Information System as a Tool for Sustaining and Enhancing Service Delivery in Academic Libraries

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Abstract

Academic libraries have been the backbone of scholarly information organization and dissemination in academic institutions throughout history. Through the efforts of academic libraries, research and access to knowledge in every discipline have been made easy. Before the 1960s, academic libraries performed their traditional roles of collecting, organizing and disseminating scholarly publications to the academic community and other users using manual systems.

The advent of computers and later the Internet has offered libraries and for that matter academic libraries enormous tools and systems which are being used to collect, organize and disseminate information resources and also to provide other services which were previously out of the domain of library services. One of such tools is information systems. This paper therefor aims at exploring the literature to determine how academic libraries across the globe are utilizing information systems such as integrated library systems (ILS)/Library management systems (LMS), Electronic Resource Management (ERM), Digital Asset Management (DAM), second-generation library automation systems, Library Service platform, Social media and other collaborative tools and how the use of the above named systems has enhanced service delivery in academic libraries

Introduction

Information Technology (IT) has affected every sphere of our lives. One of its most significant impacts is the use of IT in information management. Information management has become a very important responsibility for individuals and cooperate entities in this modern age as every aspect of the society is struggling to keep up with the pace at which information is being generated, to be able to sift the relevant ones out and also make effective use of the needed information in good time. End users of information, who are familiar with Google, are no longer willing to wait for information to be delivered but expect information to be delivered within seconds when a request is made or even in real time. In the words of Makori and Osebe, (2016) "in this competitive world, information organizations and professional leaders need reliable and timely information in order to implement solutions that are cost effective in service delivery".

Academic libraries are among most institutions and organizations that have adopted the use of IS in their daily activities to meet current trends and provide better services to their customers in order to meet the needs of users promptly. Academic libraries, according to Bailin and Grafstein (2005), in the 21st century are no longer seen as a place but as a set of functions and services backed by information system applications. According to Feather and Sturges (2001) library information systems have allowed academic libraries to offer fuller services in all parts of their institutions and have helped the library interface with institutional information systems, giving wider access to catalogues and circulation data, as well as to electronic information sources, even outside the library and the university community.

This paper therefore has the aim of exploring literature to bring to fore how academic libraries across the globe are utilizing information systems and how this has enhanced service delivery in these libraries.

Academic libraries

Academic libraries are libraries attached to academic institutions above the secondary school level, serving the teaching and research needs of students and staff. They provide materials and services that meet the educational needs of students, support teaching staff and provide for research (Feather and Sturges, 2001). Academic libraries provide one-stop access to information resources and services that support teaching, learning, research and community services in universities. They are regarded as warehouse of information, knowledge and communication services that support the core functions of their respective universities. The information resources of academic libraries are regarded as strategic resources which serve as foundation for the development of curriculum (Makori, 2013). "As fountains of knowledge they provide services to support learning and research activities to their parent organizations. In this respect, they have long stood unchallenged throughout the world as the primary source of recorded knowledge and historical records" (Makori, 2009) .

In an attempt to describe the role of academic libraries, McCarthy and Ortiz (2010) said this succinctly in the following paragraph;

> "Academic libraries, whether centralized in a unitary building or distributed across a range of faculties, are a core element of intellectual activity on a university campus. Their histories and ongoing development provide an index of intellectual culture for the regions and states, which they occupy; their service philosophies profile the nature of development and progress, which characterizes the learning and research objectives of the community. They can be conservative and progressive at the same time. They can evolve in a pattern, which is organic or they can reflects architecture of strategic planning, and organization. Each aspect, conservative or progressive can have a positive as well as a negative impact on the strength of a growing academic library's influence on the pedagogical mission of its institution. It tries to balance the preservation of the past with the demands of the present and those of an imminent future. It tries to remain at all times fit for purpose. It attempts on an ongoing basis to do this despite economic constraints and those social and cultural constraints, which affect the population it serves".

As described above, academic libraries have contributed significantly to research and the transmission of knowledge in every academic discipline. They have acted as transformation agents in the community, state and the nation by the support they provide to meet the needs and aspirations of students and scholars. To perform their role in academia effectively in the digital age, academic libraries need to perform their traditional roles of acquiring and disseminating information for academic and research activities with digital tools. Digitization of academic library services will enhance information delivery and make educational and research data and information available to faculty, researchers, students and others at their institutions and worldwide (Iwhiwhu and Eyekpegha, 2009).

Also, Husain and Nazim (2015) posit that academic libraries contribute to education and research activities in the 21st century using ICT and electronic information resources including but not limited to e-books, online journals/databases and web-based information services. Academic libraries have been quick to embrace several ICT-based applications and services such as Internet, Web 2.0 and social media to support the process of knowledge capturing, storing and sharing. Moropa, (2010) is of the view that ICT adoption into libraries has made academic libraries very dynamic.

Types of IS use in academic libraries

O'Brien, (2004) defined IS as any organized combination of people, hardware, software, communications networks, and data resources that collect, transform, and disseminate information in an organization and are used to support business processes, decision making and strategies for competitive advantage. To Laudon and Laudon (2014) IS are a set of interrelated components that collect information about people, places and things within or outside an organization, process, store and distribute information to support decision making and control in an organization and help members of the organization to analyze problems, visualize complex subjects and create new products. Zhang (2013) also defined IS as an integrated, man/machine system for providing uniform information to support the operations, management, and decision-making functions in an organization.

Libraries are one of the earliest institutions to adopt the application of IS to the organization of information and service delivery since the early 1960s. The needs of libraries keep changing due to advancement in technology. This led technology experts to provide tailored made solutions through the development of software to help manage library resources and services. The first ever IS developed for libraries were used to manage only print collections; these systems were called integrated library systems (ILS) or Library management systems (LMS).

The changing nature in library collection format from organizers of print collection to organizers of print and electronic collection and the demand of the electronic age challenging library service delivery made ILS/LMS inadequate for meeting the needs of most advanced libraries. As a solution, vendors provided other systems like Electronic Resource Management System (ERMS) and Digital Asset Management System (DAMS) to be used in collaboration with ILS or LMS to help libraries manage both print and electronic resources.

The use of other IS that manage electronic resources in addition original ILM/LMS meant libraries subscribed to more than one IS at a time. This was cost intensive and demanded managing two or more IS. The new IS that manage electronic resources were then merged with ILS and brought about second-generation library automation systems, next-generation library systems or the new library system.

Currently libraries do not only use second-generation IS to manage both print and electronic resources, Library IS are now cloud base and are termed Library Service platform where cloud computing devices and services are in information systems application in libraries. Library service platforms enable interoperation with academic management system and other knowledge databases across the internet. The system also offers additional functions such as: library portal, meta-search and link resolver (Breeding 2012).

Social media and other collaborative tools have also been at the hearth of library services. Social media is used for communication, marketing, collaboration and sharing of ideas in libraries. Other advanced collaborative tools such as library 3-D (virtual world), Internet of things and natural language interaction are also being used by libraries. The list of IS use in the library also include geographic information systems (GIS), content management systems (CMS) and radio frequency identification (RFID) among others.

Benefits of IS in libraries

Access to IS has enhanced service delivery in most libraries including academic libraries. This has enabled libraries to install networks and create links to the Internet through which users can search digital databases and other relevant sources from across the world. The creation of digital libraries has also been enabled by IS use in libraries. Libraries have created local online catalogues and other gateways to the digital libraries which users can access from any part of the world with the advantage of simultaneous usage of a single resource at any point in time (Siriwongworawat, 2003). The use of IS in libraries offers the opportunity for libraries to become part of the globalized world. IS use offers librarians the opportunity of boundless access to information resources beyond and above their local collection and also enables libraries to create digital contents which can be accessed anywhere in the world (Omekwu and Echezona, 2009). This is in sync with the findings Rafiq and Ameen, (2013) that libraries embark on digitizing their collections with specific IS in order to provide access via the web to increase access and to preserve the materials. The internet and the web have helped librarians to use their traditional knowledge to create interfaces of virtual collection management, web directories and web portals, helping user groups to navigate in the new information environment. Libraries have also used the web as a platform for online user interface to library catalogues of physical collections and to bibliographies of printed documents with the basic aim of improving information retrieval and service delivery (Nielsen, 2005).

The use of IS in libraries has introduced new and innovative ways into the operations of libraries, eliminated routine and repetitive tasks and has offered multiple modes of interaction, (a)synchronous, differentiated content, flexibility (time, place, pace), new dimension to information dissemination, simpler means of information retrieval in a single channel through the next generation of web tools (Ram, Anbu and Kataria, 2011).

The use of next generation library systems has brought enormous benefits to the library's clients in the sense that the time required to find information, from discovery to possession, has been truncated by the success of discovery layers features in the IS and the increasingly online nature of the collection. The next generation library systems have also broaden the concept of library collection to include anything that can be accessed by

the client, whether the library has acquired the item in the traditional sense or can supply on demand. This has been made easy with just in time acquisition and patron driven acquisition, where a library can loan or purchase an e-book or any electronic resource within minutes after a client requests for it. The client may not even be aware he or she is participating in the acquisition process of the library but may only assume the discovery of the item in the library catalogue (Green, 2014). Also, information from additional sources is now being included in online public access catalogs (OPACs) to improve their usefulness and quality. These catalogues may include web services that provide additional bibliographic information, federated and faceted navigation, keyword searching, relevance and ranking, enriched content like book covers, delivery of content, alternative resource recommendations, web 2.0 features like social bookmarking, tagging and user contributions, book reviews, alternative sources for bibliographic items, contents delivery like table-of-contents, previews and excerpts, bibliographic management tools and creation and management of user accounts. This initiative in not one way as librarians are opening the bibliographic, holdings, and circulation information contained in their OPACs for inclusion into other web offerings the library or others maintain (Back and Bailey, 2010).

Course instructors in universities are also using OPAC's metadata records to display citation information ready for import into citation management software on their course pages. These initiatives have really helped in increasing the visibility and reach of the digital resources libraries provide (Back and Bailey, 2010).

Not only has IS use in libraries enhanced end user service delivery; it has also enhanced the efficiency of internal library functions. Adeleke and Olorunsola, (2010) noted that the use of online cataloging and classification tools by cataloguers and classifiers enable them to process more books with the online tools compared to the manual system, thus the online tools have improved productivity in the library. Likewise, Boateng, Agyemand and Dzandu (2014) posit that, with the use of IS staff were able to perform major library activities like circulation and cataloguing faster than they could with the manual system. The system made the accessing of information by users easier as they were now able to use the OPAC without much assistance from staff.

In discussing the benefits of using Library 2.0 and Library 3-D, Shafique and Riedling,(2013) noted that libraries use the IS to collect information from external sources such as blogs, wikis and information islands in second life. The tools are also used for cataloging and tagging library resources such as Library Thing, Taggly and del.icio.us. This provides a means of standardization in the processing of information sources leading to better time management. Social media also provides the benefit of quick distribution of digital content or alerts about printed/traditional content with the help of RSS feeds and micro blogging tools. An additional advantage thereof is reaching potential users who do not want to visit libraries. With regards to social media tools like wikis, Hassoun and Bernaoui (2015) posit that the tools are designed for professionals to collaborate in a network by sharing information. They serve as rapid means of action through the existence of a website content management system, while allowing free access to changes and modifications by team members. Redden (2010) described the benefits of social media especially social bookmarking and social tagging in academic libraries in the following words:

> Social bookmarking may be used by academic libraries as collaborative tools in practical and relatively simple ways, allowing users to conveniently access organized resources and potentially participate in the collection of additional online materials. Through social book-marking, libraries can collect resources for their users while also marketing their presence in an ever-growing online environment. In addition to serving as collection development tools, social tagging sites can clue librarians in on valuable URLs available through college and university library pages so that knowledge can be shared and built upon. Digital libraries and open access initiatives, built upon cooperative efforts, will likely continue to provide resources ideal for tagging…The use of other Web 2.0 tools such as RSS feeds, blogs, online chat services, online networking and mashups in combination with social tagging can aid college and university librarians in harnessing the boundless resources throughout the web to better meet their users' needs.

Makori (2013) discussed the benefits of using radio frequency identification technology (RFID) IS in academic libraries. Noting that the IS enables automatic identification and tracking of information resources allowing

quick self-charge and dis-charge of materials by users, librarians used the opportunity to offer other services such as teaching of information literacy. RFID also provides quick means to asset or inventory management of resources with the help of a hand reader, allowing information professionals to regularly do stock verification within the shortest possible time. RFID also enables resources to be located and shelved accurately, thus increasing staff and customer satisfaction.

Conclusion

A number of benefits have been identified in the literature accruing to the use of IS in academic libraries. Adoption of IS has made the management of both physical and electronic collection easy in academic libraries. The use of the Internet, collaborative platforms and cloud base services has also enabled academic libraries to expand their collection base beyond their local and subscribed collections to help broaden the scope of library resources academics are exposed to in a particular library. These e-platforms have also enabled libraries to make their collections widely available for the whole world to see or use as part of the global academic collaboration activities of the 21st century. The use of IS has also granted academic libraries the opportunity to provide services using the most current technology to meet users' needs outside the walls of a library.

The researcher is of the view that, the list of IS that are used in libraries and the benefit of using IS in libraries can never be exhaustive; as early adopters of ICT/IS libraries and for that matter academic libraries will continue to embrace new IS as long as they are being developed. This gives the chance to libraries never to be regarded as outmoded. So long as they can provide the traditional services using the most current IS available they will be regarded as relevant from the users' perspective.

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