



From Shelves to Screens: the Evolution of Library Services in Response to User Needs

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Abstract

This paper looks at the transformation of library services by analysing how physical services transformed into digital services that meet the current way people expect to access and use information. It assesses the 'state of the art' of library services and documents the progress that libraries have made over time to respond to the needs of the people. The focus is within the framework of the changing user needs towards core services, the introduction of technology to enhance operational efficiency within the library, and the adapting to the twenty-first-century employee challenges such as lack of financial resources, the divide between those with internet access and those without, and the shortage of skilled personnel.

When looking at the future, the paper predicts new trends such as artificial intelligence, open educational resources, and digital book initiatives to determine the next distance of the library service. Positioning itself as a community centre and leader in accessing information and library studies can meet the developed needs of users in the digital world. This paper underscores libraries' vital role in fostering lifelong learning, equitable access to information, and community engagement, affirming their importance in the 21st century.

Keywords: Innovation, Evolution of library services, Digital libraries, Traditional libraries, User demands, Technological advancements, Artificial intelligence in libraries, Digital literacy, Library challenges, future of libraries

1. Introduction

For a long, the library has taken its place as the keeper of knowledge, changing with changing societal norms to satisfy the needs of its users. Throughout history, from the ancient manuscript collections in Alexandria to the innovative and adaptive 22nd-century digital libraries, the basic mission of the library served to provide access to information for the encouragement of learning. However, its strategies and services have changed their paradigms to cater to these changes, including social, technological, and cultural shifts.

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Libraries today are not just places to store books. They've changed into spaces where people can interact, use digital tools, get personalised help, and join community activities (Nagy, 2011). This article describes the evolution of library services that changed from traditional library services involving manual cataloguing and lending to modern library services comprising borrowed e-books, online databases, virtual reference services and their implementation within different library environments. The paper shows how libraries have been adapting to user demand for convenience, access, and interactivity since their inception and places libraries firmly as "core institutions" in today's digital society.

The succeeding sections of this paper will outline the development of library services from the beginning to the present world of technological advancement. Besides, it will explore the challenges libraries face in adapting to new user expectations and provide insight into library services' future directions as they evolve.

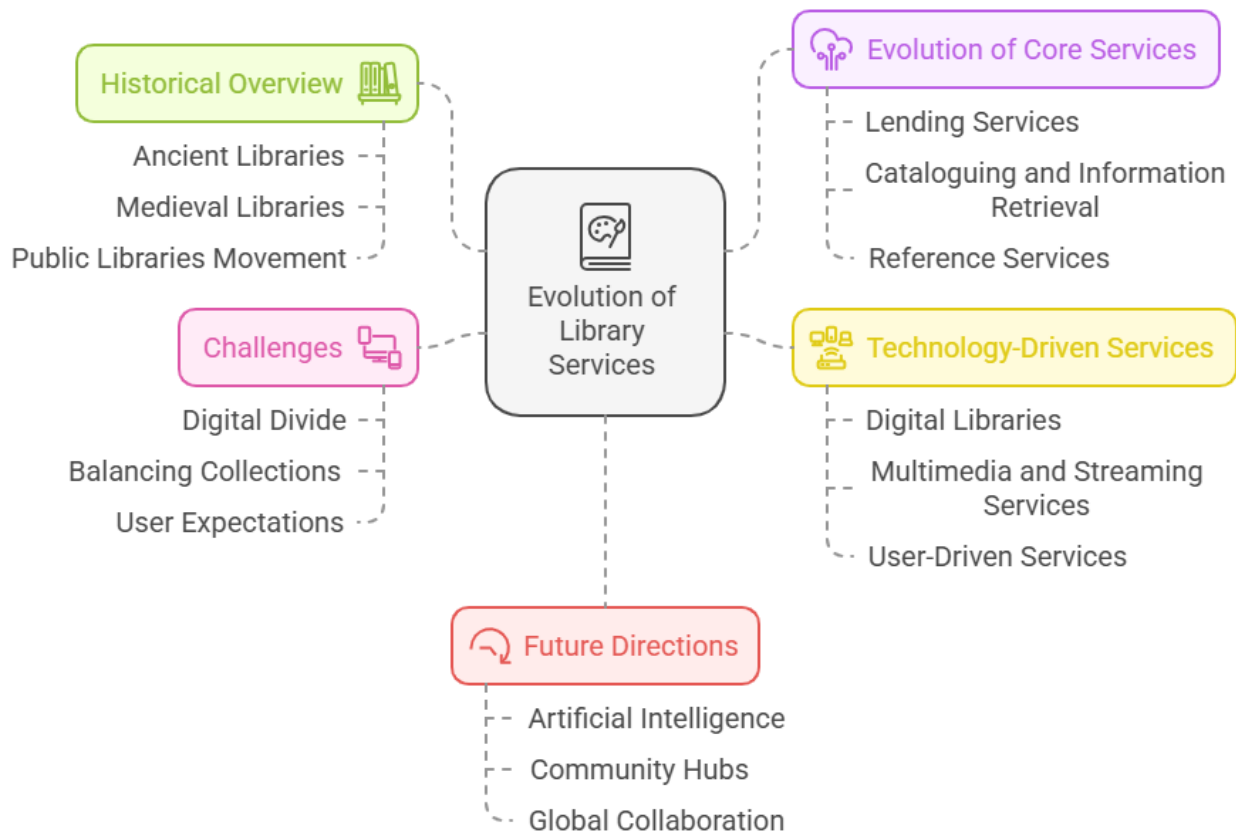


Figure 1: Evolution of library services

2. Research Methodology

This study uses a qualitative research method. It combines a review of existing literature, examinations of specific cases, and comparisons of different approaches. The goal is to explore how libraries have changed from old-fashioned models to modern, tech-driven systems. This approach tries to give a complete picture of how libraries have adapted to what users need and how technology has advanced. The researchers take a qualitative exploratory route. They focus on describing and interpreting how library services have changed over time. This lets them look at both past changes and new ideas in libraries. The study relies on reviewing existing literature to gather information. The researchers look at academic articles, books, and reports from databases like JSTOR and Web of Science. They also use reports from big

libraries and groups like IFLA and ALA to get real-world insights. These sources help paint a complete picture of how libraries have evolved and what problems they face.

A **case study approach** was employed to highlight specific examples of libraries that have navigated the shift from traditional to modern services. Examples include:

- **The British Library (UK)** for digital archiving.
- **The New York Public Library (USA)** for AI integration.
- **National Library of India** for balancing traditional and digital services.

These case studies provide concrete examples of how libraries adapt to technology and user needs.

The study compares traditional and modern digital libraries, examining the adoption of technologies like online catalogues and AI-driven services. This comparative analysis reveals how libraries in different contexts manage their resources and respond to user demands.

Content and thematic analysis were used to categorise data by key themes such as technological innovation and user engagement. Trend analysis was employed to forecast future developments in library services, drawing insights from the case studies and literature.

3. Limitations

While the study offers a broad overview, it may not fully represent small or rural libraries. The focus on technology may also underplay other evolving aspects like community services.

4. Ethical Considerations

Ethical issues were minimal, as the study is literature-based. All sources were reviewed for accuracy and cited correctly, maintaining academic integrity.

5. Historical Overview of Library Services

The evolution of library services reflects how societies have changed and adapted to new technologies over time. From the very beginning, libraries have played an important role in preserving and sharing knowledge. However, the ways they serve people have evolved a lot.

Libraries have always been a vital part of human civilisation, changing and growing to meet the needs of their users. From ancient records to modern AI-powered tools, their journey shows how technology, society, and the way we share knowledge have transformed. The key milestones in the history of library services are depicted in table 1.

Table 1: The key milestones in the history of library services

Era/Period	Key Milestones	Description
2600 BCE	Clay Tablet Archives	Early libraries in Sumer preserved records on clay tablets for administrative purposes.
500 CE	Monastic Manuscript Libraries	Monasteries in Europe stored handwritten religious texts, focusing on preservation.
1450 CE	Printing Revolution	The invention of the printing press enabled mass production of books and the dissemination of knowledge.
19th century	Public Lending Libraries	Free public libraries emerged, providing access to books for all social classes.
Mid-20th Century	Computerised Cataloguing	Libraries began using computer systems for cataloguing and resource management.

1990s	Digital Libraries	E-books, online catalogues, and digital databases became integral to library services.
21st century	AI and Automation in Libraries	Integration of AI for cataloguing, virtual assistance, and personalised resource recommendations.

5.1. Ancient Libraries

The Library of Alexandria, founded in the 3rd century BCE, is one of the earliest and most renowned libraries in history. Its purpose was to amass a comprehensive collection of all human knowledge. During this period, libraries primarily served the elite, including scholars and scribes, and their functions centred on acquiring, copying, and preserving manuscripts. Rather than being open to the general public, libraries like Alexandria were primarily custodial institutions, focused on safeguarding knowledge rather than distributing it broadly.

5.2. Medieval Libraries

During the medieval period, libraries were often housed within monasteries, where the primary users were monks and clergy. These libraries focused on religious texts, and the services provided were centred around the transcription and illumination of manuscripts. Access was highly restricted, with most of the public excluded from these collections (Bell, 1999). Library services during this period were labour-intensive, with book production and preservation being a slow, manual process. Lending and borrowing were minimal, as books were rare and considered precious objects. The physical security of books was also paramount, with many chained to desks to prevent theft.

5.3. Renaissance and the Printing Revolution

The invention of the printing press in the mid-15th Century by Johannes Gutenberg marked a significant shift in library services. As books became more widely available and affordable, libraries evolved from exclusive archives to more accessible institutions. Public libraries, though still limited in number, started to emerge, allowing for the borrowing of books by a broader audience. This transition saw the beginnings of a lending service model where users could borrow and return books. Establishing libraries such as the Bodleian Library at Oxford in 1602 reflected this shift, combining large collections with more structured lending practices.

5.4. Public Libraries Movement (19th century)

The 19th century witnessed a significant transformation with the rise of public libraries, mainly driven by the belief that access to information was essential for an educated citizenry. Philanthropists such as Andrew Carnegie funded the establishment of thousands of public libraries across the United States and the UK, marking the era when libraries prioritised free access to books and knowledge for all individuals, regardless of social class.

In this period, key services included lending books for personal study, designated reading rooms for quiet study, and reference services. The idea of circulating collections allowed users to borrow books to take home, which was a significant shift from previous models where reading was often restricted to the library premises. These public libraries laid the foundation for the modern concept of libraries as public institutions focused on community access and learning.

5.5. The Emergence of Modern Libraries (20th century)

By the early 20th century, the scope of library services began to expand further, incorporating new technologies such as typewriters, telephones, and early computing devices. The introduction of the Dewey Decimal Classification system and other cataloguing systems improved information retrieval, making it easier for users to find materials independently. Libraries began offering services such as interlibrary loans, reference desks, and bibliographic instruction, further enhancing access to information.

With the advent of computers in the mid-20th century, libraries entered a new era of service evolution. Automated cataloguing systems replaced manual card catalogues, streamlining the process of information retrieval and inventory management. These changes and the growing availability of electronic databases marked the beginning of the digital revolution in library services, which would accelerate dramatically in the years to come.

In summary, the historical evolution of library services reveals a gradual yet significant shift from exclusive, custodial service models to more accessible, community-focused systems. From the restricted collections of ancient libraries to the public institutions of the modern world, libraries have consistently adapted their services in response to the growing demand for knowledge, access, and inclusivity. This historical foundation sets the stage for the next phase of evolution, driven by technological innovations and user-centred services.

6. Evolution of Core Services: from Traditional to Modern

The core services libraries provide have undergone significant transformations as they have adapted to changing user needs, technological advancements, and societal expectations (Wheeler, 2022). Central services such as lending, cataloguing, and reference assistance, which were once manual and resource-intensive, are now heavily influenced by digital technologies. This section will trace the evolution of these key services, illustrating the progression from traditional, physical models to modern, digital solutions that reflect contemporary user demands.

The transformation of library services over the years is a testament to their adaptability and resilience in meeting evolving user needs. Traditional libraries, which rely on physical resources and in-person services, have been gradually replaced or supplemented by digital libraries. This shift has been driven by technological advancements and the demand for more accessible, efficient, and user-friendly library services. The key differences between traditional and modern libraries are depicted in table 2:

Table 2: The key differences between traditional and modern libraries

Aspect	Traditional Libraries	Modern Libraries
Catalogue System	Physical card catalogues	Online Public Access Catalogue (OPAC)
Access	Limited to library hours and physical location	24/7 remote access from any device
Collection Type	Physical books, journals, and periodicals	E-books, databases, multimedia, and online journals
Space Requirements	Large physical storage spaces	Minimal physical space; data stored on servers
Borrowing System	Manual lending process using library cards	Automated borrowing via RFID or online systems
Cost of Maintenance	High, due to the physical upkeep of books and spaces	Lower, with costs focused on IT infrastructure and licensing
User Interaction	In-person librarian assistance	Virtual assistance through AI chatbots and FAQs
Preservation	Vulnerable to physical damage	Digital preservation and backups are available
Search Capability	Manual search through shelves or catalogues	Quick keyword and advanced search functionalities

6.1. Lending Services

One of the most fundamental services libraries provide is the lending of materials. Historically, lending was a highly structured and manual process. In the 19th and early 20th centuries, libraries relied on physical record-keeping methods, such as paper library cards and manual ledgers, to track borrowed materials. Users could borrow physical books for a limited time, but the entire process was time-consuming, and access to materials was limited by the library's physical holdings.

In the past, lending was strictly confined to physical items such as books, journals, and, later, multimedia like cassette tapes and DVDs. Users were required to visit the library in person, search through physical card catalogues, and queue to borrow and return items. Libraries often imposed strict borrowing limits and late fees to ensure the return of items, making access relatively inflexible.

With the advent of digital technologies, library lending services have expanded dramatically. Today, users can borrow physical books, e-books, audiobooks, and streaming media through digital platforms such as OverDrive, Libby, and Hoopla. Digital lending has enabled users to access resources remotely without visiting the library physically (Lear, 2022). Additionally, digital lending allows for 24/7 access, accommodating the needs of modern users who seek flexibility and convenience. Furthermore, many libraries now offer self-service kiosks for borrowing and returning physical materials, streamlining the process.

The shift from manual to digital lending services directly responds to user demands for easier access and convenience. The ability to borrow and return items remotely, mainly digital content, aligns with the modern consumer preference for on-demand access. Libraries have adopted this model to remain relevant in a digital-first world, where users expect immediate access to content, similar to commercial platforms like Amazon or Audible.

6.2. Cataloguing and Information Retrieval

In traditional libraries, finding a book or resource required navigating a physical card catalogue, a system that relied on drawers of index cards categorised by author, title, and subject. This method was effective but time-consuming, requiring users to manually sift through cards and locate the book on the shelves. Furthermore, these systems were often limited to the resources within a single library, restricting the scope of information available to users.

The card catalogue, first developed in the late 19th century, was the dominant method of cataloguing library collections until the mid-20th century. Users had to visit the library to access these catalogues physically, and information retrieval was a slow, manual process. Librarians were essential intermediaries in helping users locate the correct materials, especially for complex research needs.

The transition to digital cataloguing began with the introduction of Online Public Access Catalogues (OPACs), which allowed users to search library collections electronically. Today, most libraries offer integrated digital search platforms that provide access to the library's physical holdings and a vast array of digital resources, including e-books, journal articles, and multimedia. Users can now perform complex searches using keywords, metadata, or subject headings from any location with internet access. Services like WorldCat extend this capability by allowing users to search collections from multiple libraries worldwide.

The development of OPACs and other digital search tools was driven by the need for faster, more efficient information retrieval. Users no longer have to rely on librarians or manual search methods, making it easier for individuals to locate and access information independently. This shift has also allowed libraries to expand their offerings through interlibrary loans and digital repositories, vastly increasing the range of resources available to users.

6.3. Reference Services

Reference services have traditionally been one of the most valued offerings of libraries, providing users with expert assistance in finding and interpreting information. In the past, reference services were limited to in-person consultations with librarians, and assistance was available only during library hours. Users seeking specialised information or research help often faced delays or barriers due to limited access.

In earlier periods, users approached librarians at reference desks to ask for assistance with finding information. The reference process was highly dependent on the librarian's expertise and the physical resources available within the library. Assistance was often limited to answering basic questions or directing users to the appropriate section of the library.

Modern reference services have expanded significantly through digital tools and platforms. Today, libraries offer virtual reference services, including live chat, email consultations, and even AI-driven chatbots that provide instant assistance to users, regardless of location (Khan & Zainab, 2015). These services are available 24/7 in many cases, allowing users to seek help at any time. Virtual reference desks also give users access to a wider range of resources, including online databases, institutional repositories, and open-access archives, enhancing the breadth of available information.

The development of virtual reference services reflects the growing expectation of users for immediate, on-demand assistance. In a world where information is increasingly sought and consumed digitally, libraries have adapted by providing real-time, remote services. This evolution ensures that libraries remain accessible to users who may no longer visit in person but still require expert guidance in navigating complex information landscapes.

6.4. User-Centred and Collaborative Services

Traditionally, libraries were places where users consumed information passively, often working alone to access books and other resources. However, as libraries have evolved, they have increasingly focused on collaborative, user-centred models of service that promote interaction, learning, and creation.

In the past, libraries were quiet, contemplative spaces dedicated to solitary study. Services focused on the passive consumption of information, with limited engagement between users and library staff beyond borrowing and returning items.

Modern libraries are now interactive spaces where users can engage in collaborative learning and creative projects. Services like makerspaces, media labs, and collaborative study rooms reflect this shift towards user-centred experiences. Libraries now offer workshops, training sessions, and events that foster community engagement and skill development, often incorporating digital literacy, coding, and media production.

This transition is driven by the growing expectation that libraries should provide access to information and support the creation and dissemination of new knowledge. By offering collaborative spaces and services, libraries have responded to the demand for more dynamic, participatory experiences that foster innovation and creativity (Somerville & Collins, 2008).

Conclusion: The evolution of these core library services from traditional, physical processes to modern, digital solutions highlights how libraries have continually adapted to meet the needs and preferences of their users. Whether through the digitalisation of catalogues, the introduction of e-lending, or the expansion of reference services, libraries have remained essential institutions by embracing new technologies and approaches that enhance accessibility and user engagement.

7. Technology-Driven Services: Meeting Modern User Demands

As digital technologies have become integral to everyday life, libraries have expanded their services to meet the evolving expectations of users who demand immediate, remote, and comprehensive access to information. Libraries have

increasingly integrated technology into their service offerings, transforming from passive information repositories into dynamic hubs for digital access, media creation, and interactive learning. This section will explore the key technology-driven services that have redefined the library experience, illustrating how libraries continue to respond to modern user demands.

7.1. Digital Libraries and Archives

One of the most significant developments in the evolution of library services is the shift from physical to digital collections. Historically, users had to rely on the physical presence of a library to access its resources, which often limited the scope and availability of information. However, the rise of digital libraries has dramatically expanded the reach and accessibility of library collections.

Before the digital era, users seeking rare or archived materials had to rely on microfilm, microfiche, or photocopies. Access to these materials was restricted to in-library use, and reproducing and preserving delicate documents were laborious tasks. Libraries served as custodians of these materials, and users had to visit in person to retrieve them.

Digital libraries and archives have revolutionised how users access information. Today, many libraries offer vast collections of digitised materials, including rare manuscripts, historical newspapers, and academic journals, which are available online. Institutional repositories and open-access platforms like JSTOR, Project MUSE, and Google Books have expanded access to scholarly resources. Users can now search, view, and download materials from anywhere, often free.

This shift has been driven by user demands for broader access to knowledge and the convenience of retrieving information without geographic or physical limitations. Libraries have responded by digitising their collections and collaborating with global initiatives like Europeana and HathiTrust to provide free and open access to millions of digitised books, archives, and scholarly publications(Christenson, 2011). These services cater to the needs of students, researchers, and the general public, promoting lifelong learning and knowledge dissemination.

7.2. Multimedia and Streaming Services

As media consumption has shifted from physical formats to digital platforms, libraries have expanded their collections to include multimedia and streaming services. While libraries, once lent physical media like VHS tapes, DVDs, and CDs, digital streaming options, have replaced these formats, aligning with contemporary user preferences.

Traditionally, libraries offered audio-visual collections in the form of CDs, VHS tapes, and DVDs that users could borrow for home use. While valuable, these collections required physical storage, maintenance, and, for the user, an in-person visit to the library. Lending policies were also bound by the limited number of copies, often leading to waitlists for popular items.

Libraries have transitioned to offering digital streaming services for films, music, and other media. Platforms such as Kanopy and Hoopla now allow users to stream movies, documentaries, and audiobooks directly from the library's website or app, eliminating the need for physical borrowing(Urban, 2021). These services offer a wide range of content, from mainstream media to specialised educational films, catering to diverse interests and academic needs.

The adoption of streaming services reflects the modern consumer's demand for instant access to media, whether for education or entertainment. Users now expect libraries to provide media in formats that align with their lifestyles, and streaming options have allowed libraries to remain relevant in an increasingly digital environment. These services also support the shift towards remote learning, allowing users to access educational media from home or on the go.

7.3. Virtual Reference and Research Services

The traditional role of librarians as reference experts has evolved with the introduction of virtual reference services, providing users with instant access to research assistance regardless of location. As research becomes more complex and interdisciplinary, users require more sophisticated tools to navigate vast information landscapes.

In the past, users seeking reference assistance had to visit the library in person during operating hours. Librarians provided help at a reference desk, guiding users through physical resources or helping with bibliographic searches. Assistance was limited by the availability of library staff and resources within the library's walls.

Today, virtual reference services allow users to receive assistance through live chat, email, and even video consultations. Many libraries have also integrated AI-powered chatbots to handle routine inquiries. Virtual services extend beyond simple question-answering, including access to extensive online databases, research guides, and tutorials. Users can connect with librarians in realtime or schedule appointments for more in-depth consultations, whether they are at home, in the workplace, or on campus.

The move towards virtual reference services responds to user expectations for on-demand, remote access to expert help (Kampa & Gouda, 2023). As the boundaries between academic and non-academic research blur, users from all backgrounds, including students, professionals, and the general public, increasingly seek flexible access to research assistance. Virtual services allow libraries to provide continuous support, accommodating users in different time zones and catering to those who cannot visit the library in person.

7.4. User-Driven and Personalised Services

In the digital age, users increasingly expect personalised services catering to their needs and preferences. Libraries have adopted new technologies to offer customised experiences that enhance user engagement and satisfaction.

Traditionally, library services were largely standardised, with limited capacity for customisation. Users accessed the same resources and services without much variation, and recommendations were often based on general knowledge or a librarian's judgment. Personalisation, as it is understood today, was minimal.

Libraries now employ data-driven approaches to offer personalised recommendations for books, media, and research materials. Online catalogues and discovery platforms often incorporate algorithms that suggest materials based on a user's search history or borrowing patterns, similar to commercial services like Amazon or Netflix. Additionally, many libraries offer user-generated content features, such as the ability to create personal reading lists, rate and review items, and share recommendations with other users.

This shift towards personalisation mirrors broader trends in the digital economy, where users expect services to be tailored to their specific interests. Libraries have embraced this by offering more personalised, user-centred services that increase engagement and enhance the user experience (Peng, 2021). These features make it easier for users to discover new materials and feel more connected to the library's offerings, driving further usage and satisfaction.

7.5. Collaborative Learning and Makerspaces

The modern library is increasingly a place of creation, innovation, and collaboration. In response to the growing demand for participatory spaces, libraries have introduced makerspaces, media labs, and other interactive areas where users can engage in hands-on learning and creative projects.

In traditional libraries, collaborative activities were limited, and most services revolved around individual, quiet study. While libraries offered reading rooms and study areas, they were not designed for interactive or group work. Collaborative learning initiatives were rare and often limited to specific academic institutions.

Many libraries now feature makerspaces, digital media labs, and learning hubs where users can collaborate on projects, explore new technologies, and develop creative skills (Mwaniki, 2018). Makerspaces often provide access to 3D printers, laser cutters, and other tools for innovation, while media labs offer video and audio production equipment for digital content creation. Libraries also host workshops and training sessions on coding, digital literacy, and entrepreneurship, fostering an environment of shared learning and creative exploration.

The rise of makerspaces and collaborative learning areas reflects the growing expectation that libraries should provide access to information and support the creation of new knowledge. Users, especially in educational and community settings, seek spaces to collaborate on projects, experiment with technology, and engage in hands-on learning. Libraries have responded by transforming into active, participatory environments that cater to these new demands for creative and collaborative engagement.

Conclusion: Through integrating digital platforms, personalised services, and collaborative spaces, libraries have successfully adapted to the modern user's needs, positioning themselves as dynamic institutions that offer far more than just books. These technology-driven services have redefined the role of libraries in the digital era, allowing them to remain relevant and essential in an age of rapid technological change.

8. Challenges in Adapting Library Services to User Demands

As libraries evolve to meet the needs of modern users, they face several challenges that complicate the adaptation process. These challenges stem from rapid technological changes, shifting user expectations, financial constraints, and the need to balance traditional services with innovative solutions. This section explores libraries' primary obstacles as they strive to remain relevant and effective in the digital age.

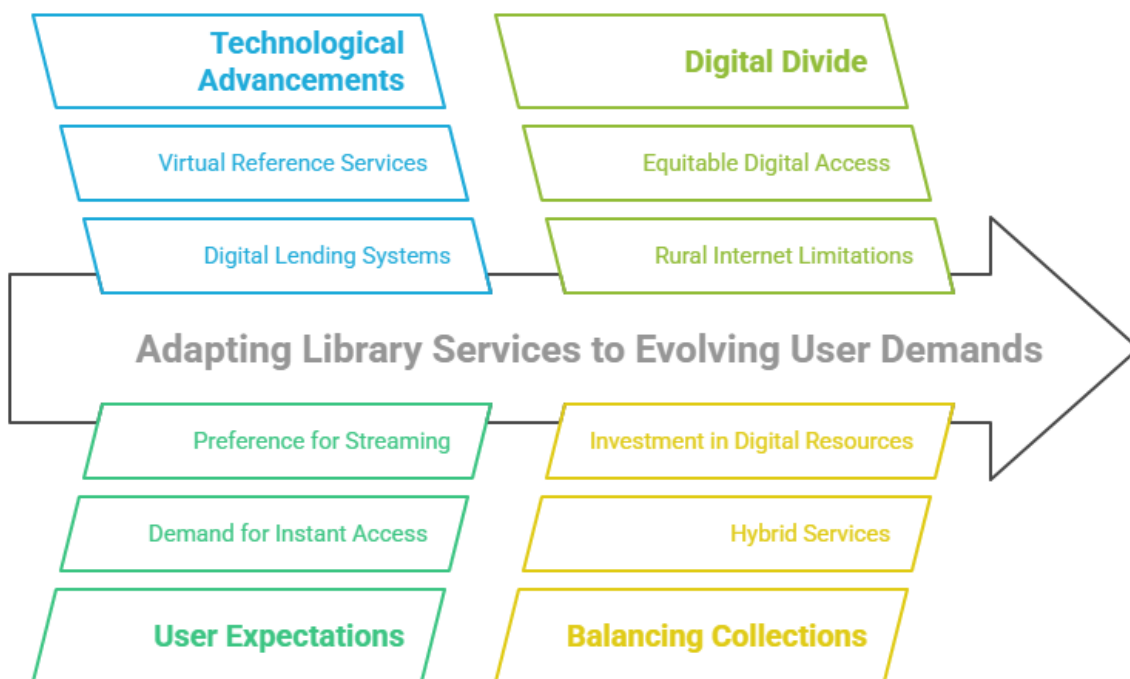


Figure 2: Key challenges in adopting library services to meet user demands

8.1. Budgetary and Resource Constraints

Limited funding is one of libraries' most significant challenges when adapting to user demands. Many libraries, especially public and academic institutions, operate with tight budgets, making investing in new technologies, expanding digital collections, or upgrading infrastructure difficult.

Historically, libraries have faced budgetary constraints, but these primarily affected acquiring physical books and maintaining facilities. Libraries often depended on government grants, donations, or public funding, which fluctuated based on economic conditions.

In the digital era, libraries are expected to offer an increasingly broad range of services, including e-book lending, subscription-based access to databases, and the maintenance of digital infrastructure. These services often come with substantial costs, as libraries must purchase licenses for digital content and invest in the technology needed to support modern services like virtual reference, online catalogues, and makerspaces. Many libraries struggle to secure the necessary funding to keep pace with user demands, leading to gaps in service availability or the need to prioritise certain services over others.

Budgetary limitations can result in reduced service offerings, outdated technology, or diminished access to new materials (Asante, 2014). Libraries in underfunded areas may face significant challenges in offering the same level of digital access as well-funded institutions, leading to inequalities in user experiences.

8.2. Digital Divide and Inequality of Access

Despite the growing demand for digital services, not all users have equal access to the technology required to benefit from them. The digital divide – the disparity between individuals with access to modern information and communication technologies and those without access – poses a significant challenge for libraries.

In the pre-digital era, access inequality primarily comprised geographic and socio-economic barriers. Users in rural or impoverished areas had less access to library services, and the size and resources of local libraries limited the availability of materials.

The digital divide persists in disparities in internet access, digital literacy, and access to devices. Users in low-income communities, rural areas, or developing countries may not have the high-speed internet or modern devices needed to fully utilise digital library services. Furthermore, some users may lack the digital literacy skills to navigate online catalogues, e-books, or virtual reference platforms.

Libraries are tasked with providing equitable access to all users, yet bridging the digital divide is a complex challenge. To address this, many libraries offer free internet access, computer workstations, and digital literacy programs (Russell & Huang, 2009). However, these efforts may not fully close the gap, as users still face barriers outside the library, such as limited home internet access or a lack of technical support.

8.3. Technological Advancements and Rapid Obsolescence

The pace of technological advancement presents both opportunities and challenges for libraries. In comparison, new technologies offer innovative ways to meet user demands but require constant adaptation, investment, and staff training.

In earlier times, technological updates in libraries were relatively infrequent, such as the transition from card catalogues to computerised systems or the introduction of photocopiers. Libraries had more time to adapt to new technologies, and the rate of change was slower.

Today, technology evolves at a much faster pace. Libraries must continually update their systems to keep up with changes in digital platforms, security protocols, and user interfaces. For example, e-book formats and licensing agreements can change frequently, forcing libraries to renegotiate contracts or adopt new software (Vorontsova & Agibalova, 2021). Maintaining digital archives and databases also requires ongoing technical support and cybersecurity measures to prevent data breaches and ensure accessibility.

Constant technological change can strain library resources, as maintaining up-to-date technology requires significant financial and human capital. Libraries must balance the need to adopt new technologies with the need to ensure the stability and security of their existing systems. Failing to keep pace with technological trends may result in outdated services that no longer meet user expectations.

8.4. Balancing Traditional and Digital Services

Today's Libraries must balance traditional services, such as physical lending and in-person reference, with the demand for digital resources and remote services. While digital services are growing in popularity, many users still rely on traditional services, creating tension between old and new service delivery models.

In the past, libraries primarily focused on physical resources and in-person interactions, limiting their ability to reach users outside the library's geographic boundaries. However, these services were simpler to manage, as there were fewer competing demands between physical and digital formats.

Libraries now face the challenge of managing hybrid service models. On the one hand, they must maintain physical collections and provide spaces for study, research, and community engagement. On the other hand, they must also invest in digital platforms, online catalogues, and virtual services to meet the growing demand for remote access (Oyelude, Ola, & Adeniran, 2021). Balancing these two service models can be difficult, as it requires libraries to allocate resources effectively and ensure that both physical and digital services remain functional and relevant.

Striking the right balance between traditional and digital services is critical to ensuring libraries remain accessible to all users. Overemphasising digital services may alienate users who prefer physical materials while underinvesting in digital services may cause libraries to fall behind user expectations. Libraries must navigate this balancing act carefully to cater to diverse user needs.

8.5. Training and Skill Development for Library Staff

As libraries adopt new technologies and expand their digital services, staff must be trained to operate new systems, provide virtual assistance, and manage digital content. However, the rapid pace of technological change makes it challenging for library staff to stay up to date with the latest developments.

In the pre-digital era, library staff were primarily tasked with managing physical collections, assisting users with in-person research, and performing manual cataloguing. These tasks, while specialised, did not require the level of technical expertise now demanded of library professionals.

Today, library staff must be proficient in a wide range of digital tools, from database management systems to virtual reference platforms (Marmion, 1998). They also need to provide training and support to users, particularly in digital literacy and the use of new technologies such as e-readers, software programs, and multimedia production tools. This requires ongoing professional development, yet many libraries lack the resources or time to provide comprehensive training for their staff.

A lack of adequate training can hinder the ability of library staff to effectively support modern services, leading to user dissatisfaction or underutilisation of digital resources. Libraries must invest in continuous professional development to ensure staff can confidently navigate new technologies and assist users in their digital needs.

8.6. Copyright and Licensing Issues in the Digital Age

The shift towards digital content and e-resources has introduced new complexities around copyright, licensing, and access (Eiriemiokhale, 2021). Unlike physical books, which libraries can purchase outright, digital materials are often subject to restrictive licensing agreements, limiting the ways libraries can provide access to these resources.

In the era of print media, copyright and access issues were relatively straightforward. Once a library purchases a physical book, it can lend it indefinitely without concern for licensing restrictions. However, even in this context, copyright regulations limit the reproduction and distribution of materials.

Digital content is often governed by restrictive licensing agreements that limit the number of users who can access a resource at any given time or set expiration dates for access. Libraries may face high costs for subscription-based services or be restricted in their ability to offer digital lending. Additionally, copyright laws concerning digital content are often complex and inconsistent across different jurisdictions, making it challenging for libraries to navigate compliance while ensuring user access.

Copyright and licensing issues can limit a library's ability to provide equitable access to digital materials, frustrating users who expect seamless, on-demand access to content. Libraries must navigate these legal and financial constraints carefully, advocating for more flexible licensing models that allow for broader access to digital resources.

Adapting to modern user demands is an ongoing challenge for libraries, requiring careful management of resources, technology, and staff expertise. While libraries continue to play a crucial role in providing access to knowledge and information, they must overcome these obstacles to remain relevant and responsive to the needs of today's digital-savvy users.

9. The Future of Library Services: Anticipating New User Demands

As libraries continue to adapt to the needs of modern users, they must also look to the future and anticipate the next wave of changes in technology, information access, and user expectations. The rapid pace of technological advancement, coupled with evolving societal demands, suggests that the future of library services will be shaped by even more dynamic, user-centred, and innovative approaches. In this section, we will explore emerging trends likely to influence library services' future and how libraries can prepare to meet these challenges.

9.1. Artificial Intelligence and Machine Learning in Libraries

Artificial Intelligence (AI) and machine learning (ML) technologies are poised to transform the way libraries manage, curate, and deliver information (Gürsen, Öncel, Plaisent, Benslimane, & Bernard, 2023). AI has the potential to automate routine tasks, personalise user experiences, and improve the accuracy and efficiency of information retrieval.

AI tools are already being used in some libraries to power chatbots for virtual reference services, recommend resources based on user behaviour, and automate cataloguing processes. AI-driven search engines can help users discover relevant information more quickly by understanding context and improving search accuracy. Additionally, machine learning algorithms can analyse vast amounts of data to identify trends in user behaviour, allowing libraries to refine their services based on user needs.

In the future, AI could enable hyper-personalisation of library services, offering users customised experiences based on their research habits, reading preferences, or even learning styles. AI may also be used to develop more intuitive, voice-activated search tools, improving accessibility for all users, including those with disabilities. Furthermore, AI could assist in curating digital collections by identifying patterns in content usage and recommending resources that align with emerging trends in academic or popular research.

To capitalise on AI's potential, libraries must invest in digital infrastructure and ensure that staff are equipped with the skills to manage and leverage AI tools. Ethical considerations surrounding data privacy and algorithmic bias will also need to be addressed as AI becomes more integrated into library operations.

9.2. Expanding the Role of Libraries as Community and Learning Hubs

As the concept of lifelong learning becomes increasingly central to modern society, libraries are likely to play an even more significant role as community and educational hubs. Libraries are places of information access and spaces for collaboration, learning, and social engagement.

Many libraries have already transformed into community hubs, offering workshops, makerspaces, and educational programs supporting skill development in coding, digital literacy, and entrepreneurship. These initiatives have expanded the library's role beyond traditional information provision to include hands-on, collaborative learning opportunities.

Looking ahead, libraries will likely enhance their role in supporting formal and informal education. As remote learning continues to grow, libraries could become key players in providing access to online learning platforms, hosting virtual classrooms, and offering digital tutoring services. Libraries may also expand their role as innovation hubs, providing access to advanced technologies such as virtual reality (VR), augmented reality (AR), and 3D printing, enabling users to experiment with cutting-edge tools (Kim, Bae, Kim, & Park, 2021).

To support this shift, libraries will need to strengthen partnerships with educational institutions, technology providers, and community organisations. Libraries must also ensure that they offer spaces and resources that foster collaboration, creativity, and lifelong learning, accommodating users of all ages and backgrounds.

9.3. Enhanced Digital Access and Open Educational Resources (OER)

The demand for open access to educational resources and digital content will continue to shape the future of library services. Open Educational Resources (OER) are freely accessible, openly licensed materials that can be used for teaching, learning, and research. These resources are becoming increasingly important as universities, schools, and individuals seek alternatives to expensive textbooks and proprietary research databases.

Many academic libraries are already champions of open access initiatives, hosting institutional repositories, digitising collections, and providing access to OER platforms. Libraries have become vital in supporting the open science movement, which advocates for free and unrestricted access to research outputs.

In the future, libraries could play an even more significant role in curating and disseminating OER. With more universities and educational institutions embracing open access, libraries will likely be involved in creating, managing, and promoting vast digital repositories of free educational content. Furthermore, libraries may develop new models for accessing scholarly materials, moving away from expensive journal subscriptions toward more equitable systems of information sharing.

Libraries must continue advocating for open access policies and developing the technical infrastructure to manage large-scale digital collections. They will also need to educate users, including educators and researchers, about the benefits of OER and how to contribute to open-access platforms.

9.4. Digital Preservation and Archiving for Future Generations

The digital era has introduced new challenges related to the long-term preservation of information. As more content is born digital, libraries must take on the role of ensuring that this information remains accessible for future generations. Digital preservation requires technical expertise and a long-term strategy for managing and safeguarding digital collections.

Many libraries are already involved in digital preservation initiatives, working to archive websites, digital documents, and other media. However, the rapid pace of technological change means that libraries must continuously adapt their preservation methods to keep up with evolving file formats, platforms, and storage systems.

The future of digital preservation may involve new technologies such as blockchain, which could be used to create immutable records of digital content (Stančić & Bralić, 2021). Additionally, libraries may collaborate with tech companies and archival institutions to develop more robust and scalable preservation systems that ensure long-term access to digital knowledge.

Libraries must prioritise the development of digital preservation strategies that address the challenges of technological obsolescence and data degradation. This may involve ongoing investment in digital storage infrastructure and collaboration with global digital preservation initiatives to ensure consistent standards and practices.

9.5. Libraries as Leaders in Digital and Media Literacy

As information becomes increasingly abundant, the need for critical digital and media literacy is more important than ever. Libraries are uniquely positioned to help users navigate the complexities of the digital world, combat misinformation, and develop the skills needed to evaluate information critically.

Libraries have already taken on the role of educators in digital literacy, offering workshops and resources that teach users how to search for information, evaluate sources, and protect their privacy online. These programs have become essential as misinformation and disinformation proliferate online.

In the future, libraries may expand their digital literacy offerings to include more advanced skills, such as data literacy, media analysis, and cybersecurity awareness. As AI and automated content generation become more widespread, users will need new tools to discern credible information from fake or manipulated content. Libraries could also play a role in supporting the ethical use of technology, teaching users how to engage with digital platforms responsibly.

To prepare for this role, libraries must continue to develop educational programs that address the full spectrum of digital literacy. They may also need to collaborate with educators, tech companies, and policymakers to develop curricula that keep pace with the rapidly changing information landscape.

9.6. Sustainable and Green Library Initiatives

As global attention shifts towards sustainability and climate change, libraries will likely become more involved in promoting environmental stewardship. Future library services may prioritise sustainability in terms of physical infrastructure and digital practices.

Some libraries are already adopting sustainable practices, such as green building designs, energy-efficient technologies, and waste reduction initiatives. Many libraries also offer educational programs on sustainability and environmental issues, helping communities become more environmentally conscious.

Libraries of the future could serve as models of sustainability, incorporating renewable energy, eco-friendly materials, and green technologies into their operations. Additionally, they may curate collections and resources that educate users on climate change, environmental science, and sustainable living. Digital sustainability could also become a focus, with libraries adopting energy-efficient data storage solutions and minimising the environmental impact of digital services.

Libraries should begin by assessing their current environmental impact and identifying areas where they can improve. This might involve retrofitting buildings with energy-efficient technologies or adopting greener digital practices. Libraries should also continue to raise awareness about sustainability within their communities through educational programs and events.

Conclusion: By anticipating and responding to these emerging trends, libraries can position themselves at the forefront of innovation, ensuring that they continue to serve the evolving needs of users in an increasingly digital and interconnected world. Preparing for the future will require libraries to remain adaptable, invest in new technologies, and maintain a strong commitment to providing equitable access to information and learning opportunities.

10. Conclusion

The evolution of library services has been marked by a dynamic shift from traditional, physical-based offerings to modern, digital-centric services that reflect the rapid pace of technological advancement and changing user expectations. From the early days of physical book lending and in-person reference services, libraries have continually adapted to meet the needs of their communities, embracing new technologies and expanding their roles in education, research, and social engagement.

As this paper has demonstrated, the transition from traditional to modern services has not been without challenges. Libraries have had to overcome budgetary constraints, technological advancements, and disparities in access, all while maintaining a balance between physical and digital services. These challenges have tested the resilience and adaptability of libraries, yet they have also opened opportunities for innovation, allowing libraries to serve users in new and exciting ways.

Looking forward, the future of library services will be shaped by emerging trends such as artificial intelligence, open educational resources, digital preservation, and the increasing importance of digital and media literacy. Libraries are poised to become even more integral to their communities by expanding their roles as hubs of learning, creativity, and collaboration while championing equitable access to information in both physical and digital forms.

To remain relevant and effective, libraries must anticipate future demands and invest in the technologies, infrastructure, and training necessary to meet these challenges head-on. As they do so, libraries will continue to play a vital role in society, acting as gateways to knowledge, lifelong learning, and community engagement. The evolution of library services is ongoing, and as they adapt, libraries will remain at the forefront of innovation and public service, ensuring their enduring place in the digital age.

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