
Towards the digital library: findings of an investigation to establish the current status of university libraries in Africa

Diana Rosenberg

International Network for the Availability of Scientific Publications
(INASP)
Oxford

© 2005 International Network for the Availability of Scientific Publications (INASP)

All rights reserved.

Parts of this publication may be reproduced for educational purposes as long as it is not for commercial use. The material remains copyright under Copyright, Designs and Patents Act, 1988, or in the case of reprographic reproduction in accordance with the terms of licences issued by the Copyright Licensing Agency. Enquiries concerning reproduction outside these terms should be addressed to INASP at the address below or to the authors of the individual articles as appropriate.

First published 2005

INASP
58 St Aldates
Oxford OX1 1ST
UK

Telephone: +44 (0)1865 249909

Fax: +44 (0)1865 251060

E-mail: inasp@inasp.info

World Wide Web: <http://www.inasp.info>

Printed and bound in the UK by INASP on-demand

Contents

Abstract.....	1
Introduction.....	2
Scope, purpose and methodology.....	4
Aims	4
Coverage.....	4
Methodology.....	4
Time scale.....	4
Data collection.....	4
Findings	6
Library automation	6
ICT facilities.....	7
E-resources	8
E-local content.....	9
E-services	10
Finance	11
Management	12
User education	13
Achievements/challenges.....	14
Plans for the future and external support	14
Discussion.....	16
Different libraries/different needs.....	16
Funding.....	16
Training of library staff.....	17
User education	18
Bandwidth.....	18
Local information and digitisation.....	19
E-services	19
Management issues.....	19
Standards	19
Staffing structures/location of e-services.....	19
Fee or free?.....	19
Use of library space.....	20
Cooperative electronic networks.....	20
Conclusions.....	21
External support programmes	21
Minimum ICT levels for all	21
Continuing education for library staff.....	21
Library schools	22
User education	22
Guidance and inspiration	22
Further research	23
Proposed areas for action	24
Acronyms and sources	25
Appendix One: Survey questionnaire sent to all libraries with a covering letter.....	26
Appendix Two: Names of university libraries returning questionnaires	29

Abstract

The term digital library is used to refer to a library where some or all of the holdings are available in electronic form, and the services of the library are also made available electronically – frequently over the Internet. Over the past fifteen years libraries worldwide have increased their holdings of electronic information and automated their operations, but within Africa digital development has been uneven. The philosophy of the academic library as a passive repository has taken longer to change, and librarians have not had the opportunities to critically reflect on what has been developed, and what their priorities are for the future. In 2004 INASP commissioned a survey of the current status of digital libraries in sub-Saharan Anglophone Africa, so as to draw conclusions on where future developments and investments might be made, and what can be learnt from the implementation of digital libraries within the continent.

Introduction

The university environment in Africa is changing. There is renewed recognition of the role that universities play as drivers of national development. Their transformation has included much investment in terms of electronic infrastructure and connectivity as well as attention to e-learning and related approaches as key tools to enhance the quality of higher education and make it more accessible. University libraries are an important part of this transformation, with the potential to become leaders and standard-bearers of what can be done with the new ICTs.

The term digital library is used to refer to a library where some or all of the holdings are available in electronic form, and the services of the library are also made available electronically – frequently over the Internet so that users can access them remotely.

However digital libraries are not created overnight. Various stages along the road towards developing a digital library can be identified. Information held in electronic format listing the contents of a discreet collection may be the start. Developing an electronic catalogue of all library materials is another. Networking this catalogue, so that users not only in the library but also from elsewhere can access it, goes a step further. Offering full electronic text of journals and books on CD or online marks a further stage. Then there is the digitisation of locally produced information and the establishment of institutional repositories, to provide access to the scholarly material produced by members of the university. Perhaps most important is the value added to purchased resources by the library to optimise their use: training for staff and students in information literacy; development of ‘middleware’ to enable seamless searching and access to information; partnerships with academic departments in delivering e-content in flexible learning environments; developing e-services that meet user needs, etc. For many, the endgame is one where academic staff and students can interact electronically with the library’s – and ultimately the world’s – scholarly content without actually visiting the library. In practice few libraries have reached this status and most are at some intermediate stage.

Over the last five years, enormous progress has been made in ensuring that staff and students in universities in Africa can access the growing quantities of information resources now produced in electronic format. Support has been provided in setting up the necessary networked infrastructure and providing the requisite hardware and software. Negotiation with publishers has resulted in journals and databases being made available free or at heavily discounted prices through programmes like AGORA, eIFL, HINARI and PERI, and much training has taken place.

Despite all the plethora of actions and projects, it is surprisingly difficult to obtain a good overview of the status of electronic and digital initiatives in African higher education. Such evidence as there is suggests that progress made by libraries is very uneven, both between and within countries. Some university libraries have embraced the new mediums and made them available to users, others do not have the necessary infrastructure to access those e-resources now available on countrywide licences. Some libraries are fully automated, others remain manually organised. Libraries which automated some years ago have not been able to migrate or upgrade to new systems, so offer only limited services.

Those libraries that have advanced down the digital road do not yet appear to have explored user needs in the digital world and the possibilities of a more dynamic interaction with ICTs. The philosophy of the academic library as a passive repository

remains dominant. The necessary changes in service provision and staffing structures have not taken place.

Librarians themselves have not had the opportunities to critically reflect on what has already been developed and express their priorities for the future with regard to digital libraries.

In 2004, therefore, INASP commissioned a survey of university libraries in English-speaking Africa. It aimed to provide an overview of the progress made in establishing digital libraries, and identify where and what support is required.

Scope, purpose and methodology

Aims

In the context of the creation of digital libraries, the investigation aimed to:

- establish progress that has been made by African universities;
- explore the current priorities and plans of African university libraries;
- ascertain which support interventions have worked best; and
- identify the nature of the support that is now required.

Coverage

Data was gathered from publicly funded university libraries in sub-Saharan Anglophone Africa, excluding South Africa. (Private university libraries were not included; neither were research libraries.) All libraries within a country were targeted and within a university all individual libraries, whether they were designated main, branch or site libraries.

Digital library development has moved at a different pace and in different directions in South Africa, but, for comparative purposes, it was decided to collect data from a small sample of leading libraries. For the same reason, one leading library in Francophone Africa was also included.

Methodology

A questionnaire was designed and piloted for completion by libraries (Appendix 1). It covered all aspects of digital librarianship including library automation, ICT facilities, electronic and digital resources, local content, electronic resources, finances, management and training, user education and future plans. The questionnaire was sent to 107 libraries in 20 countries of Anglophone Africa. In addition four libraries in South Africa and one in Senegal were invited to complete questionnaires for comparative purposes.

Data received from the questionnaires was augmented by on-site visits, discussions and interviews with university librarians.

libras42 296.60023 Tms0 1 0 72216.88635 285.0802 Tm(n)Tj10.02 0 9 10.0.0209.38

supplemented information already provided by one library, and three arrived too late to be included in the statistical analysis. Sixty-five libraries (within 50 library systems) are covered by the survey, with data from 62 analysed in the statistics. The names of the libraries returning questionnaires are listed in Appendix 2.

Table 1: Number of responses to questionnaire.

Country	Number of responses		
	Total	Main	Branch/site
Botswana	1	1	0
Cameroon	3	3	0
Eritrea	1	1	0
Ethiopia	2	2	0
Ghana	11	5	6
Kenya	8	6	2
Lesotho	1	1	0
Malawi	5	2	3
Mozambique	1	1	0
Namibia	2	1	1
Nigeria	13	13	0
Sierra Leone	2	0	2
Sudan	1	0	1
Tanzania	4	2	2
Uganda	4	2	2
Zambia	3	1	2
Zimbabwe	6	5	1
Sub-total	68	46	22
Senegal	1	1	0
South Africa	1	1	0
Total	70	48	22

Carrying out an Email survey of African libraries is not without problems. Addresses change rapidly and even when Email messages were not returned as undelivered, there is evidence to suggest that they were not received, perhaps because of system malfunction, power failures, etc. Attempts were made to establish a list of accurate Email addresses through personal contacts in each of the countries – but even this had limited success. The timescale of the survey did not allow for any follow-up through the postal services.

The survey aimed to investigate the state of all university libraries, so data was requested not just from the main library of a university but also from those branches serving separate sites or faculties. Where the addresses of site or branch librarians were known, questionnaires were sent directly. Otherwise the university librarian was asked to distribute copies of the questionnaire to the relevant branch or site librarians. Unfortunately this met with limited success. Only 22 branch libraries submitted separate returns although the majority of libraries (36/78%) were multi-site operations, compared to 10 single site libraries (22%). The returns revealed that 14 (30%) of the university libraries were responsible for 1–5 branch libraries, 13 (28%) for 6–10 and 9 (20%) for more than 10. The survey is therefore stronger on data fo

Findings

Library automation

The acquisition, organisation and circulation by electronic means of library materials are a primary feature of a digital library. This is accomplished by use of a specialised library management system or software, with modules for cataloguing, acquisition, loans, serials, OPAC, etc.

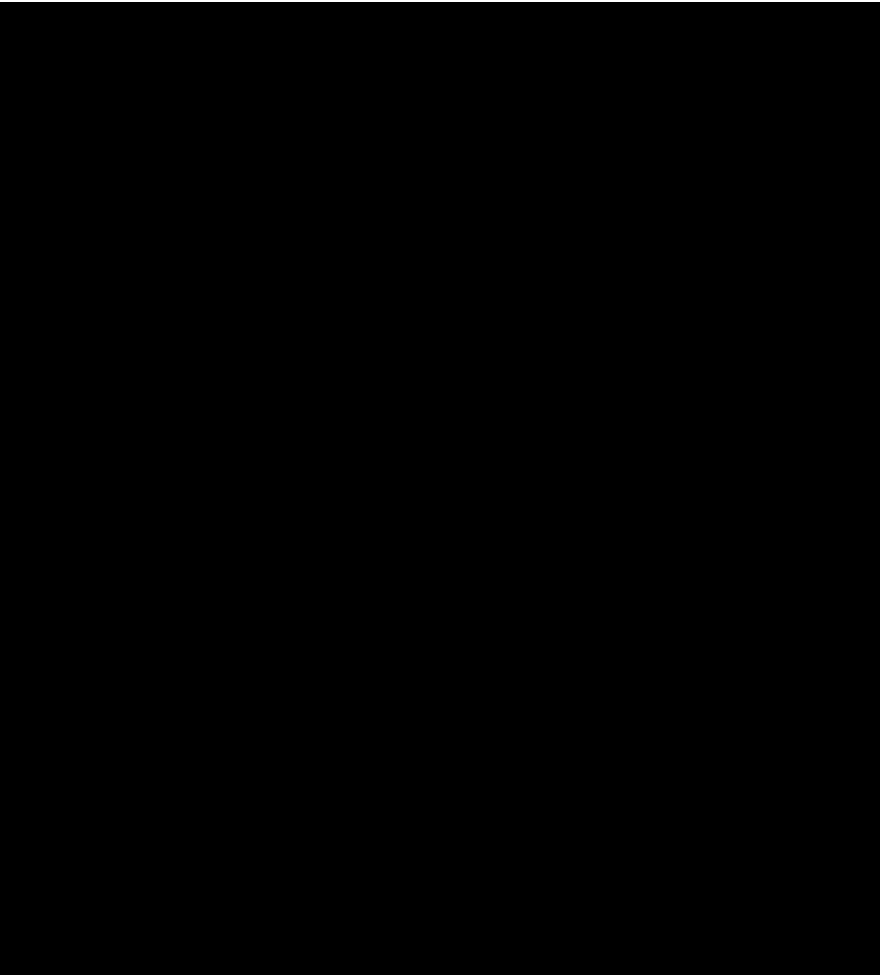
From the survey, library automation began in the early 1990s. However the majority – 40 libraries (65%) – have still to complete the process. Most began with cataloguing, but have neither finished that nor moved onwards to other processes. Thirteen libraries (21%) have not yet started any automation and only 9 (15%) consider that they are fully automated.

Table 2: Library automation systems currently in use.

Name of system software	No. of libraries	Countries where used	Date first used
Adlib	3	Eritrea, Tanzania	1998
Alice for Windows	3	Nigeria	2001
Ansyltec; Koha	1	Nigeria	1997
Bibliofile	4	Ghana	1994
Cardmaster Plus	1	Uganda	2003
CDS/ISIS; WINISIS	8	Ghana, Kenya, Nigeria, Uganda, Zimbabwe	1992
Dynix	1	Zambia	1992
Graphical & Library Application Software	2	Nigeria	1995
Innopac Innovative	7	Botswana, Lesotho, Mozambique, Namibia, Zimbabwe	1999
Innopac Millenium			
ITS for Windows	1	Nigeria	2001
Library Solutions	5	Malawi	1993
Mikro	1	Tanzania	2003
Stylis	1	Zambia	1995
TinLib	2	Kenya, Nigeria	1998
Urica	1	Namibia	1999
Virtua-ILS	3	Uganda	2003
Vubis	2	Kenya	2001
Winnebago Spectrum	1	Ghana	2002
Xlib	2	Nigeria	2002
In-house system	1	Malawi	2003

Libraries that started the process of automation early are not necessarily those that have successfully completed the process. Unless one could afford to migrate onto new and updated systems, the early start could be a disadvantage. The fully automated libraries are those that either started late with donor assistance (e.g. University of Dar es Salaam Main Library which began automation in 1998) or have secured funds to migrate to up to date systems (e.g. University of Botswana from TinLib to Innopac; University of Namibia from Urica in 1990 to Innopac in 2004/5; and University of Lesotho from Stylis in 1995 to ITS in 1996 to Innopac in 2005). Libraries which became fully automated in the 1990s but cannot afford to migrate find their current software very limiting, e.g. the

Copperbelt University Library in Zambia, using Stylist, and the University of Zambia Library, which wants to upgrade its UNIX-based Dynix to the Web-based Horizon. None of the libraries that began (self-financed) in with CDS/ISIS have progressed beyond partial catal





included a question on amount of bandwidth, but replies showed no correlation between the method, the amount of bandwidth and the level of rating it was accorded by the library – a VSAT offering 2 or more Mbps was rated both excellent and poor, the same with leased lines. The number of computers connected, the amount of traffic and how the bandwidth was used were more important factors than the method of connectivity and the amount of bandwidth provided.

Table 5: Status of Internet connectivity.

	Total % (no.)	Excellent % (no.)	Good % (no.)	Adequate % (no.)	Poor % (no.)	Very poor % (no.)
VSAT	35% (22)	3% (2)	9% (6)	11% (7)	9% (6)	2% (1)
Leased line	29% (18)	0% (0)	2% (1)	13% (8)	11% (7)	3% (2)
Wireless/ Radio	11% (7)	0% (0)	2% (1)	3% (2)	3% (2)	3% (2)
Dial-up	9% (6)	0% (0)	0% (0)	3% (2)	6% (4)	0% (0)
None	14% (9)	–	–	–	–	–
No data provided	2% (1)	–	–	–	–	–
Totals:		3% (2)	12% (8)	30% (19)	30% (19)	8% (5)

The ideal situation for a digital library is to be connected to a campus backbone, so that library resources can be accessed not only from within the library but from anywhere on the campus. Focus group librarians considered the lack of university-wide networks to be a major challenge and would also have liked countrywide networks of all universities to exist. As shown in Table 6, only 31% were connected to university-wide networks and a significant number were not networked at all.

Table 6: Network status of participating libraries.

Network	% (no.) libraries
University-wide	31% (19)
Library and site	16% (10)
Library only	23% (14)
No network	16% (10)
No data provided	14% (9)

E-resources

It used to be said that Africa's problem was lack of e-resources to fill the networks. That is no longer the case now that there are available a number of journal support programmes offering discounted or free access to bundled publisher packages. The PERI programme offers access to over 14,000 journal titles from 11 publishers plus approximately 20 databases, with country licences available in nine of the 18 countries included in the survey (Ethiopia, Ghana, Kenya, Malawi, Mozambique, Tanzania, Uganda, Zambia and Zimbabwe). All countries have access to African Journals Online (AJOL), which hosts the tables of contents and abstracts of more than 200 journals, with links to full text of over 80 titles. The HINARI (health journals) and AGORA (agricultural journals) programmes are available in all countries, whilst the eIFL programme includes some journal packages, in particular EBSCO with over 10,000 titles. Only six out of the 62 libraries (10%) said that they did not offer access to e-journals (some like University of Development Studies in Ghana indicated that they provided passwords, where internet access was not available in the library). Although some libraries started offering access to CD-ROMs in the 1990s, half only started offering this after 2000, so access to e-resources is a recent development in most libraries.

Provision of e-books is a different matter. Seventy-two per cent recorded no access to e-books at all. Four libraries stated that they subscribed to NetLibrary, one through AVU (University of Botswana, Gulu University, Uganda and two libraries of University of

Zimbabwe); three libraries used eGranary (in Nigeria and Uganda), and one library used eBooks (University of Dar es Salaam). The latter had purchased 370 titles with another 400 on order, covering all disciplines. Another eight used free sites, like Humanities Library, Free Books for Doctors and the World Bank. Only one library mentioned the African Digital Library. Downloading was said to be a major problem. However several libraries stated that, given the problems they faced in funding the purchase of print books, they would like to move more towards using e-books.

various subject areas, with some of these at University of Namibia being full text. For most of these databases access was on request, with a minority on the library local area network (LAN) or CD-ROM. Only University of Namibia offered direct Web access, although the College of Medicine Library at University Malawi had loaded references to Malawiana health on a NISC database, so this was also accessible on the Web.

Six libraries reported preparing databases of theses (abstracts only), and two more were working on such projects. Of the six, four submitted records to the Database of African Theses and Dissertations (DATAD) and these were then Web accessible. The University of Nairobi had cooperated with the Kenya Information Preservation Society to produce a union list of theses held in Kenyan universities on

of and access to digital information resources and promote their use through an organised programme so that the university user community will be enabled to access information from various points and localities.

Table 8: Electronic services offered by participating libraries.

E-service	% (no.) libraries
Library Web page	35% (22)
OPAC	
library LAN	29% (18)
Web	16% (10)
Web-based searching of library catalogue and other databases by local or remote users	21% (13)
Combined searching of all electronic resources	5% (3)
Single search tool for all resources (physical, electronic, in-house, regional, etc.)	0% (0)
Web-based and distributed enquiry or reference service	0% (0)
SDI (but most replies referred to manual sending of Email alerts)	18% (11)
Library e-bulletin	8% (5)
E-content delivery through VLEs	5% (3)
Online training packages for library users	
'commercial', e.g. HINARI, TEEAL, PERI, RDN	8% (5)
developed in-house	3% (2)
interactive	0% (0)

Finance

The survey wanted to find out how much of the ICT facilities and resources had been purchased from institutional as opposed to external funds and what sort of measures for future sustainability were in place.

As shown in Table 9 below, it was more likely for an institution to meet or contribute to the cost of ICT facilities (network, computers, etc.) than pay the subscription costs of e-resources. Even so, everywhere there was a heavy dependence on external funding. Only ten libraries reported purchasing 100% of ICT facilities (and this number included libraries with minimum hardware) and only two libraries purchased 100% of their e-resources. Twenty-nine libraries purchased less than 10% of their ICT facilities and 38 less than 10% of their e-resources.

Table 9: Per cent (no.) of libraries purchasing facilities or resources from institutional funds.

	ICT facilities	E-resources
100%	16% (10)	3% (2)
75% to 94%	8% (5)	5% (3)
50% to 74%	6% (4)	3% (2)
25% to 49%	5% (3)	2% (1)
10% to 24%	8% (5)	6% (4)
5% to 9%	8% (5)	8% (5)
1% to 4%	8% (5)	11% (7)
0%	26% (16)	42% (26)
Not known	14% (9)	19% (12)

Thirty-four international funding agencies were mentioned as contributing funds either to facilities or e-resources. Local donors were limited to Ghana (e.g. the Ghana Educational Tax Fund), Nigeria (e.g. Education Tax Fund and ELF) and Uganda (Uganda Telecom).

Libraries indicated that future sustainability is an issue that still needs to be addressed. Fourteen libraries preferred to rely on institutional budgets; a further three said that they intended to lobby for more money from this source.

Twenty-nine libraries (47%) charged fees for Internet access, whilst 24 (39%) offered the service free of charge. Eight of the libraries reported that these fees were an

important part of their sustainability strategy and a further six said that they intended to introduce a fee or raise the amount charged, once their facilities had been upgraded. Fee-based access was most common in the countries of West Africa. However both universities in Malawi and one in Zambia charged fees. The value of such fees was considerable. One library noted that the funds generated paid for its Internet service provider (ISP), toner and paper. Another said that fees met 30% of the connectivity charges. Interestingly, the University of Asmara, which only started offering e-resources very recently, chose to charge fees. The downside of fees – that they discourage use – was acknowledged. The University of Malawi offered Internet access free during scheduled hours early in the morning, and five universities preferred for the ICT fee to be included in the general student fee.

Eight libraries, in Ghana, Kenya, Lesotho, Malawi, Zambia and Zimbabwe, mentioned the establishment of a country consortium (through which individual libraries contribute towards the annual cost of e-resources) as their main sustainability strategy. Doing things together has a greater impact and brings more pressure on funding bodies. Although it is too early to assess how successful they will be, at the moment consortia are working well in Kenya, Malawi and Zimbabwe. One library in Ethiopia was not optimistic that much would come out of its consortium.

Management

Questions were asked to ascertain who managed e-resources and e-services; whether a separate section of the library had been set up for this purpose, where the services were physically located within the library, what training library staff had received and what sort of monitoring and evaluation of use there was.

Thirty-six of the libraries managed e-resources and services within the existing organisation of the library. Librarians within Technical Services, Reader Services, Serials or subject-based services were responsible and were given no special nomenclature. But as many as 20 libraries had set up separate sections with appropriately named staff in charge. For example: Electronic Services Resource Centre, E-Resources Department, E-Support Unit, E-Documentation Service, Automation Unit, Computer and Information Retrieval Centre, Digital and Research Library, Computer-Assisted Learning Department, Systems Unit.

Regarding the location of computers for public use within the library, the results are given in Table 10. Countries, universities and libraries had different practices. Where the e-resources and e-services were considered integral to the library support for learning and research – and where no separate department had been set up – computers were scattered throughout the buildings (in the entrance, the reference section, on subject floors and laboratories) alongside print materials and other services.

Where libraries had set up separate departments, and where payment for Internet access was the policy or where security was an issue, the trend was for computers to be separated into separate laboratories, either inside or outside of the library. In Nigeria, the tendency to date had been to place computers for public use in campus Internet cafes, although different systems were being investigated.

Table 10: The location of computers for public use.

	% (no.) libraries
Public areas	34% (21)
Laboratory in library	21% (13)
Mixed (laboratory/public areas)	10% (6)
Outside of library	6% (4)
Staff offices	6% (4)
No data provided (including no computers for public use)	23% (14)

In University of Namibia, in 2004, the management of all computers accessible to users was taken over by the Computer Centre and Interactive Multimedia Services. This meant

that all non-OPAC and training computers were removed from the library and placed in a separate laboratory (albeit in what had been the ground floor of the library). The library has since found the need to set up two computers for user access within its premises.

Monitoring and evaluation was in its infancy in all libraries. Four libraries collected log-in data, seven libraries used the user statistics provided by publishers and 26 libraries manually collected user data, generally of a fairly basic nature – e.g. who used the computers, how many searches were carried out and for what purpose. Only one library said it asked about relevance of search findings. None of the libraries had developed any performance measures against which to evaluate usage. University of Dar es Salaam said that it wanted to introduce such measures in the future.

The survey asked about the training given to staff in the management of e-resources. Rather than answer this question, most libraries provided information on all ICT-related training received and much of this was on the Internet in general, on specific software and databases, on Web design, etc. At least one member of staff in all but seven libraries had attended at least one ICT-related short course. Most of these short courses were externally facilitated but five libraries stressed the importance of in-house training of staff. Training in management was limited to a few PERI and eIFL workshops and not widespread. Those librarians who did answer the question said that enhancement of skills was mostly achieved through self-training on the job and not carried out systematically.

In the focus groups, the issue of professional training for librarians was raised. Although it was recognised that the need for continuing education of staff would continue, university libraries expected to be able to recruit new staff that already had requisite e-knowledge and e-skills. However, this is not happening. It was felt that library school curricula were out of date and there was a need for them to take account of what was wanted by practitioners in the field. A country like Malawi, which did not have its own library school, was even more disadvantaged.

User education

The survey attempted to find out the nature of the training offered to users, who delivered it and whether library staff had been given any special training to teach such courses.

Only three libraries reported that they offered academic staff an integrated user education/bibliographic instruction course and two offered an initial orientation to the library session. These included ICT-related training. Four offered one-to-one training on request. The greatest number (32/52%) mounted special one-off worksh

In general it was the professional staff of the library that trained users. Only in five cases was it indicated that staff from the university's computer centre or systems unit were involved in such training. However only four of the libraries said that the members of staff who undertook the teaching had received special training in pedagogical skills. This was at University of Botswana, at Ahmadu Bello University (where a train-the-trainer group had been set up in the library), at University of Zimbabwe (where the library organised in-house training in course development and lesson presentation), and the librarian at University of Sierra Leone had received training whilst on attachment to a link library in UK. None of the other librarians had received any relevant training in how to teach, and several stressed the 'need for proper training'.

Achievements/challenges

Libraries were asked to identify up to three areas where they felt that they had been most successful in their provision of e-resources and services and three most important challenges faced. Table 11 presents the responses.

Table 11: Areas of main achievement in the provision of e-resources and e-serv

Table 12: Future plans.

Plans	% (no.) libraries
Maintain subscriptions to and acquire more e-resources	47% (29)
Train library staff	45% (28)
Acquire more computers	42% (26)
Improve speed and reliability of Internet connection	37% (23)
Complete or upgrade automation, extend to branch libraries	34% (21)
Improve user training programme	31% (19)
Digitise local publications and establish IR	26% (16)
Enhance and extend e-services	15% (9)
Set up national and regional networks	5% (3)
New library building	2% (1)

All the libraries, even those that were comparatively advanced in their use of e-resources, stressed the need for continued external support, both financial and in the provision of expertise. 'To fulfil our dreams of providing digital information services, we need more financial resources. Sustainability is not yet realised' (University of Dar es Salaam). 'We need help to guide us in the provision of better services. Guidance on best practice is needed' (Makerere Education Library). 'There must be a phased pull-out of subscription to e-resources' (Copperbelt University). 'The library is still in its infancy stages, a lot of support is needed from external supporters' (Masvingo University). 'Financial constraints hinder

Discussion

Different libraries/different needs

A hypothesis underlying this survey was that university libraries in Africa have progressed towards establishing digital servi

The request for external funds comes not only from those libraries that have barely started to build digital collections but also from those that are dependent on this support to update and replace ageing hardware and maintain e-subscriptions. Comments included a plea to phase out support for the purchase of e-resources very gradually (Zambia) and for staggered donations of computers, so that they do not all wear out at the same time (Malawi).

The heavy dependence on external funding and the fact that this tends to be concentrated on just a few libraries in certain countries (often rather disparagingly termed 'donor babies') was remarked by many librarians as causing the disparities in levels of development. The development community was called upon to give fair attention to the needs of all libraries. Because of burdens arising from report writing and the danger of duplication, libraries also preferred one major funder rather than many.

One of the ways of reducing donor dependence is to share costs through library consortia. However in some cases the funds for the purchase of e-resources have been raised from external sources, so it is still donor dependence at one remove. In Uganda, the consortium has stressed the need to first ensure that all university libraries in the country have the basic ICT facilities to access the available e-resources – without this prerequisite, raising sufficient funds to buy e-resources through a consortium is unlikely to work.

The main hope for sustainability lies in libraries increasing their share of the institutional budget. That this can be done is exemplified by the University of Zimbabwe where 100% of the library's ICT facilities have been paid for out of institutional funds: it is fully automated, with workstations for public use in both the main and all branch libraries with all computers connected to the Internet and to a university-wide network, plus an annual increase in the number of workstations. Although e-resources are donated, a contribution is being made from institutional funds to the consortia and the University Librarian has obtained the support of Senate to ensure that the cost of running the library is accepted as being part of the cost of running the university.

Training of library staff

Noted by two-thirds of the libraries, the lack of, or retention of, trained library staff was considered an equal challenge to that of lack of funding. Although all staff had attended at least one ICT-related short course, this had not necessarily been relevant to the needs of the library at that time and overall it was felt that skills in e-resource management, e-services development and teaching were particularly lacking.

There were several requests, reinforced during visits and discussions, for training methods to be diversified and made more appropriate to the area of training and the needs of individual libraries. Some libraries require help in library automation: others have crossed that bridge and are moving into the use of VLEs. Not all require the same sort of help. In particular, more working attachments to other more experienced libraries and more on-site visits by experts who could troubleshoot and train staff on the job, were requested.

It was felt that one area of training – that of professional training in librarianship – has not been sufficiently addressed. Most countries in Africa have their own library schools training at the undergraduate and postgraduate levels. University librarians therefore expect graduates to be able to work in the e-environment – but this is not the case. Library school curricula have not been updated and little notice is taken of the needs of practitioners. Ideally library schools should also be taking a lead in providing continuing education, through workshops and seminars, so increasing the sustainability of programmes that are at present externally led. For countries without library schools help is needed to establish them. Without effective library schools (and with the dearth of scholarships to train outside the country), the profession is unable to adapt to the new skill requirements and there is a danger of it dying out and nobody being left to take advances forward.

This problem is one that has been recognised by the IFLA/Africa Section. One of its goals in its 2006–2008 plan is ‘to promote competent education and training for a self-renewing library and information profession in Africa’. A workshop to review curricula to accommodate development in ICTs is proposed, together with encouragement of library schools to support continuing ICT education. However it may also be necessary to first facilitate the updating of library school staff in digital library developments, so that they can contribute effectively to both curriculum review and the teaching of new courses. Curriculum review is also an area identified by the proposed network of library schools in the Eastern, Central and Southern Africa.

User education

To quote one of the librarians: ‘training of users is highly important. It has practical (getting the resources used) and political (winning support within the university) implications’.

The majority of libraries undertake ICT training at the undergraduate level in one form or another. However only 10 (16%) support integrated information literacy programmes as part of the formal education programmes of their university. ICT training alone improves a student’s ability to use computers but does not make him or her an independent user of information. So although 35% of libraries saw training of users as one of their main achievements, most need to investigate their training programmes at a deeper level. In 2004, the Standing Conference of National and University Libraries in Eastern, Central and Southern Africa (SCANUL-ECS) conference had as its theme *User Information Literacy* and, after discussion, resolved to examine in more detail what was provided on the ground in this area. Twenty-one libraries have been invited to write case studies and these will be published in April 2005. It is hoped that a proposal for further action will arise from this publication.

End-user training for postgraduates and aca

Local information and digitisation

For many libraries, the possibility of preserving local content and making it more visible and available through full text digitisation is attractive as it is believed to generate more research and encourage growth of African scholarship – one of a library's primary objectives. Therefore it is into the areas of electronic theses and dissertations and digitisation of local collections that African university libraries are moving, rather than in the direction of setting up full-scale information repositories – although information repositories may be the end result. Sixteen libraries (26%) have digitisation of local publications in their plans for the next three years and four libraries (those that have already embarked on the process) are asking for external support – seeking information about costs, funding, guidance in selecting h

Use of library space

Only three of the libraries saw space as a challenge and just one expressed a wish for a new library building, designed to accommodate the new e-

Conclusions

External support programmes

Advances made in the provision of computers and purchase of e-resources has been heavily dependent on external funding. Libraries considered that this situation would continue, with lack of institutional funds being a major challenge to the further development of digital libraries. At the same time, libraries are at very different stages of digital development, with very different needs. It is up-country and newer university libraries and, in multi-site libraries, branch libraries that generally lag behind, with fewer ICT facilities and little training either of staff or users.

Programmes that assume all libraries within a region or country have the same needs and aspirations are unlikely to be successful. The immediate needs of each library must be taken into account and support delivered directly to that library or through a country consortia/network, where each library has a voice. Funders were also urged to give fair attention to the needs of all libraries rather than concentrate on a few. Libraries preferred one major funder rather than many. Coordination through one major funder was identified as preferable to many within one library.

The broad areas where support is most needed are funding and training.

Better institutional funding is the long-term solution. Convincing university authorities also depends on ensuring that library staff have the skills to provide good services and that users have the competencies to make good use of the services provided.

Minimum ICT levels for all

Full and effective use of e-resources and e-services (and subsequent institutional contribution to their shared cost) depends on all university libraries in a country and all libraries within a university library network acquiring and maintaining the basic building blocks of a digital library – automation of library systems, sufficient ICT facilities (computers, networks) and adequate connectivity.

At the present time, most public university libraries in Africa have not attained these basic levels and others are struggling to maintain them. Libraries which have fully automated systems or are well on the way to full automation of library processes and procedures are also those which have the best levels of ICT facilities, trained staff, user education programmes and e-services. Support for the instigation and completion of library automation projects should be given high priority.

Continuing education for library staff

Upgrading skills and retraining library staff is a priority, particularly in the areas of e-resources management, e-services development and teaching skills.

Regional and national workshops are the usual chosen modality for training. There is a call for training methods to be diversified, so that the method is appropriate for the subject area. In particular, attachments to libraries where the required expertise is being practised, or visits to libraries by experts – both of which incorporate learning by doing.

Mirroring the message that different libraries have different needs, training given at the institutional level was also required.

Some training areas like bandwidth are already being addressed, and the PERI programme is preparing workshops on e-resource marketing and monitoring and evaluation. There are immediate needs for support in full text digitisation and in training of library staff in educational theory and practice. The latter will help in the development of more effective user education programmes and in cooperation with academic staff in the implementation of VLEs.

Library schools

The future quality of university libraries relies on the quality of new library staff graduating from the various library schools in the countries concerned. It is short sighted to ignore library schools and concentrate training support only on university libraries. Short course one-off training needs to be considered in the overall context of professional librarianship education available in the relevant countries.

At the moment new graduates from library schools do not have the knowledge and skills required by university libraries. Curricula have not kept up with the needs of the new e-environment. Those teaching these subjects also need opportunities to upgrade their knowledge and skills, prior to designing and teaching the new courses.

Library schools also need to be able to contribute to continuing education programmes, so as to assist in the sustainability of in-country training.

User education

Ensuring that users have the competencies to make good use of the e-resources and services is also a way of convincing the authorities to include such costs in institutional budgets. Most libraries undertake some sort of training at the undergraduate level, but few support integrated information literacy programmes. Proposals arising from the SCANUL-ECS initiatives in information literacy should be supported. Training of academic staff and researchers is acknowledged as a continuing challenge, that requires new and more innovative approaches.

Guidance and inspiration

Libraries lack advice as to where to go next. Those wishing to automate lack guidance on how to choose the best system for their needs. Those that have established adequate infrastructures are failing to develop holistic e-services. Mechanisms for sharing in-country experiences are not widely available. There is a need for country level bodies which understand the requirements of libraries and which can drive forward digital development. This could be within government or become a role of country consortia. The latter would need considerable support, such as full time secretariats, if they were to take on such added responsibilities.

One way of encouraging the development of extra-value services might be to grant fund a series of research and demonstration projects in individual libraries that are ready and eager to move forwards into areas like digitisation of local collections, course content delivery through VLEs and e-reference services. They could also be funded to investigate further areas like standards, performance indicators, staffing structures and library re-design. Grants would need to include training for staff and project costs. The end result would be the implementation of a working service and documented experience to be used by other libraries embarking on the same service provision.

Existing regional bodies like SCANUL-ECS and the Standing Conference of African University Libraries, Western Area (SCAULWA), which already publish case studies on library developments, could be used to disseminate the research findings.

Further research

The present survey was limited to publicly funded university libraries in sub-Saharan Anglophone Africa. A similar survey of university libraries in Francophone/Lusophone Africa, of the growing number of private university libraries and of other research libraries throughout the continent would complete the picture of digital library development presented in this report.

Proposed areas for action

- The survey covered Anglophone Africa well, but to gain a more complete picture it is suggested that a similar survey is undertaken:
 - in Francophone/ Lusophone Africa
 - in private universities and other academic and research environments.
- The findings should be validated through meetings/workshops to identify library, country and/or region-specific needs and actions.
- Working with funders, ensure that programmes aimed at supporting digital library development are sufficiently inclusive and flexible to directly support the differing needs and levels of expertise of each individual library.
- Encourage and support institutions and countries to formulate plans and actions for all university libraries to obtain the basic building blocks of a digital library.
- Support a number of research and demonstration projects in e-services and e-resource management and disseminate the experiences learned.
- Support curriculum improvements in library schools to prepare new professionals for the digital environment.
- Best practice in user education for the digital environment should be summarised and disseminated to ensure efficient use of digital library services.
- Working with partners, develop and support continuing education and training programmes for librarians using a variety of approaches and methodologies.
- Support consortia to build strong networks and expertise within their countries/regions, so enabling them to take on wider coordination and advisory roles and to foster collaborat

Acronyms and sources

- AGORA (Access to Global Online Research in Agriculture), see www.aginternetwork.org/en/
- AVU (African Virtual University), see www.avu.org/
- CTA (Technical Centre for Agricultural and Rural Cooperation ACP-EU), see www.cta.int/
- DFID (UK Department for International Development), see www.dfid.gov.uk/
- DSpace, see www.dspace.org/
- EBooks, see www.ebooks.com/
- EBSCO, see www.ebsco.com/home/
- EGranary, see www.widernet.org/digitalLibrary/
- EIFL (Electronic Information for Libraries), see www.eifl.net/
- ELIN (The Electronic Library Information Navigator), see www.inasp.info/peri/elin/
- FAO (Food and Agriculture Organization), see www.fao.org/
- HINARI (Health InterNetwork Access to Research Initiative), see www.healthinternetwork.org/
- IDRC (International Development Research Centre), see www.idrc.ca/
- IFLA (The International Federation of Library Associations and Institutions), see www.ifla.org
- INASP (International Network for the Availability of Scientific Publications), see www.inasp.info
- INFLIBNET (Information and Library Network Centre), see www.inflibnet.ac.in
- JISC (Joint Information Systems Committee), see www.jisc.ac.uk/
- MetaLib, see www.exlibrisgroup.com/metalib.htm
- NetLibrary, see www.netlibrary.com/Gateway.aspx
- NISC, see www.nisc.co.za
- NORAD (Norwegian Agency for Development Cooperation), see www.norad.no
- OSIWA (Open Society Initiative for West Africa), see www.osiwa.org/en/node
- PERI (Programme for the Enhancement of Scientific Publications), see <http://www.inasp.info/peri>
- RDN (Resource Discovery Network), see www.rdn.ac.uk/
- SCONUL (Society of Colle ion al se

Appendix One: Survey questionnaire sent to all libraries with a covering letter

Towards the digital library — a questionnaire

Name of [Main/Site/Branch] Library.....

Name of [Main/Site/Branch] Librarian.....

Email contact

Name of University

Number of libraries serving the wider university system (faculties, schools, campuses etc).....

1. BACKGROUND INFORMATION

1.1 Number of library staff

Professionals

Paraprofessionals

Non-professionals

1.2 Number of academic staff (in faculties/departments served by the library).....

1.3 Number of students (in faculties/departments served by the library)

Postgraduate.....

Undergraduate

2. LIBRARY AUTOMATION

2.1 Which functions (e.g. cataloguing, loans, acquisitions) have been automated?

2.2 What automation package/library management system(s) is used?

2.3 Which year did automation start?

2.4 When was automation completed / what still needs to be completed?

2.5 What functions do you plan to automate or upgrade in the coming three years?

3. ICT FACILITIES

3.1 Computer workstations

How many in the library?

How many are in working order today?

How many connected to the Internet?

How many reserved for library staff only?

Where are workstations for users located?

3.2 Are these computer workstations and the resources offered:

Part of a local library network?

Part of a site network?

Part of a network accessible by all libraries in the university system?

Part of a university-wide network?

3.3 Connectivity

How is the library connected to the Internet (e.g. dial-up, leased line, VSAT, etc.)

What is the bandwidth connectivity for the library?

How would you describe the speed and status of the connectivity for the library?

Excellent – fast and reliable

Good – quick and reliable
Adequate – acceptable speeds and reliability
Poor – generally the slow speeds infringe on the usefulness of the connectivity
Very poor – the slow network speeds and reliability are real barriers to connectivity

4. ELECTRONIC AND DIGITAL RESOURCES

4.1 Name the e-journals or e-journal / database packages to which the library offers access:

4.2 Name the e-books or e-book services to which the library offers access:

4.3 Name the CD-ROMs to which the library offers access:

4.4 When did the library begin offering access to e-resources?

4.5 How do you pay for or obtain access to these e-resources?

5. LOCAL CONTENT

5.1 Has the library produced any databases of local content or digitized the full text of local publications or local collections? Give details.

5.2 How are these databases or full text content made accessible to users?

5.3 Does the library manage an institutional or regional repository for local publications?

6. ELECTRONIC SERVICES

Which electronic services have been developed or are delivered by the library for its users? Give brief details:

6.1 OPAC

6.2 Library Web page (give URL)

6.2 Web based searching of the library catalogue and other databases by local or remote users

6.3 Combined searching of all electronic resources

6.4 Single search tool for all resources (whether physical, in-house, regional or virtual)

6.5 Web-based and distributed enquiry or reference service

6.6 SDI

6.7 Library e-bulletin

6.8 E-content delivery through virtual learning environments

6.9 Online training packages for library users

6.10 Other (please specify)

7. FINANCES

7.1 What approximate percentage (%) of ICT facilities (e.g. network, computers, etc.) have been purchased from institutional funds?

7.2 What approximate percentage (%) of e-resources (e-journals, e-books, etc.) have been purchased from institutional funds?

7.3 Name the donors who have assisted in your acquisition of e-facilities and e-resources:

7.4 Is Internet access free or fee-based?

7.4 What measures are in place to ensure the sustainability of e-services?

8. LIBRARY STAFF / MANAGEMENT

8.1 Name the job titles of library staff who manage e-resources:

8.2 Is the management of e-resources and services within the library undertaken in a separate library department?

8.3 What training in the management of e-resources has library staff received? How many have been trained in each area?

9. USER EDUCATION

9.1 What information skills courses or other training are offered to:
academic staff?

students?

9.2 Who on the library staff teaches these courses?

9.3 Have the library staff been given any special training to teach these courses?

10. EVALUATION

10.1 What statistics are collected in relation to the use of e-resources?

10.2 Has the library adopted performance measures for evaluating e-service delivery

11. ACHIEVEMENTS

Name three areas in which the library has been successful in its provision of e-facilities and e-resources:

12. CHALLENGES

Name the three most important challenges that the library faces in its provision of e-facilities and e-resources:

13. WHAT NEXT?

Which three areas of e-facilities and e-resource provision do you intend to address in the next three years?

14. EXTERNAL SUPPORT

14.1 In what areas is external support most needed in order for you to fulfil your plans?

14.2 In what ways would you like this external support delivered?

15. ANY OTHER COMMENTS?

Appendix Two: Names of university libraries returning questionnaires

Botswana

University of Botswana Library

Cameroon

University of Buea Library

University of Douala. Central Library

University of Ngaoundere. Central Library

Eritrea

University of Asmara Library

Ethiopia

Addis Ababa University Libraries. Main Library

Debu University Libraries. Main Library

Ghana

Kwame Nkrumah University of Science and Technology Library

University of Cape Coast Library

University of Development Studies

Navrongo Campus Library

Nyanpala Campus Library

Wa Campus Library

University of Education Winneba Library

University of Ghana

Balme Library

City Campus Library

College of Agriculture and Consumer Sciences Library

Faculty of Law Library

Medical School Library

Kenya

Egerton University Library

Jomo Kenyatta University of Agriculture and Technology Library

Kenyatta University. Moi Library

University of Nairobi

Chiromo Library

Jomo Kenyatta Memorial Library

Lower Kabete Library

Lesotho

National University of Lesotho. Thomas Mofolo Library

Malawi

Mzuzu University Library and Learning Resources Centre

University of Malawi

Bunda College of Agriculture Library

Central Library Services

College of Medicine Library

Kamuzu College of Nursing Library

Mozambique

University Eduardo Mondlane. Directorate of Documentation Services

Namibia

University of Namibia

Main Library

Northern Campus Library

Nigeria

Ahmadu Bello University. Kashim Ibrahim Library
Ambrose Alli University. Main Library
Babcock University. Adekunle Alalade Library
Bayero University. Main Library
Federal University of Technology. Akure Library
Imo State University Library
Ladoke Akintola University of Technology Library
Obafemi Awolowo University. Hezekiah Oluwasanmi Library
Rivers State University of Science and Technology. Central Library
University of Jos Library
University of Lagos Library
University of Nigeria, Nsukka. Nnamdi Azikiwe Library
Usmanu Danfodiyo University. Abdullahi Fodiyo Library Complex
University of Calabar Library

Sierra Leone

University of Sierra Leone
College of Medicine and Allied Health Sciences Library
Njala University College Library

Sudan

University of Gezira. Neshishiba Library

Swaziland

University of Swaziland. Kwaluseni Library

Tanzania

Mzumbe University Library
Open University of Tanzania. Main Library
University of Dar es Salaam
Main Library
Muhimbili University College of Health Sciences Library
University College of Lands and Architectural Studies Library

Uganda

Gulu University. Main Library
Kyambogo University Library
Makerere University
East African School of Library and Information Sciences Library
School of Education Library

Zambia

Copperbelt University Library
University of Zambia
Medical Library
Veterinary Medicine Library

Zimbabwe

Masvingo State University Library
Midlands State University Main Library
National University of Science and Technology Library
University of Zimbabwe
Main Library
College of Health Sciences Library

Senegal

University Cheikh Anta Diop, Dakar. Central Library

South Africa

University of Western Cape Library

About INASP

Enabling worldwide access to information and knowledge

The mission of INASP is to enable worldwide access to information and knowledge with particular emphasis on the needs of developing and transitional countries. Established in 1992, we work with partners around the world to encourage the creation and production of information, to promote sustainable and equitable access to information, to foster collaboration and networking and to strengthen local capacities to manage and use information and knowledge.

We act as an enabler, connecting worldwide information and expertise. Working through networks of partners, we aim to strengthen the ability of people in developing and transitional countries to access and contribute information, ideas and knowledge. In particular we seek to:

improve access to scientific and scholarly information catalyse and support local publication and information exchange
strengthen local capacities to manage and use information and knowledge foster in-country, regional and international
cooperation and networking advise local organisations and agencies on ways to utilise information and publishing to achieve
development goals.

International Network for the Availability of Scientific Publications (INASP)
58 St Aldates, Oxford OX1 1ST, United Kingdom

Tel: +44 1865 249909 Fax: +44 1865 251060
Email: inasp@inasp.info Web: <http://www.inasp.info>

©International Network for the Availability of Scientific Publications (INASP), 2005

This report may be used in part or in full for teaching, communication and other non-commercial purposes without authorisation from the copyright owner, but must carry full citation and acknowledgement of the publisher.