

Preserving African digital resources: is there a role for repository libraries?

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Abstract

Purpose – To determine whether repository libraries in developed countries have a role to play in the preservation of the digital resources of developing countries.

Design/methodology/approach – Literature-based conceptual analysis of: categories of digital resources produced in developing countries; capacity of African institutions and stakeholders to preserve African digital resources; and issues and challenges to be faced by repository libraries in preserving these resources.

Findings – The volume of digital material being published in sub-Saharan Africa is relatively small but it is growing and it is of significance as a part of Africa's heritage. African institutions currently do not have the capacity to collect and preserve this material. It is possible for repository libraries in the north to play a role in ensuring the long-term preservation and accessibility of digital material from Africa, provided that they take into account certain technical, organisational, economic, political, legal and ethical aspects, especially the "soft" issues. Projects should as far as possible be undertaken in consultation and collaboration with digital resource creators and African heritage institutions.

Research limitations/implications – Based on conditions in sub-Saharan Africa, with emphasis on South Africa.

Practical implications – Issues that may otherwise be overlooked by institutions in developed countries are identified.

Originality/value – Provides caveats and guidelines for institutions in developed countries that may want to embark on projects to preserve African digital heritage.

Keywords Digital libraries, Heritage, Africa, Developing countries

Paper type Conceptual paper

Introduction

"Why are you people still keeping all this old stuff? Digitise it!" Remarks such as these are symptoms of the messianic expectations commonly generated by modern information and communications technologies. There is little appreciation of the preservation challenges posed by digital media. At times, being a librarian is a lonely profession. Are we alone in our concern about the imminent disappearance of a significant part of contemporary culture? Rapid growth in the production of digital information media worldwide poses enormous challenges to heritage institutions such as national, research and

repository libraries. In sub-Saharan Africa, the volume of digital information media produced is comparatively small, but preservation challenges are particularly acute. If digital media cannot be preserved, part of the Africa's heritage is being lost.

In this paper four categories of digital resources produced in or relating to the countries of sub-Saharan Africa are considered: digitised heritage material, born-digital publications such as e-journals and web sites, and material that may be of dual origin, such as e-theses and dissertations. Difficulties or challenges of different kinds are discussed: technical, organisational, economic, political, legal and ethical, with special reference to the role that repository libraries in developed countries may play in ensuring access and preservation. The discussion focuses on sub-Saharan Africa, the region comprising African south of the Sahara Desert or, commonly, all the countries south of Morocco, Algeria, Tunisia, Libya and Egypt (Google 2004; Merriam-Webster 2004). This grouping of some 48 countries is widely used by international agencies, including the World Bank (2004). The region is distinguished from North Africa by its tropical climate and, until modern times, by its relative isolation from the rest of the world. Sub-Saharan Africa has a population of some 0.7 billion and is one of the poorest regions of the world. Many of the world's least developed nations are in the region, and many of these countries have high rates of illiteracy and HIV/AIDS infection as well as low life expectancy and per capita income (Wikipedia, 2004; World Bank, 2004). Although South Africa forms something of an exception to these conditions, that country is referred to frequently as the author has direct experience of conditions there.

Production of digital resources in Africa

Most articles and essays about information services in Africa refer to the continent's problematic telecommunications, information technology, internet availability, information infrastructure, and library conditions (Afullo, 2000; Chisenga, 2000; Jensen, 2002; Roycroft and Anantho, 2003). Digitisation implies that there are documents to digitise, that it is possible to locate and obtain them, and that they are in a fit state to be handled. In the case of born-digital documents there has to be a capacity to create documents. In Africa these factors cannot always be taken for granted.

Digitisation of African heritage material

Current African digitisation projects seem to be mainly confined to relatively small, specialised collections (Britz and Lor, 2003a), for example the African Online Digital Library (AODL) (<http://www.aodl.org/>), a project of Michigan State University and the African Presidential Archives and Research Center (<http://www.bu.edu/aparc/about/>) at Boston University. In sub-Saharan Africa, one of the more significant projects is the Digital Imaging Project of South Africa (DISA) project (<http://disa.nu.ac.za/>), one of the aims of which is to build local expertise in digital imaging (Peters and Pickover, 2001). Other African

projects are cited by Britz and Lor (2003a), Hart (2002, pp. 66-69) and Limb (2002). Such projects, although insignificant in comparison with similar

projects in the developed world, are not too small to raise issues of acquisition, bibliographic control, organisation, access and long-term preservation.

Electronic journals

In South Africa the conversion of existing print journals to e-journals started as a small trickle just a few years ago. Currently South Africa's main electronic journal publisher, Sabinet Online[1], is publishing over 160 titles (Malan, 2004). South Africa's total output probably does not exceed 200 and very few of these are currently published only in electronic format. Elsewhere in sub-Saharan Africa there is less activity, but electronic publishing has been seized upon as a means of circumventing the well-known obstacles to the publication and dissemination of scholarly journals in Africa (Britz and Lor, 2003b). It promises to make possible an improved south-north flow of scholarly information[2]. Of particular interest are projects such as those of the Oxford-based International Network for the Availability of Scientific Periodicals (INASP), which in its African Journals OnLine (AJOL) project is entering into a partnership with African publishers of scholarly journals and making the full text of their publications available electronically (Rosenberg, 2002). Thus, while current electronic titles are insignificant by international standards, the more significant African journals of interest to scientists and scholars are most likely to go electronic first, and their preservation should not be neglected

Electronic theses and dissertations

In South Africa the first steps in the electronic submission, storage and dissemination of academic theses and dissertations were taken in the 1990s. Further north in Africa two multinational projects are under way. In partnership with the Center for Research Libraries, Chicago (<http://www.crl.uchicago.edu/content.asp?l1=4&l2=52>), and as part of the DATAD (Database of African Theses and Dissertations) project, the Association of African Universities (AAU) is attempting to devise a sustainable economic model and intellectual property management regime for the dissemination of theses and dissertations produced by scholars at African universities. The AAU is also involved in a second initiative, funded by UNESCO, in terms of which the University of the Witwatersrand (South Africa) and Addis Ababa University (Ethiopia) will be hosting a pilot project on the electronic production and publication of theses and dissertations (see also http://portal.unesco.org/ci/ev.php?URL_ID=12450&URL_DO=DO_TOPIC&URL_SECTION=201&reload=1083312504).

Web sites

Of all the digital media, web sites probably present the most difficult preservation challenges. Meaningful figures on the number of web sites hosted in Africa are hard to come by. However, the trend is for rapid increase in the number and size of web sites in almost every African country, including news media, government and non-government sites. The various regional organisations such as the Economic Commission for Africa also have web sites, and the news media are now quite well represented on the web. Already

in 1999, around 120 different newspapers and news magazines were available on the Internet, published in over twenty African countries. There are also African news portals such as newafrica.com and allafrica.com and web search engines specialising in Africa such as Aardvark (Jensen, 2002) (see also [http:// www.africaaction.org/inet.htm](http://www.africaaction.org/inet.htm)).

Who is responsible for preserving Africa's digital production?

We do not currently know how significant Africa's production of digital material is in comparison with that of conventionally printed material. This is all the more reason to be concerned about its disappearance. Digital material is just as much a part of the national cultural and intellectual heritage as is analogue material. Whose responsibility is it to ensure that the digital output of sub-Saharan African countries is preserved for future scholarship? The following parties may have some role to play:

Authors

Even though the term of copyright extends well beyond an author's lifetime, authors are too numerous, too mobile and too inconstant to be relied upon to ensure the long-term preservation of their creations.

Publishers

Publishers want to benefit for as long as possible from what they have published. But publishers too are numerous, mobile and inconstant. They do not necessarily outlive their authors. This is all the more true in Africa, where publishing generally is a precarious business (see also. Bahta and Mutula, 2002). In the cut and thrust of business survival, how many publishers will have the time to worry about preserving their electronic backlists?

Universities

There is worldwide interest in establishing institutional digital repositories, in which the intellectual output of the university's staff and students can be deposited for free access and dissemination (Chang, 2003). However, the long-term sustainability of such repositories is not certain in Africa, where universities and especially university libraries are highly dependent on donor funding (Rosenberg, 1997). It is open to question whether many university libraries here have the capacity to maintain digital repositories, and whether their parent institutions, faced as they are by so many pressures, will have the will to sustain them in the long term.

National libraries

National libraries in sub-Saharan Africa face an uphill struggle (Lor, 2003). Most of them also provide public, school and government library services, which tend to overshadow their role as custodians of the national heritage. The national libraries rely on mechanisms such as legal deposit to acquire their national heritage collections. Generally legal deposit is ineffective and in most countries it does not cover digital material. The exceptions are Namibia

and South Africa, where new legal deposit laws cover all forms of documents, including both off-line and on-line digital documents, but their national libraries do not yet have the capacity to collect, process, preserve and make available on-line digital documents such as electronic journals and web sites (Letshela and Lor, 2003). In South Africa research on this is currently under way, but once the research has been completed it is by no means certain that funds will be made available for implementation. National libraries in other sub-Saharan countries have a much longer way to go.

National archives

Africa's national archives are no better off than the national libraries when it comes to the preservation of documents. IT expertise is very limited. Even experience in traditional preservation techniques is lacking. Many African countries do not have archival preservation policies and plans in place for conventional material, let alone digital material (Ngulube, 2002).

Institutions in developed countries

If sub-Saharan African countries lack the capacity to deal with their digital heritage, is there a role for institutions in the wealthy, developed countries? If so, which institutions should be involved? Four categories come to mind:

- (1) University libraries in universities with strong African Studies departments and extensive collections of Africana, including special libraries of institutes specialising in African studies, tropical health, etc.
- (2) National libraries of countries which formerly ruled colonial empires.
- (3) Existing repository libraries in former colonial powers or other developed countries with a strong tradition of African Studies.
- (4) Co-operative institutional digital repositories yet to be created, possibly on the model of the Centre for Research Libraries, Chicago, or based at that or a similar institution.

In the final section of this paper all four of these categories, but especially the third and fourth, will be considered and referred to as "repository libraries".

Repository libraries and African heritage material

A repository library in a developed country that wishes to play a role in the preservation of Africa's digital heritage, has to consider a number of issues and challenges.

Technical considerations

The challenges relating to the capture, organisation, preservation and making accessible of digital documents are manifold. Suffice it to mention just a few issues that arise from the capturing and preservation of web sites, this medium being chosen as an example because web sites probably present the greatest range of challenges[3]. The following is merely a sample of issues:

- setting criteria to select what is to be collected;
- using web harvesting "robots" or the like to collect the selected sites;
- the extent of human intervention that is needed;

- dealing with the “deep web”;
- organising the material for retrieval and use; search engines;
- ensuring persistent links between the bibliographical descriptions and the digital
- objects themselves;
- deciding what is to be preserved (“content” only, or the integral document, including its look and feel?);
- deciding who may have access and under which conditions; and
- compliance with copyright.

These issues do not need detailed discussion here because they are essentially the same regardless of the origin of the digital material: whether from the country in which the repository is located, or from elsewhere.

Organisational considerations

At least three categories of issues need to be dealt with:

- (1) *Institutional*: How is the collection and preservation of African material to be organised within the repository library? For example, will it be dealt with in a specialist section responsible for digital material or in a section responsible for African area studies?
- (2) *Inter-institutional*: If multiple repository libraries in a developed country are involved, centralised versus distributed approaches need to be considered. Will there be a functional or content-based division of responsibilities? If the latter, how is the terrain to be divided among them: by African country or sub-region, or thematically? How will activities be coordinated?
- (3) *Relations with developing countries*: National boundaries are no barrier to the web; whatever is out there can be captured. Nevertheless it is advisable for repository libraries in developed countries to enter into co-operative agreements with institutions in the developing countries, if only to enhance the contextualisation and understanding of what is collected and to defuse potential hostility.

In all cases repository libraries wishing to engage in the systematic collection and preservation of digital material from the developing countries need to determine and take into account the needs of potential users.

Economic considerations

While a web-harvesting robot quietly goes about its business, it does not appear to be incurring great costs. Nevertheless, capturing, processing, preserving and making available digital documents require a significant capital investment up-front (research and development, training and equipment – including storage space to be reckoned in petabytes or higher) followed by on-going operational expenditure. The curatorial activities associated with building and maintaining a working collection of digital documents are significant. While storage costs decline, storage requirements may grow rapidly, as ever more complex and resource-hungry multimedia documents, along with their applications software, are added.

For the foreseeable future the repository libraries in the developed countries will have to foot the bill. Donors may be found to help set up the repository or specific programmes, but they are not likely to support projects indefinitely. Neither are governments generally inclined to take on large long-term commitments. To ensure the long-term sustainability of the digital repository, some degree of cost recovery will be necessary. A business model needs to be developed that factors in the various cost elements and sources of income, including the income that can be generated by charging clients for usage. If this is done some provision may have to be made to waive user charges in the case of scholars and students from the African countries where the digital material originated.

Political considerations

The long-term preservation and accessibility of digital documents from Africa should be seen in the context of north-south and south-north information flows. There is general awareness of the developmental value of north-south information flows and various efforts are under way to overcome the barriers that impede access by Africans to scientific, technical and scholarly knowledge generated in the north. But information flows between North and South should not be in one direction only. For a balanced, culturally richer, more tolerant world, we also need south-north flows and south-south flows (Britz and Lor 2003b).

Archiving of African digital documents by repository libraries in developed countries is a form of south-north information flow. But that is not to say that African scholars, institutions and governments will wholeheartedly welcome it. Developers of such repositories will have to reckon with a degree of suspicion, envy and resentment at what may be perceived as yet another manifestation of imperialism (Britz and Lor 2003b). In any case, awareness of the political context and sensitivity to African perceptions, conditioned as they are by past colonial exploitation and on-going cultural looting and bio-piracy, are called for. The challenge is to form partnerships in which the autonomy, self-sufficiency, and dignity of Africa are respected.

Some political common sense is also called for. For example, a project to capture and preserve political web sites must reckon with the possibility that a repressive government, by gaining access to the archived web sites of its political opponents and dissident groups, may misuse the information to harass, imprison, torture or kill people identified therein (Lor and Britz 2002).

Legal considerations

Copyright issues cannot be ignored even if digital documents are downloaded and stored with the best of intentions. This can be problematic. In a study on the archiving of political web sites, many of which have very short life spans, it was found that much material is likely to be permanently lost while prior permission is being sought before downloading. It was argued that sites should be downloaded first and permission requested ex post facto. Under US copyright law suits for infringement of copyright due to the downloading and storing of web sites, are unlikely to succeed (Center for Research Libraries,

2004). Be this as it may, there are also moral considerations to be taken into account.

Ethical considerations

Purely legal answers to questions of ownership and what is permissible in dealing with intellectual property are not always satisfactory. The international intellectual property regime does not necessarily ensure fairness and justice in the use of the intellectual property of developing countries, particularly when questions arise concerning indigenous knowledge and cultural property (Lipinski and Britz 2001).

The following questions provide a framework for considering the ethical issues.

To whom does this belong? A priori, the creators of a document own the intellectual property, unless they have formally transferred it to another party. This can be problematic. A web site may incorporate the intellectual property of many parties. In the case of theses and dissertations, it can be argued that the author (the student who submitted the dissertation), the degree-granting university (which provided the student with the instruction, guidance and facilities that made the dissertation possible) and possibly the respondents (in the case of a community being studied, especially if the study involved indigenous knowledge or traditional cultural practices) have some claim to the intellectual property (Lor and Britz 2004).

What are the rights of creators and owners of cultural and intellectual property? These include the right to control utilisation of the property (to release, disseminate or withdraw it from circulation) and to share in any benefits deriving from any application or utilisation thereof. Also included are the moral rights of the author(s) to the integrity of the material as originally created and to be recognised as the author thereof (Britz and Lor 2003a; Lor and Britz, in press).

What are the rights of other parties? “Other parties” might include the “discoverers” (e.g. anthropologists and bio-prospectors) who bring existing indigenous knowledge to the attention of scientists and scholars, those who record, edit, annotate, adapt or dramatise traditional stories, songs and dances, and those who refine and develop commercial products on the basis of indigenous knowledge, published research or dissertations. Also to be considered are scholars and students from the countries concerned and their institutions of higher education and research: they should be able to gain access to the digital heritage of their countries. The people of the country from which the knowledge has been obtained, and the peoples of other African countries, and the world, also need to be considered. For example, if the indigenous knowledge of a particular community yields a cure for a disease affecting many people worldwide, there is a moral obligation to make this knowledge and any products derived from it, available to all those affected.

Conclusion

The volume of digital material being published in sub-Saharan Africa is

relatively small but it is growing and it is of significance as a part of Africa's heritage. African institutions currently do not have the capacity to collect and preserve this material. It is possible for repository libraries in the North to play a role in ensuring the long-term preservation and accessibility of digital material from Africa. But before embarking on such projects, the repository libraries should carefully consider the technical, organisational, economic, political, legal and ethical aspects outlined here. The "soft" issues in particular should not be overlooked. As far as possible projects should be undertaken with the permission of the publishers and owners of the intellectual property, the integrity of which should be respected. Projects should be planned with due regard for the sensitivities arising from the unequal capacities of north and south. Ideally, any projects of this nature should be undertaken in partnership with counterparts in the African countries. The ultimate aim should be to build the capacity of the national libraries and other national institutions in these countries to take full responsibility for their own digital heritage.

Notes

- (1) SABINET originally stood for "South African Bibliographic and Information Network"
- (2) In this paper the word "north" is used as shorthand to refer to the developed countries that are located mainly (but not exclusively) in the northern hemisphere, and the word "south" to refer to the developing countries.
- (3) The Political Communications Web Archiving Project that was funded by the Andrew W. Mellon Foundation and co-ordinated by the Center for Research Libraries, has yielded valuable insights. At the time of writing a draft report (Center for Research Libraries, 2004) on this project is still under discussion, but a final report is to be published in the near future.

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