# Information and Communication Technologies (ICTs) Application to Cataloguing and Classification in Nigerian Libraries

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*Abstract*

***Purpose:*** *This paper presents an assessment of Information and Communication Technologies (ICTs) application to cataloguing and classification in Nigerian libraries.*

***Design/ Methodology/Approach:*** *Descriptive survey design was adopted for this study. A self-developed questionnaire was administered among cataloguers who attended the annual workshop of the Cataloguing and Classification section of the Nigerian Library Association (NLA) in Badagry, Lagos state, Nigeria. A total of 70 delegates responded to the survey, yielding a response rate of 62.5% out of the 112 registered participants who came from different parts of the country for the workshop. . Data were analysed using descriptive statistics such as frequency counts and percentages. Results are presented in tables and charts.*

***Findings:*** *Findings showed that cataloguers have embraced use of diverse library software and also utilise online catalogues for copy cataloguing. Further findings showed that Nigerian cataloguers have positive attitude towards ICT application in performing cataloguing and classification activities.*

***Implication:*** *The practical implication of this study is that ICT offers more efficient ways to carry out cataloguing and classification of library resources in Nigerian libraries and elsewhere. In terms of policy, this study lends support for policy formulation towards adequate provision of funds for ICT facilities in libraries.*

***Originality/Value:*** *The paper provides information on the attitude of cataloguers towards ICT use in libraries*

***Keywords****: ICT, Cataloguing, Classification, Cataloguers, Nigeria, libraries, attitude*

***Paper type:*** *Empirical research*

## Introduction

Cataloguing and classification are intellectual and professional endeavours central to librarianship. Its overall aim is to ensure that library collections are well organised and retrieval is not cumbersome. The routine in cataloguing and classification section of libraries, though done 'behind the scene, is so technical in nature, thereby requiring special skills. Cataloguing involves the detailed description of the physical properties of a document, book, or reading material (print, non-print, audio-visual or both) to facilitate subsequent easy retrieval. Classification is done with a view to assign class marks to books using schemes such as the Library of Congress Classification (LC), Dewey Decimal Classification (DDC), Moys Classification scheme and others. Esse (2013:18) defined cataloguing as the "bibliographic description of documents to make it easy for a searcher to identify the documents in a collection when seen while classification is the correct placement of a document with a view to availing patrons, easy access to it at a specific location among the collections of a system".

Information and Communication Technology (ICT) has improved workflow in libraries and has greatly reduced manual work (Bhoi, 2017). The application of ICT to library operations particularly cataloguing and classification also enabled para-professionals in libraries to effectively perform much of the duties that hitherto were the exclusive domain of professional librarians (Eze, 2012). Many libraries in developed countries have adopted the use of ICT in carrying out cataloguing and classification functions, and Nigerian libraries are no exception. Despite the fact that university libraries in Nigeria are now automated, application of ICTs to core library modules such as cataloguing and classification has not been addressed adequately in literature. It is against this background that this study is set out to investigate Information and Communication Technologies (ICTs) application to cataloguing

and classification. The study was guided by the following research questions:

1. What are the various library software used by cataloguers in Nigerian libraries?
2. What are the online catalogue databases used by cataloguers in Nigerian libraries?
3. What ICT tools are available to Nigerian cataloguers?
4. What is the attitude of cataloguers towards change from manual cataloguing to ICT based operations?

**Literature Review**

Cataloguing and classification, among other library services, have witnessed reasonable changes in the era of Information and Communication Technologies (ICTs). ICTs have transformed ways in which cataloguing and classification routines are carried out and automation has impacted on the traditional ways of organising library resources, particularly in cataloguing departments, changing how, and by whom the cataloguing is done. Cataloguing has grown more important as library users can now log on to online catalogues from the comfort of their homes. Mason (2004) argued that ICT has made cataloguing more efficient.

Routines for manual cataloguing have proved to be drudgery, repetitive, boring in nature and often times seen as "hard" area of librarianship. Previous studies identified an array of software for library automation to include ALICE for Windows, Virtua, Techlib Plus, Libsys, CDS/ISIS, Lib Info, WINISIS, LMS, SOUL, TINLIB, X-LIB, GLAS, KOHA, SLAM, Liberty 3, Docuware etc (Bassey, 2016; Okewale and Adetimirin, 2011; Sharma, 2007). The impact of automation in libraries brought about resource sharing, easy and increased accessibility, reliable storage, accuracy, resource availability, reduced duplication of efforts and cost effectiveness (Arinola, Adigun, Oladeji and Adekunjo 2012). It has also led to increased work productivity among cataloguers. For instance, Akintunde (2002) stated that the automation of cataloguing operations in the University of Jos, Plateau state, Nigeria has proved useful in increasing the number of books processed in Cataloguing section from as low as 5 percent to 50 percent.

The integration of ICT with technical services has empowered cataloguers to embark on integrated operations and resource sharing. Through resource sharing, cataloguing records are now readily available, and there is serious

reduction in effort duplication among cataloguers (Nwalo, 2006). New features which brought about application of ICTs into libraries include the Online Public Access Catalogue (OPAC), a database containing the library's collection that can be accessed by anyone on-line, Cataloguing-In-Publication (CIP) data, involvement of non-professionals in copy cataloguing, introduction of software, cataloguing of internet resources and other electronic files, (Francis-Swanson, 2010; Yusuf, 2009).

Cataloguers now have access to online catalogue. Access to online catalogue enables cataloguers to search for class numbers and other bibliographic information about a book. Zaid (2008) observes that cataloguers have been able to surmount the delay in pushing out books to the shelves and problem of backlogs of unprocessed books in cataloguing section. Moreover, the role of cataloguers has been expanded to include processing of Internet resources (Bamidele and Olusegun (2017). However, for cataloguers to fit in competently into the expanded role brought about by application of ICTs into libraries, new expertise such as ability to operate different library software, ability to use online packages such as MARC21 standard online, WEB Dewey, Web LC and Search interfaces; ability to manipulate different metadata schemes and ability to catalogue resources for diverse user environments and audiences (Ese, 2013). Moreover, today's cataloguers should possess editorial skills in order to ensure quality control of records added to the database or catalogue (Bamidele and Olusegun, 2017).

Omeku (2008) argues that the most critical role of cataloguers, especially those in developing countries is adoption of cataloguing practices that effectively mainstream information resources into the global information network environment. By so doing, a cataloguing system that would become tools for access and controlled description of physical and virtual resources will evolve. From the viewpoint of Bassey (2016), only about forty four percent of cataloguing module is fully automated in most libraries in Nigeria.

Attitude is defined as the total of a man's inclination and feelings, prejudices or bias, preconceived notions, ideas, fears and convictions about any specific topic (Taiwo, 1998). It refers to both cognitive and emotional

components, and plays important part in affecting behavior. Attitude should be taken into consideration in managing staff, especially during processes of change and innovation since they are fundamental in implementing new technologies (Spacey, Guilding and Murray, 2003). Attitude guides the individual's behaviour by filtering information and by shaping his or her perception of the world (Fazio, 1986). It involves an individual's judgment that performing a behavior is good or bad and also a general evaluation that an individual is inclined or disinclined to perform the behavior (Ajzen and Fishbein, 1980).

Ubogu (2012), in a survey on attitude of librarians toward the use of ICT in libraries in some selected universities in Edo and Delta States Nigeria. Data was gathered from 178 respondents comprising 101 professional librarians and 77 Para-professional librarians respectively using questionnaire with a response rate of 80%. The findings showed that librarians have positive attitude towards use of ICT in libraries. The study also revealed that knowledge of ICT is a precursor to development of positive attitude towards ICT. The author recommended that all librarians who do are not knowledgeable in use of ICT should be adequately trained for them to develop positive attitude towards the use of ICTs in their libraries.

Corroborating this finding, Adekunle, Omoba and Tella (2007) found out that librarians have a positive attitude towards the use and implementation of ICT in libraries and explained that the reason for this might include an understanding of the benefits of ICT. Tella (2012) reported that the word attitude has been used to represent librarians' perceptions on the value attached to ICTs in libraries' technical processing, collection organisation and user services. Attitude can be said to depict the conceptual value of these technologies in the minds of librarians. A display of positive attitude by cataloguers towards ICT application in cataloguing and classification is demonstrated in the study of Orbih and Aina (2014). The authors observed that some of the transformations in cataloguing practices among Nigerian cataloguers are use of online catalogues of reputable libraries, cataloguing of internet resources, display of catalogues in electronic format and use of ICT tools such as computers,

Internet, online databases and library software packages.

## Theoretical Lens for the Study

The Technology Acceptance Model (TAM), originally proposed by Davis (1989) is the theoretical framework underpinning this research. TAM suggests that attitude would be a direct predictor of the intention to use technology, which in turn would predict the actual usage of the technology. The Technology Acceptance Model (TAM) is considered suitable for this study because it explained the relationship between attitude and behaviour and suggested that attitude influences actual use of technology.

## Methodology

Descriptive survey design was adopted for this study. A self-developed questionnaire was administered among cataloguers who attended the annual workshop of the Cataloguing and Classification section of the Nigerian Library Association (NLA) in Badagry, Lagos state, Nigeria. A total of 70 delegates responded to the survey, yielding a response rate of 62.5% out of the 112 registered participants who came from different parts of the country for the workshop. The questionnaire was divided into the following sections. Section A sought for demographic characteristics of the respondents such as gender, age, and years of work experience; Section B sought for information on library software used by cataloguers; Section C sought information on online catalogue databases used by cataloguers, Section D sought information on ICT tools that are available to cataloguers while Section E was designed to determine the attitude of Nigerian cataloguers towards change from manual cataloguing to ICT based operations. Data were analysed using descriptive statistics such as frequency counts and percentages. Results are presented in tables and charts.

## Results

Table 1 shows the demographic characteristics of respondents. Findings show that three (4.3%) respondents each fell within the age bracket 20 – 30 and 51 – 60 years, 24 (34.3%) were between 31 -40 years old, 37 (52.9%) were in the age bracket 41- 50 years while 1 (1.4%) was 60 years or above and 2 (2.9%) did not state their age.

Table 1: Demographic Characteristics of Respondents

| Variable | Category | Frequency | Percent (%) |
|---|---|---|---|
| Age | 20 -30 years | 3 | 4.3 |
| | 31- 40 years | 24 | 34.3 |
| | 41 – 50 years | 37 | 52.9 |
| | 51 – 60 years | 3 | 4.3 |
| | 60 and above | 2 | 2.9 |
| | No response | 2 | 2.9 |
| Sex | male | 34 | 48.6 |
| | female | 36 | 51.4 |
| Work experience | 1-10 years | 42 | 60 |
| | 11- 20 years | 15 | 21.4 |
| | 21-30 | 4 | 5.7 |
| | No response | 9 | 12.9 |

Respondents were made up of 34 (48.6%) males and 36 (51.4%) females. Forty two (60%) of the respondents had 1-10 years experience as a cataloguer, 15 (21.4%) had 11 – 20 years experience, 4 (5.7%) had 21 – 30 years experience, while 9 (12.9%) did not indicate the number of years of experience they had as cataloguer. This show that majority of the respondents had between one to ten years experience as cataloguers.

The findings presented in Figure 1 revealed that nearly 25% of cataloguers use Alice for Windows software, 20.4% use VIRTUA, 14.28% each use GLASS and TINLIB software, 21% use CDISIS software, 8.16% each use Koha and Greenstone, 6% use Millennium software, while 2% each used the following software: LIB plus, SLAM, X-Lib, PPS and Bookcollektz. This finding indicates that Alice for windows is the major library software used by the respondents
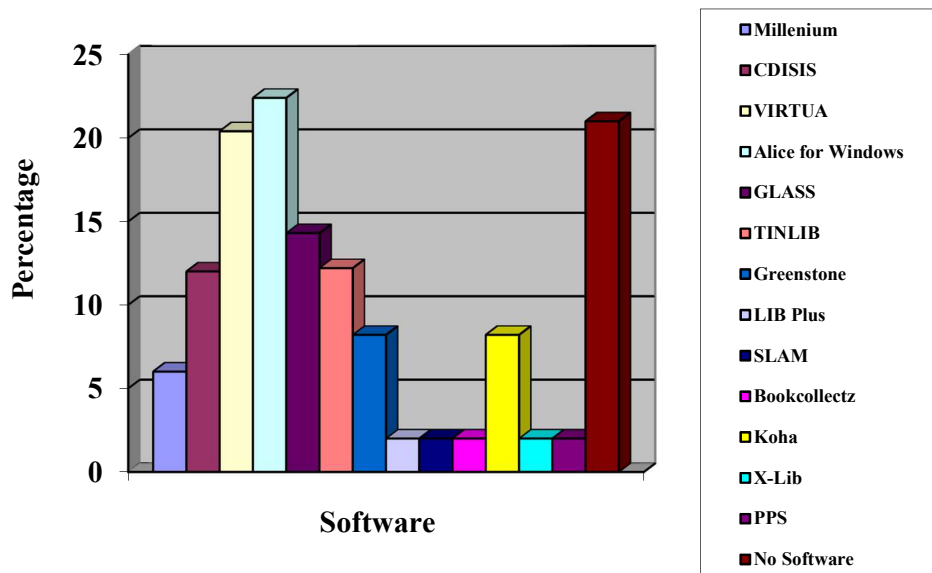


Figure 1: Software used by Cataloguers in Nigerian Libraries

Findings in Table 2 show the online catalogue databases used by cataloguers in Nigerian libraries. About half of the respondents use the Library of Congress Online catalogue in their cataloguing procedures, 15 (21.4%) of the

respondents indicated that they use the OCLC WorldCat, 4 (5.7%) use the ITS Bibliofile, 3 (4.3%) use the University of Adelaide online catalogue, 2 (2.9%) use the National Library of Medicine (NLM) online and 1 (1.4%) each use

Bookwhere, Yale University online catalogue, COPAC and Sorexus (Next library) respectively.

Twelve (17.1%) respondents indicated non-use of online catalogues as cataloguing tools, while 4 (5.7%) respondents did not answer the question. Findings imply that the Library of

Congress online catalogue is the most used online catalogue, followed by the OCLC. This may be due to the fact that no extra subscription fee is charged for the access to the Library of Congress catalogue online.

Table 2: Online catalogue databases used by cataloguers in Nigerian libraries

| Online Catalogue database | Responses | |
| --- | --- | --- |
| | Freq. | Percentage |
| Library of Congress Online catalogue | 38 | 54.3 |
| OCLC WorldCat | 15 | 21.4 |
| ITS Bibliofile | 4 | 5.7 |
| University of Adelaide online catalogue | 3 | 4.3 |
| National Library of Medicine (NLM) online | 2 | 3.0 |
| Bookwhere | 1 | 1.4 |
| Yale University online catalogue | 1 | 1.4 |
| COPAC | 1 | 1.4 |
| Sorexus  (Next library) | 1 | 1.4 |
| None | 4 | 5.7 |
| Total | 70 | 100.0 |

The responses in Figure 2 revealed ICT tools that are available to cataloguers.  Sixty (85.7%) of the respondents indicated that they had computers, 54 (77.1%) respondents had printers, 10 (14.3%) had electronic typewriters, 15 of the respondents (21.4%) had P-Touch (for spine labeling), 5 (7.14%)  respondents had barcode readers, 23 (32.9%) respondents  had scanners,

while 8 (11.4%) respondents indicated that they had no ICT tools for cataloguing in their library.

Computers and printers were found to be the most common ICT tool used for cataloguing, and barcode readers were not so common though scanners were available to about a third of the respondents.  This finding indicates that many cataloguers have basic ICT tools available for their use.
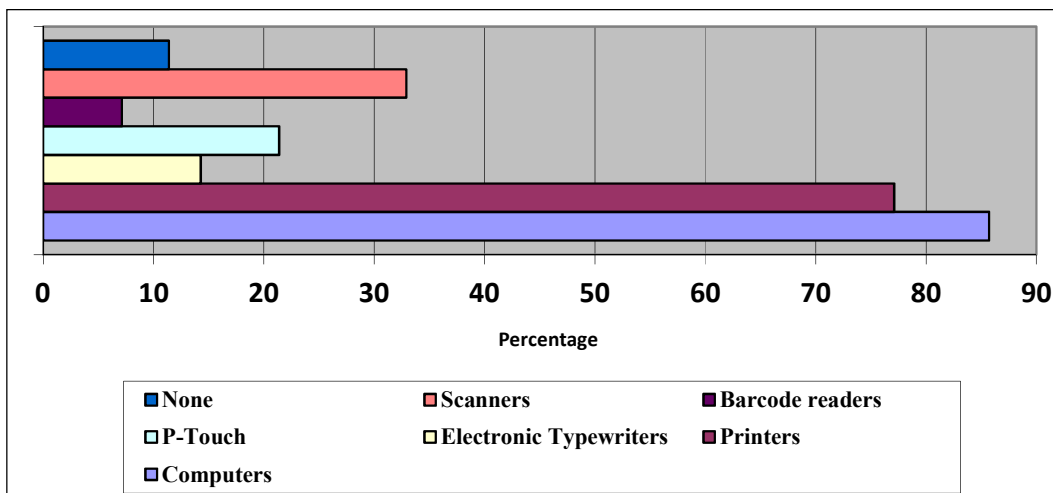


Figure 2:  ICT Tools Available to Cataloguers in Nigerian Libraries

Table 3: Attitude of Cataloguers towards Change from Manual Cataloguing to ICT Based Cataloguing and Classification

| Variable | Measure | | |
|---|---|---|---|
| | Agree (%) | Disagree (%) | Don't know (%) |
| ICT enables most effective ways of resource sharing in cataloguing | 85.7 | - | 8.6 |
| ICT helps in making specific information available | 91.5 | 1.4 | 2.9 |
| ICT will not appreciably reduce the number of cataloguing staff | 64.3 | 18.5 | 10.0 |
| Card catalog can be modified more easily than OPAC through ICT | 38.6 | 4.4 | 14.3 |
| ICT offers more efficient ways to carry out cataloguing and classification of library resources | 88.6 | - | 7.1 |
| Data storage on computers is highly risky in the library | 34.2 | 57.1 | 10.0 |
| ICT adoption in cataloguing has brought great relief compared with the manual method | 90.0 | - | 7.1 |
| ICT adoption to cataloguing activities has enhanced my job | 85.7 | - | 7.1 |
| Extensive use of ICT has created job fears amongst cataloguers | 35.7 | - | 8.6 |
| I am more comfortable using the subject headings and schedule than the Library of congress Online catalog and OCLC | 18.6 | 62.9 | 14.3 |

The results on attitude of cataloguers towards change from manual cataloguing to ICT based cataloguing and classification is presented in Table 3.

Majority of respondents (85.7%) agreed that ICT enables most effective ways of resource sharing in cataloguing. This finding aligns with (Arinola, et.al. (2012) on the resource sharing role that ICTs facilitate in cataloguing and classification. Nearly all the respondents (91%) agreed that ICT helps in making specific information available for cataloguing. More than half of the respondents agreed (64.3%) with the statement that ICT will not appreciably reduce the number of cataloguing staff. This finding implies that cataloguers are not afraid of losing their job due to application of ICT in cataloguing and classification. Less than half (38%) of the respondents agreed that card catalogue is easier to modify. Nearly all the respondents agreed that ICT offers more efficient ways to carry out cataloguing and classification of library resources. This finding corroborates that of Krubu and Osawaru (2011). While more than half (57.1%) of the respondents disagreed that data storage on computers is highly risky in the library, a few of them (34.2%) however are in agreement with this statement. This finding implies that cataloguers are somewhat skeptical about the safety of the data they are creating or storing in the OPAC.

Further findings revealed that nearly all the respondents (90%) agreed that ICT adoption in cataloguing has brought great relief compared with the manual method. This clearly indicates the usefulness of technology in cataloguing and classification over manual procedures in libraries. Moreover, most of the respondents (85.7%) indicated that ICT adoption to cataloguing activities has enhanced their job. This finding confirms the proposition of Davis (1989) that acceptance of technology is a function of the perceived usefulness to which a person believes that using a system will enhance their performance. Few of the respondents (35.7%) agreed with the statement that extensive use of ICT has created job fears amongst cataloguers. This finding suggests that cataloguers are confident about not losing their jobs even with adoption and use of ICT in organisation of information resources. However, a majority (63%) of the respondents are not comfortable with using the subject headings and schedule as compared with Library of Congress Online Catalog and OCLC. This finding suggests that cataloguers are more comfortable with online version of cataloguing tools than print version. Overall, the implication of this finding is that Nigerian cataloguers are of the opinion that ICT driven cataloguing and classification is better than the manual system.

**Discussion**

This paper examined application of Information and Communication Technologies (ICTs) to cataloguing and classification. This study found that the major library software used by cataloguers in Nigerian libraries is Alice for windows. This is contrary to the findings of Hudron and Emmanuel (2014) who found the use of SLAM software for automating cataloguing processes in Nigerian libraries.

Hudron and Emmanuel (2014) observed that Alice for windows is not MARC 21-compliant and as such lack interface for resources sharing. Alice for windows remains a significant software in library automation. Sharma (2007) reported that it is suitable for all types of libraries and allows for retrospective conversion of data. Adesola, Olla, Oshiname and Tella (2018) found that libraries in Nigeria and elsewhere have adopted different Library Management Software (LMS). Similarly, Hudron and Emmanuel (2014) also found use of diverse library software for library operations such as cataloguing, OPAC, serials, acquisitions and circulation, but counselled that libraries should acquire software that are MARC 21-compliant. Rudić and Ivanović (2017) observe that MARC 21 are standards for the representation of bibliographic and related information in machine-readable form. It use in cataloging information resources in various formats such as textual, computer files, cartographic, music material, as well as datasets has been underscored by Ivanović and Ivanović, (2016). Regarding use of online catalogue databases by cataloguers, the study found the use of Library of Congress Online catalogue and OCLC WorldCat.. This act is referred to as Copy cataloging. Beall and Kafadar (2004) found that copy cataloguing increases efficiency, eliminates duplication of effort and saves time. However, quality control must be ensured during the copy cataliging process especially in finding and correcting typographical errors in bibliographic records imported from such online databases. Cataloguers now make use of ICT tools such as computers, printers, electronic typewriters, P-Touch machines (for spine labeling), barcode readers and scanners, Computers and printers were found to be the most common ICT tools used for cataloguing. This finding corroborates that of Arinola et al. (2012) and Sokari, Gama, Haliru, Olayemi, and Yemi-Peters (2017) who, observed that many libraries in Nigeria now use of ICT in cataloguing. This finding is at variance with that of Bamidele and Olusegun (2017) who found that basic ICT tools like computers, internet and scanners are not available to cataloguers and a lack of understanding of computer languages such as XML, HTML, RDF1, MIME, MARC and SGML. The study also study found that cataloguers have a positive attitude towards ICT driven cataloguing and classification. Ramzan (2010) submits that a demonstration of positive attitude could serve as a catalytic agent for ICT acquisition and deployment by library stakeholders. This finding symbolises a high level of consciousness on the benefits that could be derived from ICT driven technical operations among cataloguers in developing countries. This finding implies that Nigerian cataloguers are of the view that ICT driven cataloguing and classification is better than the manual system.

**Conclusion and Recommendation**

Based on the findings of this study, Nigerian cataloguers could be said to have exhibited a somewhat positive attitude to change from manual cataloguing to ICT based operations. This is because ICT offers more efficient ways to carry out cataloguing and classification of library resources. The study concludes that stakeholders in libraries in Nigeria and elsewhere should devote funds towards provision of adequate ICT facilities that will drive cataloguing and classification operations. Effort should also be intensified towards achieving full automation of technical services such as cataloguing and classification, acquisitions and other library operations such as circulation. The study recommends that it is imperative for library management to develop and implement policies targeted towards deployment of ICT based cataloguing and classification tools in Nigerian libraries.

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