Trends in long-term preservation of digital information: challenges and possible solutions for Africa

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Abstract

This paper focuses on the trends of managing information in the digital environment in the African region. The paper also makes suggestions on how these challenges may be addressed. In particular, it contends that while there are prospects associated with the adoption and use of Information and Communication Technologies (ICTs) in Africa, there are equally serious challenges that the continent faces in accessing information in this technological environment. The paper asserts that the African region is laden with opportunities evidenced by greater investment by national governments and progressive technological advances such as network and infrastructural upgrading/development, including broadband and Internet coverage. Moreover, liberalisation of the ICT market has been a boon for the adoption and utility of new technologies.

Further, the paper postulates on the factors that militate against development being continuing escalating costs of infrastructural development and maintenance; frustrating accessibility primarily in rural areas; increased migration of skilled human resources resulting in heavy reliance in foreign consultants for design and maintenance of systems and lack of repository strategies for the long-term preservation of digital information. Nonetheless the paper opines that with increased cooperation between governments and the private sector; information management professionals and ICT industry, there is renewed hope for growth and sustainability of ICT and accessibility to digital information in the long-term.
1. Introduction

The adoption of Information Communication Technologies (ICTs)\(^1\) has revolutionised the conduct of business and has greatly enhanced information accessibility. In particular, organisations are not only able to store large amounts of information but can also have quick access to it. This has improved service delivery and has ensured that policy makers react rapidly to social and economic developments. Further, the general public can also access information in remote areas. ICT has enabled archivists, records managers and librarians to carry out their mandate: that of information capture, preservation and dissemination. While use of ICT has occasioned these many benefits it has also brought challenges that have to be addressed. Principally, this new development has led to the generation of information in digital form which has to be managed.

In spite of the benefits accruable, the technology has presented tremendous challenges which information professionals should be concerned with. Foremost are inherent problems of flexibility, scalability and vulnerability. Further, accessibility remains limited due to lack of infrastructural developments in rural/remote areas where the most of Africa’s population\(^2\) reside disadvantaging the majority.

2. Coordination of ICT initiatives in Africa

Coordination and implementation of ICT initiatives in Africa seems to be progressing well despite the limited resources. Government priorities have focused on improving ICT infrastructure and elevating their technological development. Much of the literature has indicated that African governments have invested financial resources, through national budgets, in the development of ICT. Examples of these investments are summarised in Tables 1 and 2 below.

Table 1 Summary of ICT investment statistics in Namibia\(^3\)

<table>
<thead>
<tr>
<th>Year</th>
<th>Total allocated</th>
<th>ICT project</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>approximately US$ 3.6 million</td>
<td>International switch</td>
</tr>
<tr>
<td>1995</td>
<td>approximately US$ 47 million</td>
<td>cable expansion</td>
</tr>
<tr>
<td>1996</td>
<td>approximately US$ 9.8 million</td>
<td>of which US$ 3.6 was for computer support</td>
</tr>
</tbody>
</table>

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\(^1\) Information communication technology is generally defined as the technology that is used for accessing, gathering, manipulating and presenting or communicating information. The technology could include hardware (e.g. computers and other devices); software applications; and connectivity (e.g. access to the Internet, local networking infrastructure, and videoconferencing. See: UNESCO, ‘Education and ICTs’. Available at <http://portal.unesco.org/education/en/ev.php-URL_ID=18645&URL_DO=DO_TOPIC&URL_SECTION=201.html>. Accessed 6 September 2006.

\(^2\) 70-80 % of Africa’s population reside in rural areas.

In addition, the private sector has been an important contributor and making possible growth in the ICT industry. In fact governments in Africa and the private sector have been working together and this partnership has helped in addressing the technological challenges. In most African countries, the private sector has been involved in ICT development and has facilitated use of the Internet. Reporting on the status of Internet connectivity in Africa, Eyitayo found that South Africa had the highest usage with 15.3%; followed by Egypt and Nigeria with 15%; Morocco with 14 %; Sudan with 8%; Algeria 6% and others below 4% each. In fact, African governments have been doing well in encouraging and supporting private sector involvement. For example, in Namibia, an ICT coalition has been created to help bring together stakeholders, especially from the private sector. This has helped with discussion and determination of technological issues and has contributed to the provision of policies to enhance rural development.

Development of ICT policies in Africa has been important; as it is upon them that the supporting infrastructure for use of ICT is based. Policies provide a strategic framework for directing and shaping use of ICTs as they include decisions, guidelines, laws, regulations and other mechanisms. Most African countries have embarked on formulation and implementation of ICT policies although these are at different levels. While this tends to vary from country to country, policy reforms in each of the countries seems to be advanced. In 2002, sixteen (16) African countries had ICT policies. South Africa, Burundi, Ethiopia, Mozambique, Rwanda, Tanzania and Botswana are good examples of countries that have completed their ICT policies while other like the Central African Republic, Ghana, Nigeria, Mali, Niger, Malawi and Uganda, Botswana

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and Namibia are in the process of completing their national ICT policies.\textsuperscript{9} Ethiopia’s draft national policy was adopted for implementation during the period 2003-2008. Mozambique’ policy was adopted in 2000 and implementation strategy launched in 2000. Tanzania’s national ICT policy was approved in 2003 and implementation has started. All these countries have established coordination offices for implementation of the policies.

There is no doubt that development of ICT policies in Africa are in line with United Nations Millennium Development Goals (MDGs). Through the MDGs UN member states agreed to address the major issues that confront human existence and sustainable development. On the other hand, the African Information Society Initiative (AISI) is a vision for African countries to bridge the digital divide. AISI serves as a mechanism for achieving the MDGs and recommends the mainstreaming of ICTs.\textsuperscript{10} This has supported the development of national ICT polices and strategies through National Information and Communication Infrastructure (NICI) plan, which helps nations link to national, regional and global development goals.

Most of the ICT policies in Africa have advocated for further liberalisation of the ICT market. This, however, will be achieved through broad-based participatory process involving different stakeholders. These stakeholders will include government as the facilitator, the private sector as the key supplier of finance and technical services and regulators as implementers of policy directives. In addition, the telecommunications sector, non-governmental organisations and other professional bodies may also provide an input. Overall, governments in Africa expect that the ICT policies will promote access of citizens to government services, and will enable electronic governance. Further, the policies are expected to contribute significantly in preparing Africa for the Information Age.

In realising that open competition is the best strategy for achieving universal service goals the ICT market has also been liberalised through establishment of independent regulators. These regulators are doing well in promoting equitable participation in the ICT industry. Overall, liberalisation has worked well in allowing competition in the industry, as it has enabled the operators to establish ‘small regional networks’ that are able to survive in a multi operator environment.

2. Challenges in ICT development in Africa

2.1 ICT infrastructure availability

ICT infrastructure availability is still a problem in Africa. Kanyengo’s study has found that infrastructure development is still lacking in most sub-Saharan African countries where there has


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been slow adoption of ICT services especially in government. In most African countries, ICT facilities are concentrated in urban centres. For example, Internet usage has remained concentrated in some urban areas where access is provided through universities, government ministries and departments, hotels and lodges. What this means is that availability of ICT facilities, including use of the Internet and electronic mail (e-mail) is limited, or in some cases, unavailable in rural areas. This seems to suggest that those who have no access to these institutions and organisations have no access to Internet and computer usage and in turn no access to information. The disparity in terms of penetration in rural areas still remains a major concern. In rural areas these facilities are still unavailable and the majority of villages are still far from telephone facilities. As a consequence, the rural population, accounting for 70-80% of Africa’s population remains marginalised. The pattern of ICT infrastructure availability and access in both urban and rural areas appear similar in most African countries. Even for countries that have advanced ICT infrastructure, like South Africa, this is unevenly distributed. Despite these countries technological advances, they seem to be slipping in terms of digital capacity and have not yet been able to bridge the digital divide between urban and rural areas. As Mutula and Brakel have argued, most countries in Africa are still striving to implement relevant structures to attain relevant levels of e-readiness to be able to integrate the emerging global information society. According to the authors success of information dissemination depends on integration of ICTs into the society at large.

2.2 High access charges

Accessibility is also still restricted because of the high costs of ICT facilities. According Eyitayo ICT facilities are seen as imported commodities, a factor which makes them expensive and not affordable to many. The issue of affordability is, therefore, of serious concern. Studies carried out in Botswana, Namibia and South Africa have shown that charges related to high subscription costs, connection fees and telephone for dial-up access are still very high and most people cannot afford them. From these studies, it seems true that the charges are unreasonable

and there is need for deregulation, competition and foreign investment to reduce costs. However, tariffs in most African countries are being revised as part of tariff rebalancing processes. Even though efforts are continuously being made to expand access, this is still relatively expensive.

### 2.3 Training and staff retention

Technical knowledge is still a serious problem in ICT development. The continent lacks skills and it is important that appropriate knowledge and skills are part of the human development requirements in Africa. Issues of ICT training and human capacity development as well as staff retention need to be addressed, so as to ensure sustainability and accessibility by all. Other issues of concern seem to relate to computer literacy; low levels of education; lack of awareness by the public on the use of technology; lack of skills transfer; limited infrastructure and unavailability of power. These issues are indicative of the problems and challenges facing ICT and other sectors of the economies in Africa. A study by A Dymond and S Oestmann in 2002 emphasises the fact that not all ICTs are easily available in poor or remote areas for both technical and operational reasons. The authors cited examples of power availability, high cost of technology and lack of skills as some of the limiting factors.

There are also very few technical experts to install and maintain electronic networks and computer equipment in most African countries. These experts are generally overloaded with work and cannot meet the demands and needs of Internet and computer usage. Most countries depend on foreign experts from outside the continent. ICT training and human capacity development needs to be addressed to ensure effective deployment of ICT infrastructure.

Retaining staff with ICT skills is a frustrating exercise. Further, the cost of training and recruiting technical expertise are already high and appear to be growing. Unfortunately, those already trained can command jobs in the private sector with higher salaries than earned in the public service. As a result of this, Africa faces the problem of retaining the available skilled workforce especially in government agencies. Others go into highly paid jobs in international agencies either operating locally or elsewhere. Still others join the “brain drain” to other countries. In South Africa for example, it is estimated that 200-300 ICT skilled workers leave the country each month due to demand for their skills elsewhere. This means that governments have lost and are still losing the expertise, leading to shortage. The few available staff are often overstretched and overworked. The situation appears to have been worsened by countries like the United Kingdom, which have immigration-friendly policies that allow easy movement of skilled professionals, including those with IT skills, to address their own labour needs.

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accelerated “brain drain” and increased African diaspora to many western countries. Despite being affected by this, South Africa is also becoming a potential cause of “brain drain” in southern Africa, as it is getting foreign ICT skills from the region.

If governments take up the necessary measures, accessibility of the facilities in rural areas will grow. These would be significant developments as it is likely to eradicate the existence of disparities in access to information and opportunities between different sectors of the society especially between rural and urban areas. More efforts have to made in the future to increase connectivity in many rural areas. Nevertheless, there is still a long way to go and what is urgently needed is an investigation on how to conquer the digital divide. Governments, the private sector and civil society must work together. This is still one of the significant challenges awaiting in the future.

The lack of widespread awareness of ICT issues is likely to inhibit understanding that records are not just paper-based. The lack of opportunity to obtain ICT skills may make it more difficult to recruit archivists and records managers who are comfortable with ICT related issues. Paper-based records may remain the norm in certain parts of countries and citizens’ rights to access national archives and libraries will be inhibited if information in these institutions is in digital format but citizens are not computer literate.

In addressing some of these challenges, it is worthwhile to mention that plans to establish community ICT access and Universal Service Fund facilities as part of electronic government initiatives in most African countries are an encouraging development. Establishing community ICT centres will be important, as this means that priority will be on public access rather than individual access. The idea of establishing a Fund is good, as it will encourage operators to make contributions to be used for rolling out facilities. In South Africa, there are already provisions for the Universal Service Fund to subsidise provision of services to areas that have been neglected in the past. This fund has subsidised companies providing specified universal access services through issuing special licenses to companies willing to serve the population in rural areas by providing access systems. In some cases incentives and rewards to such companies may work wonders.

There is evidence in the available literature on ICT to suggest that the concept of supporting universal access through a special fund as a complement to liberalisation has been tried and has worked in some countries. For example, in Uganda and Cote d’Ivoire leading technology companies and service providers are encouraged to contribute significant effort and resources into projects to benefit poorer and rural communities. This has been done by giving incentives to new telecommunications operators willing to accept to support rural obligations. It was interesting to find that this has also been tried in South Africa and was found to be working.

Other commendable efforts made include establishment of SchoolNet projects. Through this, African countries are actively deploying computer laboratories to schools, mostly to those disadvantaged. SchoolNet projects have been established in a number of African countries to facilitate teacher training in ICT, education content development on-line and partnership development between governments and the private sector. This has so far been able to contribute to Internet connectivity in schools. Without this effort, these schools would not have had an opportunity to access the new technology.

Efforts made to address the challenges in ICT development by these countries, however, still fall short of what is really needed by the majority in rural areas. For example, more support from the private sector and other institutions especially in provision of training opportunities and participation in social programmes is needed. Whatever efforts are being made, each of the countries still has to work hard to accelerate the rate of ICT penetration particularly in rural areas, as this remains a big challenge.

3. Importance of managing digital information

Use of ICTs has made it possible for African countries to involve themselves in the global information society. Libraries and archival institutions have taken advantage of this development to ensure wider dissemination of information. The public can have access to information anywhere, anytime contributing to effectives. The importance of information in organisations cannot be overemphasised. Information and records form evidence of organisational activities and are kept for administrative purposes and use in the daily operations. Records are kept for their legal value, as proof evidence and for the purpose of compliance. As observed by Mutula and Brakel, although information is more important to success of business, most governments pay more attention to IT where the authors argue takes a great deal of managerial time, financial and media attention. According to Tiamiyu and Aina, information acts as the main engine for economic growth. The authors continue to argue that for Africa to benefit from the knowledge economy, it is necessary that policies and programmes are put in place for adequate ICT infrastructure. Much of the problems in Africa as poverty reduction, health improvement, education and wealth creation can be addressed through use of information.

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4. Trends in long term preservation of digital information

4.1 Changes in technology and long-term preservation

The use of ICTs in archives and libraries has changed the format of records that these institutions have to deal with. There has been a move from paper based records to digital information. This has changed the way information professionals acquire, process, store and deliver information to the users. As observed by Kanyengo, this has raised concerns in light preserving African knowledge base.24 According to Mutula and Ojedokun, ICT has allowed libraries to index large quantities of information which is accessible through networks such as the Internet.25

Information now exists under software control and use of hardware. However, the technological advances and in particular changes in software and hardware pose serious threats to the continuing accessibility and use of this information. Such concerns seem to imply that digital information, that can be accessed using one software programme now, may fail to be accessed in the future because the programme may be outdated and no new one available on the market. Examples of some of these softwares include MS WORD, PDF, HTML, XML and JPEG. This remains one of the biggest challenges to be addressed in the information management profession. While it has been suggested that solutions such as migration, refreshing and emulation can ensure the records and information remain accessible, its reliability and authenticity is not guaranteed as some data may be lost during upgrading of systems. In fact, National Library of Netherlands and National Archief of the Netherlands have been engaged in research to design and develop an open modular emulation to test the practicality and durability of the emulation process. 26 Encouragingly, in the case of electronic records, the standards development committee of the Association of Records Managers and Administrators International (ARMA) started work on a standard in 2005 that will address policy, procedural and technical issues associated with conversion and migration from one recordkeeping system to another, regardless of record format.27 On the other hand, the Humanities Advanced Technology and Information Institute (HATII) of the University of Glasgow has since 1997 been conducting research and is participating in projects aimed at preservation of electronic resources.

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In Africa little progress that has been made in addressing the long-term preservation of digital information. According to Kanyengo the shift from paper to digital systems has been done with no planning and less preparations. For examples, at the University of Zamibia, no plans were put in place on how to interact with digital information resources.\textsuperscript{28} The University of Zambia does not have any policies on preservation. This appears to be similar in other African countries. Painting the situation in Africa, Kanyengo contents that there has been an increase in research output but this lacks diversity and most African scholars are publishing outside the continent.

The long-term preservation of digital information, especially in electronic recordkeeping systems, an area that the current author has experience in, has not been seriously addressed in most African countries. This remains one of the major concerns. In South Africa, the National Archives and Records Service of South Africa (NARS) is taking the initiative and has started looking at options for the long-term preservation of electronic records. South Africa, however, is of the view that until the right strategy has been found, agencies should be left with the custody of electronic records. This means that it will take time to build infrastructure for managing electronically generated records. Debates on long-term preservation of digital information are continuing internationally, and practical research projects in the developed countries have investigated this issue in the hope of coming up with a lasting solution. Hopefully, African countries can draw experiences from these projects but in an adapted form to suit local situations.

Some archival institutions have put in place infrastructure to take in archival electronic records\textsuperscript{29} to ensure their continued accessibility. However, for those with limited ICT infrastructure the responsibility of care has been left to government agencies so that they maintain custody of such records. The National Archives of Australia has a digital repository to ensure the preservation and accessibility of the country’s digital heritage. It has developed policies, standards and guidelines under the collective title e-permanence to ensure the long-term preservation of electronic records.\textsuperscript{30} This is based on the International Standard for Records Management, ISO 15489. The National Archives follows the custodial model and takes into custody all digital records that are required to be retained as archives under approved disposal authorities.\textsuperscript{31} In Australia the Public Record Office of Victoria (PROV) has developed digital archives and is encouraging agencies to


\textsuperscript{29} From the data collected during my research in 2003 and 2004, it has emerged that at least for now, Botswana, Namibia and South Africa prefer that creating agencies maintain custody of electronic records because they have limited infrastructure to take them in.


transfer their digital records. On the other hand, the InterPARES projects in Canada have been concerned with the design of long-term preservation systems that ensure the reliability and authenticity of electronic records as evidence.

As part of the United States National Archives and Records Administration (NARA)’s e-government initiative, an Electronic Records Archives (ERA) project was started in 1998 as a comprehensive means for preserving electronic records free from dependence on any specific hardware and software. NARA will develop policy and technological guidance for electronic archiving. NARA’s aim was to have the programme operational in 2007. Currently, NARA provides a host of links on electronic records management, including requirements for the transfer of archival electronic records and managing web records. These provide tools for agencies to access transfer and access electronic records for as long as required.

The National Archives of the United Kingdom (TNA) has done three things as far as preservation is concerned. First, it has developed its own in-house digital preservation system, which allows it to take in digital records and store them. Second, it has developed a database to record information about file formats so that when it is known that a particular format becomes obsolete, it is migrated. Third, TNA is preserving government web-sites because these are important sources of information. In future, TNA will be able to deliver electronic records over the Internet. From this, it appears TNA of the UK has developed the capacity to change with the technology and meet the challenges ahead.

The International Council on Archives (ICA) has in fact insisted that archivists must have the capability to preserve archival electronic records. This is because although a non-custodial approach may be acceptable if the agency has both the will and ability to provide for the long-term preservation of its electronic records, few will do this as they will no longer need such records on a regular basis.


4.2 Concerns of authenticity and reliability

The authenticity and reliability of electronic records are often questioned because of possible changes to content or structure. Authenticity can be defined as the ability of the records to be reliable over time and act as evidence of organisational transactions. Reliability on the other hand, refers to a record’s authority and trustworthiness, and this is tied to the ability of a record to stand for a fact it is about. A number of authors among them, Hoffman, MacNeil, have argued that there are no guarantees of authenticity and reliability in the electronic environment, as records can be deleted or changed at any time. It is, therefore, important that electronic records are managed to ensure that they remain authentic and reliable as evidence. Perhaps in the paper environment, one can say that this is more straightforward, as records are physical objects, and this makes identification of their characteristics easier than it is in the virtual world.

The records provide evidence of actions, but the computer systems may fail to capture the necessary information about the context of the creation and the use of records. For example, in an e-mail system problems arise when e-mails are forwarded. This is because the e-mails may be edited as they are forwarded and in the process, their validity as records may be altered. Authorship of e-mails also poses a problem. It is possible that someone else may write a message under someone else’s login (with or without their permission). This necessitates an examination of the aspects that ensure records remain authentic in the electronic environment. Contributions by Hunter, Hofman and MacNeil’s in exploring ideas on the importance of addressing challenges posed by electronic systems on the authenticity and reliability of electronic records are important in guiding future research. There is, however, evidence suggesting that requirements that ensure the creation of authentic and reliable records in the electronic environment have been developed. To ensure the authenticity of electronic records, organisations should implement and document policies and procedures that control the creation, receipt, transmission, and maintenance and disposition of records, and ensure that records are protected against unauthorised addition, deletion, alteration and use.

4.3 Access to electronic records and concerns of privacy

The use of computers has enabled organisations to create databases that now handle huge amounts of data on-line, which is made accessible anywhere and anytime. This has raised concerns that if

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the information is not properly managed, it may be made available too easily, resulting in lack of protection for the citizen’s individual rights. Further, the vast amount of information maintained about individuals by both government and private organisations threatens their privacy. Ojedokum has highlighted some of the privacy infringement as unauthorised acquisition of data, unauthorised penetration into computer networks. Computers allow fast and inexpensive communication of information and the collection and storage of large amounts of data. At the same time, these capabilities allow individuals and organisations to access information. A case in point is the ChoicePoint Company in the United States of America (USA), which has since 1997 been compiling and selling personal information on the USA residents gathered from other sources, such as credit records, deed transfers and motor vehicle records, to the government. This information can then be used for whatever purpose and this threatens the privacy of citizens. Generally, there is a concern that companies in the USA are supplying the government with personal information of citizens which compromises the citizen’s privacy. Freedom to access this information may lead to violation of privacy. All necessary measures such as use of passwords and appropriate legislation will have to be put into effect to ensure that the information is secure, because loose control and extended use raise concerns about the protection of the individual’s rights to privacy.

Perhaps, from the legal point of view, one would be right to argue that privacy in the EU appears to be highly regarded. There are strict laws in Europe governing personal information, recognising the need to conform to privacy and other legal requirements. As observed by Shepherd and Yeo, many European countries have comprehensive data legislation. In particular, the Data Protection Act of 1998 in the UK protects personal data relating to individual persons. The data must be used only for fair and lawful purposes, be relevant and adequate for those purposes and must be protected against unauthorised use. Electronic records pose a great challenge, and governments have to put in place mechanisms for security and access control to prevent potential abuse of electronic public record systems. These legislations are still lacking in many countries in the African region.

4.4 Power cuts and backup strategies

Power cuts and irregular electricity supplies are a major barrier. In most African countries there are limited power distribution networks which do not even reach rural areas where the majority of the population lives. African cities with higher population that have been experiencing power cuts include but are not limited to Accra, Dar es Salaam, Lagos, Gaborone, and South African cities of Johannesburg, Pretoria and Cape Town. These power cuts have disrupted business operations.

Increased dependence on computers and their services for data processing also means increased reliance on the power supplies that keep the systems operating. Power failure means that

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organisations may lose valuable information and time. It is estimated that 50-70% of businesses that lose their data due to power cuts never recover it, and some go out of business.\footnote{UPS and power conditioning: dealing with ever deceasing power supply’ in ElectroLink Magazine, July- August issue. Available at \url{http://www.electroniclink.c0.nz}. Accessed 11 April 2006.} There is a need, therefore, for systems that will maintain quality power supply and protect electronic systems.

5. Conclusion and possible solutions

The problems experienced in the management of digital information in Africa will continue to grow as technology changes. As the arguments above have shown, these problems will require archivists, records managers and librarians to come up with new solutions to meet the immediate and future needs of managing this information. As African countries continue to adopt ICT use in essential management services, they will have to deal with these problems and challenges. As part of possible solutions, the paper proposes that:

1. Africa should speed up development and implementation of ICT policies as these will be important in guiding ICT infrastructure development. There is also a need to cooperate at regional levels to share training opportunities, as the available training in individual countries cannot cope with demands in the ICT market.

2. There is an urgent need for further liberalisation of the ICT market in each of the countries. Liberalisation of this market will promote competition in provision of ICT facilities and services, which will result in greater choices in services available. This will further encourage more widespread use and ensure sustainability of the market. Furthermore, government investments and subsidies cannot be enough to sustain infrastructure development. There is a need for combined public-private sector partnerships.

3. To help deal with accessibility in rural areas, all the countries should install more telephone and Internet lines across urban-rural divides and expand universal access and services in rural areas. Higher investment will narrow the gap between urban and rural areas. In addition, there is a need for reduction of ICT facilities and services (such as subscription, connection fees and telephone dial-up) to ensure affordability to all.

4. Universities in Africa should also establish working relations amongst themselves and with international institutions such as the Association of Commonwealth Universities (ACU), to share expertise and experiences. The ACU, which brings together 500 universities drawn from the commonwealth, helps the institutions build on their historical links, shared traditions and common purposes to further collaboration.\footnote{Association of Commonwealth Universities. Available at \url{http://www.acu.ac.uk/cgi-bin/frameset.pl?ml=membership&sl=membership&select=members}. Accessed 19 June 2006.} A survey made by the ACU in 2005 has established that there are already a number of different projects...
and collaborations between UK and African higher institutions. This provides a good opportunity for future trends in archival, records management and library training, research, education and from which African countries can benefit. Further, seminars and workshops should be used for continuing education and these should be offered at both national and regional levels. The training should produce highly skilled graduates able to meet national demands who will not simply be part of the brain drain.

References


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