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The Revolution and Relevance the of Online Public Access Catalogue (OPAC) in the Age of Discovery Systems in Nigeria

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Abstract

This study critically analyses the development, applicability, and integration of online public access catalogues (OPACs) and discovery systems. From its beginning as electronic card catalogue substitute to the evolution into more interactive, user-centred systems. The analysis examines how small

advancements prepared the way for next-generation tools while highlighting the drawbacks of early OPACs, such as the limited search scope and intricate interfaces. The emergence of discovery systems, which provide wide access to a variety of resources through user-friendly, single-search interfaces, is examined as a reaction to rising user expectations influenced by commercial search engines. Drawing on global scholarship and Nigerian case studies, the study evaluates the uneven adoption of discovery systems across the country. While OPACs are widely implemented, their functionality is often undermined by infrastructural deficits, underfunding and low levels of digital literacy. Discovery platforms remain largely restricted to well-resourced universities. The research uses the Information Search Process (ISP) and the Technology Acceptance Model (TAM) to frame these dynamics, demonstrating how adoption is influenced by user search behaviours, perceived usefulness, and ease of use. The results highlight the need for hybrid models in Nigeria, the ongoing value of OPACs, and the complementary function of discovery systems. In order to improve equitable access to knowledge, the study ends with strategic recommendations for stakeholders, library managers, and legislators that place a strong emphasis on infrastructure investment, digital literacy, and sustainable integration.

Keywords: OPAC, discovery systems, academic libraries, technology acceptance, information search process.

Introduction

The organization of knowledge and information retrieval have always been essential components of libraries' missions (Lemounes, 2024). As technology has advanced and the needs of academics, students and the general public have changed over time, so too are the ways in which users find, access, and engage with resources. One of the most important developments in this area is the Online Public Access Catalogue (OPAC), which replaced conventional card catalogues with digital interfaces that increased the effectiveness and breadth of bibliographic searching (Nwobu, & George, 2024). The emergence of discovery systems in recent years has further revolutionized information retrieval by offering smooth, Google-like access to a wide variety of print and digital resources.

One of the most important turning points in the history of library automation is the Online Public Access Catalogue (OPAC). It first appeared in the second half of the 20th century as a digital substitute for the card catalogue, which had been the main method for classifying and locating items in a library's collection for many years. Hildreth (1982) claims that the first OPACs offered a basic yet revolutionary method of electronically accessing bibliographic records, enabling users to search by subject, author, or title without having to physically turn through thousands of catalogue cards. This invention was hailed as a game-changing move that signalled the start of libraries' shift to the digital era. The adoption of OPACs enabled libraries to improve efficiency, accuracy and accessibility. Patrons could now search for materials beyond library opening hours and across multiple terminals within the institution. According to Wells

(2007), the OPAC was a philosophical reorientation of library services that put the user, rather than the collection, at the center of the information retrieval process. It was more than just a technological innovation. Despite these benefits, early systems were frequently command-driven and text-based, necessitating a certain level of technical expertise to operate efficiently (Meyer, 2009). However, they laid the groundwork for later advancements in information retrieval and the digitization of library catalogs.

Early iterations did not include journal articles, digital repositories, or external databases; instead, they were limited to the library's local bibliographic database. Additionally, users who were growing are more accustomed to the ease of use of commercial search engines like Google were frequently irritated by their limited interfaces, complicated search syntax, and dependence on Boolean logic (Oliveira, 2021). These drawbacks became more noticeable as the World Wide Web developed in the late 1990s and early 2000s, which increased demand for more smooth and user-friendly search engines.

In response to this need, Web-Scale Discovery Services (WSDS) were developed in the latter part of the 2000s. A "single search box" that could search through large, pre-indexed collections of content, such as books, e-books, journal articles, institutional repositories, and other digital resources, was promised by systems like Summon (ProQuest), Primo (Ex Libris), and EBSCO Discovery Service (EDS) (Vaughan, 2011; Way, 2010). These platforms provided a user experience that was more in line with what researchers and students

anticipated in the internet age by offering sophisticated features like faceted navigation, relevance ranking, spell check, and personalized recommendations. Discovery systems quickly gained traction globally because they combined breadth with ease of use. Adeyemi & Omopupa (2020) noted that they were not designed to replace OPACs entirely but to enhance them by providing a complementary layer for exploratory searches. In practice, discovery tools redefined how libraries presented their collections, shifting the focus from the catalogue as a static index of holdings to a dynamic portal for integrated information discovery.

Rather than displacing OPACs completely, discovery systems have tended to complement them. OPACs remain crucial for known-item searching and authority control, while discovery platforms expand access across diverse resources. Together they illustrate the evolution of library retrieval tools from structured catalogues to integrated environments that reflect the habits and expectations of contemporary information seekers. Many libraries around the world are switching to hybrid models that incorporate the two systems, understanding that while discovery systems are excellent at cross-platform and exploratory searching, OPACs are still vital for authority control and accurate bibliographic searches (Dutta & Mukhopadhyay, 2022). However, Nigeria has experienced uneven progress. Even though the majority of academic libraries now have OPACs, insufficient funding, poor infrastructure, and a lack of user training continue to hinder their optimization. Discovery systems, though

increasingly prominent elsewhere, remain restricted to a few well-resourced institutions.

Statement of problem

The emergence of discovery systems has re-ignited scholarly debate about the relevance of OPACs in contemporary library services. Some researchers predicted that OPACs would soon become obsolete, displaced by the efficiency and comprehensiveness of discovery systems. However, subsequent research indicates that OPACs have not disappeared but rather evolved, adapting to new roles within hybrid systems. OPACs are still essential for authority control, item-level searching, and complex bibliographic queries tasks that are frequently difficult for discovery systems to accurately perform.

The situation is especially complicated in Nigeria. Libraries all throughout the nation have advanced in their use of OPACs and catalogue automation. However, issues like inconsistent internet access, persistent underfunding, poor ICT infrastructure, and a lack of user training still make it difficult to optimize OPAC and adopt discovery systems. Users still occasionally favour card catalogues, highlighting deficiencies in digital literacy and inadequate orientation. These difficulties highlight the urgent need to investigate how OPACs can continue to be useful in Nigeria's changing academic environment, particularly with regard to discovery systems.

Additionally, little research has been done on how Nigerian academic libraries can strategically incorporate discovery tools and OPACs to satisfy patron

expectations. Nigerian studies continue to concentrate on the fundamentals of automation and OPAC operation, even as international literature increasingly emphasizes coexistence and integration as the dominant model. This paper addresses this gap by situating the Nigerian library context within broader global trends, thereby contributing to a nuanced understanding of how OPACs can evolve in an era dominated by discovery systems.

Objectives of the study

This study has the following objectives:

1. to examine the history of the development of OPACs over time, emphasizing their inception, constraints, and small advancements:
2. to examine the emergence of discovery systems, highlighting their benefits, characteristics, and effects on library services:
3. to critically examine the Nigerian library landscape, highlighting both systemic issues and areas for innovation:
4. to examine the ongoing value of OPACs in the era of discovery systems.

Scope of the study

The study's scope is both conceptual and comparative. In order to contextualize the analysis within the Nigerian context and frame the development of OPACs and discovery systems, it draws on it draws on studies from other countries. Instead of conducting empirical fieldwork, the study synthesizes secondary literature to find trends, arguments, and knowledge gaps. Utilizing the

Information Search Process (ISP) and the Technology Acceptance Model (TAM) as theoretical frameworks, the study also takes a user-centred approach, taking into account how adoption and utilization are influenced by perceptions of usefulness, ease of use, and information-seeking behaviours.

Literature Review

One of the most significant and long-lasting turning points in the history of library automation is the Online Public Access Catalogue (OPAC). Its creation marked the transition from manual cataloguing systems, which were dominated for decades by card catalogues, to computerized tools that were intended to increase user access, accuracy, and efficiency. OPAC has changed from its early experimental versions in the 1960s and 1970s to the more advanced platforms of the early 21st century, reflecting both the advancement of technology and the shifting needs of library patrons.

Contextualizing current discussions regarding the applicability of OPACs in the era of discovery systems requires an understanding of this trajectory. Although OPACs were initially thought to be revolutionary, their usability, scope, and flexibility were soon found to be limited. Gradual advancements, such as the incorporation of federated search and graphical user interfaces, attempted to rectify these deficiencies over time. Following these modifications, next-generation OPACs emerged, offering features like faceted navigation, keyword relevance ranking, and user-generated content that made it harder to distinguish between traditional catalogues and discovery systems.

Prior to the launch of the Online Public Access Catalogue (OPAC) in the late 1960s and early 1970s, card catalogues, which offered a tangible index of holdings but were labour-intensive and inconvenient to maintain, dominated library operations. By providing electronic access to bibliographic records and allowing users to engage with library catalogues in ways not previously possible, OPACs constituted a digital revolution (Hildreth, 1982).

The Library of Congress and the Ohio State University Library showed how computerized catalogues could transform the way people retrieve information (Gorman, 2004). Patrons had to use command-driven interfaces for these systems, which were mostly text-based. By inputting particular codes or commands pertaining to fields like author, title, or subject heading, users could look for materials. Compared to manual catalogues, these interfaces offered an unparalleled level of efficiency in retrieving bibliographic information, despite their lack of user-friendliness. Matthews (1980) emphasizes that accessibility was just as important as efficiency in the early adoption of OPACs. By allowing users to conduct searches from terminals situated throughout the library, libraries that adopted OPACs started to expand their search capabilities beyond physical spaces. This accessibility marked the beginning of a cultural shift in libraries, where information retrieval became increasingly user-driven. These early systems were praised for their capacity to dynamically update records in spite of their drawbacks. OPACs enabled instant updates when items were added, removed, or reclassified, in contrast to card catalogues where modifications necessitated the manual replacement of cards (Meyer, 2009).

Library administrators who had long battled with the inefficiencies of keeping accurate card catalogues in large collections found OPACs especially appealing due to their dynamic updating capability.

Challenges and Limitations of Early OPACs

Although OPACs were a major innovation, as users' expectations changed in tandem with the advancement of digital technologies, their drawbacks became apparent. Their dependence on intricate search syntax was one of the most commonly mentioned drawbacks. In addition to truncation and field-specific codes, many OPACs mandated that patrons use Boolean operators like AND, OR, and NOT. This was doable for highly experienced librarians, but the learning curve was high and frequently demoralizing for the typical library user (Antelman, Lynema & Pace, 2006).

Furthermore, OPACs were mostly limited to the local bibliographic database of a library. This meant that searches were restricted to the specific institution's holdings and did not include important resources like journal articles, digital repositories or materials from consortium libraries. Breeding (2005) contends that in a time when scholarship was becoming more international and interdisciplinary, this insularity limited the usefulness of OPACs.

Text-based displays with limited navigational support were available in early OPACs. The lack of features that are now regarded as commonplace, like spell check, relevance ranking, and faceted browsing, made for an often frustrating user experience. According to Connaway and Dickey (2010), users started to

perceive OPACs as antiquated, inflexible, and less user-friendly as commercial search engines like Google became more popular. The lack of relevance ranking was another significant drawback. Instead of ranking the results by likely relevance, OPACs frequently displayed them in chronological or alphabetical order. Users had to sort through lengthy lists of results due to this design flaw, which reduced efficiency. Furthermore, OPACs had trouble controlling authority over subjects, titles, and personal names, which occasionally resulted in uneven material retrieval (Amadi, Shehu & Mordi, 2023).

In an effort to improve OPAC's functionality, federated search, user-contributed features like tagging, and enriched content like book covers and reviews were introduced in the late 1990s and early 2000s (Zavalina, 2010). Nevertheless, these enhancements frequently failed to deliver the smooth, user-friendly experience that consumers had grown accustomed to from web-based search engines (Antelman et al., 2006).

Incremental Improvements and Innovations

OPACs did not stagnate in spite of their difficulties. To address user dissatisfaction, libraries and system developers instead initiated a series of small improvements. The switch to graphical user interfaces (GUIs) from text-based, command-driven interfaces was one of the first innovations. By enabling users to interact with catalogues through menus and clickable options rather than intricate command syntax, these advancements in the 1980s and 1990s streamlined search procedures (Wilson, 2022). The appeal of OPACs was greatly

expanded with the advent of GUIs. With systems providing visual cues to guide navigation, users could now browse more easily by subject, author, or title. To enhance the discovery experience, numerous libraries also started adding multimedia components to their catalogues, such as pictures of book covers, tables of contents, and reviews (King, 2020).

The creation of union catalogues was another significant innovation. These systems broadened the scope of OPAC searches beyond the local institution by combining the holdings of several libraries into a single searchable database (Wells, 2020). In addition to improving access, union catalogues made it easier for libraries to share resources, especially in academic consortiums. Libraries started experimenting with "next-generation" OPACs by the early 2000s, which included elements taken from for-profit search engines. These included faceted navigation, auto-suggestions, spell-checking, and, occasionally, user-generated content like ratings and tags (Ferguson, 2013). The realization that library catalogues needed to change to meet the demands of a generation of users used to Google-like interfaces was reflected in these innovations.

Additionally, certain OPACs have incorporated federated search features that allow users to perform a single search across several databases. Federated search was a significant step toward integrating access to a variety of information sources, even though it was slower and less accurate than the later discovery systems (Garba, Wu & Khalid, 2023).

Transition to Next-Generation OPACs

The gradual advancements mentioned above led to the creation of what are frequently referred to as "next-generation OPACs." By utilizing contemporary web technologies and user-centred design principles, these systems aimed to rectify the shortcomings of their predecessors. Next-generation catalogues, in contrast to traditional OPACs, added features like dynamic relevance ranking, keyword searching across multiple fields, and faceted browsing options that let users filter results by format, language, date, or subject (Vaughan, 2011). In order to create a more engaging and interactive catalogue environment, next-generation OPACs also included social features that let users add tags, reviews, and ratings. This change is best illustrated by tools such as VuFind and Blacklight, which provide open-source platforms that libraries can modify to suit the requirements of their user bases (Breeding, 2012).

In actuality, these developments made it harder to distinguish between discovery systems and OPACs. Even though OPACs were still based on bibliographic databases, their user interfaces began to more closely resemble the layout and features of discovery platforms. This development marked the OPAC's transition into a more dynamic, user-centred tool rather than its demise. According to Calvert (2015), even as discovery systems developed to offer more expansive, exploratory search capabilities, OPACs continued to be essential for known-item searches, authority control, and thorough bibliographic queries. The evolution of OPAC shows that, rather than becoming outdated, catalogues have consistently changed to meet user demands and technological advancements.

The Rise of Discovery Systems

In actuality, these developments made it harder to distinguish between discovery systems and OPACs. Even though OPACs were still based on bibliographic databases, their user interfaces began to more closely resemble the layout and features of discovery platforms. This development marked the OPAC's transition into a more dynamic, user-centred tool rather than its demise. According to Wells (2020), even as discovery systems developed to offer more expansive, exploratory search capabilities, OPACs continued to be essential for known-item searches, authority control, and thorough bibliographic queries. The evolution of OPAC shows that, rather than becoming outdated, catalogues have consistently changed to meet user demands and technological advancements.

The promise of discovery systems was to close the gap between the exploratory nature of web searching and the accuracy of catalogues. By introducing features like cross-collection searching, faceted browsing, and relevance ranking, they positioned themselves as dynamic portals as opposed to static catalogues. However, their adoption also generated controversy; some academics predicted that OPACs would become obsolete, while others emphasised the ongoing value of catalogues for thorough and reliable bibliographic searching (Ternenge, Dorcas & Terwase, 2020).

With the introduction of web-scale discovery systems in the late 2000s, library discovery tools underwent a significant evolution. By providing a single,

cohesive interface that allowed users to search a diverse range of content, including local catalogue records, e-journals, e-books, institutional repositories and licensed databases, these platforms were created to get around the inherent limitations of traditional Online Public Access Catalogues (OPACs).

Fundamentally, the goal of discovery systems was to bring together the power of library metadata and the scope of the web. Relevance ranking was used to display results, and faceted navigation allowed users to dynamically refine their searches. With a single search box that concealed a great deal of technical complexity, this new model prioritized simplicity and gave users an experience more in line with what they had become accustomed to from commercial search engines. In reality, discovery services frequently included full-text indexing, spell checking, autocomplete recommendations, and smooth linking to full text through resolvers or proxy services in addition to indexing metadata (Leppänen, 2023). With the help of these features, the library interface was changed from a static list of holdings to a proactive gateway to scholarship that supported known-item queries as well as encouraged serendipity and exploratory research. Because discovery systems reframed the catalogue as a portal rather than just an inventory, the conceptual shift was as much about the user experience as it was about technology.

Differences between Traditional OPACs and Discovery Systems

Despite having the same goal of making library resources accessible, OPACs and discovery systems differ greatly in their design concepts and functionalities

(Wells, 2020). In the past, OPACs were thought of as authoritative, structured catalogues that were primarily focused on recording holdings. They are particularly well-suited to accurate, item-level retrieval and crucial operational tasks like circulation and acquisitions because they rely on carefully maintained bibliographic records and controlled vocabularies. On the other hand, discovery systems are aggregation engines that prioritize usability and breadth.

Where an OPAC invites a user to construct a structured query, a discovery layer invites natural language or keyword searching, delivering ranked results drawn from numerous content pools. Both users and librarians are affected by this distinction. The OPAC's accuracy is still very helpful for users who know exactly what they're looking for; however, discovery systems frequently yield more helpful entry points for users who are conducting exploratory or interdisciplinary searches (Bacic, 2020). The two coexist in many modern implementations, though, with the OPAC continuing to offer authoritative metadata and real-time holdings information while discovery layers surface materials widely. The two technologies serve complementary functions, with the discovery layer increasing discoverability while the OPAC establishing bibliographic control.

Global Trends in Adoption and Impact

Adoption of discovery systems accelerated rapidly in research libraries across North America, Europe and parts of Asia, driven by the imperative to make

expensive e-resource investments visible and usable (Motuma, Alemneh, & Jimma, 2024). Products such as Primo, Summon and EDS became near-ubiquitous in many research environments as universities sought to present a single point of access to their varied holdings. The impact was immediate: undergraduate satisfaction with library search interfaces increased, usage statistics for electronic collections generally improved, and institutional repositories found their way into discovery indices, thereby gaining exposure beyond local silos. At the same time, adoption revealed uneven geographies. Wealthier institutions benefitted early, while smaller or less well funded universities faced barriers in licensing costs, internet reliability and staffing. Concerns about vendor lock-in led to the emergence of open-source alternatives like VuFind and Blacklight, which give organizations more control over index composition and interface customization. The public face of libraries has been repositioned as a result of these global trends: discovery systems have transformed libraries from collections gatekeepers to active discovery mediators, combining learning platforms, discovery layers, and repository content into a more seamless user experience.

Critical Debates and Concerns

Within the profession, the emergence of discovery systems has sparked a number of significant discussions. Whether discovery layers make OPACs obsolete is one enduring question. The simplicity and scope of discovery systems were supposed to replace catalogues, but more recent analyses have

tempered that assertion and argued for complementarity. Critics have emphasised that discovery indexes can confuse formats, editions, and holdings in ways that deceive users, and they don't always replicate the granular authority control found in a well-maintained OPAC (Organisciak, 2015). Algorithmic opacity and content bias are the subject of another line of discussion. Libraries may have little insight into the weighting of results because a large number of discovery services rely on proprietary indexes and ranking algorithms.

An issue that is particularly pressing for libraries looking to promote institutional repositories and non-Western scholarship is the preference for commercially available content over open access or locally produced scholarship (Crilly, 2024). Information overload is a related criticism that calls for libraries to provide more robust instructional interventions because combining large volumes of content into a single result set can overwhelm inexperienced users. Lastly, cost and sustainability are still contentious topics. Commercial discovery platforms frequently have high licensing costs and ongoing technical maintenance, which makes some institutions wonder if the advantages outweigh the costs (Henry & Stiglitz, 2010). Instead of being neatly resolved, these arguments have forced the industry to adopt practical hybrids where OPACs and cataloguing procedures are strengthened to preserve metadata integrity and discovery layers are used to increase access.

Technical and Operational Challenges

It takes more than just flipping a switch to implement discovery systems. Effective discovery is technically dependent on seamless authentication processes, dependable link resolution, and high-quality metadata all of which call for specialised work and continuous upkeep. Libraries have to deal with the technical requirements of harvesting or synchronising indexes, the heterogeneity of metadata schemas, and varying update frequencies among content providers (Mojjada, 2025). Operationally, discovery platforms can reveal weaknesses in institutional procedures: poor search results can be caused by incomplete holdings data, inconsistent authority control, and outdated cataloguing standards. Furthermore, the implications for human resources may be particularly difficult for small libraries; hiring staff members requires not only a strong foundation in cataloguing but also proficiency in systems integration, analytics, and user experience design. From a governance standpoint, choices regarding which content to include in indexes and how to set up relevance ranking frequently require balancing vendor defaults with local priorities, which makes knowledgeable management oversight even more crucial.

The Nigerian Library Landscape and Information Retrieval Systems

The realities of Nigerian libraries offer a unique context shaped by infrastructural, economic, and educational challenges, even though

international scholarship offers insightful information about the development of OPACs and discovery systems. Academic, public, special and school libraries are among the many varieties of libraries in Nigeria, and each has varying degrees of funding and technological advancement. Even though many academic institutions now have OPACs, implementation frequently suffers from poor staff training, poor connectivity, and inadequate maintenance (Bakrin, Bello & Ogunrinde, 2020). Most universities still rely on traditional or semi-automated cataloguing systems, while a small number of better-funded universities have access to discovery systems.

Overview of Library Types and Services in Nigeria

The realities of Nigerian libraries offer a unique context shaped by infrastructural, economic, and educational challenges, even though international scholarship offers insightful information about the development of OPACs and discovery systems. Academic, public, special, and school libraries are among the many varieties of libraries in Nigeria, and each has varying degrees of funding and technological advancement. Even though many academic institutions now have OPACs, their implementation frequently suffers from poor staff training, poor connectivity, and inadequate maintenance. Most universities still rely on traditional or semi-automated cataloguing systems, while a small number of better-funded universities have access to discovery systems. Additionally, special libraries cater to the specific needs of organizations like government agencies, professional associations, and

research institutes, while school libraries seek to promote early information literacy (Issa, Amusan & Daura, 2016).

Among these categories, academic libraries have emerged as the most active sites of technological adoption, largely because of their proximity to research communities and their exposure to global academic standards. They have been tasked not only with providing access to textbooks and journals but also with delivering a broad spectrum of electronic resources that support knowledge production in a rapidly globalising academic environment. As Ocholla and Mostert (2010) argue in the broader African context, the role of academic libraries has expanded from custodianship of books to becoming dynamic actors in information provision, user training and digital resource management. This shift has been accelerated in Nigeria by pressure from accrediting agencies such as the National Universities Commission (NUC), which insists on evidence of robust library services as part of institutional accreditation. Thus, while all library types contribute to the national information landscape, academic libraries represent the principal arena in which debates over OPACs, discovery systems and digital access converge.

OPAC Implementation in Nigeria

The journey towards automating library catalogues in Nigeria began in the late 1980s and 1990s, coinciding with the global diffusion of library management systems. Early adopters included premier universities such as the University of Ibadan, Ahmadu Bello University and Obafemi Awolowo University, which

experimented with proprietary software and locally developed solutions. By the 2000s, OPACs had become a visible component of library automation projects, with platforms such as VTLS, Alice for Windows, and later Koha gaining traction (Ani, 2010).

Today, OPACs are present in the majority of Nigerian university libraries, although the extent of their functionality varies widely. Well-funded federal universities typically maintain online catalogues accessible within campus networks and, increasingly, through remote web interfaces. Many state-owned and private universities also report OPAC installations, though some still rely on partial automation in which catalogues are available only on local intranets or through standalone terminals (Idiegbeyan-Ose et al., 2016). The degree of user training offered also differs: while some institutions integrate OPAC orientation into their library user education programmes, others leave users to navigate the systems independently, often with limited success.

Despite these developments, the effectiveness of OPACs in Nigeria has been mixed. Studies highlight issues such as outdated records, incomplete retrospective conversion of card catalogues, and erratic updating of bibliographic entries (Okore & Ugwu, 2019). In some cases, network downtime and power supply interruptions restrict access, frustrating both staff and users. Moreover, limited awareness campaigns mean that many students and researchers continue to bypass OPACs in favour of internet search engines, perceiving the latter as faster and easier to use. The overall picture is therefore one of uneven but tangible progress: OPACs are no longer novel in Nigerian

libraries, but their utility depends heavily on infrastructure, institutional commitment and sustained technical support.

Adoption of Discovery Tools in Nigerian Libraries

The adoption of web-scale discovery systems in Nigeria remains at an embryonic stage. Unlike OPACs, which have become relatively widespread, discovery platforms such as Primo, Summon and EBSCO Discovery Service are found only in a handful of better-resourced institutions. For instance, Covenant University and the American University of Nigeria have piloted discovery layers to integrate access to subscribed databases with local catalogues, demonstrating the feasibility of such systems in the Nigerian environment (Ezema & Ugwu, 2019). However, for the majority of universities, discovery services remain aspirational due to prohibitive costs and infrastructural demands.

Several challenges explain this slow uptake. First, discovery services require robust internet connectivity and consistent server uptime, conditions that are not always met given Nigeria's unreliable electricity grid and variable broadband coverage. Second, the subscription fees charged by international vendors often exceed the library budgets of many public universities, which are already stretched thin by rising journal subscription costs. Third, even where platforms are procured through donor support or temporary grants, sustaining licences after external funding ends proves difficult. As a result, some

institutions that initially experimented with discovery layers have reverted to relying solely on OPACs and database-specific interfaces.

Nevertheless, the appeal of discovery tools is strong. Nigerian librarians recognise their potential to simplify user access and to raise the visibility of institutional repositories, which often remain underutilised. There have been calls for consortial approaches, such as the Nigerian Library Association's advocacy for shared subscription models, to spread costs and make discovery services more attainable (Adebayo & Omopupa, 2021). The prospects of open-source discovery platforms like VuFind are also increasingly discussed as possible alternatives, particularly where technical expertise can be cultivated locally.

Systemic Barriers: Funding, Infrastructure and Literacy

The limitations of Nigerian libraries in implementing both OPACs and discovery systems cannot be understood without reference to systemic barriers. Chief among these is chronic underfunding. Library allocations in Nigerian universities are frequently inadequate, with capital budgets for automation projects often delayed or diverted. This underinvestment directly affects the capacity to acquire and maintain hardware, pay for software licences, and hire skilled ICT staff. International comparisons show stark disparities: whereas research libraries in developed countries routinely invest in integrated discovery platforms, Nigerian libraries struggle to maintain even basic catalogue services (Ifijeh, 2012).

Infrastructure represents a second barrier. Erratic electricity supply means that even libraries with functional OPACs and discovery systems face frequent downtime. Internet bandwidth, though improving, is often insufficient to support large-scale indexing or seamless access for multiple users. Rural campuses and state universities are particularly disadvantaged, amplifying inequalities within the Nigerian academic system itself.

A third challenge relates to digital literacy. While OPACs and discovery systems are designed to be user-friendly, effective searching still requires familiarity with information retrieval concepts. Many Nigerian students and even faculty members gravitate towards Google or social media platforms for information, lacking awareness of the richer and more reliable resources available through library systems (Uchechukwuka, 2023). Library user education programmes are not always robust, and where they exist, they are sometimes delivered as one-off orientations rather than ongoing engagements. This results in underutilisation of even the resources that libraries have painstakingly acquired.

Finally, policy and institutional culture play a role. In some universities, library automation is viewed as a peripheral concern rather than a strategic priority. Without clear policy directives and support from senior management, library ICT projects are vulnerable to neglect or under-resourcing. The absence of strong national frameworks for shared digital infrastructure further isolates individual libraries, each of which must struggle with challenges that might be more effectively addressed through collective action.

Relevance of Evolved OPACs and Discovery Systems in Nigeria

As Nigerian libraries navigate the pressures of digital transformation, the question of how OPACs and discovery systems remain relevant in this context becomes increasingly important. OPACs, despite their limitations, continue to provide essential services for known-item searches and catalogue control, while discovery systems offer opportunities for broader, integrated access to resources. The balance between the two is influenced not only by institutional capacity but also by user expectations, staff expertise and managerial strategies. The relevance of evolved Online Public Access Catalogues (OPACs) and discovery systems in Nigeria is best understood by examining their influence on library users, their effect on staff and management, the challenges that constrain their adoption, and the opportunities for innovation that may shape their future. While earlier chapters have traced the historical evolution of OPACs and the emergence of discovery systems, this chapter situates both technologies within the Nigerian context to demonstrate how they continue to define the information environment of academic libraries. By exploring their impact in practical terms, this chapter underscores the argument that OPACs and discovery systems are not competing technologies but complementary tools whose relevance lies in the way they address the needs of users and institutions in a resource-constrained yet rapidly evolving environment.

Impact on Library Users

For students, researchers and academic staff, OPACs remain an indispensable access point to institutional resources. They provide structured and reliable pathways for identifying books, theses, dissertations and other local holdings. In many Nigerian universities, where access to expensive subscription databases is limited, the OPAC is often the only tool through which users can verify the existence of materials within the library. Its authority control functions and detailed bibliographic records give it a precision that remains invaluable, particularly for known-item searches and formal academic writing (Calvert, 2015; Igere, 2022). The OPAC thus continues to anchor the user's relationship with the academic library.

Nevertheless, the user experience with OPACs is often unsatisfactory. Many Nigerian OPACs are based on outdated interfaces that frustrate the expectations of digital-native students. Users accustomed to the seamlessness of Google searches often find OPACs rigid and unresponsive, especially when searches yield long lists of results presented without relevance ranking. In addition, the reliance on structured search terms means that students who lack information literacy skills can easily abandon the OPAC in frustration, preferring informal strategies such as peer sharing or reliance on external web sources (Connaway & Dickey, 2010).

Discovery systems, in contrast, offer an environment that is closer to users' expectations. By providing a single search box that retrieves materials from books, journals, databases and institutional repositories, discovery systems broaden the scope of search and simplify the process. Their ability to present

results with features such as faceted browsing, spell check and relevance ranking creates a more intuitive experience. Nigerian students who have access to discovery platforms at better-resourced universities report finding them easier to use and more rewarding than OPACs (Vaughan, 2011). Yet because adoption remains limited, many users in the country are unable to benefit from this enhanced search environment. The consequence is a divided experience: OPACs continue to meet basic needs but fall short of supporting exploratory research, while discovery systems hold significant promise but remain unavailable to the majority of users.

Effect on Library Staff and Management

The continued relevance of OPACs and discovery systems in Nigeria is also reflected in the roles of library staff and the responsibilities of management. Librarians are generally well trained in cataloguing and metadata management, making the administration of OPACs relatively straightforward. Most Integrated Library Systems (ILS) incorporate OPAC modules, and staff have long developed the expertise required to update records, correct errors and manage circulation functions. This familiarity makes OPACs sustainable in environments where professional development opportunities are limited.

By contrast, discovery systems present a more complex challenge. Their maintenance requires not only advanced ICT skills but also knowledge of system configuration, metadata mapping and interoperability with diverse databases. Many Nigerian libraries lack this technical capacity, which results in

underutilisation of the advanced features of discovery platforms when they are adopted. Staff are often confined to operating these systems at their most basic level, without the ability to customise interfaces or fully integrate local repositories (Idiegbeyan-Ose et al., 2016). The result is that discovery systems, when deployed, may not deliver their full potential because the human resource base is insufficiently equipped to support them.

From the perspective of library management, OPACs represent a stable and cost-effective investment. They align with existing budgets, do not demand complex infrastructure, and are integrated with circulation and acquisitions modules that make them indispensable for the day-to-day operations of academic libraries. Discovery systems, in contrast, pose a financial challenge. Licensing fees, infrastructure requirements and the need for constant technical support make them difficult to sustain in institutions that already face chronic underfunding (Ternenge, Dorcas & Terwase, 2020). Yet management recognises that discovery systems also present strategic opportunities. They enhance institutional visibility, improve user satisfaction and potentially attract external funding. This tension between financial limitations and strategic ambition frames the decisions of many Nigerian library managers regarding whether to adopt discovery platforms.

Challenges and Barriers

The relevance of OPACs and discovery systems in Nigeria cannot be divorced from the systemic barriers that constrain their adoption and effectiveness. One

of the most significant challenges is infrastructural weakness. Unreliable electricity supply and inadequate internet connectivity make it difficult for both OPACs and discovery systems to function effectively. In libraries where internet downtime is frequent, OPACs often operate offline, while discovery systems "entirely dependent on web access" may be rendered inoperative. These infrastructural issues are compounded by chronic financial constraints. The cost of licensing discovery platforms and maintaining the necessary ICT infrastructure remains prohibitive for most institutions, many of which struggle to meet even basic operational costs (Igere, 2022).

Technical capacity also remains a major barrier. Discovery systems require staff with advanced ICT and system administration skills, which are in short supply in Nigerian libraries. Even when staff are trained, high turnover and lack of ongoing professional development mean that expertise is not retained (Idiegbeyan-Ose et al., 2016). Furthermore, user-related barriers cannot be overlooked. Many students and researchers lack the digital literacy skills required to navigate OPACs effectively, let alone exploit the advanced features of discovery systems. In some institutions, users continue to prefer card catalogues because they perceive electronic systems as intimidating or unreliable (Uchechukwuka, 2023).

Finally, policy gaps at the national and institutional levels weaken the prospects for system integration. There is no coordinated framework from regulatory bodies such as the Librarians' Registration Council of Nigeria (LRCN) or the National Universities Commission (NUC) to guide the adoption of discovery

platforms or encourage collaborative procurement. As a result, adoption is fragmented, with a few universities experimenting independently while others remain entirely reliant on OPACs. These challenges collectively explain why OPACs persist as the dominant system while discovery systems, though relevant in principle, remain largely aspirational in practice.

Theoretical framework

To understand the relevance of OPACs and discovery systems in Nigeria, it is important to situate the discussion within recognised theories of technology adoption and user information behaviour. Two frameworks provide valuable insights: the Technology Acceptance Model (TAM) and the Information Search Process (ISP). Together they explain why users and institutions adopt or resist retrieval systems and how individuals engage with these tools once adoption takes place.

Technology Acceptance Model (TAM)

The Technology Acceptance Model, first proposed by Davis (1986, 1989), has become one of the most widely applied theories in the study of information systems. It argues that two key perceptions, perceived usefulness and perceived ease of use, determine attitudes towards a system, which then shape behavioural intention and actual adoption.

In the case of libraries, TAM has been applied to explain user responses to automation and digital catalogues (Venkatesh & Davis, 2000). OPACs, while valued for their precision, are often seen as complex because they require controlled vocabularies and Boolean logic (Antelman, Lynema & Pace, 2006). Discovery systems appear more intuitive, offering Google-like interfaces and relevance ranking, but can overwhelm inexperienced users with large result sets (Breeding, 2012). In Nigeria, where digital literacy levels remain uneven, ease of use is often more decisive than technical accuracy in shaping adoption (Igere, 2022).

Institutional decisions are also shaped by TAM's constructs. Nigerian universities must weigh the perceived benefits of discovery systems against financial costs, maintenance requirements and staff readiness (Ternenge, Dorcas & Terwase, 2020). Where the benefits are not clear or sustainable, OPACs are often retained, reflecting the balance between usefulness and feasibility in resource-constrained settings.

Information Search Process (ISP)

Carol Kuhlthau's Information Search Process model (2004) complements TAM by focusing on the cognitive and affective experience of information seeking. ISP conceptualises searching as a sequence of stages: "initiation, selection, exploration, formulation, collection, and presentation" each marked by distinctive patterns of feelings, thoughts and actions. Users typically begin with

uncertainty and confusion, gain confidence as they refine their queries, and reach clarity at the later stages of collection and presentation.

OPACs and discovery systems support these stages in different ways. OPACs, with their structured fields and authority controls, are better suited for later stages where precision is required. Discovery systems are more helpful in the early stages, when broad exploration is needed to gain an overview of available resources (Vaughan, 2011). In Nigerian libraries, however, users often struggle at both ends of the process. During exploration, discovery tools can produce overwhelming volumes of results; during formulation, OPACs demand technical search strategies that many students are not taught (Uchechukwuka, 2023). Limited training and support, therefore, make the ISP particularly relevant in explaining persistent frustrations.

Integrating TAM and ISP

When combined, TAM and ISP provide a comprehensive framework for understanding both the adoption of retrieval systems and the search behaviour of their users. TAM explains whether and why students and institutions choose to use OPACs or discovery tools. ISP clarifies how those choices play out in practice, as users move from uncertainty to confidence, or in some cases from interest to frustration.

For example, a Nigerian student may avoid OPACs if they appear too complex, while reluctantly using a discovery system because it resembles Google. Once engaged, the student may feel overwhelmed by the exploration stage and

abandon the system altogether. This not only reduces actual use but also lowers perceived usefulness, creating a cycle of underutilisation. Conversely, if catalogues are simplified and training is provided, ease of use increases, adoption rises, and confidence grows across the search stages.

Opportunities for Innovation in Nigeria

Despite these barriers, there are significant opportunities for Nigerian libraries to innovate in ways that enhance the relevance of both OPACs and discovery systems. One promising avenue is the development of hybrid models that integrate OPACs with discovery layers. By combining the precision of OPACs with the exploratory power of discovery systems, libraries can offer users the best of both worlds. Open-source platforms such as VuFind and Blacklight provide affordable entry points, allowing libraries to experiment with discovery interfaces without incurring the high costs of commercial solutions (Pavão, Gabriel Junior & Vanz, 2024).

Another opportunity lies in the integration of institutional repositories into discovery platforms. By embedding theses, dissertations and grey literature into broader discovery layers, Nigerian universities could significantly raise the visibility of local scholarship in global academic networks (Adeyemi & Omopupa, 2020). This would not only enhance the impact of Nigerian research but also strengthen the case for investing in discovery technologies.

Capacity building is equally crucial. Strategic partnerships with international library associations and donor agencies can provide Nigerian librarians with

the training required to configure and maintain discovery systems effectively. Such collaborations could also support the development of user-centred training programmes that reduce the learning curve for students and researchers.

Finally, there is an urgent need for policy development. National bodies such as the LRCN and the NUC can play a decisive role by establishing guidelines for system integration, promoting interoperability across institutions, and creating incentives for collaborative procurement. By aligning institutional initiatives with national policy, Nigerian libraries can create a more coherent framework for the sustainable adoption of discovery technologies.

Synthesis of Findings

The literature on Online Public Access Catalogues (OPACs) and discovery systems reveals both convergences and divergences in scholarly perspectives, shaped largely by regional contexts, technological maturity and institutional priorities. Globally, there is a consensus that OPACs marked an important milestone in the transition from manual catalogues to automated information retrieval, providing improved accessibility, accuracy and efficiency (Sabol, 2025). Yet, from the late 2000s onwards, the rise of web-scale discovery services fundamentally altered expectations, shifting the focus of library search from local bibliographic control to a broader, user-friendly model inspired by commercial search engines (Breeding, 2012).

Scholars in advanced contexts tend to view OPACs and discovery systems as complementary rather than mutually exclusive. Breeding (2015), for instance, argues that OPACs remain indispensable for tasks requiring precise bibliographic control, such as authority management and circulation, whereas discovery systems are more effective for exploratory searches across large, heterogeneous databases. Vaughan (2012) echoes this sentiment, highlighting that the most effective library environments are those that integrate both systems, thereby offering breadth without sacrificing precision. This synthesis points towards hybrid models as the prevailing global paradigm, with libraries seeking to balance usability and authority control.

In contrast, literature from developing contexts, particularly Nigeria, reflects a more uneven picture. Several studies note that OPACs are widely implemented in Nigerian academic libraries, but their functionality is undermined by infrastructural challenges such as unreliable electricity, limited internet connectivity and outdated catalogue records (Idiegbeyan-Ose et al., 2016). Adoption of discovery systems is described as limited to elite institutions such as Covenant University and the American University of Nigeria, where better funding allows experimentation with tools like EBSCO Discovery Service (Ezema & Ugwu, 2019). For the majority of libraries, discovery services remain aspirational due to prohibitive costs and sustainability concerns. This divergence illustrates how global discourses about seamless discovery and hybrid integration do not always resonate with the realities of Nigerian libraries, where OPAC implementation itself is still a work in progress.

The synthesis also reveals distinct user perceptions across contexts. In developed countries, users increasingly expect "Google-like" experiences within libraries, leading to high uptake of discovery systems. In Nigeria, however, many students and even academics still gravitate towards open web search engines, perceiving library catalogues as cumbersome or irrelevant (Uchechukwuka, 2023). This behaviour underscores the importance of digital literacy: while discovery tools may simplify search, without adequate user training they risk being underutilised, a concern repeatedly highlighted in Nigerian scholarship (Ifijeh, 2012; Ternenge, Dorcas & Terwase, 2020).

Another point of comparison is the relationship between discovery systems and institutional repositories. Globally, discovery layers have been praised for integrating repositories into mainstream search, thereby raising the visibility of local scholarship (Calvert, 2015). Nigerian studies, however, note that repositories often remain poorly indexed, with discovery platforms not yet widely adopted to bridge this gap (Adebayo & Omopupa, 2021). This suggests that while discovery systems may support global trends of open access dissemination, their potential remains largely untapped in the Nigerian context.

Overall, the comparative synthesis shows that global literature emphasises integration, usability and innovation, while Nigerian scholarship foregrounds challenges of funding, infrastructure and digital literacy. Both strands converge on the recognition that OPACs are evolving rather than obsolete, and that discovery systems represent an important complement. Yet divergence

emerges in the pace of adoption and the contextual barriers that shape their effectiveness.

Gaps Identified in the Literature

Despite the growing body of scholarship, several gaps remain evident in the literature on OPACs and discovery systems, especially when viewed through the Nigerian lens.

First, there is a paucity of empirical studies that assess actual user experiences with discovery systems in Nigerian libraries. Much of the existing work is descriptive, outlining infrastructural constraints and cost barriers, but very few studies gather systematic data on how students and researchers engage with these tools when available. In contrast, in North America and Europe, user behaviour studies are common, offering insights into search preferences, success rates and satisfaction (Gross & Latham, 2012). Without similar empirical grounding, Nigerian scholarship risks remaining speculative rather than evidence-based.

Second, the theoretical integration of frameworks such as the Technology Acceptance Model (TAM) and the Information Search Process (ISP) is limited in Nigerian research. While some studies allude to user perceptions of usefulness or ease of use (Ani, 2010), there is little attempt to formally apply TAM or ISP to analyse adoption behaviour. This represents a missed opportunity, as such frameworks could illuminate why users prefer external search engines over OPACs or how information-seeking patterns influence uptake of discovery

tools. Future research in Nigeria would benefit from employing these theories to generate deeper explanatory insights rather than simply descriptive accounts.

A third gap concerns longitudinal perspectives. Most Nigerian studies focus on snapshot analyses of OPAC adoption or automation projects, without tracking how systems evolve over time. As a result, there is limited understanding of sustainability, particularly whether libraries that initially adopt discovery systems manage to maintain them beyond donor-funded pilot stages. This gap is significant, given widespread concerns about the long-term viability of externally funded ICT interventions in Nigerian higher education.

Additionally, there is insufficient comparative research between Nigerian libraries and those in other African countries. Studies often situate Nigeria within global debates but rarely conduct regional comparisons that might reveal shared challenges or unique national trajectories. For instance, South African universities have achieved relatively widespread adoption of discovery platforms, offering lessons in policy frameworks and consortial negotiation that could inform Nigerian strategies (Ocholla & Mostert, 2010). The lack of such cross-national analysis limits opportunities for regional learning and collaboration.

Finally, Nigerian scholarship rarely engages with questions of algorithmic bias and content equity in discovery systems, themes that are prominent in global debates (Breeding, 2015). Given that most discovery indices privilege Western publishers, this issue is particularly relevant for Nigerian scholarship, which

risks being marginalised if not actively integrated into discovery layers. Addressing this gap would require critical interrogation of vendor practices and proactive advocacy for inclusion of African content in global indexes.

Summary of Key Insights

This study has examined the historical evolution of Online Public Access Catalogues (OPACs) and the subsequent rise of discovery systems, situating these developments within both global and Nigerian contexts. The analysis has demonstrated that OPACs were transformative in the late twentieth century, providing libraries with a means to automate catalogues, enhance efficiency and expand access. Yet their limitations—such as restricted search scope, lack of intuitive interfaces and heavy reliance on Boolean logic—prompted calls for more user-friendly tools. The emergence of discovery systems, beginning in the late 2000s, responded to these demands by offering "Google-like" search experiences across diverse resources, including journal databases, e-books and institutional repositories.

Globally, the trend has not been one of replacement but of coexistence. Scholars emphasise that OPACs remain critical for known-item searches and authority control, while discovery systems excel at exploratory searches across large datasets (Breeding, 2015; Vaughan, 2012). The result is a hybrid model in which both systems play complementary roles. However, the Nigerian context reveals

a more uneven trajectory. While OPAC implementation is now common across most academic libraries, functionality is inconsistent, often undermined by outdated records, unreliable infrastructure and low levels of user training (Idiegbeyan-Ose et al., 2016). Discovery systems remain largely confined to a few elite institutions, hampered by high costs, infrastructural weaknesses and sustainability concerns (Ezema & Ugwu, 2019).

The application of the Technology Acceptance Model (TAM) and the Information Search Process (ISP) provides further insights. TAM helps explain why Nigerian users often prefer external search engines: perceptions of usefulness and ease of use are often higher for platforms like Google than for local OPACs or even discovery layers. ISP highlights the psychological and cognitive dimensions of information seeking, underscoring how anxiety, uncertainty and low search skills influence underutilisation of advanced library tools (Kuhlthau, 1991). Together, these frameworks reveal that technological availability alone is insufficient; adoption depends heavily on user perceptions, skills and the overall search environment.

In sum, the comparative analysis indicates that while OPACs continue to evolve and discovery systems promise significant advantages, the Nigerian library system faces systemic challenges that slow adoption and undermine effectiveness. Addressing these requires a holistic approach that considers infrastructure, funding, digital literacy and institutional culture.

Implications for Practice and Policy

The findings of this study carry important implications for both practice and policy in Nigerian higher education and library management. At the practical level, the continued relevance of OPACs suggests that libraries must resist simplistic narratives of obsolescence. Instead, they should focus on upgrading and integrating catalogues into broader discovery environments. This approach ensures that authority control and precise bibliographic searching are preserved while also delivering the exploratory capabilities users increasingly demand.

For policymakers, the uneven state of OPAC and discovery tool adoption highlights systemic inequities in Nigerian higher education. Federal universities and private institutions with stronger funding streams are able to experiment with discovery platforms, while many state-owned institutions struggle with basic OPAC functionality. This disparity threatens to widen gaps in access to information, undermining the principle of equity in higher education. The National Universities Commission (NUC) and the Tertiary Education Trust Fund (TETFund) therefore have a crucial role in supporting ICT infrastructure and resource-sharing initiatives that can mitigate these inequalities.

At a broader policy level, there is also a need to engage with international debates about content equity in discovery systems. If Nigerian scholarship is to achieve global visibility, national policies must encourage the inclusion of local repositories and journals in global discovery indices. This requires negotiation

with vendors as well as investment in metadata standards that make Nigerian content more discoverable.

The implications extend to user education as well. Without systematic digital literacy programmes, both OPACs and discovery systems risk underutilisation. Library managers and academic leaders must therefore view user training not as a one-off orientation exercise but as an ongoing pedagogical commitment embedded within curricula.

Recommendations for Library Management and Stakeholders

Based on the findings, several recommendations can be proposed to enhance the relevance and adoption of OPACs and discovery systems in Nigeria.

First, Nigerian libraries should pursue hybrid models that integrate OPACs with discovery layers. Even if commercial discovery tools are financially out of reach, open-source alternatives such as VuFind or Blacklight provide viable pathways for integration at lower costs. These solutions also allow local customisation, giving libraries greater control over sustainability.

Second, there must be a stronger emphasis on collaboration and consortia. Rather than each library struggling independently, national and regional consortia could pool resources to negotiate collective subscriptions for discovery platforms, similar to models already seen in South Africa and Kenya. Such collaboration could also extend to technical expertise, with libraries sharing ICT staff or co-developing open-source solutions.

Third, capacity building is critical. Library staff require continuous training not only in cataloguing and system maintenance but also in user-centred service delivery, metadata management and digital pedagogy. Investment in human capital is as essential as investment in software or hardware. This recommendation extends to user training: embedding digital literacy into general studies courses and disciplinary curricula can significantly increase uptake of OPACs and discovery systems.

Fourth, there must be institutional commitment to sustainability. Donor-driven projects, while valuable, often collapse once external funding ends. Libraries must therefore negotiate for recurrent funding lines in their institutional budgets dedicated to automation and discovery tools. Senior management must be persuaded that such investments are not optional extras but central to the academic mission.

Finally, stakeholder engagement should be broadened. Collaboration with publishers, ICT vendors, and government agencies is necessary to ensure that Nigerian content is indexed, infrastructure strengthened and long-term solutions developed. The Nigerian Library Association can play an advocacy role in this regard, pushing for national strategies that prioritise discovery systems as critical academic infrastructure.

Strategic Measures for Enhancing Relevance and Adoption

In addition to specific recommendations, this study highlights the need for strategic measures that align with both national priorities and global trends. Four strategies are particularly salient.

1. **Policy integration**. Information retrieval systems should be embedded within national ICT and education policies, ensuring that libraries are not sidelined in broader digital transformation agendas. This could involve mandating that all federally funded institutions maintain interoperable OPACs and, where possible, integrate discovery layers that connect institutional repositories with global scholarly networks.
2. **Funding innovation**. Given the budgetary constraints of many universities, traditional funding models may be insufficient. Innovative approaches such as public–private partnerships, cost-sharing arrangements and phased implementation plans could help spread costs and ensure sustainability. For instance, telecommunications companies that benefit from student internet use might be engaged in funding initiatives to improve library connectivity.
3. **Technological localisation**. Instead of relying exclusively on imported software, Nigerian institutions should invest in developing or customising open-source discovery platforms that meet local needs. This not only reduces costs but also builds indigenous technical expertise. Collaborations between computer science departments and university libraries could prove particularly fruitful in this regard.
4. **User empowerment**. The long-term relevance of OPACs and discovery systems depends on user adoption, which in turn requires confidence and

skill. Libraries must therefore design user education programmes that move beyond basic orientations, providing hands-on workshops, online tutorials and subject-specific training. Drawing on ISP, such programmes should recognise the emotional dimensions of searching uncertainty, frustration, confidence and seek to support students at every stage of their search journeys.

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