



**ROLES OF ACADEMIC LIBRARIES IN A DIGITAL AGE:  
A NIGERIA PERSPECTIVE**

**By**

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## Abstract

This study is a review of literature on the roles of academic libraries in the digital age. The digital age is an era characterized by the emergence and proliferation of Information communication technologies and telecommunications. The roles of libraries across the globe is changing in the digital era and academic library is not an exception as they are redefining their roles to remain competitive in the technology saturated era. To examine the roles academic libraries are playing in the digital era, this study reviewed extensive literature on salient issues which specifically revealed that academic libraries in digital age play key roles like information guide, facilitators of digital scholarship, open access advocators, digital preserver, data management expert, information literacy champions, amongst others. Though the study revealed some challenges faced by academic libraries in a digital age such as lack of ICT literate staff, poor internet connection, epileptic power supply, poor funding of academic libraries and poor copyright protection. Based on these revelations, the followings were strongly recommended such as, training and development programmes for staff, upgrading internet service provider (ISP) with faster speeds and better coverage, solar power system, fundraising campaigns/partnership and collaborations, legal action and enforcement, amongst others. The study concluded that the digital age has brought a profound transformation to the activities and mode of operations of libraries all over the globe and academic libraries must reposition their roles to meet the challenges of the Internet, World Wide Web, and online access in the information age.

**Keywords:** Academic Libraries, Academic Library Roles, Digital Age.



## Introduction

There is no doubt that the digital age has changed the operations and practices of libraries across the globe. As technology rapidly transforms the way we access information, and resources are increasingly available online and in digital formats, the established role of the library as a physical space housing racks of books is looking increasingly out of step with the changing needs of students and researchers and these developments demands that libraries of all type reinvent their approaches to service delivery to remain relevant in the technology-driven age (Kaur, 2015). Wright (n.d.) noted that in the case of academic libraries, modernizing the collection and the space in which the library operates has been a constant chase to keep up with the changing goals and roles of the university. There is no denying that technology will continue to change, and academic libraries have to use the changing technology to provide the best access and service to their patrons and remain competitive in the digital age (Kaur, 2015). Raju et al. (2021) defined an academic library as a library that is attached to a higher education institution and serves two complementary purposes: to support the curriculum and to support the research of the university faculty and students. Academic libraries support the institutions, to which they belong, by providing information resources to support the teaching, learning, and research goals of their parent institution (Raju et al., 2021).

To achieve the above-mentioned goals, relevant resources of all kinds need to be put in place to satisfy the learning, teaching, and research needs of users. According to Ani and Edem (2012), the resources utilized in the university libraries were mostly in printed format made up of books, journals, magazines, dissertations/theses, and other local materials. However, in recent developments, academic libraries are experiencing a new technological transformation identified as the electronic information era powered by Information and Communication Technologies (ICT) with its capabilities in promoting and improving information services in all facets of life leading to the establishment of digital libraries in Nigerian higher institution of learning (Gani & Magoi, 2014). In the wake of this development, academic libraries are changing their approach to resource acquisition and service delivery to align with the demands of the digital era.



Furthermore, the contemporary practice in academic library functioning and services is being propelled by an unimaginable information explosion due to ICTs in almost all aspects of library services. The displacement of print to electronic, from analog to digital, the supremacy of search engines, the emergence of the digital lifestyle, open access, and innovative patterns of scholarly communication are factors that have redesigned the activities of the academic library, changing from one paradigm to another. Traditional methods of library practices and library resources have been replaced by an electronic environment (Bawak, 2019). The global trend is characterized by a shift in paradigm towards a new dispensation, the e-environment, making provision for the delivery of new and innovative services that respond to the needs of the twenty-first-century academic librarian (Kumar, 2009). Innovations in technologies, like digitization, electronic publishing, Web 2.0, Library 2.0, RSS, Blogs, Wikis, SMS, Podcasting, and Open Access have greatly affected academic libraries globally changing from the shift of manual or printed era to the digital era. (Nonthacumjane, 2011). Academic libraries are changing dramatically by adopting new means of technology in all activities of print to e-environment while a variety of manual methods are gradually being replaced by computerized systems providing great opportunity for online accessibility (Bawack & Nkolo, 2018). Electronic databases and digital and institutional repositories are occupying the virtual space of academic libraries today and academic libraries have no choice but to transition to this new paradigm.

### **Concept of Academic Libraries**

An academic library as defined by Susan and Quinonez-Skinner (2009) is a library that is attached to a higher education institution and serves two complementary purposes: to support the curriculum and the research of the university faculty and students. Also, Ashikuzzaman (2023) defined an academic library as a specialized repository of knowledge and information within educational institutions, primarily universities, colleges, and research centers. Unlike public libraries, which cater to a broader audience, academic libraries are tailored to meet the specific needs of students, faculty, researchers, and other academic community members. Academic libraries play a crucial role in supporting the educational mission of their institutions by offering a wide range of resources that facilitate teaching, learning, and scholarly research (Oyegunle, 2013).



An academic library is a dynamic and indispensable hub of knowledge, learning, and intellectual exploration within educational institutions. It is a repository of scholarly resources, carefully curated to support the diverse academic pursuits of students, faculty, and researchers. With its extensive collection of books, journals, electronic databases, and multimedia materials, an academic library provides an environment that fosters critical thinking, research excellence, and collaborative learning. Beyond its physical and virtual walls, the academic library stands as a gateway to information, bridging the gap between tradition and innovation and playing a pivotal role in shaping the educational landscape of institutions worldwide (Ashikuzzaman, 2023). Books, journals, periodicals, and research papers covering various subjects and disciplines are at the heart of an academic library's collection. These resources provide students and scholars with foundational academic study and research materials. Ashikuzzaman (2023) further asserted that beyond traditional print materials, academic libraries have evolved to incorporate electronic databases, e-books, online journals, and multimedia resources, expanding their reach and adaptability in the digital age. These resources are carefully curated and organized to ensure easy access and retrieval, empowering users to explore their areas of interest comprehensively.

Moreover, an academic library serves as a space for intellectual engagement and academic collaboration. It offers a conducive environment for students to study, work on assignments, and engage in group discussions (Kamaluddeen & Bappah, 2019). Quiet study areas, collaborative workspaces, computer labs, and meeting rooms are often available to accommodate various learning and research preferences. Librarians, experts in information retrieval and research methodologies, provide valuable assistance to library patrons, guiding them in locating relevant resources, refining research strategies, and maximizing library tools and technologies.

### **Types of Academic Libraries**

Academic libraries come in various types, each tailored to the needs of specific educational institutions and their diverse user communities. Some common types of academic libraries according to Ashikuzzaman (2023) include:

- i. **University Libraries:** University libraries are integral to higher education institutions, serving as vital information, learning, and research hubs. These libraries are designed to



support the academic endeavors of students, faculty, researchers, and staff across various disciplines. As one of the most comprehensive academic libraries, university libraries house diverse collections, provide essential services, and offer collaborative spaces that contribute to their institutions' intellectual growth and success. The primary purpose of a university library is to provide access to a vast array of scholarly resources, including print and electronic books, academic journals, research papers, multimedia materials, and databases (Francis, 2023). These resources span various subjects and fields of study, accommodating the diverse needs of students pursuing undergraduate, graduate, and doctoral degrees. By offering comprehensive collections, university libraries enable students and researchers to delve deeply into their areas of interest, conduct thorough research, and engage in critical thinking.

- ii. **College Libraries:** College libraries are essential components of educational institutions, providing a diverse range of resources and services to support the academic needs of students and faculty. Unlike large research universities, which often have extensive libraries covering various disciplines, college libraries are typically tailored to meet the specific curriculum and program the college offers. These libraries are vital in fostering a culture of learning, research, and intellectual exploration within undergraduate education. The primary function of a college library is to provide access to materials that directly align with the courses and majors offered by the college. This includes textbooks, course reserves, academic journals, and other resources students need to excel in their studies (Singh, 2024). College libraries often work closely with faculty members to ensure that the required course materials are available for students, whether through physical copies or electronic resources. Like other academic libraries, college libraries provide various study spaces to accommodate different learning preferences. Quiet study areas, group study rooms, computer stations, and collaborative spaces are common features of college library environments. These spaces create opportunities for students to work together on projects, engage in discussions, and study independently.



- iii. **School Libraries:** School libraries are vibrant learning centers within educational institutions at the primary and secondary levels. These libraries are invaluable resources for students' educational growth, information literacy, and personal development. Stocked with a wide variety of age-appropriate materials, including books, magazines, reference materials, and digital resources, school libraries provide diverse content that caters to students' academic needs and interests. The primary objective of school libraries is to foster a love for reading and literacy among students (Olubiyo & Olubiyo, 2023). By offering engaging and captivating reading materials, school libraries encourage students to explore different genres, discover new ideas, and cultivate their imagination. Librarians often organize reading programs, book fairs, and author visits to create an environment that nurtures a lifelong passion for reading and learning. In addition to promoting literacy, school libraries play a pivotal role in developing students' information literacy skills. Librarians collaborate with teachers to integrate research and critical thinking skills into the curriculum. Students learn how to effectively search for information, assess the credibility of sources, and ethically use information in their academic work. These skills empower students to become discerning consumers and creators of knowledge in the digital age.
- iv. **Research Institution Libraries:** Research institution libraries are dynamic and specialized repositories of knowledge that serve the unique needs of advanced academic and scientific research. These libraries are found within research-focused organizations, such as research universities, government agencies, independent research centers, and corporate research facilities. Unlike general academic libraries, research institution libraries emphasize supporting cutting-edge research across various disciplines. The primary purpose of research institution libraries is to provide comprehensive resources that facilitate high-level research endeavors. These libraries curate extensive collections of scholarly materials, including academic journals, research papers, monographs, technical reports, and specialized databases (Haneefa, 2007). The materials span diverse fields, from natural and social sciences to humanities and engineering, reflecting the interdisciplinary nature of modern research. Research institution's libraries often house



rare and unique materials, archives, and special collections crucial for in-depth investigations and historical research. These resources may include primary source documents, historical manuscripts, maps, and other materials contributing to original research and academic exploration. In addition to their collections, research institutions' libraries play a critical role in information management and knowledge dissemination. They collaborate with researchers to guide effective literature searches, citations, and data management. Librarians in these institutions are often experts in information retrieval and research methodologies, offering specialized support to researchers navigating complex and evolving academic landscapes.

### **Functions of Academic Library**

The functions of an academic library extend far beyond serving as a repository of books and resources; they encompass a diverse range of roles that collectively contribute to the educational and research mission of academic institutions. Academic libraries serve as dynamic hubs of learning, exploration, and collaboration, empowering students, faculty, and researchers with the tools they need to excel academically. According to Ashikuzzaman (2023), here are some key functions that highlight the vital role of academic libraries:

- i. Resource Provision:** Academic libraries curate and maintain extensive collections of books, journals, periodicals, research papers, electronic databases, and multimedia resources. These materials cover various disciplines and subjects, ensuring that students, faculty, and researchers have access to comprehensive and up-to-date information relevant to their studies and research projects.
- ii. Research Support:** Librarians in academic libraries collaborate with researchers to help them identify and access relevant sources for their research. They guide using specialized databases, formulating effective search queries, and navigating academic literature. Librarians are adept at assisting researchers in locating hard-to-find materials and ensuring that research is grounded in credible sources.
- iii. Information Literacy Education:** Academic libraries offer workshops and instructional sessions to enhance users' information literacy skills. These sessions teach students to





evaluate sources critically, differentiate between reliable and unreliable information, and ethically use and cite sources in their academic work. Information literacy education equips students with lifelong skills for evaluating information in an increasingly digital and complex information landscape.

- iv. **Collaborative Learning:** Academic libraries create spaces that encourage collaborative learning and group work. Group study rooms equipped with multimedia tools, discussion areas, and technology resources enable students to collaborate on projects, engage in peer discussions, and jointly tackle academic challenges.
- v. **Technology Access:** Libraries provide access to computers, printers, scanners, and software that support academic and research activities. In addition to providing access to technology, librarians assist users in using digital tools effectively, such as conducting online research, managing references, and creating multimedia presentations.
- vi. **Archiving and Special Collections:** Many academic libraries house unique and rare materials with historical, cultural, and scholarly significance. Archivists and librarians curate these special collections, making them available for research and study. These collections can include manuscripts, letters, photographs, rare books, and artifacts, offering a window into the past and enabling in-depth research in specialized fields.
- vii. **Interlibrary Loan Services:** Academic libraries collaborate with other institutions to provide interlibrary loan services. Users can request materials not available in their own library and have them borrowed from other libraries, expanding the breadth of accessible resources
- viii. **Reference Services:** Librarians offer personalized assistance to users seeking information. They help users navigate library catalogs, databases, and resources, guiding them toward relevant materials that match their research needs. Librarians also offer advice on refining research questions, developing search strategies, and critically evaluating sources.
- xi. **Promoting Open Access:** Many academic libraries advocate for open access, which promotes unrestricted access to scholarly research. Librarians encourage researchers to



- publish their work in open-access journals or repositories, making their findings accessible to a global audience without subscription barriers.
- xii. **Cultural and Intellectual Engagement:** Libraries host events, exhibitions, author talks, and lectures that promote intellectual engagement and cultural exploration. These activities enrich the academic community by fostering discussions, encouraging interdisciplinary connections, and celebrating the arts and sciences.
  - xiii. **Remote Access:** Through digital platforms, academic libraries provide remote access to their electronic resources, enabling users to access materials from off-campus locations. This facilitates continuous learning and research regardless of physical proximity to the library.

### Overview of a Digital Age

According to Tella (2020), the digital age is otherwise referred to as the Information Age, a historic period in the 21st century characterized by the rapid shift from traditional industry that the Industrial Revolution brought through industrialization, to an economy based on information technology. Also, Digital Sociology (2021) further defined the digital age also known as the information age or the computer age, as the present era where everything is dependent on the widespread use of the Internet. It is the time frame in history in the 1970s when personal computers and communication technologies were used in social, political, and business activities. It is worthy of note that the digital age intersects with the internet age, which describes the time since the public first had access to the internet, as well as the fundamental changes it brought about in terms of information availability and worldwide communication. In a similar vein, Adam (2023) stated that the digital age refers to the period in human history marked by the widespread adoption of digital technologies such as computers, smartphones, and the internet. This era as described by Adam has brought about significant changes in how we communicate, access and share information, and conduct business and commerce.

Malehakaleem (2021) asserted that the digital age had an overall impact on our societies and day-to-day activities. It has a lot of advantages and disadvantages i.e.; it comes with so many opportunities as well as costs. Compared to the past, the amount of information available to people



today is almost immeasurable. With the internet, we have access to vast amounts of data, including news, research, entertainment, and social media. This abundance of information has had a profound impact on human society and has both positive and negative effects. It is worth noting that the start of the digital age is difficult to pinpoint. While some refer to the 1970s as the start of the digital age when personal computers were first introduced, others point to the 1980s with the advent of the Internet (Hartel & Hartel, 2020). However, regardless of when it began, the increasing pace of digitalization has affected many (if not all) aspects of modern life. Technologies that were not common 5 years ago are now part of everyday life for an entire generation, e.g., Twitter, Snapchat, Instagram, Facebook, Messenger, etc.

### **Characteristics of the Digital Age**

The digital is a common designation for the current period of world history beginning with 1945 and it is generally characterized by the widespread use of digital technology and the rapid transmission of information (Spacey, 2024). Some of the basic characteristics of the digital age according to Spacey (2024) are:

- i. Emergence of Networks:** The digital age is characterized by the convergence of networks such as the internet that allow a large number of computers and people to communicate and interact.
- ii. Internet of Things:** The digital age can also be characterized by the networking of everyday products and infrastructure such that all things begin to demonstrate intelligence.
- iii. Virtual Mobility:** The digital age is an age where individuals have the ability to do things such as work or social interactions from any location. This they do without having to move from their current or remote location. An example is having a virtual meeting (Zoom/google meetings) over the internet to discuss as though you are present physically.
- iv. Easier and Faster Access to Knowledge:** There are currently about 3.5 billion smartphone users globally according to Spacey (2024). This development gives large populations the ability to look up any topic and get information that satisfy their information needs. This easy and fast access to knowledge is unprecedented in human history. However, in the digital age, computers and networks makes this development a possibility.



- v. **Digitization:** The digital age is certainly characterized by digitization which relates to the transformation of things that used to have a physical form into intangible digital data. For example, converting a physical (print) books or journals in the library to an electronic book or journal through digitization.
- vi. **Immersive Experience:** The digital age is also characterized by the emergence of immersive technologies that gives humans the ability to feel that they can step into games, art and other digital environment that are fully or partially simulated.
- vii. **Misinformation and Disinformation:** The digital age is without doubt characterized with misinformation and disinformation. The internet allows everyone to participate in the sharing of information and commentary on a global basis. This provides an important alternative to the dominance of large companies but also allows for the rapid spread of misinformation and disinformation.
- viii. **Knowledge Economy:** The digital age can also be characterized by the knowledge economy which is the creation of value without manual work. A large number of workers now create things such as strategies, plans, codes, designs, and research that are completely digital with no physical form.
- ix. **Increased Productivity:** The digital age has brought about massive industrialization where powerful tools and technologies are adopted to drive productivity. Automation of manual labor routines has also allowed people to increase the amount of value they create in an hour of work compared to the days of manual labor.
- x. **Dematerialization:** The digital age also features dematerialization which is the tendency for economic activity to use less and less raw materials. This also includes the tendency for goods and products to be produced smaller and lighter. It also includes economic activity that is completely digital such that it produces nothing physical.
- xi. **Creative Destruction:** As information technology has changed operating models and business models, economic disruption occurs whereby old firms are replaced by new ones. This development can be viewed as a process of creative destruction that puts people out of work in one industry but creates new jobs in others. In this context, the expectation of a job for life may be unrealistic as workers must continue to learn and adapt to stay relevant.



- xii. Globalization:** Globalization which is the integration of systems, economies, societies, and politics across regions is a characteristic of the digital age. Globalization is a long-running process that is greatly accelerated by the internet as a venue for communication, shared experience, and commercial exchange.
- xiii. Digital Dependency:** In the digital age, digital dependency is a norm. Digital dependency is a state where individuals obsessively use tools. Humans can become dependent on computers as they are on basic things such as clothing and housing.
- xiv. Information Security:** As economies, societies, organizations, and individuals are highly dependent on technology, the security of their immediate environment and activities becomes almost as important as physical security. Also, the aggressive pace of change in information technology tends to leave technologies exposed to cybercrime and cyberwarfare.

### **Academic Libraries in the Digital Age**

In the digital age, the internet has become a primary technology platform for academic libraries to deliver and disseminate information for faculty and students. Challenged by powerful web search engines such as Ask, Bing, Google, and Yahoo, many academic administrators, executives, faculty, librarians, and other professionals debate whether it is still wise to invest in academic libraries (Li, 2013). However, Sullivan (2011) noted that academic libraries in the digital age have more functions and roles to play than computer labs can handle. Just because academic libraries are using information technologies does not mean that academic libraries and librarians will be ‘subsumed by information-technology departments’ (Sullivan, 2011). On the contrary, the services of academic libraries such as the reference service have been enhanced with the adoption of modern technologies to reach more faculty and students. In addition to the popular Wikipedia and Google Scholar, there are so many powerful academic databases and network consortiums made available in academic libraries to satisfy the information needs of the users (Li, 2013).

Because of the Internet and information technologies, academic libraries have given up their primary role as storage places for information and knowledge. At the same time, cutting-edge and emerging technologies have created more opportunities for academic libraries to expand their range



of services. For example, innovative media such as e-book readers, smartphones, social media networks, and tablets have enabled academic libraries to deliver and disseminate multi-format information to library users in mobile and wireless computing environments. Hence, Li (2013) averred that academic libraries in the digital age will keep functioning as information centers, learning centers, teaching centers, presentation centers, and social network centers for students, faculty, staff, and other local community users. Some of the roles that academic libraries have embraced to be able to function effectively and remain competitive in the digital age are:

- i. **Information Guides:** Academic libraries have moved beyond simply offering access to physical collections to curating and directing users through extensive digital resources (Kaur, 2015). Librarians today serve as guides, assisting users in locating, evaluating, and efficiently using digital material.
- ii. **Facilitators of Digital Scholarship:** Academic libraries are becoming more involved in digital scholarship activities by offering access to specialized software, data repositories, and expertise in fields such as data management, digital publishing, and multimedia production (Van-Wyk, 2020).
- iii. **Open Access Advocators:** Academic libraries advocate for free access to academic resources, which promotes knowledge diffusion without the use of barriers like paywalls. They promote programs like institutional repositories, open educational resources (OER), and publication platforms that prioritize accessibility at no cost in order to foster collaboration and innovation across academic communities (Ashikuzzaman, 2024).
- iv. **Digital Preservator:** With the proliferation of digital content, libraries are taking on the role of digital preservation stewards, ensuring the long-term accessibility and usability of digital materials. Hazarika (2020) noted that digital preservation in academic libraries has been fundamental to ensuring the durability, usability, and intellectual integrity of the data/information contained in the resources of the library.
- v. **Information Literacy Champions:** In the digital age, the capacity to critically analyze and efficiently use information is essential. Academic libraries of the 21st century have taken up the responsibility of promoting information literacy skills among students, faculty members,



and researchers through conferences, workshops, seminars, public lectures, and online resources (Chakravarty, 2015).

- vi. **Supporters/Agitators for Online Learning:** As online learning becomes more prevalent, academic libraries are providing support services tailored to the needs of remote learners (Sivankalai, 2021). This includes virtual reference assistance, online access to resources, and instructional support for navigating digital platforms among others.
- vii. **Partnerships for Innovation:** Academic libraries in the digital age are forging partnerships with other campus units, academic departments, and external organizations to foster innovation in digital scholarship, pedagogy, and research. These collaborations/partnerships may involve joint projects, shared resources, and interdisciplinary initiatives.
- viii. **Data Management Expert:** With the rise of big data and data-driven research, academic libraries are developing expertise in data management, including data curation, metadata standards, and data visualization tools (Koltay, 2019). They support researchers in managing, sharing, and preserving their research data in compliance with funding agency requirements.
- ix. **Collaborative and Learning Space:** Physical library rooms are being transformed into collaborative learning environments rather than typical book storage (Ari, 2018). Libraries are combining flexible spaces, technology-rich surroundings, and facilities that encourage collaborative work, multimedia creation, and interactive and immersive learning experiences.

### **Challenges of Academic Libraries in the Digital Age**

Academic libraries face several challenges in the 21st century. One of the main challenges is the need to adapt their roles and develop stronger relationships across the university to maintain their relevancy to all stakeholders. Another challenge is the increasing complexity of research data management, as researchers look to leverage big datasets for new insights. To address this, libraries need to become institutional leaders in research data management, providing guidance and support throughout the research cycle (Sarker, 2022). Technological advancement also poses a challenge, as libraries must adopt emerging technologies to meet the changing information needs of users.



Implementing smart services can enhance library services provision and support distance learning, but libraries face challenges such as resistance to change, privacy concerns, and financial constraints (Laskowski, 2021). While discussing some of the challenges of academic libraries in delivery services in the 21st century, Sahabi and Otobo (2021) outlined the following:

- i. Lack of ICT Literate Staff:** Some academic libraries are not able to meet the challenges posed by technology due to ICT literate staff, especially in the provision of digital information services. For this reason, academic libraries might be reluctant to adopt and use new technologies. Tanawade (2011) states that many librarians in academic libraries lack self-reliance in the face of growing information technology. This slows the delivery of the service and delays productivity on the part of academic libraries.
- ii. Poor Internet Connection:** The Internet plays a major role in digital information, but equal access to the Internet has not yet been achieved in Nigerian academic libraries. Current Internet connections to most academic libraries are slow.
- iii. Epileptic Power Supply:** Nigerian energy is despairing and it is a factor that prevents the effective implementation of information services. Most academic libraries use alternative energy sources such as power generators/inverters to function. However, these machines are prone to maintenance problems, and high costs of diesel and gasoline. The effect was the provision of epilepsy services.
- iv. Poor Funding of Academic Libraries:** Funding is the tool that backs academic libraries in providing effective information services. Funds are needed to obtain ICT equipment, Internet subscriptions, staff training, reimbursement, and maintenance. The strength of the academic library lies in its information resources, printed and online. Funds are needed to manage a range of services in academic libraries, but government support in the education sector is inadequate.
- v. Poor Control of Copyright Protection:** It is very easy to copy, duplicate, transmit, and distribute digital information. Copyright has been violated in a digital environment because it has no control over access to content and reproduction of multiple copies of digital media.

## Recommendations





- A. By implementing these solutions, the library management can enhance ICT literacy among staff, improving overall productivity and efficiency:-
- i. **Training and Development Programs:** Offer regular training sessions, workshops, and online courses to enhance ICT skills of existing staff.
  - ii. **Capacity Building:** Hire ICT professionals and provide them with opportunities for professional development.
  - iii. **Mentorship:** Pair ICT literate staff with non-ICT literate staff for guidance and support.
  - iv. **Recruitment:** Include ICT literacy as a requirement for new hires.
  - v. **Partnerships and Collaborations:** Collaborate with organizations that have ICT expertise to provide training and support.
  - vi. **Digital Literacy Initiatives:** Implement organization-wide digital literacy initiatives to ensure all staff have basic ICT skills.
  - vii. **ICT Champions:** Appoint ICT champions to promote ICT literacy and provide support.
  - viii. **Online Resources:** Provide access to online resources, tutorials, and webinars to enhance ICT skills.
  - ix. **ICT Literacy Policy:** Develop and implement an ICT literacy policy to ensure all staff meet minimum ICT standards.
  - x. **Continuous Professional Development:** Encourage staff to pursue certifications and higher education in ICT-related fields.
- B. By implementing these solutions, the library can improve internet connectivity, reduce downtime, and increase productivity.
- i. **Upgrade Internet Service Provider (ISP):** Switch to a reliable ISP with faster speeds and better coverage.
  - ii. **Install Fiber Optic Connection:** If available, install a fiber optic connection for faster and more reliable internet.
  - iii. **Use Mobile Hotspots:** Utilize mobile hotspots as a backup or alternative for remote work.
  - iv. **Network Optimization:** Optimize network configuration and settings for better performance.
  - v. **Wi-Fi Range Extenders:** Use Wi-Fi range extenders to boost signal strength and coverage.



- vi. Mesh Network Systems: Install mesh network systems for reliable and widespread coverage.
- vii. Internet Backup Solutions: Implement internet backup solutions like 4G/5G failover for uninterrupted connectivity.
- viii. Network Maintenance: Regularly maintain and update network infrastructure and equipment.
- ix. Bandwidth Management: Implement bandwidth management tools to optimize internet usage.
- x. Alternative Internet Sources: Explore alternative internet sources like satellite internet or fixed wireless broadband.

C. To address the challenges of epileptic power supply, the following were recommended:.

- i. Uninterruptible Power Supply (UPS) Systems: Provide backup power during outages.
- ii. Generators or Backup Power Systems: Offer reliable power during extended outages.
- iii. Solar Power or Renewable Energy Sources: Harness sustainable energy to reduce reliance on grid power.
- iv. Power Conditioning and Surge Protection Devices: Protect equipment from voltage fluctuations and surges.
- v. Regular Maintenance and Upkeep of Power Infrastructure: Ensure efficient and reliable power distribution.
- vi. Energy-efficient equipment and practices: Minimize power consumption and reduce strain on the grid.
- vii. Power Monitoring and Management Systems: Track and control power usage to optimize efficiency.
- viii. Emergency Power Backup Solutions: Provide instant power during unexpected outages.
- ix. Collaborations with Power Companies for Reliable Supply: Work with utilities to ensure consistent power delivery.



- x. Invest in Grid Modernization and Infrastructure Upgrades: Support long-term power reliability and efficiency.
- xi. Diversify Power Sources: Explore alternative energy options like wind, hydro, or geothermal power.

D. To address the challenge of poor funding of academic libraries, consider the following solutions:

- i. Advocacy: Raise awareness about the importance of academic libraries among administrators, faculty, and students.
- ii. Fundraising Campaigns: Organize events, crowd funding, or grant writing to secure additional funding.
- iii. Partnerships and Collaborations: Share resources and costs with other libraries or institutions.
- iv. Grants and External Funding: Pursue government, foundation, or corporate grants to support specific projects or initiatives.
- v. Budget Reallocation: Reassess institutional priorities to allocate more funds to the library.
- vi. Cost-saving Measures: Implement efficient practices, like resource sharing or open educational resources.
- vii. Donations and Endowments: Encourage alumni and community donations to support library services.
- viii. Government Support: Advocate for increased funding for academic libraries at the national or state level.
- ix. Corporate Sponsorships: Seek partnerships with local businesses or industries to support specific library initiatives.
- x. Library Fundraising Events: Host events like book sales, author readings, or charity runs to raise funds.
- xi. Online Fundraising Platforms: Utilize social media and crowdfunding sites to raise awareness and funds.



xii. Strategic Planning: Develop a comprehensive plan to prioritize funding needs and allocate resources effectively.

By implementing these solutions, academic libraries can improve their funding, enhance resources and services, and better support the academic community.

E. To address the challenge of poor control of copyright protection, consider the following solutions:

- i. Education and Awareness: Educate users about copyright laws and fair use guidelines.
- ii. Copyright Policies and Guidelines: Develop and disseminate clear policies and guidelines for copyright compliance.
- iii. Digital Rights Management (DRM) Systems: Implement DRM systems to control digital content access and sharing.
- iv. License Agreements: Negotiate license agreements with content providers to ensure legal usage.
- v. Copyright Clearance Services: Utilize services that facilitate copyright clearance and permission requests.
- vi. Content Monitoring and Tracking: Regularly monitor and track content usage to detect and prevent infringement.
- vii. Legal Action and Enforcement: Pursue legal action against copyright infringers when necessary.
- viii. Alternative Licensing Models: Explore alternative licensing models like Creative Commons or Open Access.
- ix. Staff Training and Expertise: Develop staff expertise in copyright law and management.
- x. Technology Solutions: Utilize technology solutions like plagiarism detection software and copyright tracking tools.
- xi. Collaboration and Partnerships: Collaborate with other institutions and organizations to share best practices and resources.



xii. Regular Review and Update of Policies and Procedures: Regularly review and update copyright policies and procedures to adapt to changing laws and technologies.

By implementing these solutions, you can improve control over copyright protection, reduce infringement risks, and ensure legal and ethical use of copyrighted materials.

### **Conclusion**

There is no denying that the digital age has brought a profound transformation to the activities and mode of operations of libraries all over the globe and academic libraries in particular. In the digital age, academic libraries must reposition their roles to meet the challenges of the Internet, World Wide Web, and online access in the information age. So academic libraries must be enriched with staff who are knowledgeable and possess the special skills of the latest IT developments, that can allow them to browse, access and retrieve a particular information across the global networks and to organize and manage the information by building digital libraries and by which they can provide quality e-information service to their clients in the digital age.



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