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## Application of Information and Communication Technology (ICT) in Service Delivery in Nigerian Private University Libraries

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## **Introduction**

ICT (information and communications technology is a broad term that refers to any type of communication device or application, including satellite systems, radio, television, mobile phones, computer and network hardware, and so forth, as well as the various services and applications related to them. Lucey (2005) defined Information and Communications Technology (ICT) as “the convergence and integration of telecommunications, data communications and mass communications technologies in a single medium”. ICT, according to him, is the technology and software that society uses to create, gather, consolidate, and communicate information in multimodal formats and for a variety of purposes. Imeremba (2004) defines information and communications technology as the use of electronic methods, tools, and other technologies to make information more easily accessible and disseminated. The fusion of computing, information, communications, and entertainment brought about by advances in ICT has made it possible to exchange information in the digital format used by computers. Although it seems as though ICT is being restricted to merely computers with the advent of the internet and its application in nearly all sectors of human endeavor.

In contrast to the state and federal owned universities, private universities are a more recent development in Nigeria. Prior to 1999 in Nigeria, public institutions held the monopoly-like position in the provision of higher education. According to Ajadi (2010), the structural adjustment programs (SAP), deregulation policies, and state financial crises all contributed to the favorable environment that allowed for the establishment of private universities in Nigeria. These are autonomous, non-public institutions that are not funded by the government and are typically run by boards from a particular religion or from a secular organization. Private universities are institutions that are wholly owned, financed, and operated by private persons, religious, or business organizations with the purpose to recoup costs quickly and generate profit.

In Nigeria, the first federal university was established in 1948 while the first state university was established in 1979. However, the first set of surviving private universities was established in 1999. The library which is the nerve centre of any university, occupies the central and primary place because of its role in supporting the teaching, learning and research functions of the parent institution. The extent to which a library performs these functions depends on a number of factors which include adequate information resources, qualified personnel, adequate accommodation and availability of funds. ICT has radically transformed most of the services

provided by a library. Saliu (2010) affirms that ICT is one of the most potent forces shaping the 21<sup>st</sup> Century. According to him: “In the library sector, ICT favours a new, easy and better method of carrying out a number of library operations. Old services have consequently been displaced by new proactive services”. With the ICT revolution, there has been a wave of change, and libraries have expanded not only their formats but also their roles to include electronic and digital formats. Librarians today are specialists who go by a variety of titles, including "information manager," "information scientist," and "knowledge manager," rather than simply being bookkeepers. No library can deny the reality of using information and communication technology to deliver services today if it wants to take advantage of the advancements and offer its users more effective and efficient services.

### **Objectives of the Study**

The objectives of this study are:

- i. To ascertain the extent to which ICT is applied in service delivery in the private university libraries.
- ii. To investigate the type of ICTs used by private university libraries in their service delivery.
- iii. To determine the effectiveness of the ICTs used in private university libraries.
- iv. To find out the challenges associated with the application of ICT in Nigerian private university libraries.

### **Literature Review**

Information and Communication Technology (ICT) is a compound word which embodies three important concepts, ‘Information’; ‘Communication’ and ‘Technology’. Womboh and Abba (2008) view these three concepts thus:

“Information is any potentially useful fact, quantity or value that can be expressed uniquely with exactness. Information is whatever is capable of causing a human mind to change its opinion about the current state of the real world. Communication refers to the transfer or exchange of information from person to person or from one place to another. Technology refers to the use of scientific knowledge to invent tools that assist human beings in their efforts to overcome environmental hazards and impediments to comfort. Put together therefore, ICT has been defined as the

acquisition, analysis, manipulation, storage and distribution of information, and the design and provision of equipment and software for these purposes”.

Essien et al (2022) describes Information and Communication Technology as the use of computer system and telecommunications in the delivery and handling of information services. They identified three basic components of information and communication technology as electronic processing using the computer; transmission of information using telecommunication equipment and dissemination of information in multimedia. information and communication technology are those technologies that are used in handling, acquiring, processing, storing and disseminating information. This means that they are basically information handling tools that are used in the whole process of information management (Aina, 2004). Furthermore, Adeya (2004) views ICT as those technologies that cover internet service provision, telecommunications equipment and services, media and broadcasting, libraries and documentation centres, commercial information provision, network-based information services and other related information and communication activities. Information and Communication Technology can be grouped into two viz:

- a. The traditional computer-based technologies which involve things you can typically do using computers at home or in the office like word processing.
- b. The more recent and fast-growing range of digital communication technologies which allow people and organizations to communicate and share information digitally

The characteristics of ICT are:

- Increased computing power leading to faster and cheaper computing process.
- Speed: Information can be quickly accessed and processed from around the world in record time
- Capacity: ICTs enable users to store and retrieve large quantities of data either or as a combination of images, sounds and text.
- Automation: ICT has the capacity to enable the user record, sort and represent data to investigate possible solutions to problems. They can be adapted and amended as the need arises.
- Provisionality: ICTs make provisions for a user to perform various tasks at once using a particular hardware or software.

- Interactivity: ICTs can be manipulated or controlled by the user to achieve or accomplish a particular task. They are characterized by their ability to generate feedback in order to satisfy a user's enquiries.

- Non-Linearity: ICT allows users to gather information from a variety of sources through numerous navigation methods.

- Multi-modality: ICTs have the ability to be used in different ways. Different applications can be incorporated in a particular hardware or software. (Madu and Adeniran, 2005)

The history of universities in Nigeria is also in effect the history of academic libraries because the library is sine qua non to the establishment of any university. Saliu (2005) contends that since the library is the nerve centre of any university, it occupies the central and primary place because of its role in supporting the teaching, learning and research functions of the parent institution. He noted that the extent to which a library performs these functions depends on a number of factors which include adequate information resources, qualified personnel, adequate accommodation and availability of funds. The adoption of ICT in Nigerian libraries has been quite slow though a number of academic libraries have tried to integrate the use of ICT in their services. According to Saliu (2005):

‘The computerization of library services in Nigeria has been long overdue and is now inevitable. The number of publications and volumes of information available in the world are daily increasing at a rapid rate. It is a fact that no research or activity is possible without access to archival and historical as well as finding(s), records and the latest research work’

Okiy (1998) used the Kenneth Dike Library of the University of Ibadan; Hezekiah Oluwasanmi library of the Obafemi Awolowo University, Ile-Ife and the University of Jos as examples of the very few government-owned universities which have automated their services to a large extent while the libraries of the universities of Nigeria, Nsukka and Port Harcourt as well as the Federal University of Technology, Akure are only partially automated. It has become obvious that using information and communication technology is now a reality which no library can deny if it wants to benefit from the advances in order to provide more efficient and effective services to its users.

Information technology in libraries refers to the use of technologies in the management of information explosion. For ICT to positively foster development especially in the library, it

must be employed effectively. The development of modern information technologies has brought about innovative changes in library operations and services. Currently, a functioning library system is seen as a harmonious union of people, materials, and technologies. The relevance of ICT to libraries in general and university libraries in particular cannot be over-emphasized. Okoye (2010) views technology in library services as principally applying the computer and other forms of technologies to the processing of library operations. Technology in library services is the process by which the computer takes over the routine clerical functions as well as other specialized functions like cataloguing, classification and circulation. Krubu and Osawaru (2011) are of the opinion that computing, communication and mass storage technology are some of the areas of continuous development that reshape the way that libraries access, store, manipulate and disseminate information to users. ICTs have made a tremendous impact on every sphere of academic library activity especially in the form of library collection development strategies, library building and consortia. ICT provides an opportunity for libraries to provide value-added information services and access to a wide variety of digital based information resources to their clients. Krubu and Osawaru (2011) posit that academic libraries are also using modern ICTs to automate their core functions, implement efficient and effective library cooperation and resource sharing networks, implement management information systems, develop institutional repositories of digital local contents and digital libraries as well as initiate ICT-based capacity building programmes for library users. ICT has radically transformed most of the services provided by a library. Womboh and Abba (2008) opine that ICT is *asine qua non* for effective modern library management and services. ICT is utilized in the storage and processing of information while making dissemination of information very efficient. Moreover, usage of ICT has eliminated a lot of routine and repetitive tasks being done in the library. ICT is now a core component of any library and information science curriculum at all levels. Any modern library and information professional must have a basic knowledge of library automation, networking, internet surfing, database management processing software, statistical software, etc.

Continuing, they noted that a cogent example of the impact of the ICT revolution on the university library is the teaching of the course, "Use of the Library". They pointed out that the course was initially aimed at marketing the library and teaching students how to use it effectively but that in some Nigerian universities, it was being phased out. Citing as example

the Federal University of Technology, Yola, where they said the course has been replaced with “Information Literacy”. With information literacy, students can go online to obtain their own information rather than wait for a lecturer. In view of the foregoing, Sambari (2009) asserts that ICTs’ impact on libraries can be viewed from three vantage points:

- they made information creation in digital format possible;
- they made online access and file transfer possible and
- They also make networking and sharing of information resources possible.

Saliu (2010) affirms that ICT is one of the most potent forces shaping the 21<sup>st</sup> Century. In the library sector, ICT favours a new, easy and better method of carrying out a number of library operations. Old services have consequently been displaced by new proactive services. With the ICT revolution, there has been a wave of change and libraries have not only expanded their formats to electronic and digital formats, but also their roles. Librarians are no longer just custodians of books; today’s librarian is a specialist and answers a variety of names such as ‘Information manager’, ‘Information scientist’, ‘Knowledge manager’, and a host of other specialized and highly technical versions of a professional. Womboh and Abba (2008) argue that any industry that treats ICT as inconsequential has simply signed a ‘death warrant’ on its continued relevance and the library represents one area that has experienced this revolution. The traditional ‘brick and mortar’ libraries need to give way to libraries that are not limited by geography. It is essential for libraries to reinvent themselves if they hope to develop and facilitate access to information in this digital age. Most university libraries in Nigeria have embraced ICT and to be fair, ICT infrastructure (hardware) can be found in every university library in Nigeria, though in varying degrees. This means is that while some university libraries are just waking up to the reality of adopting ICT for their services, others are in very advanced stages of ICT application to services in their libraries. Moreover, the benefits of ICT adoption by Nigerian university libraries cannot be over-emphasized since it has brought about pervasive changes that has affected all aspects of library operations, information resources and services, staff skills requirements and user expectations. This fact was buttressed by Khan (2016) who stated that:

“The effective use of information technology in libraries increase efficiency in operations, eliminates repetitive nature of works, improves the quality and range

of services, facilitates easy and wider access to all kinds of information sources, facilitates faster information communication, increase morale and motivation of library staff, facilitates cooperation and resource sharing, saves time, space and resources, improves productivity and image of the library”.

The South West Museum & Libraries Association Champion (2009) is of the view that the evolution of technology has undoubtedly increased the variety of resources available in libraries today. It is no longer a case of going to the library to borrow a particular book for research but rather it is an opportunity to explore books, journals, DVDs and websites related to the matter under examination. ICT has brought about hybrid libraries whose collection of physical resources now exists side by side with their digital resources.

The key purpose of any library is to provide quality service. Edoka (2000) sees information service as personal assistance provided by the library staff to users in pursuit of information. The ultimate aim of any library is to create value for its users and so the library should ensure that the information users get are timely, precise and accurate. Libraries embark on information service delivery to obtain user satisfaction. The conventional library services can no longer cope with emerging demand for speedy provision of information by clientele. Onuoha & Chukwueke (2021) regards information services delivery as being synonymous with major tasks of identifying, organizing, storing, retrieving, repackaging and presentation of information so that its use by both individuals and the corporate body is maximized. Information delivery is hinged on the performance of information delivery system that is founded and related to (a) accuracy of the services, (b) adequacy of and need-based services; (c) timeliness of the services delivered; and, (d) quality of information product. Thus, information delivery services will depend to a greater extent on the professional competencies which are: Managing Information Organizations; Managing Information Resources; Managing Information Services; Applying Information Tools and Technology. Hsieh, Chang & Lu (2000) opine that information service system is a service delivery system that has direct contact with customers. In circulation, access and reference services, the customer often serves as the co-producer and works with the librarians and the library system to produce a final product which enhances knowledge, skills, or promotes the enjoyment of leisure activities. Since service encounter is always initiated by the customer, the major function of an information service system should be dynamic and



customer-oriented. Because of direct interaction with public service librarians, the customers require the service to be done right the first time and to be consistent every time.

Fong, Ward & Dearie (2002) assert that “librarians employ a variety of methods to enhance service provision to their clientele, hence it is a recognized fact that ICTs are at the forefront of an improved information delivery service in the libraries”. For libraries to be able to compete, they must have a strong information infrastructure at the heart of which lies Information and Communication Technology. Libraries should strive for improved quality services if they want to survive in the present digital environment since they are faced with increasing competition from different angles. In essence, libraries must continuously strive to improve both technical and user services.

### **Methodology**

In this research, the purposive sample size which consists of the professionals in two private universities were used as case studies because they represent a fraction of the professionals in all the private university libraries in Nigeria. The two private universities used in the study were the Veritas University, Abuja and the Babcock University, Remo, Ogun State. Questionnaires were used for data collection. A structured questionnaire with multiple choices and open-ended questions, designed according to the objectives was distributed to the librarians with a request to fill them.

The data in the questionnaire was analyzed and interpreted in a suitable manner using percentages and frequency tables. This method was adopted because of its clarity and easy comparability of data. The analysis of data was based on the responses from the administered questionnaires.

### **Results**

Twenty (20) copies of the questionnaire which were distributed but nineteen (19) copies were returned thereby making it a 95% return rate.

**Research Question One** – What is the level of ICT application in service delivery in private university libraries?

**Table 1 Level of ICT Application**

<b>Level</b>	<b>No. of Respondents</b>	<b>Percent (%)</b>
V. High	5	26.3%
High	9	47.4%
Moderate	5	26.3%
Low	-	-
V. Low	-	-
Total	19	100%

Table 1 above shows that 5 (26.3%) of the respondents are of the opinion that the level of ICT application is very high; 9 respondents or 47.4% think it's high while 5 respondents (26.3%) think the level of ICT application is just moderate. Neither of the respondents agrees that the level of ICT is low or very low. Furthermore, as part of research question one above, the respondents were asked to indicate the areas of library service where ICT was applied as shown in table 4.5 below.

**Table 2 Areas of Library Service Where ICT is Applied**

<b>Services</b>	<b>Total</b>	<b>Percent(%)</b>
Acquisition	6	32%
Cataloguing/ Classification	19	100%
Circulation	19	100%
Indexing/Abstracting	3	16%
Serials	4	21.1%
Current Awareness Service	12	63.2%

The respondents were asked to tick as many areas of service as applicable and from the responses above, it can be observed that 6 (32%) of the respondents stated that ICT is applied in library acquisition. All (100%) respondents affirmed that ICT was applied in technical services (Cataloguing/Classification) as well in readers' services (Circulation). While 3(16%), 4(21.1%)

and 12(63.2%) of the respondents agreed that ICT was applied to indexing/abstracting, serials and current awareness services respectively. The implication is that private university libraries apply ICT to core service areas such as cataloguing and classification, circulation and current awareness services.

**Research Question Two**– What type of ICTs do private university libraries use in service delivery?

**Table 3 ICT Hardware Used by Private University Libraries**

<b>ICT Hardware</b>	<b>No. of respondents</b>	<b>Percent (%)</b>
Computers	19	100%
Internet	19	100%
Intranet	17	89%
Projectors	16	84%
Scanners	15	79%
Copiers	19	100%
CD-ROM	19	100%
Printers	19	100%

From table 3 above, the respondents were asked to tick as many ICT hardware in their libraries as applicable. The responses presented in table 3 indicate that all 19 (100%) of the respondents affirmed that their libraries maximized the use of ICT hardware like computers with internet, photocopiers, CD-ROMs and printers in service delivery. While 17 (89%) of the respondents said they used the intranet, 16 (84%) of respondents indicated that they apply projectors in service delivery. 15 (79%) of the respondents said they used scanners while all 19 (100%) of the respondents affirm that they employ copiers, CD-ROM and printers to deliver library services. Conclusion drawn from the table above is that private university libraries readily invest in ICT hardware for efficient service delivery. Furthermore, as part of the research question two, respondents were asked to indicate which library software their libraries used and their answers are shown in tables 4 and 5 below.

**Table 4 Library software used by Babcock University Library**

<b>Services</b>	<b>Software</b>	<b>No of Respondents</b>	<b>Percentage</b>
Readers' Services	KOHA	15	100%
Cataloguing/Classification	KOHA	15	100%
Collection Development	-	-	-
Indexing/ Abstracting	-	-	-
Serials Services	KOHA	11	73%

Indications from the table above show that all (100%) of respondents in Babcock Library indicated the KOHA library software as the software they use and it is applied in core library services like circulation and cataloguing/classification while 73% said they also apply KOHA to serials services.

**Table 5 Library software used by Veritas University Library**

<b>Services</b>	<b>Software</b>	<b>No of Respondents</b>	<b>Percentage</b>
Readers' Services	Open Biblio	4	100%
Cataloguing/Classification	Open Biblio	4	100%
Collection Development	-	-	-
Indexing/Abstracting	-	-	-
Serials Services	-	-	-

From table 5 above, it can be deduced that the Veritas University Library applies the OpenBiblio library software to deliver core library services like readers' services and technical services (cataloguing/classification) since all 4 (100%) respondents listed it as such. Inference drawn from table 4 and 5 above supports table 3 about ICT being applied to core library functions of cataloguing, classification and circulation.

**Research Question Three – How effective are the ICTs being used in Nigerian private university libraries?**

When this question was asked, 12 respondents representing 63% replied that the ICTs they applied in the library were highly effective while 7 (37%) of respondents indicated that the ICTs being used in the library were moderately effective. Their responses are shown in table 6 below

**Table 6 How Effective Are the ICTS Used to Render Services in The Library?**

<b>Effectiveness of ICT applied</b>	<b>No. of respondents</b>	<b>Percentage</b>
Highly Effective	12	63%
Moderately Effective	7	37%
Not Effective	-	-
<b>Total</b>	<b>19</b>	<b>100%</b>

Table 6 indicated that the ICTs used to render services in Nigerian private university libraries are very effective. In addition to the question above, the respondents were asked what type of impact ICT have had in information delivery and their responses are as shown in the table 7 below.

**Table 7 What Impact Does ICT Have on Information Service Delivery?**

<b>Impact of ICT on Information Service Delivery in Libraries</b>	<b>Total</b>	<b>Per%</b>
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It facilitates delivery of timely, relevant & accurate information	19	100%
It ensures easy retrieval & dissemination of information	19	100%
It helps in acquiring, processing & storage of data	14	74%
It ensures effective literature search	19	100%
It facilitates general library administration	19	100%
It enhances control of bibliographies & users' statistics	1	5%
It introduces the users to mastery of the use of computers	1	5%

The table above shows that all 19 (100%) respondents in the two institutions agreed that ICT facilitates delivery of timely, relevant and accurate information; ensures easy retrieval and dissemination of information; ensures effective literature search and facilitates general library administration. While 14 (74%) of respondents in both institutions said it helps to acquire, process and store data, only 1 (5%) respondent indicated that it enhances control of bibliographies & users' statistics as well as help to introduce users to the use of the computer for research. This signifies that the application of ICT in service delivery by private university libraries has had a high positive impact on their service delivery.

**Research Question Four– What factors militate against the application of ICT in Nigerian private university libraries?**

Table 4.11 **Problems of ICT Application in Nigerian Private University Libraries**

<b>PROBLEMS</b>	<b>No of respondents</b>	<b>Percentage</b>
Automation at infancy level	2	11%
Inadequate Funding	10	53%

Epileptic Power Supply	17	89%
Low Technical Know-how	2	11%
Lack of Search Skills by Library Staff	3	16%
Lack of Search Skills by Users	13	68%

Respondents were requested to tick as many problems as they feel that inhibit the application of ICT in private university libraries. From the table above, only 2 (11%) of the respondents agreed that one of the problems of ICT application is automation at the incipient level. 6 respondents representing 53% affirmed that inadequate funding was a hindrance to ICT application in private university libraries while an overwhelming majority of respondents (17 or 89%) points at inadequate power supply as a major factor militating against ICT application. 2 respondents (11%) cited low technical know-how, 3 respondents (16%) alleged lack of search skills by library staff while 13 respondents (68%) indicated lack of search skills by users as other factors militating against the application of ICT in Nigerian private university libraries. The conclusion drawn from the table above indicates that while public university libraries describe lack of or inadequate funding as a major factor inhibiting the application of ICT in their service delivery, private university libraries do not seem to have that problem. Their major problem is unsteady power supply and students not knowing how to use the ICTs at their disposal.

### **Findings**

1. The level of ICT application in Nigerian private university libraries is high and the major impact of ICT application in private university libraries has been in such areas of library service as well as the technical services (cataloguing/classification), readers' services (circulation) and in current awareness services.

2. Private university libraries apply such ICTs like networked computers with access to the internet, scanners, photocopiers, printers, CD-ROMs, intranet as well as projectors to deliver services to their users.
3. The research also showed that these ICTs applied by private university libraries are highly effective as they are used to facilitate the delivery of timely, relevant and accurate information; ensure easy retrieval and dissemination of information; ensure effective literature search as well facilitate general library administration.
4. The study also revealed that a number of factors militated against effective ICT application in private university libraries. Such factors include: inadequate power supply, lack of search skills by users, inadequate funding and lack of search skills by library staff.

## **Conclusion**

Since ICT- enabled libraries have become a sine qua non for any 21<sup>st</sup> Century university library, private university libraries would be irrelevant to modern technological trends if they do not effectively equip their libraries with the requisite ICT hardware and software. A close examination of those university libraries where the academic programmes were denied accreditation reveals that most of them do not have adequate ICT facilities. On the other hand, most of the universities in which the programmes received full or interim accreditation had either a fully equipped virtual library or a functional internet café, in addition to other ICT facilities. In as much as the ICTs that are used by private university libraries at the moment are serving them well, there is still room for improvement with the way cutting edge technologies are invented almost every day. Under the present situation, it has become imperative that private university libraries must seek alternative means of surmounting their electricity challenges in order to continue delivering efficient services to their users. Moreover, to be able to maximize the use of these ICTs in their quest for information, students should be introduced to the use of computers at the stage of their admission to enable them learn the rudiments of library search



skills while library staff must make additional efforts to master the use of the ICTs they already have so that they can effectively use them in their service delivery.

## **Recommendations**

1. Since inadequate funding is not a major issue in the application of ICT in private university libraries, the proprietors or owners of such institutions should channel some of those funds to the acquisition of complimentary generators or high-powered inverters or solar panels that would assist them in surmounting the problem of inadequate power supply.
2. Private university libraries should intensify user education orientation to ensure proper utilization of ICT tools and resources by students and faculty.
3. Librarians must have the knowledge, skills and tools in handling digital information in order to be efficient creators, collectors, consolidators and communicators of information. Librarians with the knowledge, skill and tools required of information professionals in an information society will drive success factors in enabling the library to perform its role as an information support system for the university and the society in general.
4. The proprietors of private universities should allocate more funds for the acquisition of computer hardware, software and other ICT equipment and accessories needed for the efficient delivery of service as well as for the training needs of the library staff.
5. Private university libraries need to form a consortium like public university libraries that can negotiate for and attract concessions from such bodies like ETF for further development of their resources.
6. Library schools must integrate ICT into their curricula and short courses to produce graduates who can cope with the changing work environment.

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