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Automation of cataloguing and references services in academic libraries: Myth or reality?

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Abstract
The rapid advance of information and communication technology (ICTs) has significantly transformed library operations worldwide including cataloguing and reference services in academic libraries in Nigeria. Academic libraries are increasingly embracing automation to enhance service delivery, yet the extent to which this advancement has been fully implemented remains contested. This study investigates the automation of cataloguing and reference services in Nigeria academic libraries using conceptual review approach. It specially explores the concept of automation, cataloguing services, reference services, automation of cataloguing and reference services, and academic libraries. Many academic libraries in developing countries, including Nigeria, are faced with significant challenges in achieving full automation of cataloguing and reference services due to inadequate planning, budget cuts, shortage of technology, erratic power supply, human factors and network aspects. The paper concludes that although signification strides have been made, full automation in most academic libraries in Nigeria exists more in aspiration than in practice. It recommends that careful and implementation and sustained supports for academic libraries can harness successful automation of cataloguing and reference services.

Keywords: Library automation, cataloguing services, reference services, academics libraries, Nigeria ICT in libraries

Introduction
Academic libraries serve as intellectual hubs for teaching, learning and research. Globally, automation has transformed library operations, improving efficiency accessibility and accuracy in cataloguing and reference service. However, automation is the reality of 21st century and library that ignores its capability in transforming the information environment is at risk of losing ground. Libraries, the repositories of human knowledge, have been striving to improve their productivity through the use of computers (Fauty, 1994). The library is the heart-beat of the educational enterprise and also the reservoir of knowledge, communicated through information resources that determines the direction of any nation. Academic libraries in Nigeria recognize the role of automation in supporting research, teaching and learning; yet the practical reality of implementation remains inconsistent. Many institutions continue to operate hybrid systems, combining manual operations with limited digital platforms. (Ezeani & Ugwu, 2015)

This paper provides a reflective and evaluative opinion on the state of automation in Nigeria academic libraries focusing specifically on cataloging and reference services. Drawing from existing literature, professional observation and conceptual findings suggest that while many libraries report automation achievements, significant gaps persist due to inadequate funding, unreliable power supply, lack of ICT infrastructure, insufficient staff training and inconsistent policy implementation. It argues that automation of cataloging and reference services in Nigeria academic libraries, though evolving, remains more aspirational than actual in many institutions. Recommendations are proffered to support sustainable and realistic automation practice.

Conceptual clarifications

Library automation

The word "automation" has been derived from Greek word "automose" which means something which has power of spontaneous movement. The term, automation was the first introduced by D.S Harder in 1936, who was then with General Motor Company in the U.S.A. He used the term, automation to mean automatic handling of parts between progressive production processes. Automation is technology of automatic working in which the handling method, the process and design of professional materials are integrated. This is the effort to achieve an automatic and self-regulating chain of processes.

Ken-Agbiriogu and Okorie (2021) defines Automation as the use of electronic machines to perform task and reduce human intervention to a minimum thus sparing human energy and time. It involves the use of electronic peripherals to perform the traditional cataloging routine activities engaged by library personnel in rending library service. Automation of library services, including cataloguing and reference services has become one of the recent strategic developments for enhancing library services provisions. Lawal-Solarin et al (2018) as cited in Adetunla and Chowdhury (2025) described automation of library services as the process of applying technology to manage in-house library operations such as circulation, cataloguing, references, serials and acquisition management activities. Automation of library services aim at enhancing the effectiveness, efficiency, accuracy and the ease of managing collections, providing access to resources and offering services to library uses. It helps in transforming traditional library functions and offering new possibilities for better users' experiences.

Automation in academic libraries refers to the use of computer systems, software and digital tools to perform tasks that were traditionally done manually. According Richard et al (2025), automation in academic libraries is the application of information and communication technology (ICTs) to complement the manually performed library operations. According to Olakoge and Kolawole (2019), it involves the process of electronically performing library services such as reader's services, technical services, cataloguing and classification services reference services or other routine and house-keeping operations of libraries.

Library automation is seen as the computerization of library records and functions which uses computer software and hardware for tasks that otherwise require a lot of paper work and staff time. One of the reasons for library automation is the apparent or visible improvement in the access to information by users in the library. According to Kent (2008) in Encyclopedia of Library and Information Science "Automation is the technology concerned with the design and development of process and system that minimize the necessity of human interception in operations. Automation is required for the improvement of reference service to be delivered to users" In justifying the need for library automation, Ashikuzzanen (2014) identifies some importance of library automation which include, among others:

- Provide users with timely access to library resources
- Provide better access to the collection
- Allow easy sharing of resources with other libraries.
- Give more interface with library uses with other information resources.
- Provide better faculties for the users as other libraries are also automated.
- Enhance consistency in the collection streamlines circulation.

- Provide peed up of searching for users
- Time saving of clerical and repetitive tasks
- Ease of maintenance of statistics and overdue.
- Report to the management

Cataloguing services

According to Unagha (2011), cataloguing is an intellectual process that requires rational consideration and decision making in determining the class number of an information material. This whole process is time consuming and makes many academic libraries to experience backlogs which slow the smooth flow of information materials to circulation and reference sections. As a result of this rigorous process that take time and are cost intensive, university libraries have greatly relied on cataloguing copy (cataloguing in publication) (CIP). The advent of automated system transformed the manual cataloguing information to MARC tapes and on books as the cataloguing in publication. Later, the online public access catalogue (OPAC) was adopted by academic libraries using a telnet client, and now users could search a handful of per-coordinated indexes and browse the resulting display in much the same way they had previously navigated the card catalogue. It is as a result of this change in the library system that most academic libraries have developed high interest in computer-based library systems (Tseng, 2003).

Cataloguing is the act of describing the physical nature and contents of information materials as part of the process of organization of library materials for easy retrieval. The final product of this process is called the library catalogue, without which the library becomes a jungle with no pathway, no signpost and no road map. The consequences of this scenario painted above is that library users will spend several hours searching for a particular material in the library without a library catalogues. Murray (1993) as cited in Nwokocha and Ugocha (2013) defines Cataloguing as the creation of a descriptive retrievable record which assists library users to determine whether or not information materials meet their requirements.

Reference services

According to American Library Association (ALA 2025), reference service involves assisting users identifying, locating, evaluating and using information resources. Automation expands these services beyond the physical library environment. Reference services can be defined as personal assistance provided by professional to library users seeking information. Ranganathan (1931) defines reference service as a personalised service to each reader in helping him to find the document answering his interest at the moment, pointedly, exhaustively and expeditiously. In his view, providing reference service means making contact between the right user and in the right book at the right time in the right personal way. Consequently, reference services in Nigeria libraries is an age long tradition as reference libraries serve as pilot toward directing library users to the latest information that are inherent in a particular field of human endeavor.

Reference service is one of the core functions of libraries. Traditionally, librarians rendered face to face assistance to users in locating information resources, answering inquires and guiding research activities. However, the rapid advancement of information technology (ICT) has transformed reference services from manual operations to automated and digital system.

Academic libraries

Academic libraries are libraries attached to tertiary institutions such as universities,

polytechnics, colleges of education, college of agriculture, college of technology as well as research institutes. An academic library is a library that is attached to a higher institution and serves two complementary purposes of supporting the curricula and the research needs of the academic institution. According to Devan (2020), an academic library is a library or system of libraries that has been established, supported and controlled by a university to satisfy the information needs of its faculty and students as well as to support initiative for institutional research and services. An academic library serves all its requirements including teaching, research, creation of new knowledge and the transfer of knowledge and culture from one generation to the next.

Acquisition, processing, management and preservation of information resources and provision of access to knowledge and information are the main mandate of academic libraries, alongside supporting the mission of their parent institutions which involves teaching, learning, research and community services. Scholars have emphasized on the crucial role of academic libraries in research and scholarship in institutions of higher learning. They provide access to the source of information from which teaching and learning can develop. Many a time, academic libraries are referred to as the hearts or nerve-centres of institutions of higher learning where all academic activities revolve (Abubakar, 2011).

Benefits of library automation

As the use of computers and other technologies continue to be used to enhance services provided by a variety of industries, information providers, like libraries, so also are automating in-house collections and resources. There are many benefits to automating the information available in libraries, both for the staff and users alike, some of which are:

i. *Improved customer service*: Automation of the library helps take some of the workload off librarians and other staff members in the areas of acquisitions, cataloging and circulation, which in turn allows them to better serve their patrons. This extra time can lead to more programmes being facilitated in the library and make library staff available to answer reference questions and help people who having trouble researching or finding the right information.
ii. *Cataloging improvements*: Automated cataloging standards, such as MARC (Machine Readable Cataloging) allows for quicker cataloging of library items. Not only does this allow the librarian more time to dedicate to improving customer service, but it also makes the sharing of materials from location to location much easier and much more affordable.
iii. *Easier access*: Not only does automation of library materials make it easier to find books, but it also makes it easier to access journals and some books online from a home computer or elsewhere. The automation of library collections also allows the library to be more flexible when it comes to any increases in demand.
iv. *Collections*: Automation of the library allows for an improvement in the variety, amount and quality of materials that are available in the library's collection. It can also help in weeding out old, outdated and irrelevant books and materials from the collection, which helps keep the

library's collection more streamlined and easier to find the right item.

v. *Lasting effects:* Automation is also a way of preparing the collection to become sustainable with the ever-increasing shift to a technology-based society, in terms of information dissemination, paired with the ever-decreasing amount of funding for libraries. At first visit to an automated library, the user has a lasting effect of first impression from what he is used to in a manual system.

Automation of cataloguing services

Automation of Cataloguing Services leverage several emerging technological tools for enhanced efficiency, effectiveness and accuracy. These tools integrate with library management software to support automated cataloguing services using RDA standards, batch processing and 24/7 access to bibliographic records. There are many modern cataloguing systems that are embedded in the academic libraries to enhance automated cataloguing services. Some of these systems and tools according to American Library Association (2025), Atamu and Gbogbonoshe (2024), Dong (2021), and Sodipe et al (2025) broadly include MARC EDIT, OCLC Connextion / World Cat Metadata API, RDA Tool kit, Batch Loading tools, Cataloguer's Desktop, Cataloguer GPT, MARC-AI Cataloguer, Alex Augumented Data Catalogue Koha and Software for University libraries (SOUL). They are discussed briefly as follows:

i. MAROEDIT: This is a widely used software for editing and transforming MARC Records, essential for automating metadata editing suite that allows for automation of record editing, conversion between data like from Excel to MARC for global editing functions (American Library Association (2025), (Dong, 2021).

ii. OCLC Connexion /World Cat Metadata API: This is an automated Cataloguing system that allows for automated searching and retrieval of bibliographic records, enabling "copy Cataloguing" on a large scale (ALA 2025; Dong 2021). OCLC Connexion provides Access to millions of shared bibliographic records saving time and promoting resources between institutions (Oguiniyi et al, 2023). OCLC's Word Cat provides global cataloguing support. It is used by cataloguers for automated cataloguing services to create, edit and manage bibliographic and authority records in a shared environment

iii. Batch loading tools: These systems allow for importing large sets of vendor, provided MARC record automatically (ALA 2025). Batch loading tools are software system features that allow librarians, especially cataloguers to import or export updated large number of bibliographic or authority records at once, rather than processing then individually.

iv. RDA Tool Kit: According to American Library Association (ALA 2025), RDA (Resource Description Access) Tool Kit is a standard for resource description, offering RDA guidelines to create structured, consistent data. It is an online subscription based platform that provides access to RDA standard for automated cataloguing services. It guides librarians in automated cataloguing setting in creating consistent, structured and internationally accepted bibliographical and authority records.

v. Cataloguer's desktop: According to American Library Association (ALA,

2025), Cataloguers desktop is a digital resource providing access to cataloguing, documentation and standards. It is a web-based subscription system providing integrated access to a wide range of cataloguing rules, standards and documentation for automated cataloguing services in academic libraries.

Automation of reference services

Automation of reference services refers to the application of computer technologies, software, databases, internet tools and artificial intelligence to provide efficient, fast and user centered reference assistance in libraries. It enables librarians to deliver information services electronically through online platforms, digital resources and virtual communication tools. Modern library users demand instant access to information regardless of location and time. Consequently, libraries now employ automated reference services such as Chatbooks, digital repositories, virtual reference desk, email reference services and AI-Powered search tools. Automation of reference services ensures speed, literacy, accessibility and efficiency in information delivery.

Librarians have seen automation as an unprecedented vicissitude that happened in the last two decades which forces especially academic libraries to transform their operations according to the recent digital environment where users expect reference service to be 24/7 mode. Therefore, automation of library reference simply means conversion of this procedure of rendering such services to users from a manual to a computer based system, thereby reducing the stress of traditional system of providing such service to the users.

Digital reference service (DRS) include chat reference, email, support virtual reference desks and social media assistance that are integral to modern academic libraries. However, studies show that Nigeria academic libraries are lagging behind significantly in adopting automated reference tools (Adebayo & Johnson, 2023). Many libraries rely on traditional personal reference desks with limited structured virtual reference services. Factors that contribute to low DRS adoption include insufficient digital literacy among librarians, unreliable intent networks and absence of institutional policies supporting virtual services (Ugah & Nwachukwu, 2024).

Modern tools used in automation of reference services

i. *Integrated library management systems (ILMS*): These are software package used to automate library operations including reference services. They help in reference tracking.
ii. *Tools*: Live chat, video conferencing, messaging application, email reference

Challenges of automation in academic libraries in Nigeria

Despite the benefits or advantages of automation in academic libraries, the attainment of successful automation in most academic libraries in developing countries, including Nigeria is often marred by a lot of challenges which include the following:

i. *Inadequacy of planning***:** in a study carried out by Omoriode and Ivwighreghweta (2012) 40 (100%) of respondents say that lack of commitment from managing the system and lack of planning account for the libraries inability to automate. This is clear indication that management of the various academic libraries in Nigeria is not doing the adequate planning for their libraries

to get automated. There is also network.

ii. *Budget cuts*: In every library the budget plays key role. If a library is financially strong it means they can reduce the burden of automation. Not all libraries will have the sound financial aid, and some libraries are lacking minimum required financial support (Shanthakumara, 2018). In any country where education is neglected, of course there will be no tangible development. This is the case of Nigerian academic libraries. The amount of money budgeted to education in Nigeria is seriously affecting libraries. Thus, automation issue in Nigeria academic libraries is still a dream.

iii. *Lack of/inadequacy of technology:* Library automation is principally the use of computer associated peripheral media (disks, optional media, magnetic tapes, storage devices etc) products and services in library work. A lot of software are also needed. In other words, automation cannot take place without these devices. Thus, most academic libraries in Nigeria cannot still acquire the required number of these devices for automation.

iv. *Shortage of competent manpower***:** Atanda (2018) observed that trained personal are essential for any implementation of ICT to take place and be effectively sustained. There is a need to build on a framework of a well-trained information technology workforce. The shortage of competent manpower is a major problem in the automation of academic libraries in Nigeria.

v. *Erratic power supply***:** The power supply in Nigeria is so weak that it affects almost all sectors. Education is not without its own challenge from this issue. Libraries in Nigeria often experience erratic power outage and this is actuating affecting the services they render at most times. The few computers available may not be able to work because of power failure and as a result, consistent automation of libraries cannot be realized in Nigeria.

vi. *Human factors***:** The introduction of computer-based library system suffers setback where the new system is viewed as being imposed on the librarians and information professionals. Where there is communication gap between the library and the computer staff involved with the system's planning and implementation, where staff see the automation as a threat to their jobs or where top management has a low esteem of library and information services, then automation becomes a herculean task to implement.

vii. *Network issues:* Where the computer-based library centre is a part of the institution's computer network, the new system may suffer set-back if there is a problem with the network depending on the network configuration. If the library does not have its own services a "down time" of the organization's server may completely disable operations in the library.

Automation of cataloguing and reference services in academic libraries: Myth or reality?

In many academic libraries in developed regions, automation has become an observable part of daily operations. Library management systems such as Koha, Slam and other support cataloguing and circulation, and users can access online catalogues

(OPACS) to find materials quickly without physical card catalogues. Researchers describe how automation has shifted operations from manual processes to machine dependency leading to improvised efficiency and user satisfaction in cataloguing service. Odeyemi and Musa (2018) found out that automated applications positively influence cataloguing practices, improving cooperation among staff and making cataloguing tasks less prone to error.

At the same time automation remains only partially a reality in many academic libraries especially in developing countries. Studies in Nigeria reveal that while libraries are aware of automation and its potential benefits, full implementation is often limited. Olowookere, Odeh and Ismaile (2022) reported that the status of automation in most academic libraries in Nigeria was not effective due to inadequate infrastructure, limited ICT skills and inadequate.

When it comes to reference services, automation is also unevenly realized. Digital reference support such as email or chat reference, use of electronic database and virtual research assistance are mechanically achievable, yet many libraries in Nigeria still depend primarily on face-to-face reference interactions because of limited online access and user digital literacy.

Conclusion

In conclusion, automation of cataloguing and reference services in academic libraries is simultaneously both a myth and a reality. It is a reality where libraries have successful implemented and integrated technology into their operations, resulting in efficiency and improved services. It remains a myth where infrastructural and capacity constraints prevent meaningful changes to traditional practices. Therefore, automation in academic in Nigeria exist along a spectrum shaped by institutional resources, technical infrastructure and staff competence.

Based on the foregoing, the following are recommended:

1. The management of various academic libraries in Nigeria should prepare to automate their library, by carrying out adequate planning, for where there is proper planning, execution becomes easier. They can itemize all they need and map out strategies on how to get them.
2. The Nigeria government should in the budget for education, follow UNESCO standard. This will automatically bring positive effect in the library service delivery as there will be fund to incorporate into the library operations and services.
3. Library management through the approval of the government can send some librarians to the advanced countries to learn how to carry not automation activities. This will help the academic libraries in Nigeria.
4. Solar panel should be built in the libraries as complement to the power distribution companies' supply. Also, a high-capacity generating plant could be purchased to supply power when there is failure from power distribution companies.

References

Abubakar, B.M (2011). Academic libraries in Nigeria in the 21st century *Library Philosophy and Practice.* https: digitalcommons.uni.edu/libphilprac/446

Adetunla G. and Chowshury, G. (2025). Towards a sustainable automated library operation, the imperative of digital skills and related factors of digital skills development of university library professionals in Nigeria information research, 30 (inconf 2025), 8840896. https://doi.org.47989/ir309conf47173

American Library Association (ALA 2025). Cataloguing tools & resources. https://clubguides.ala.org/Cataguing tools

Ashikuzzaman, C.O. (2014). Library automation for effectiveness and improvement in library services. *Special Library Perspective*, 21(1), 91-106.

Atamu M.O & Gbogbonoshe, it (2024). The impact automated cataloguing services on job performance of staff of Federal University libraries in South-East, Nigeria: A comparative study, Nasarawa. *Journal of Library and information Science (NAYLIS)*, 8(1) 300-314

Atanda, I.A. (2018). Impact of library automation in Nigeria universities research. *Journal of Library and Information Science*, 2 (4), 21-25.

Devan, N (2020). Role of academic library in research. *Information Science Journal* 12(2) https://www.research gate.net/publication/339473798.

Dong, E (2021). Automating Cataloguing workflow of Library traditional materials, *International Journal of Librarianship,* 6(1) 73-88.

Ezeani, C. N. & Ugwu, C. I. (2015). Application of Computer technology to circulation services in university and research institute libraries in North Central Nigeria. *Journal of Information & Knowledge Management* 5(3), 71, http://www.in stc.org/journals/index.php/ikm/articl e /view/20585

Fauty, K.G. (1994) Implementing Automated *Circulation System*, Neal Schimen, New York.

Ken-Agbiriogu E. & Okorie O.N (2021) Automation of Acquisition, Cataloguing and Classification and staff job performance in University Libraries in South-East, Nigeria. *Journal of Applied Information Science & Technology,* 14 (2) 43-51

Kent, A. (2018). Encyclopedia of library and information science (4th ed) Boca Raton Fl. CRC Press.

Lawal-Solarin, E.O, Allison, G. O & Justice, J. I (2018) *Contemporary library automation issues in Nigeria.* http://covenantuniversity-edu.ng/idl eprint/user.

Murray, J. (1993). The information skills program in the primary school. Australian school Library Association.

Nwokocha, U. & Ugocha, O.C. (2013). *Introduction to cataloguing for Nigerian libraries*. Okigwe: Marco Press.

Odeyemi, O. J. & Musa, A. (2018). Evaluation of automated application and effects on cataloguing and classification practices in selected academic libraries in South-West Nigeria. *Asian Journal of Information Science and Technology*. 8(2), 54-60. https://doi.org/10.51983/ajlist-2018. 8.2.175

Oguniyi, S.O, Olubiyo, P.O & Okedele, E.O, O. L (2023) Utilization of Cataloguing and classification resources by Post-Graduates in Library Schools in two selected private universities in the South-West. Nigeria. *Journal of Library and information Science* 25(1), 181-193

Olakoge, D.P. & Kolawole,J.A. (2019). Effect of library automation on performance of librarians in private universities in South-West Nigeria. Information and knowledge management, 9(5), 7-11.

Olowookere, O. Odeh, I.U. & Ismala, Y.A. (2022). Adoption of automation and effectiveness of library services by librarians in academic libraries in

Abia State. *Journal of Advancement in Library Science.* 9(1), 35-41. 10. 375911 JOALS

Onoriode, O.K. and Ivwighreghweta, O. (2012). Automation in library's collection development and acquisition process in academic institutions in Delta Central, District of Delta State. *International Journal of Library Science*, 1 (4), 66-71.

Ranganathan, S.R. (1931). Proleg Omena to library classification. Madras, India: Madras library Association.

Richard, E.O, Enidiok, M.S, Akpan-Atata E.A & Iyabo, E.N (2025). Analysis of librarian's competencies for library automation as determinant of electronic information services provisions at Federal University libraries in South-East Nigeria. *Jewel Journal of Librarianship*, 20(2) 6-37.

Shenthakumara, T.N. (2018). Automation in academic libraries: Problems and solutions.https.//www.reserachgate.net/publication/329364658.

Tseng G (2003). *Boolean logic In International Encyclopedia of Information and Library Science*. London: Rutledge.

Unagha A.O (2011), *Organization and management of information systems*, Enugu: Ernesco Publishers.