or collaborate with local entrepreneurs;
- Reduce the cost of airtime by some percentage. This will result in more people making more calls; job creation; and increased levied taxes for government;
- Support the idea of the formulation of a regional framework for e-government at local authority level;
- Form independent ministries or bodies to deal exclusively with ICT development and e-government projects as well as reform the legal system for effective control and regulation of e-government;
- Form working groups to establish and refine e-government structures and needs at national and local levels.

Conclusion

e-Government is fundamental for providing developing countries with a common framework, goal and direction across the public sector. The use of ICT in the sector promotes greater accountability, increased efficiency and cost-effectiveness. In all East African countries e-government is taken seriously since it would be instrumental in poverty reduction. e-Government will significantly contribute to the achievement of sustained economic growth and the attainment of the MDGs in these countries. The fibre optic terrestrial and submarine programmes that are aimed at outsourcing giants in Africa, in terms of skilled and well-educated staff for cost-effective and quality service

implementation of e-government are currently underway. The connection of countries through fibre optic cables to the global network for public interest is achievable through harmonization of information systems that provide e-services.

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