Information Impact

Implementation of Information Technology in Academic Libraries in Nigeria: Benefits, Challenges and Solutions

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Abstract

Information technology has undergone tremendous advancement in recent decades. The power brought forward by the developments in information technology (IT) has seen its adoption across all sectors of the economy, with its implementation resulting in unprecedented efficiency. In Nigeria, implementing IT, especially in the education sector, remains one of the library's objectives to enhance human capacity through access to digitized information. Academic libraries', being at the forefront of providing information, implementing IT are inevitable and enhances service delivery. However, the implementation of information technology in Nigerian academic libraries has been characterized by numerous challenges affecting their capacity to efficiently deliver services to their users. The established processes for implementing information technology in these institutions include inadequate funds to purchase and maintain IT equipment, power interruptions, low computer literacy among librarians, and poor internet connectivity. Fortunately, adequate staff training and exploring alternative energy sources include some appropriate solutions to the identified challenges.

Keywords

Information technology, academic library, communication services, internet, challenges

Introduction

According to Essien et al. (2022), information technology broadly refers to the art and science of using and studying systems, primarily telecommunications and computers. Information technology goes beyond information storage, retrieval, and distribution, with modern information technology facilitating the formulation and representation of raw facts in different ways like audio, numerical, and visual. Information technology is one of the fields that have undergone tremendous development over the past few decades. With the ever-increasing computing power, IT has continued to undergo adoption across all sectors due to its capability to handle complex tasks. Education is one of the sectors in which IT has continued to undergo extensive implementation, acting as a major catalyst of change (Ratheeswari, 2018). The use of IT in education provides unprecedented efficiency, immensely enhancing the whole sector. Software applications such as the web and distance learning, alongside telecommunication products like emails, DVDs, and CDs, include essential information communication technology (ICT) resources that facilitate the handling and communication of various forms of information in the education sector. In particular, the adoption of IT in libraries goes a long way in digitizing the storage, retrieval, and dissemination of academic resources (Essien et al., 2022).

History of Libraries in Nigeria

The development of Nigerian libraries has a rich history, dating back to the past century. Over the decades, Nigerian libraries have grown tremendously, with massive infrastructures established across the country. The progression has enhanced the availability and accessibility of libraries to the citizens across Nigeria, becoming one of the critical resources for informing the public. The first establishment of a public library traces back to 1910, with the construction of the Tom Jones Library in the Lagos capital leading the long list of such institutions (Abubakar, 2017). In 1932, with financial assistance from the New York Carnegie Corporation, Lagos Library was developed with the then Nigerian chief secretary, Sir Alan Burns responsible for its establishment. Notably, Europeans who resided in Lagos remained the library's primary users.

In 1946, the two libraries merged, becoming Lagos Public Library, with Lagos town council and British council co-jointly administering the library (Nwokocha, 1998). Efforts by the Nigerian government in the 1950s led to the reconstitution of the WALA (West Africa Library Association) into the Nigerian Library Association in 1962 (Nigerian Finder, 2023). This committee had significant input in establishing libraries in the county, persuading the government of the day to construct a national library, which

was actualized soon after Nigeria gained its independence. Notably, the coming into existence of the Nigerian National Library happened with the passing of the National Library Decree number 29 of 1970 by the then government (Nigerian Finder, 2023). Subsequently, with the release of the UNESCO document in 1962, specific regions were mandated to establish and regulate local libraries in Nigeria. Also, private libraries contribute immensely to enriching the history of Nigerian libraries.

Academic libraries

Academic libraries include those facilities attached to educational institutions, whether physical or digital, that seek to complement teaching, learning, and research by students and institutional faculties (Singh & Kaur ,2009). Academic libraries occupy a unique space in Nigeria's library development history. Most importantly, academic libraries significantly enhance curriculum development for various departments, especially in their mother institution. Mainly, academic libraries fall into several categories, including schools of nursing, polytechnics, colleges of education, and universities (Okiy, 2012). The history of academic libraries in Nigeria traces back to the colonial era, with the first establishment being the University of Ibadan in 1948 (Ogunsola, 2005). Soon after attaining independence, the number of academic institutions increased significantly to support education enhancement in the country.

One of the early academic libraries developed soon after the country attained its independence is the Nsukka Library in the University of Nigeria, named after Azikiwe for his contribution by donating 1200 books. With the upsurge of universities nationwide, the number of academic libraries increased, with every institution establishing its own library. Today, there are as many academic libraries as there are universities, both private and public. Nigeria is home to some of the largest libraries in the African continent. Besides the University of Ibadan and the University of Nigeria Nsukka, Ahmadu Bello University remains one of the largest academic libraries in Nigeria and Africa, with over 1.2 million books (Kashim Ibrahim Library, 2023).

Benefits of IT in academic libraries

The adoption of IT in academic libraries has numerous benefits. According to Fagbe et al (2015), the application of IT in libraries across the globe has significantly progressed, intending to enhance technical services offered by libraries to the public. Notably, with the colossal amount of information in academic libraries, the exploration of technologies that can support faster and better access to vast resources remains one of the primary endeavours of such institutions to ensure the efficient delivery of services. Library management includes one of the primary uses of IT in academic libraries (Vijayakumar & Vijayan, 2011). Notably, IT facilitates library management, supporting the speedy accomplishment of activities such as classification, indexing,

cataloguing, and database creation. Primarily, cataloguing and classifying library materials ensures the availability of information resources and materials, which without IT, proves challenging, especially for remotely located libraries (Bhoi, 2017).

According to Vijayakumar and Vijayan (2011), automation includes another fundamental implementation of IT in academic libraries. The realization of IT has continued to automate libraries by reducing human intervention in matters of library services, ensuring efficient access to desired resources by its users. Primarily, the areas that have undergone significant automation include housekeeping operations and library databasing. Some crucial functions that IT has enhanced its automation include serial control, acquisition, circulation of materials, and stock maintenance, among others. Information technology has been used in academic libraries to conserve and preserve data. Notably, IT ensures storing and preserving educational materials for long periods without compromising their quality and image (Fagbe et al., 2015). Circulation includes another crucial library routine that the implementation of IT enhances, leveraging on the efficiency offered by computers, library management systems, and barcode scanners. Mainly, telephone, email, and the internet aid in circulation routines.

Amongst the crucial circulation duties automated using computer systems include returns, overdue reminders, reservations, membership registrations, and renewal (Bhoi, 2017). More so, digitizing academic materials provides numerous benefits, including space saving and efficient access. Networking of libraries includes another significant utilization of IT in academic libraries (Onuoha & Obialor, 2015; Vijayakumar & Vijayan, 2011). Through networking, several libraries are interconnected to facilitate resource sharing and enhance communication, thus improving service delivery. Another fundamental application of IT in academic libraries regards reprographic services to enhance document reproduction (Bhoi, 2017). Notably, the reproduction and photocopying of educational materials, accompanied by digitization capability, impact the accessibility of documents to its users across the globe. Additionally, the translation of materials to specific languages that users can understand amounts to another crucial application of IT by academic libraries (Bhoi, 2017). Consequently, the capability ensures the availability of huge quantities of materials to enhance the knowledge base of scholars.

In Nigerian academic libraries, the use of IT has significantly enhanced the delivery of services. For instance, students across various universities extensively utilize online public access catalogues, an application of IT by academic libraries, to locate learning materials on shelves (Lawal-Solarin, 2015). Many Nigerian libraries offer access to

computers, CD-ROMS, videotapes, the internet, and slide projectors, significantly facilitating student training and access to reliable academic resources. Internet provision by academic libraries in Nigeria goes a long way in supporting various educational purposes. For example, in the Covenant University library, the use of the Internet by students and faculty includes preparing for examinations, research, updating lecture notes, project completion, and communication (Lawal-Solarin, 2015). Notably, the use of IT by academic libraries, especially in Nigeria, has undoubtedly brought the institution a broader pool of resources. Primarily, the internet and its resources have remained an integral part of IT implementation in Nigerian libraries due to its potential to add massive value to such institutions.

Challenges of IT implementation

In the current world, digitization across all sectors has taken a central stage to enhance the performance and quality of services. Similarly, the adoption of IT in academic libraries, especially in the developed world, has proved vital in facilitating human capital development. Notably, African countries have achieved significant progress in adopting IT in various sectors, including education, with academic libraries at the forefront. Nigeria's Information Technology Developing Agency (NITDA) developed an IT policy to make the country a leading player in 2005 in IT (Ejiaku, 2014). The policy's objectives comprised developing information technology infrastructure, infusing IT in education and training, and empowering citizens with necessary IT skills. Notably, establishing the NITDA objectives prepared the way for Nigeria to harness the power of implementing IT not only in the corporate arena but also in the field of education. However, until today, a substantive number of policy objectives have not been fulfilled, challenging the adoption of IT in the country on a large scale. In particular, the adoption of IT in academic libraries in the country has been slow, affecting the quality of service they offer and access to information by its users. Notably, the failure to achieve universal implementation of high-end IT technologies in Nigeria's academic libraries emanates from various obstacles, which, if fully addressed, can go a long way in enhancing its adoption.

Inadequate financing

To begin with, one of the most significant challenges hindering the adoption of IT by academic libraries in Nigeria is low funding (Sahabi & Otobo, 2021). According to Abubakar (2011), the fraction of the budget allocated to academic libraries, especially in state-owned universities, remains significantly low, representing 10 percent of the annual recurrent budget of their parent institutions. Primarily, the availability of adequate money remains the essential tool that allows academic libraries to offer

information services effectively. Notably, finances remain a fundamental resource in facilitating the purchase and acquisition of ICT equipment. Therefore, inadequate facilitation of crucial IT resources limits the capability of academic libraries to obtain the necessary infrastructure that promotes efficient service delivery. Low funding also affects other supportive requirements for IT implementation such as internet subscriptions, maintenance, and staff training (Sahabi &Otobo, 2021). University-affiliated libraries get funding from various government agencies, including the Petroleum Development Trust Fund, the Tertiary Education Trust Fund, and the Nigerian Universities Commission.

However, the various funding initiatives provide inadequate funding to tertiary institutions. More so, according to Irenoa et al. (2019), the academic community is primarily responsible for the inadequate funding as they lack the necessary knowledge to apply for specific grants like the Tertiary education trust fund. Instead, the current academic community focuses only on the funds allocated to them by the government. Additionally, there are cases where allocated funds to academic libraries in institutions are redirected to other activities, thus, limiting their ability to support IT implementation to provide services (Abubakar, 2011). Mismanagement of funds allocated to universities remains another crucial challenge confronting the implementation of IT in academic institutions. Ololube (2016) points out that various institutions mishandle the little funding they get from the government, focusing on erecting super gates that consume millions of Naira.

At the same time, the library infrastructure remains at the most basic foundational stage. Generally, failure to properly and prudently manage funds allocated to parent institutions of specific academic libraries is attributable to various factors, among them unfriendly policy implementations and inability to access adequate funding. Ololube (2016) establishes that out of 701 audited development projects, 23.3 percent were deserted, and 76.7% were in a perpetual state, depicting the level of fund misappropriation by parent institutions of academic libraries. It is worrying to learn that the abandonment of projects for many years has seen their price rise significantly to several billion Naira (Obiejesi, 2018). The use of available resources for such projects includes a significant hindrance to the availability of funds for allocations to enhance the implementation of IT in academic libraries.

Power interruptions

The insufficient power supply includes another sensitive concern that obstructs IT implementation in Nigeria's academic libraries (Lawal-Solarin, 2015; Sahabi &Otobo, 2021). Nigeria remains the most populated country in Africa, with over 200 million citizens. As a result, the amount of energy required to meet the power demands of its

population is enormous, with the country managing to produce a fraction of it, with much of it coming from hydro and thermal power generators. According to Sasu (2022), as of 2020, Nigeria's energy demand exceeded 29 terawatt hours, generating 35.7 thousand gigawatt hours. In the same period, Nigeria's energy supply was estimated at 35 gigawatt hours of electricity, leaving a considerable deficit to fill. The insufficient power supply in the country equally affects academic libraries nationwide, limiting their potential to ensure wide-scale implementation of IT. According to Adeyoyin et al. (2019), various factors contribute to the inadequate power supply in Nigerian academic libraries and information centers.

One of the leading causes of energy strain in academic libraries is corruption, standing at 51.7 percent. Notably, corruption in Nigeria remains a crucial issue in society, affecting service delivery to the citizens. The endemic corruption in Nigeria penetrated most of its economic fields, including the power sector. Inadequate funding followed at 27.6 percent, resulting in insufficient energy supply to academic libraries and parent institutions (Adeyoyin et al., 2019). Another critical element associated with the inadequate power supply to academic libraries, thus hindering the implantation of IT, concerns minimal government policies on energy production and distribution, standing at 17.2 % (Adeyoyin et al., 2019). The absence of clearly cut-out government policies on alternative power sources, like renewable energy, primarily contributes to inadequate electricity supply to academic libraries. Adeyoyin et al., (2019) highlight that government personnel responsible for policy making lack broad knowledge of the potential of solar energy. More so, the failure of print media to publicize the matter has led to insufficient knowledge regarding alternative sources of power. Adeyoyin et al. (2019) established that power rationing characterized tertiary institutions across the country, thus, presenting a significant challenge to implementing IT in academic libraries in Nigeria.

According to a survey by Adeyoyin et al. (2019), the Federal University of Agriculture, Abeokuta staff indicated that the institution supplies power to the ICT facility for 21 to 24 hours daily. On the other hand, respondents from Olabisi Onabanjo University indicated that power supply for ICT facilities occurs for 5-8 hours a day. The study further revealed that the power connection of Tai Solarin University of Education, Ijebu-Ode ICT facility occurs for 1-4 hours daily. From these establishments, inadequate power supply to academic libraries, especially to ICT facilities, remains a subject of concern that challenges the implementation of information technology in such institutions. As an alternative, libraries in Nigeria utilize power generators to ensure the much-needed energy supply (Sahabi &Otobo, 2021). However, according to Lawal-Solarin (2015), high maintenance and fuel cost limit their use, causing power

interruptions to academic libraries, which presents a significant challenge in implementing information technology in these facilities.

Low Internet connectivity

The internet is the interconnection of global computers. Therefore, the internet remains a crucial element that facilitates digital resources, thus, becoming the backbone of information technology. According to Sahabi &Otobo (2021), poor internet access is one of the constraints to using information technology in Nigerian academic libraries. Notably, the challenge of slow internet access gets further exacerbated by low bandwidth issues. According to Okere (2022), low internet bandwidth remains a significant problem affecting library users' efficiency in completing various tasks due to experiencing slow internet.

Skills and Technical IT knowledge among library staff

Another significant factor in implementing IT, concerns information technology literacy among librarians. In an information era, IT skills remain a powerful tool among librarians to ensure the efficient delivery of digital services to library users. Several surveys have been conducted in various Nigerian academic libraries, seeking to investigate the level of IT skill of librarians as key players in supporting and delivering information technology services within academic libraries in the country. According to Sahabi & Otobo (2021), IT incompetence is a crucial challenge to implementing IT in Nigerian academic libraries. As a result, librarians with little or no IT skills resolve not to use the technology, affecting the delivery of digitized services to users. A study by Kayode and Gbotoso (2019) on three Nigerian universities depicts low levels of IT competency among librarians. The survey established that 58 percent of the participants possessed an ordinary computer literacy certificate, with only 13 % having a diploma in IT. The finding that 29 percent of the sampled librarians lacked formal training in computer application depicts a significant challenge toward effective implementation of IT in academic libraries.

Solutions

The role of IT in enhancing development across all sectors of an economy is unimaginable since automation brings unmatched efficiency. Notably, adopting IT in education supports skills development, amplifying the country's capacity to leverage new technology.Nigerian academic libraries are at the forefront of supporting human capacity building. However, with the various established challenges to the implementation of IT in academic libraries, the country glares at a significant problem in developing human capacity by not leveraging the capabilities of IT to enhance access to digitized information. Therefore, implementing adequate solutions is crucial to

ensure academic libraries in the country realize the effective implementation of information technology to harness its power.

Adequate funding

One of the main challenges to implementing IT in academic libraries in Nigeria, mainly state-owned, emanates from inadequate funding accompanied by misappropriation. Nigerian tertiary institutions have often engaged themselves in strikes lasting up to six months due to unmet demands, including inadequate financing (Famurewa, 2014). An increase in funding to academic libraries can go a long way in elevating most of the challenges experienced by these institutions. Adequate funding would ensure libraries have access to funds to purchase already expensive IT equipment and facilitate their maintenance and payment of internet subscription fees. Numerous academic libraries suffer power interruptions, which hinder the efficient provision of IT services.

As a result, increasing funding could enhance their capacity to purchase fuel to run generators that provide an alternative source of electricity. Therefore, relying on government allocations, which sometimes fail to reach their intended purpose, parent institutions can explore additional funding sources for academic libraries to support the implementation of information technology. However, increased funding to parent institutions alone is not self-sufficient in Nigeria, where the misappropriation of public funds remains a thorny issue (Ipadeola, 2016). Therefore, better funds management should accompany increased allocation to parent institutions if academic libraries are to benefit and enhance efforts toward implementing information technology.

Alternative power supply

Instead of relying on the national grid and oil, finding an alternative energy supply is one of the solutions to power rationing and interruptions experienced in various academic libraries across Nigeria. Solar energy provides one of the best approaches to solving power interruption issues. According to Abdullahi, Renukappa, & Suresh et al., (2022), harnessing solar energy has continued to receive unprecedented development in many African countries, but its uptake in Nigeria has remained relatively low. Consequently, the implementation of ICT in academic libraries continues to face a significant hindrance due to time-to-time power interruptions, affecting their capacity to deliver necessary services to their users efficiently.

Training and human development of librarians

ICT has revolutionized how information is obtained, stored, processed, retrieved, and disseminated. Notably, libraries have been influenced primarily by their operations since they occupy a center stage in providing information. Consequently, IT remains an

essential tool in today's operations of libraries across the globe, and its implementation is inevitable (Nkamnebe, Udem, & Okeke, 2015). Hence, the acquisition of necessary information skills remains a driving force, playing a substantial role in the utilization and application of IT for the efficient delivery of information and library operations. The urge by librarians to possess computer knowledge is immense as they act as the link between users' needs and information resources. Therefore, training librarians would go a long way in raising IT skills to ensure the effective implementation of information technology in Nigerian academic libraries.

The topic presents significant establishments regarding the challenges facing the adoption of IT in academic libraries and possible solutions. However, more research on the subject is necessary as it can go a long way in establishing how the lack of reliable IT services impacts students' performance. Establishing the shortcomings would be necessary to ensure the adoption of robust measures by government and private institutions to ensure full support for the use of IT in academic libraries in the country.

Conclusion

Nigerian academic libraries have a rich history, dating back to before the country gained its independence. Today, Nigeria owns numerous academic libraries supported by mission organizations, the private sector, and the government. These libraries have played a significant role in developing human capital for the longest time, and the urge to ensure the successful implementation of information technology is imminent. However, implementing IT in academic libraries across the country has been met with different challenges. Among the main issues identified include inadequate funding, low level of ICT knowledge competency among librarians, and power interruptions. Consequently, increasing funding, exploring alternative and renewable energy sources, and staff training include some of the fundamental intervention measures to address challenges hindering the successful implementation of IT in Nigerian academic libraries.

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