Mini and Micro-computers: Under-use and possible use in Nigerian Libraries, Documentation and Information Centres

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INTRODUCTION

The computer has become one of the most sophisticated devices created by man and the only limitation for its usage in various aspects of human life is lack of enough ingenuity. It has pervaded all aspects of life and activities thus being widely used in various fields. The advances in technology are bringing down the cost of computers and a large number of powerful microcomputers now exist; the availability of computers in various small and large organizations is almost taken as a *sine qua non*. The trend now points to the direction in which humanity will be dependent on the micro chip technology

In organizations dealing with managing information resources and services, computer applications can be categorized mainy into three types:

(a) Library management-acquisition, cataloguing, circulation, serials control.
(b) Management support-statistics, management information system (MIS), accounting, budget, control; and other management functions:
(c) Database Management and Information retrieval - indexing, searching, thessurus maintenance, archives inventory and control, directory generation, SDI and other information storage and retrieval functions and services.

In addition to these three applications, computers offer a new dimension to co-operation among libraries. Its importance in the creation of library network is already being exploited.

SCOPE OF THE STUDY

The study examines the situation in Nigerian libraries, documentation and inforamtion centres with regard to computer applications in their functions and services; and suggestions are made on the possible means of applying the computer technology while utilizing available resources.

METHODOLOGY

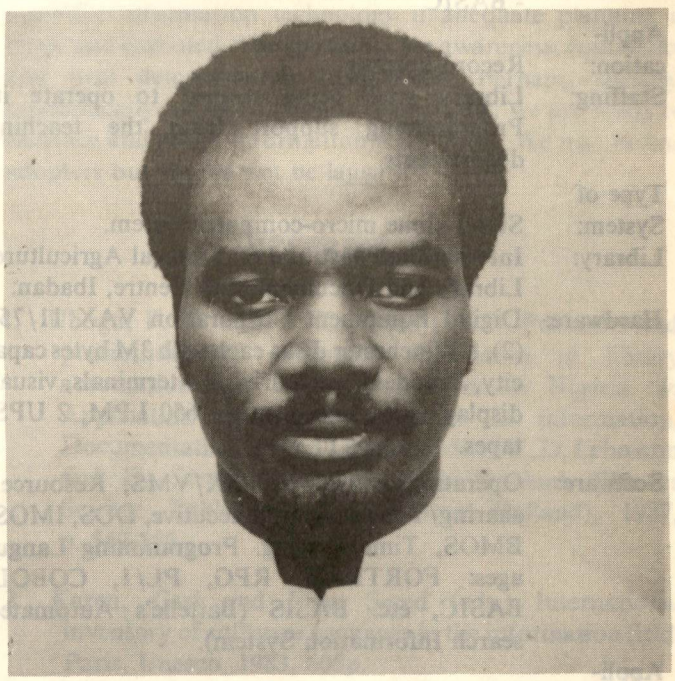
An earlier survey by the authors[1] and Keren's[2] work on software packages in the information field provide the data used for this study.

COMPUTER APPLICATIONS IN NIGERIA

Organizations and institutions in Nigeria have not been left out in the race to computerize their services and functions. The survey by the National Policy Development Centre[3] and the data in *The Nigeria Computer Users Directory*[4] attest to the rapid increase in the number of computer installations available in the country. These computers are used in various institutions and organizations such as banks, business organizations, research institutes, ministries, universities, etc. The computers are used mainly for payroll and ledger systems, personnel records, accounts receivable and payable, data processing, insurance claims systems mathematical modelling and electrical modelling, etc.

COMPUTER USAGE IN LIBRARIES

Alabi[5] highlights the computerization efforts of university libraries that are the pioneers in this area. He also did mention the efforts of the National Library of Nigeria at computeriation. By and large the efforts of the universities and the National Library of Nigeria are yet to yield much beyond the production of computerized list of serial holdings.



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The survey, by the Author, on the use of mini and micro-computers in libraries, documentation and information centres in Nigeria revealed the following installations:

Library:	**Federal Institute of Industrial Research Library, Oshodi.**
Hardware:	**SIRIUS microcomputer, 128k bytes memory (16 bit word), 2 disk drives, keyboard/printer terminal, keyboard/CRT terminal visual display unit.**
Software:	**Disk Operating System. Programming languages - PL/1, PASCAL, COBOL, BASIC, FORTRAN, Cardbox system.**

Applications:	Press Library, Cataloguing on experimental basis, record keeping.
Staffing:	Information scientist, operator
Type of System:	Stand-alone microcomputer
Library:	Federal Institute of Industrial Research Library, Oshodi.
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Type of System:	Stand-alone microcomputer
Library:	Federal University of Technology, Owerri.
Hardware:	SINCLAIR ZX Spectrum*, 48 bytes memory, Thermal printers, disk drive, cassette tape drive, CRT terminal, visual display unit.
Software:	Disk Operating System. Programming language - BASIC
Application:	Record keeping
Staffing:	Library staff being trained to operate it. Programming support from the teaching departments.
Type of System:	Stand-alone micro-computer system.
Library:	International Institute of Tropical Agriculture, Library and Documentation Centre, Ibadan.
Hardware:	Digital Equipment Corporation VAX 11/750 (2), 8 Winchester disks each with 3M bytes capacity, 2 modems each driving 4 terminals, visual display units, line printer - 650 LPM, 2 UPS, tapes.
Software:	Operating system is VAX/VMS, Resource sharing/Time sharing, Executive, DOS, IMOS, BMOS, Time sharing. Programming Languages: FORTRAN, RPG, PL/1, COBOL, BASIC, etc. BASIS (Battelle's Automated search Information System).
Application:	Circulation, cataloguing, acquisition, record keeping, word processing.
Staffing:	4 programmers, 1 computer engineer, 3 operators.
Type of System:	On - line, time-shared mini-computer system.
Library:	National Library of Nigeria, Lagos.
Hardware:	Wang P.C. 005, 256k bytes, line printer-55cps, disk/diskette - 10MB/360 bytes, keyboard/CRT terminal, visual display unit.
Software:	Disk Operating System. Programming language BASIC.
Applications:	Cataloguing
Staffing:	Programmers - 2. Key punch operators - 2.
Library:	Nigerian Institute of International Affairs, Library, Victoria Island, Lagos.
Hardware:	Radio Shack TRS - 80/ II, 64k bytes, Keyboard/CRT terminal, line printers, diskette, interactive terminal, Daisy wheel Printer II, visual display unit.
Software:	Disk Operating System, Resource sharing/ Time sharing Programming language - BASIC.
Applications:	Not put to use yet. Hope to start with cataloguing and press centre.
Staffing:	Librarian I.

This number shows a gross under-utilization of computers by Nigerian libraries. Whereas one finds an active use of mainframe, mini - and micro-computers in various units of most institutions and establishments, librarians seem oblivious of the fact that the computer technology is creeping in on us.

Plausible reasons for the seemingly slow pace at which computers are used in libraries were advanced by Alabi[6] and the authors[7]. A few of these reasons include inadequate personnel; lack of awareness of software systems and slow penetration into the libraries by computer vendors.

Information centres have not utilized the goodwill offered to developing countries in the information field for there are at least seventeen operational applications software packages available free-of-charge to institutions and non-profit organizations in developing countries.

SUGGESTIONS

Libraries should seek and use available software compatible with the hardwares available in their institutions and organizations. A list of such free-of-charge softwares is given below:

Table I: Software Systems Available Free-of-Charge

System Name (Software)	Hardware Requirements
ACS	FUJITSU M1801IAD; IBM 370/148
AMRS	IBM 370/148; FUJITSU M1801IAD
ANB(FE)	IBM 370/148; FUJITSU M1801IAD
BLASIM	HP2000; VAX 11/780
CAN/SDI	IBM 360, IBM 370, IBM 30XX
CDS/ISIS	IBM, all models; any IBM 360/370 compatible computer, such as RYAD, Ahmadal, Itel
CLW-SOFT	380Z Research Machine Limited.
COMP-AIS,IIA	UNIVAC 90/30, 1100/20, 1100/60
DML	IBM, IBM 360, IBM 370, IBM 303X Amdahl, Itel and Riad
GENCON	
GEN-CON V	IBM 370/148; FUJITSU M1801IAD
LEAP	DEC. PDP 11/70
MINISIS	Hewlett - Packard, HP 3000
NEPHIS	PET 2001 - 8, CDC and DEC mainframe computers
PRECIS	DIGICO P. L. C. M28

R-CDS ISIS	Mera-Elwro, RIAD R-30 RIAD R-32, RIAD R-40 RIAD R-45, RAID R-50 RIAD R-60
SALS-SAH TOPSI	IBM 370/148 and FUJITSU M180IIAD Commodore Business Mchines, PET 4032, PET 3032.

Source: Keren, Carl and Irina Sered (eds.). International inventory of software packages in the information field. Paris: Unesco, 1983. 605p.

There are others which are available for nominal fees. Of the free softwares CDS/ISIS and MINISIS each have over 70 installations including neigbouring African countries such as Senegal, and Cameroun. Many of these softwares were initially designed to be operated on mainframe computers but versions now exist that operate on micro computers. Unesco's CDS/ISIS software is currently operating on the IBM-PC/XT or AT and compatible micro-computers running under the MS-DOS operating system.

It has been successfully tested on the Olivetti M24 and Victor PC, GOUPIL IV, Bull Micral PC 30, ITT Alcatel 7000, JISPAK 500, Sperry PC/IT and Compaq Deskpro 286. A special version of it also exists for the WANG PC (under the native WANG MS-DOS). This system, is available free-of-charge to qualified non-profit organizations in Unesco's Mmember States having required hardware configuration[8].

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Most of the softwares are compatible on the available hardware systems in institutions and organizations in Nigeria. On the other hand, institutions/organizations can easily afford to have the hardwares and libraries associated with these institutions/organizations could utilize such hardwares.

The Canadian Service for the Selective Dissemination of Information, CAN/SDI, software could be used at the national level to exploit the internationally available databases commercially or at highly subsidized rates.

While envisaging an increased spate of activities in the area of library automation and computer-based information services, it is of utmost importance that the National Library innitiates the necessary moves to establish standards for machine - readable records usable by various institutions and organizations to facilitate future networking, co-operation and participation in international programmes.

FUTURE DIRECTIONS/CONCLUSION

Libraries and information centres will be developing their collections in an environment of electronic publication and information delivery. Of course, the printed book or scientific journal will be with us for a long time, but libraries will need to change their emphasis from collecting materials individually to taking advantage of technology-based systems and shared collections.

The computer age makes it mandatory that libraries, documentation and inforamtion centres in Nigeria should computerize their functions and services. Softwares from reliable agencies and organizations in industrialized countries are available free-of-charge to developing countries and we should make concerted efforts to utilize these softwares now or we shall increasingly continue to outlive our usefulness to our users owing to rising cost of providing non-computerized services.

Benefits could be derived to a very great extent from available information technology if adequate planning is made and executed. The key things are awareness, confidence and firm determination to proceed. Perhaps, socially, economically, technically and scientifically, we are ready to embrace and adopt information technology. We may be late adopters but should not be laggards.

REFERENCES

1. Ubogu, F. N. and D. K. Cupta (1987). Problems and possibilities of computer application in library automation and information work in Nigeria. *In* Application of Micro-Computers in Information, Documentation on and Libraries edited K. D. Lehmann and H. Strohl - Goebel. North-Holland, Elsevier Science Publishers B. V. (North-Holland), 1987, p. 549-555.
2. Karen, Carl and Irina Sered (eds.) International inventory of software packages in the information field. Paris, Unesco, 1983, 605p.
3. Report of a survey of computer distribution and usage in Nigeria, Lagos, National Policy Development Centre, 1979.
4. The Nigerian computer users director. Lagos, Ogis and Ododo Associates, 1983, 174p.
5. Alabi, G. A. (1985). Computerisation of library services in Nigerian university libraries: the state of the art. *Nigerian Library and Information Science Review* Vol. 3(1-2).
6. ———————— ibiden.
7. Ubogu, F. N. and D. K. Cupter; *op. cit.*
8. Lohner, W. (1986). Personal communication.