Budgeting for Technical Services in the Era of ICTs

By

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Introduction

Library and information services have experienced phenomenal change in the last two decades. This change has been catapulted and moderated essentially by information and communication technology (ICT). Thus, today, there is necessarily, a paradigm shift both in the theory and practice of librarianship resulting in refined roles for librarians. The librarian of yesterday who was a ÷sageø- a human encyclopedia, with exclusive knowledge of location and retrieval of information, has increasingly become a ÷guideø by the side ó merely guiding patrons to sources of information, and teaching information literacy skills. The change has been so rapid that librarians today have a great challenge to make themselves relevant in the documentation and organization of information, retrieval and dissemination - very much of traditional roles, but with a new technology. The challenge before librarians is therefore identifying and making use of appropriate technology in delivering services. This calls for appropriation of both human and material resources in meeting challenges of library services in the era of ICT. The domain of library services that will most likely need consideration is technical services where budgets must respond to real and perceived needs.

Technical Services in a library include: Reprography, Preservation Services, Technical Processing (acquisitions, cataloging, processing library materials); Automation Services, (Internet access, circulation, database maintenance, on-line public access web-based catalog); and, Library Website Management and Branch Services (Burbank Public Library, & The University of North Carolina 8/14/2006). In quite a number of institutions, the Technical Services unit plays a very critical role in the over-all accomplishments of the library. This has been aptly described by the Library Technical services Mission Statement of McGill University:

> õ. . . to advance teaching, learning, research and community service by providing outstanding collections, access to the world of knowledge, excellence in service and an appropriate library environment, all of which are client-focused and responsive to the needs of the í communityö

It is apparent therefore, that, the ICT-compliant library will have to budget specially for necessary ICTs in order to deliver efficient and effective services to clients. Budget has been defined as a õdetailed plan of income and expenses expected over a certain period of time. A budget can provide guidelines for managing future investments and expensesö https://remax-headinghome.com/Glossary.aspx September 4, 2007.

For most libraries in Nigeria, budgeting may seem to be a redundant exercise, because, for many of them, they have not really had actual budgets for several years, since the downturn in the nation's economy in the early 80s. However, it is still necessary for us to outline and discuss items that require consideration for budgeting, and to gain some insight into the critical issues of financing library development in Nigeria, especially in the area of technical services. It is imperative therefore, to discuss the need for a library budget, the technical services budget, and conclude by highlighting the challenges before Nigerian libraries in adapting ICTs to library services.

Justifying Budget for the Library:

The library in any institution, especially academic and research institutions is the pivot of the organization. The library validates an institution. The quantity, diversity, and quality of library materials often suggest the level of academic enterprise in such institutions. The organization and use of public libraries in communities usually suggest the level of readiness of communities for socio-economic and technological change. Traditionally, the library potentially consumes a significant portion of an institution's budget, even though this had not always been appropriated. It was this potential that, in Nigeria, made the National Universities Commission to, in 1992, request a non-lapsable 10 per cent allotment of federal university funds to be set aside as *library development fund*. Today, the typical library in Nigeria does not have an operational budget; yet it is expected to provide for the need of students, scholars, and the public.

Using the 140 million census figure of Nigeria from the 2006 national population census, it is apparent that libraries in Nigeria have a growing population to serve. With . . . per cent of the population in the . . . age group, and the emphasis on universal basic education, libraries, more than ever before, require a higher budget for their operations. More significantly, the achievement of the United Nation's millennium development goals will very much depend on the provision of sufficient access to information on health, poverty eradication, and literacy skills. According to John Tsebe, National Librarian of South Africa, African governments should õInvest in LIS as critical agents in the creation of an information society to advance knowledge economyö (CODI ó V, 2007). LIS stands for Library and information services.

With the continuous mediation of services by ICTs, the library stands out as the main access point. According to a report of the Committee on Development Information (CODI ó V) of the United Nations Economic Commission for Africa:

> õLibrary computers are in high demand as they serve as the main source of access to computing technology to a great number of people who would otherwise not afford access from anywhere else. Results of a recent study found that 70% of people using computers in libraries reported the library was their only way to get a computer (Urban Libraries Council, 2007 p14). People use library computer facilities for accessing the Internet, sending emails and word processing among other uses. In Africa, access to computing technology is still beyond the reach of the majority of the population making the library the only available access pointö. (p.5, 25th April, 2007: The Critical Role Of Libraries And Information Services In Ensuring Continuous Employability And Entrepreneurship
> In The Knowledge Economy. E/ECA/CODI/5/2 Add. 1)

Libraries today need to budget for ICT hardware, software, as well as necessary accessories and networking equipment, etc, all of which were not part of the traditional library budget. The comparatively high cost of ICT infrastructure and the challenge of human resources skilled in manipulating ICTs in libraries, over the normal services of libraries, call for clear and significant budgetary provisions.

Apart from computer hardware and software, the other significant area of need for library budget is human resources. Investment in human resources in any organization is perhaps the most important investment that can be made. This is the more necessary because ICT is a new means of delivering library services. It is imperative therefore to provide budget for the training and re-training of people ó library staff and patrons, in the use of an unfamiliar and ever-changing technology. Library staff need appropriate training in order to deliver relevant services effectively and efficiently. Library patrons need training in order to adequately apply the new technology in securing necessary library resources for their studies, teaching, and learning. All these require adequate budgeting for trainers, trainees, and training facilities, in order for delivery of library services to be effective in the era of ICTs.

Yet another area of budget need in technical services is the growing trend in presenting library resources in digital format. This involves digitizing collections, and procuring already digitized materials. To digitize collections, budget must be provided for digitizing equipment and training. To procure digitised materials, budgetary provisions have to be made for licensing and subscriptions. These, in many cases, appear to be even more costly than the traditional hard copies and manual delivery systems.

The Technical Services Budget

Technical Services in this discussion, refers to those services in the library which form the background for the smooth running of the library. According to Cornell University, õTechnical Services at the Cornell University Library keep the collections vital and up to date by procuring new library materials and organizing them for easy and convenient useö (http://lts.library.cornell.edu/lts/who/index.cfm July 10, 2007), They are services performed essentially by library staff on behalf of library patrons. They include services such as acquisition of library materials, cataloguing, database management, electronic resources and serials management, and metadata services. Such services obviously, can only be provided if only there is adequate budgetary provision.

The specific areas of need for Technical Services Budget in the Library include:
1. staff development
2. project management
3. software
4. hardware
5. conversion of manual records into machine-readable form
6. licensing, access and subscriptions
7. Internet access
8. appropriate library environment
9. operational budget

Staff development

Technical services, even without ICTs, are a specialized area of library work that requires specialized skill. Applying ICTs to technical services puts a higher demand for skills and knowledge in appropriating technology to otherwise manual services.

In many libraries, staff of technical services would have spent more years in the unit than staff in other areas of the library. They therefore have more tendencies for doing tasks routinely. Adapting to new technology could therefore be challenging, and, in some instances, problematic. Challenging in the sense that libraries and information ó the external operational environment that the library will necessarily have to operate in, are increasingly applying ICT in delivering library services. The staff, many of whom, by observation in Nigeria, are older in age than in other service areas, may not be easily adaptable to change, learning new technology. Problematic, in the sense that the application of ICTs in libraries has crystallized into a global normal trend libraries will have to adopt.

Thus, it is imperative that, if the library must provide effective technical services in the era of ICTs, then, staff development must receive very high priority. This includes:

- continuous professional development
- basic computer literacy
- training in the use of specific and relevant ICTs

These trainings should involve all categories of library staff, including technical services staff. It should not be limited to Heads of Libraries, or Heads of Technical Services in Libraries. Technical services staff deserve a high priority because of the strategic role they play in the delivery of library services.

Staff can benefit from Continuous Professional Development trainings offered by the Library association ó local, national, or international. In order to have this realized, adequate budget must be provided for. The budget would include such items as:

- cost of tuition
- transportation
- daily allowance

Training in Basic Computer Literacy is fundamental to higher levels of trainings in the ever ó dynamic ICT world. It is a necessary beginning, especially for staff that, all their years, had been used to manual processes. Training at the basic level can help in overcoming techno-phobia syndrome of some staff. In institutions where there is a separate Information Technology centre, the library can make use of the human resources there to train her staff in basic computer literacy. This still requires some budgetary provision. In some other cases, the library itself could utilize Information Technology staff within the library. Their extra-services should not be taken for granted. This can be done as an õover-timeö budget. Where the training is done outside of the library, budget should be provided for:

- training venue rentage
- cost of digital projector (if not included in venue cost)
- resource person(s)
- training manuals
- refreshments and meals

Training within the library by library staff would include budget for:

- training manuals
- resource person(s)
- refreshments and meals.

For training within the library, it is assumed that the Library already has, at least, a:

✓ training room, and,
✓ digital projector.

Training in the use of specific and relevant ICTs for library technical services is particularly important for a successful migration into the ICT environment. The trainings could be offered as an on-site, and/or on-line tutorial. Most of these trainings will be done at the point of acquiring, or upgrading of technical services specific software or hardware. In such cases, budget for training would probably have been built in the cost of the purchase of the software or hardware.

However, where the cost is not already built-in, then budget should provide for:

- resource person(s)
  - transportation
  - accommodation
  - meals
  - per diem
- training manuals
- refreshments/meals, and
- incidentals.

Budget for staff development is therefore highly significant if a library will successfully apply ICTs in her technical services. The budget needs to be carefully listed and adequately estimated, and made available. This provision should be yearly, because of the dynamic nature of ICT and the need for librarians and libraries to be at the cutting edge of technology, and be efficient and effective in delivering services. Otherwise, the library would have expended so much on ICTs without competent human resources to manipulate the systems.

Project Management

Project Management can be defined as a set of interrelated job that has an identifiable end point, and executed by a carefully selected group of people ó each playing a defined role, for delivery within a time line (Managing Projects, 2006). The period for project management is usually between one to 18 months, when the project would have been delivered. The library would need to apply principles of project management in adopting and adapting ICT to her services, especially technical.

Budgeting for project management might involve costs for planning the project, the hiring of consultants, and staff and institutional sensitization. Planning costs would generally involve costs for getting started by carrying out a feasibility survey, inspection visits to institutions that have adopted the technology, pilot projects, etc. Hiring a consultant is desirable where there is no prior/adequate knowledge of the new technology and the operational environment. The use of a consultant can save costs in terms of staff time and expertise. Use of a consultant, even though may cost some significant money, will always be a good approach, especially in externally-funded library projects, because the consultant devotes time to producing the best possible environment (staff training, physical, and network environments) for the library to adopt and adapt the new technology.

Budgeting for a consultant is therefore upfront budget expenditure where savings for the smooth transition is made by engaging a knowledgeable group of persons to critically prepare the grounds for effective take-off. The savings is in the failures and errors which the

consultantøs activities would have targeted and eliminated ahead of proper project implementation.

Project management budget could also include headings such as staff and patron sensitization. This is necessary because, the introduction of a new technology requires a new way of doing things, a new orientation, a paradigm shift. Some energy will be expended in training and sensitizing library staff and patrons on the new way of doing things, for instance, in installing and using an online catalogue.

The project management team, in keeping to their time-line, requires a budget to operate for their meetings, transportation, and communication (amongst themselves, and with other institutions). In addition, they will also require interacting with the larger library staff from time to time to intimate them of the progress in their assignment. All these activities require specific budgets for refreshments and sensitization materials such as handbills, and notes.

Software, hardware, accessories, and telecommunications

Budgets for ICTs in organizations would usually provide for cost for the purchase of software, hardware, accessories, and telecommunications. Software is the programme that commands and runs whatever work that needs to be done in an ICT platform. Their is the installation cost, which is usually high, and then the subscription costs. An organization such as the libraryøs parent institution should be responsible for investing in the purchase of original software and operating systems which the community would necessarily use. Use of pirated copies of software such as operating systems and office applications, and databases, by organizations, could be hazardous for the installation and effective running of technical software, the type the library would need. The advantages of budgeting and purchasing original copies are that an institution is, to a good extent, shielded from litigation for violating intellectual property rights, can receive up dates regularly, and can receive online technical support whenever necessary.

According to Cohn, Kelsey, and Fiels (2001), õInitial purchase costs include acquiring the initial system hardware and software and of preparing a site or sites for the equipment.

- *Hardware* covers the server or servers, disk drives, workstations, printers, routers, switches, and other machine peripherals.
- *Software* covers the licensing of the system vendorøs software providing the systemøs functionality ó OPAC, circulation, acquisitions, and so on.
- *Site preparation* includes identifying space for the equipment and assuring proper room ventilation and, as necessary, air conditioning.
- *Vendor-provided training* costs must also be considered as well as the costs of connecting to the Internet.ö

Apart from these purchases, it is also necessary to have budgets to acquire network equipment which would be used to communicate between the systems and with the Intranet and Internet. The equipment costs include network cabling, and telecommunications, such as telephone.

However, because of the high cost of library software, more and more libraries have formed consortia where they pull their resources together and get a good bargain of scale to acquire library software. The advantages of a consortium are numerous, including:

negotiating power, networking, relative lower price per institution (compared to purchasing as stand-alone), technical support, and large user group base. Budget therefore needs to be provided for cost of:

- software
- consortium membership
- training, and
- participation in Users Group annual meetings.

Conversion of manual record into machine-readable form

Conversion of manual records into machine-readable form is sometimes referred to as *digitization.* In many libraries, digitization is singled out as a project. However, in library technical services, the area that would most likely require budgeting for is the digitization of the card catalogue, which, for most libraries, includes retrospective conversion of the catalogue. Generally, budget for conversion of records ó whether retrospective or, on-going, needs to take care of the essential costs of:

- Human resources to do the retrospective conversion of the catalogue/digitization ó inputting of data
- Cataloguing software
- Digitization equipment (scanners, cameras)
- Training
- Renewal/subscription
- Server
- Uninterruptible Power Supply systems
- Stabilizers
- Alternative power back up system (solar, battery inverter, generator)
- Staff workstations
- Workstations for Online Public Access Catalogue.

Budget for consistent electricity supply is critical for an effective conversion process. This should therefore be seen as a pre-condition for an attempt into conversion of records.

Licensing, access, and subscriptions

Licensing is a budget item that is persistent in all ICT environments. Licensing is the intellectual property right ownership of a product, which must be negotiated, and, in most cases, signed, and paid for before right of use is granted. It is after the signing that access to resources is permitted. The access lasts for the period of the agreement as stated and signed in the document, which, usually, is a legal document.

In most libraries, the budget for the purchase of software and licensing issues are processed by the Acquisitions section. However, a growing trend in libraries is to have a special unit to deal with licensing issues, because of the legal and compelling implications of licensing for libraries. As mentioned in the previous paragraph under Software, hardware, accessories, and telecommunications many of the software and databases that come under license are usually very costly.

Nevertheless, the library needs to budget for access into catalogues and databases of other libraries where bibliographic records, full texts of books, journals, and multimedia can be accessed. In many instances, provision will have to be made for subscriptions. This, together with renewal of licenses, is an on-going budget.

Akintunde, S. A. : Budgeting for Technical Services in the Era of ICTs

Internet access

Internet access is a *sine qua non* for an effective ICT driven library services. One major challenge libraries of the developing world face is how to gain access, in a sustained manner, to the rich resources of data on the Internet. This is so because of the high cost of bandwidth and the low budgetary power of libraries. Bandwidth has been defined as measuring õhow much information can be carried in a given time period (usually a second) over a wired or wireless communications linkö (Securing the Linchpin v, 2003). It is often expressed as *bits per second (bps)*, which is õa common measure of data speed for computer modems and transmission carriers. As the term implies, the speed in Bps is equal to the number of bits transmitted or received each secondö (Securing the Linchpin v, 2003).

In budgetary terms, this means that the number of bits (information) received per second is dependent on how much has been paid for: more bandwidth means more money. So, the accessibility of libraries to digital resources in other libraries or information centres for purposes of their technical and other services depends largely on their ability to pay for bandwidth.

In order to overcome this, libraries are forming and joining consortia to reduce costs. The current effort of United States Higher Education Partnership part-funding of libraries in Africa has made it possible for libraries supported by partnership members to have increased bandwidth while paying less. Examples of such libraries in Nigeria are the Obafemi Awolowo University, Ile-Ife, Ahmadu Bello University, Zaria, University of Port Harcourt, Port Harcourt, Bayero University, Kano, University of Ibadan, and the University of Jos, Jos who currently enjoy a higher bandwidth than other institutions in the country, while paying less. They have also formed a consortium to purchase a Library Management System ó Virtua, from Visionary Technology in Library Solutions (VTLS) at a lower fee than they would have done individually.

The deployment of ICTs for library technical services requires consistent bandwidth use: connectivity for online catalogue checks; book, journal, and other purchases; indexing; institutional repositories; databases of subject literature; etc. Sharing bandwidth within an institutional structure may work well with some libraries. Having a dedicated bandwidth for the library for the library is advisable. Therefore, the need for dedicated budget for library bandwidth uses to be allocated. The cost will vary with the type of technology and vendor that is supplying the bandwidth.

Appropriate library environment

Deploying ICTs in libraries requires an enabling environment for efficient and effective use of resources and return on investment. Thus, structures (especially building), networking (cabling), and general physical facilities such as electricity cabling and supply, ventilation and dust.

Many structures in which Nigerian libraries are hosted were built many years back when there was no knowledge as to the phenomenal impact ICT would make in the future. Most of those buildings require re-design and re-cabling, in order to accommodate ICT. This requires some capital budget which can not be compromised. In some cases, libraries may need a new structure out rightly, because it would be more cost-effective to do that than mend the old.

Furniture like reading tables and chairs also require adjustments to accommodate the use of computers and the outlay of networking and electricity cables and outlets. Access to the Internet through wired and wireless configurations will be made easy if library furniture is purpose built to assist in the use of the new technology. The trend in most libraries in more developed societies is *library commons,* a philosophy where the library is re-designed to take care of the growing patron need for access to, and use of multimedia in the library. It is imperative therefore that, for a start, substantial portion of library budget may need to be allocated for the redesign of the library. This will appear to be the case in most Nigerian libraries.

Operational Budget

For effective deployment of ICT infrastructure and use in libraries, there is a need for an operational budget that will cater for the ongoing expenditure of subscriptions to new databases, fuelling of generators - because of the pre-carious power situation in the country, and payment of human resources assisting in the conversion of records into digital format, as well as other incidental expenses. The operational budget should also accommodate consumables such as ink, toners, hard disks, computer and network ephemerals. The essence is that work flow in the library, especially technical services, should not be interrupted on account of inadequacies of library funding.

Conclusion

Nigerian libraries have a major challenge in operating in an ICT environment. The challenge of funding is real, realizing that many libraries have not had real budgets in the last few years. So the fund for deploying ICT, which is enormous, must be found creatively, either through special budgetary allocation, or solicitations from funding organizations. This is the avenue used by the consortium of libraries earlier mentioned, and the support they have received so far, has brought about significant progress in their migration into an ICT driven library environment. The alumni of institutions can also support in the funding of ICT initiatives in libraries, because of the precarious level of funding of libraries.

More importantly, library technical services, which is the pivot on which the library rotates deserves adequate budgetary provision that will make both human and material resources to integrate perfectly in using ICT. Budget for the development of human resources is very critical because well knowledgeable, skilled, and well trained staff are drivers of innovation. Substantial budget will therefore necessarily be reserved for training, both for the adoption, adaptation and continuing use of the ever changing ICT. Budgeting for technical services in the era of ICT is therefore a necessary and integral part of a library that seeks to be relevant to patrons that have become increasingly obsessed with a dynamic technology.

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