Resource Sharing in the Digital Age: Prospects and Problems in African Universities

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Introduction

The dawn of the twenty-first century came with a digital revolution and economic globalization. The rapid pace of development in the field of information technology coupled with the advent of networked information services has called for a total review of African universities' resource sharing approach, in this age of the digital divide.

All over the world, universities have banded together in both national and regional consortia to not only realize economics of scale in purchasing and managing Internet bandwidth, but also in pushing telecom frontiers. Africa stands out as the continent which does not yet have a full-fledged regional research and educational bandwidth initiative. This paper highlights the efforts made by African university libraries to develop and use information and communication technology (ICTs) for collaboration among administrative and academic communities, through increased bandwidth and knowledge networking.

The Situation Today

The need to share and transfer information in Africa is not new. The issue is that in most of Africa adequate Internet access presents a great challenge for university administrators. The Cameroon Interuniversity Network is an example of the determination of the Cameroonian authorities of higher education to provide universities with modern infrastructure. In Kenya, the Kenya Education Network (KENET) is an initiative to establish a high speed, reliable, and sustainable IP network for interconnectivity among educational institutions The Malawi Academic and Research Network (MAREN) has been established to provide bandwidth to major academic sites. Senegal has the UCAD information technology network which connects schools and faculties of the university. Nigeria has been involved in many projects to create National Research and Education Networks – NUMIS, NUNet, PolyNet, TeachNet, NEARNet, elf Net, NULP, VLC, all in an effort to develop and use ICT to foster institutional collaboration among and between administrative and academic communities. Internet connectivity has now become a "make or break" requirement for higher education in Africa. Ogunshola (2004) noted that the proliferation of Nigerian universities, despite the economic recession in the country since the 1980s, has aggravated the problem for universities and their libraries so much that their future seems uncertain. On the whole, university libraries in many African counties have faced a difficult decade, with rapid erosion of funding for books and journals, staffing difficulties, and perhaps a loss of the perception of the library as the center of academic life and scholarship. African university libraries have been portrayed negatively and there may be little understanding of their responsibility. Lack of Internet access has denied African universities the latest research information, web-based learning,

"Resource Sharing in the Digital Age: Prospects and Problems in African Universities," Felicia E. Etim, *Library Philosophy and Practice*, Vol. 9, no. 1 (Fall 2006)

1

opportunities to be part of international research teams, and the ability to connect scattered campuses with video conferencing.

Table 1: Distribution of countries and their internet Use

Country	Internet Band width	Internet user per 100 Inhabitants
Sweden	65.2	57.3
Korea	48.6	55.2
US	65	55.1
South Africa	9.5	6.8
Gabon	2.5	1.9
Cameroon	0.7	0.4
Ghana	1.3	0.8
Nigeria	0.6	0.3
Senegal	2.3	1.1
Cote d'Ivoire	2.0	0.5
Benin Republic	3.3	0.8
Angola	0.6	0.3

Source: The Punch. Jan. 27.

Africa as a whole is lagging behind, Nigeria in 8th position along with Angola.

Serious efforts are being made by African universities to foster cooperation among libraries through the Association of African Universities (AAU), with the support of the International Development Research Centre (IDRC). The key player in these efforts are the Cameroonian Interuniversity Network (CIN), while the Kenya Education Network (KENET) will have a far-reaching impact on information technology in Kenya's academic libraries. This initiative was spearheaded by Kenya's institutions of higher learning to establish a high speed, reliable, and sustainable IP Network for all Kenyan universities. Other efforts, such as the Malawi Academic and Research Network (MAREN) and Senegal's UCAD represent the determination of African leaders' efforts at speeding up socioeconomic development through resource sharing.

Unfortunately, Nigeria does not yet have a truly functional National Network backbone (AAU, 2005).

There have been more than a dozen efforts to create National Research and Education Networks (NRENS) in Nigeria, including:

- Nigerian Universities Management Information System (NUMIS)

- Nigerian Universities Network (NUNET)

- Nigerian Education and Research Network (NEARNET: a collaboration of NUNET, Poly Net and Teach Net)

- eLFL Net- consortium of Nigerian Libraries

- National Virtual (Digital)library project (NVLP)

- Nigerian Virtual library consortium (VLC)

"Resource Sharing in the Digital Age: Prospects and Problems in African Universities," Felicia E. Etim, *Library Philosophy and Practice,* Vol. 9, no. 1 (Fall 2006)

2

Several National committees have been set up to "harmonize" a number of these different projects. Nkanu (2006) observed that university libraries have tried to get the latest information and to improve the dissemination of information services, but these efforts failed because of the lack of equipment. The chart below shows the distribution of equipment among Nigerian universities.

Table 2. Distribution Of Available ICT Facilities For The Provision Of Library And Information Services In University Libraries In Nigeria

Library	Computer	Printers	CD-ROM Database	Microfilm	Microfiche	Video tapes	Audio tapes	Photocopiers
UI	24	4	11	72	126	16	9	2
UNN	8	2	4	18	23	6	2	1
ABU	19	1	52	83	114	31	28	1
OAU	27	10	24	22	19	21	43	2
UNILAG	17	6	13	15	12	12	16	1
UNIPORT	8	2	15	2	4	14	11	1
UNIJOS	40	4	10	28	42	28	19	2
UDU	2	2	1	2	3	17	42	1
UNIMAID	8	3	1	16	13	8	13	4
ATBU	4	1	49	37	32	1	95	3
FUT-YOLA	5	2	45	8	1	4	15	1
FUT-MUNA	8	4	7	1	1	3	5	2
UNAAB	7	4	9	42	105	6	15	2
TOTAL	177	45	241	343	495	167	313	24

(Source, Nkanu (2006) "Utilization of Information and Communication Technology and the provision of Library and Information Services in Nigerian University Libraries.")

Key

UI - University of Ibadan UNIMAID-University of Maiduguri

UNN - University of Nigeria Nsukka ATBU - Abubakar TafaWa Balewa

ABU - Ahmadu Bello University Zaria University

OAU - Obafemi Awolowo University FUT-Yola- Federal University of Technology Yola

UNILAG - University of Lagos

UNIPORT - University of Port Harcourt FUT-MINNA- Federal University of Technology Minna

UNI JOS - University of Jos

UDU - Usman Danfodio University

UNAAB- University of Agriculture Abeokuta.

"Resource Sharing in the Digital Age: Prospects and Problems in African Universities." Felicia E. Etim, *Library Philosophy and Practice.* Vol. 9, no. 1 (Fall 2006)

3

The table above shows 13 out of 24 Federal University Libraries in Nigeria with inadequate information technology resources. Aside from the universities' inability to access the Internet, very little information from these universities is available on the Internet. The table below shows the state of university library connectivity in Nigeria.

Table 3 Academic Libraries and their Internet Status

Institutional Library	Year of Establishment	Collection size	Stock	Internet status
Abia State University, Uturu Lib.	1982	32,000	35	None
Abdalahi Fodio Lib. Complex-Sokoto	1979	2000,000	4854	None
Abubakar Tafewa Balewa-Bauchi Lib.	1981	49.672	364	None
Enugu State University of Science and Tech Library	1981	33,700	**	None
Federal university of Technology -Akure Library	1982	52,446	**	None
Federal University of Technology - Minna Library	1984	20,745	**	None
Hezekiah olusanmi Library - Ile Ife (OAU)	1962	412,63	451	http://www.oauife.edu.org
Kashim Ibrahim Lib (ABU) - Zaria	1962	150,000	70,000	www.abuzaria.net
Kenneth Dike Ibadan (UI)	1948	**	**	None
Lagos State University Library - Lagos	1984	100,000	140	http.//www.lassu.org
Michael Okpara University of Agric. Umuahia	1995	9,071	**	None
Nimbe Adedipe Library	1988	35,490	50	None
Namdi Azikiwe Library-Nsukka (UNN)	1960	468,166	4,951	None
Ramat Library - Maiduguri	>1973	24000	1,890	None
University of PH Library	1976	**	48	UNNET
University of Uyo Library	1991	43,431	245	None

Source: Asamoah Hassan (2002) **Information not Supplied

Issues and Problems Identified

University libraries have grown tremendously in number during the last decade due to expansion of university education in Africa. Waiganjo (2006) noted the growing need for networking

"Resource Sharing in the Digital Age: Prospects and Problems in African Universities," Felicia E. Etim, *Library Philosophy and Practice*, Vol. 9, no. 1 (Fall 2006)

4

and online information sharing. Shin (2006) observed that the biggest challenge for libraries is to establish a network among libraries themselves as well as with homes and workplaces.

According to Idowu and Mabawonku (1999), a number of libraries in Nigeria attempted to automate their operations in the early 70s and 80s, with only a few success stories. University libraries in Africa are gradually waking up to the need for partnership. Some challenges in the process are:

A. High cost of Internet access.

B. The ineffective configuration of campus networks for distance education.

C. The absence of a critical mass of trainers.

D. The lack of reliable and permanent sources of power.

Table 4: Key Constraints to Information technology (IT) Implementation

Core factors	Symptoms	Consequence
Institutional weakness	Lack of management commitment to responsibility of information programmes	Implementation delays
Human resources	Shortage of qualified personnel.	
Inadequate compensation of technical staff.		
Lack of professional training programmes or career profiles	Insufficient support implementation	
delays		
inadequate user awareness		
Funding	Underestimated project costs	Unfinished projects.
Implementation delays.		
High cost of software development		
Technology	Limited hardware and software available	Data not shared
Incompatible hardware and software.		
Dependence on customized applications		

Source: World Bank Project Africa Virtual Library (AVU) culled from Ifidon (2002).

While a few of projects have recorded some measures of success, none has come to fruition, because most of the projects were neither initiated by the correct "owners" nor instigated by demand. Many were ill-fated attempts to create national networks from scratch, rather than grow or evolve

them. Schedule were not sufficiently thought-out. The emphasis has been on a national infrastructure, but a national backbone should connect institutional local area networks (LANS), and these hardly existed. Other projects placed too much emphasis on building and equipments and too little on capacity building and the social engineering aspects of networking. Where training was envisioned, it was mainly for technicians, with little thought for user education and professional staff development. Thus, the situation presents a one-sided ICT- driven economy in the wake of an increase in the value and demand for information coupled with the emergence of a sophisticated class of clients.

Prospects: the Way Forward

African universities want to join other developed countries in providing access to content for the academic community. Solutions include:

- Reciprocal use of satellite access, both at the national and regional level.

- Wireless computing (Hotspots, WI-MAX, Wi-Fi)

- Sharing of expertise (trainers) at the sub-regional and continental level

- Strengthening of electronic power capacity.

- Regulatory bodies that would support the development of content.

- Establishment of wireless access in amphitheaters, and rooms for students, and university offices.

- Connection of virtual libraries: the creation of a support base for regional university centers.

- Establishment of a network of African Universities, to encourage cooperative efforts in training and research.

- Mapping of existing networks.

- Collaborative efforts by universities to get funding for increased bandwidth for teaching and research.

- Resources sharing through data connectivity

- Policy reforms to secure affordable access to ICT.

Within a few years, at least 40% of all the member institutions of Association of African Universities (AAU) will be fully networked and access to the Internet will increase to 80% within 5-10 years. Similarly, the number of computers per 100 users should be at least 15 in three years and at least 25 in 5-10 years, with the corresponding Internet bandwidth per computer being at least 10 and 20 kilo bits per second respectively.

Conclusion

The increase in the value and demand for information puts pressure on African university libraries to offer more effective services to users. African universities must shift gears in order to

"Resource Sharing in the Digital Age: Prospects and Problems in African Universities." Felicia E. Etim, *Library Philosophy and Practice*, Vol. 9, no. 1 (Fall 2006)

6

justify their existence in the changing information sharing environment. The establishment of bandwidth consortia would drive prices down through economies of scale.

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"Resource Sharing in the Digital Age: Prospects and Problems in African Universities," Felicia E. Etim, *Library Philosophy and Practice*, Vol. 9, no. 1 (Fall 2006)

7