Automation and Information Services Delivery in Libraries

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Abstract
The explosion and development in modern technologies have brought about exceptional transformation in the way we communicate, generate, process, preserve, access, store, retrieve and disseminate information to the near and remote destinations. Libraries and information centres are witnessing a shifting of paradigm from traditional to automated library services and operations. Clients need not to visit shelf to shelf to find out a document, they just get their documents sitting in front of a desktop. This paper explores the effects of automation on library service delivery. Through critical analysis of literature, the paper gave an in-depth evaluation of the concepts of automation, its needs, purposes and the benefits derive from automating library services which were highlighted thus: effectiveness in library services; improved services to users with reduced time lag, quicker cataloguing of library items; faster and easier access to library material; improvement in the variety, amount and quality of material that is available in the library's collection; minimizing human involvement in routine chores of the library and making the staff available for more intellectual and humane activities etc. Different forms of software applications packages use in automation for information services delivery and its features were discussed. The paper concludes that automating library services can provide better and innovative services to the library users and can maintain the library more properly than what a manual library can do. Recommendations were made based on the problems highlighted.
Keywords: Library Automation; Library services; Software packages; Information centres.

1.1 Introduction

With modern technologies innovation, there has been a great change in the traditional role of libraries as well as traditional process of library services. The emergences of computers have come to play a major role in advancing library services in today's information age. Libraries have embraced information technology and application of computers in library work to enable users' access information as fast as possible. All the processes in the library could be automated starting from administration, cataloguing, circulation, collection development, acquisition, reference, interlibrary loan and resources sharing.

Automation is the computerization of routine tasks hitherto being performed by human beings that is replacing the activities of man with machine (Oduagwu & Odeh, 2022).

Library automation is a major application of information and communication technologies (ICTs) to automate the major activities of the library such as circulation, acquisition, serial control and cataloguing. It is a general term for computer based library systems that replace manual systems by a faster and more effective means of operation through information and communication technology (Venkatesha & Sarasvathy, 2018; Otunla, 2016). The purpose of library automation is to satisfy user needs in the changed information scenario. As the computer can be used to perform the various activities of the library, library automation can serve as a remedy to all the existing problems of libraries.

Library automation and digital technologies has presented innovative opportunities and challenges to libraries to enhance their services. Incorporating better integration of the information services delivery of the library with web environment, using personal computer clients as browser applications, is using XML and style sheets for display, and developing XML import and export functions and integrating the library access and reading portal with learning management systems as major part of library automation (Reitz, 2020).

2.1 Review of Related Literature

2.2 Concept of Library Automation

Library automation refers to the application and use of computer systems to run the activities of the library where circulation and cataloguing activities are easily manipulated by the digital system with or without human interface (Ujoumunna et al 2021). Automation is more than the application of computers to library operations and services. It supports the administration of the library services. It can also be the conversation of the library activities from analogue processes into computerized processes while in cataloguing could be from card catalogue to OPAC among other automated processes. Library automation is applied with computerized systems to save time and human power for the purpose of freeing librarians and other library staff members to use their working time to contribute to information services delivery and tacit knowledge in knowledge sharing activities of the library operations.

Automating the activities and services in the library in many ways is very useful. Abbas (2014) opined that library automation brought about improvement in accessing information among library patron and also making library operations more effective and efficient for library users with less stress, by using machines and ICT operations. Most of the activities in the library are routine and repetitive; automation reduces the number of repetitive routine tasks carried out in the library. A library may computerize one particular activity of the library such as cataloguing or circulation, or it may be fully integrated where all the services would be computerized (Oduagwu & Odeh, 2022). Recent trends in Library operation include the growing of "add-ons" which are mostly related to the information services deliveries of digital contents.

2.3 Need for Library Automation

Library automation refers to the use of computers and other technologies to minimize human intervention in the functioning of a library. It can be defined as "the performance of an operation, a series of operations or a process by self-activating, self-controlling, or automatic means. Automation implies the use of automatic data processing equipment such as a computer or other labour saving devices". Library work consists of a number of inter-

related activities, the data generated being useful in different sections. Manual work involves repetition of work in different activities. The aim of automation thus is to integrate these activities and minimize repetition of work. Integrated library software have appeared as packages to serve these needs

Library automation is needed in the present day libraries due to the following:

- Information Explosion (Growth of documents)
- Availability of new techniques and technologies
- Lack of space d) To save the time of the reader
- To have better control over collection
- To avoid duplication of work
- For greater efficiency in various activities and services
- To maintain accuracy and promptness, and
- To share the resources with other libraries through computer networks nationally and internationally
- To ensure regular update of information material within the library
- It increases operational efficiency, accuracy and speedy result oriented
- To Provide far and wide access to literature not available within the confines of the library;
- Integrating different processes and activities of the library;
- Providing services outside the library also;
- Bring in efficiency and effectiveness in library activities and services;
- To fulfill needs that cannot be achieved by manual systems

2.4 Advantages of Library Automation

Library automation provides the following benefits to a library:

- Effectiveness in library services;

- Improved services to users with reduced time lag
- Quicker cataloguing of library items
- Faster and easier access to library material
- Improvement in the variety, amount and quality of material that is available in the library's collection
- Equips libraries to face challenges posed by future developments and technologies
- Minimizing human involvement in routine chores of the library and making the staff available for more intellectual and humane activities;

Based on these advantages of a computer, computer became a universally accepted tool to provide assistance to every fields of knowledge. In the field of Library Science, the need for making use of computers i.e. library automation was felt due to the following reasons (Justice, et al 2022):

1. Traditional methods for handling information are inadequate: Large amount of data are generate in this dispensation of information age. This information which is generated is stored and retrieved in a library which is used by the users in the libraries, there are various methods of handling information like providing reference service, cataloguing etc. due to the information explosion, these traditional methods of handling information have become inadequate and hence automation is necessary.

2. Difficulty updating of information due to voluminous increase and rise in degree of specialization: Due to increase in research activities, and interdisciplinary specialization in different fields, the result of information explosion and due to this it becomes very difficult for the libraries and information centers to update the information. Hence library automation is necessary.

3. Techniques are suggested for applying the computers with its advantage of speed,

vast storage capacity and accuracy in library work: These three, viz. speed, storage and accuracy are some of the characteristics of a computer, which permits humans to rely on computers in dong certain operations.

4. Need for co-operation and resource sharing: No library in this world is self-sufficient and therefore to satisfy its users' demands, the concept of resource sharing comes into existence. In resource sharing the resources of one library are lent to another library for a stipulated period of time. So, library automation helps to promote resource sharing by saving a lot of time and effort of library staff as well as the users.

2.5 Application Packages for Automation

They different forms of software applications packages in existence for information services delivery operations can be chosen based on the nature, purpose and kind of services such an information center is rendering to the society. The software applications can be identified as:

EVERGREEN: This is an open source integrated library system (ILS) software freely licenced under the GNU GPL. It is a metadata search engine that works as a transaction processing engine just like another web application. This software is based on a robust, scalable, message-passing framework-Open SRF that runs on Linux, Windows and Mac. It provides search results for the collection of the library, shows the details of the records as well as their status of availability. It help library users to locate library materials, manages, catalog and circulate those materials despite the size or type of the library. Other features are request for check-out, details of engagement with users, status of current check-outs and renewals, list of new arrivals, canceled items

and requests, and the platform where users login with their library identity cards.

VTLS: VTLS stands for Visionary Technology in Library Solutions. VTLS is USA based software developed in Virginia to support a number of customized integrated library management. A web based software with self-check interfaces and inter-library loan platforms.

MANDARIN: This software is modern online catalogue fully designed to provide M5 workstation architecture. It saves time and less cost effective. It has a lot of updates in library management systems.

CDS/ISIS: CDS/ISIS is an acronym that stands for computerized documentation service/ Integrated set of information system. UNESCO designed this integrated menu-driven software package in 1985. It has platform where the library management can redesigned to suit display of records, entre new records, define database, it has the ability to correct, modify and delete records, retrieve records, and sort the records. Other features include using variable length text fields, repeatable fields, sub-fields, has multi-lingual version, and uses indexing techniques. It also functions in a multi access environment, free of charge, etc

NEWGENLIB: This is a library automation software that uses completely web based modules. It uses JAVA web start technology. It provides many basic ILS functions as well as having many social media function built in it. Its compatibility compiles with international metadata and interoperability standards like MARC-21, MARC-XML, Z39-50, SRU/W, OAI-PMH. Newgenlib uses open sources components, OS independent like windows and Linux etc. the software easily extensible to support other languages and Data entry,

storage, retrieval in any language.

KOHA: KOHA is believed to be the world's first free and open library software for Horowhenua library. It was developed in New Zealand in 1999 by a company called Katapo Communications Ltd. KOHA uses www as the browser engine and is been used by many libraries around the world. Its functions work for OPAC, circulation, member management, and acquisition packages. KOHA is used in public, academic, schools, and special libraries. The main features include circulation, patron checks, like views users activities, checking out items, reserving, overdue fines and registration of users, cataloguing, serials management,

LIBSYS: This library software is integrated library software developed in New Delhi with web-based modules. The software package is designed by Libsys Corporation to cover all kinds of library management like acquisition, circulation, cataloguing, indexing, abstracting, serial controls, and OPAC.

SOUL: This is Software for University Libraries (SOUL) developed by INFLIBNET Center. Its overall objective was to provide software that could serve a university library. The main features include client-server based architecture, user-friendly interface, supports multi-user platforms, supports cataloguing of digital resources like E-books, E-journals, and other Google books. Other features include multi-language supports online software updates, and provides facility to send emails to users and allows them to save it in different formats.

X-LIB – Is a software package that was developed by Raw Materials Research and Development Council (RMRDC), library Abuja. It is an interactive user friendly software with the following modules,

Cataloguing, Circulation, Serials, Acquisition with facility for production of identity cards for users. It has been used successfully both in academic, public and special libraries.

3.1 General Features of Library Automation Software

Arockia and Mjaculine (2020), list the following as features of library management system, thus; maintain the whole library through software interface, client-server based architecture, user-friendly interface, supports multi-platforms for bibliographic database such as MS-SQL or any other RDBMS, provides freedom to users for generating reports of their choice, supports ground-level practical requirements of the libraries such as stock verification, book bank, transaction level enhanced security, etc. provide facilities to send reports through emails, allows use's to save reports in different formats, highly versatile and user-friendly etc. It works in various computer platforms, speed on responses, user friendly, effectiveness, flexibility, services, security, new technologies, serials control, library administration, standardized data format, reliability, and dependability.

3.2 Automated Services

A library after automating its routines should provide automated services, to bring in the effect of automation to the front end (user). As discussed above in the circulation division, the bar coding of books and user details enables the automated issue and return of books, which is the service any automated library can provide. Given below are some of the automated services which are provided to the users of the automated libraries: -

- Online Public Access Catalogue (OPAC)
- Web OPAC c) Access to databases
- Inter-library loan and document procurement service
- Internet and e-mail service

- Bulletin of current contents
- Access to electronic resources
- Current awareness services
- Selective Dissemination of Information

3.3 Library Automation and Information Service Delivery

The use of Information and Communication Technology tools and platforms for routine library activities and provision of search services in both internal and external operations and access to all available information resources within the four walls of the physical and digital library to the information seekers and users is the sole aim of library automation. In another word, we can indicate these arrays of digital tools and platforms are not only used in data processing activities but also for collection, storage, access and retrieval processes in the library.

Automation of information services ensures decentralized bibliographic records of the huge number of registered users among other needs and purposes of library. Naveed-e-Sehar (2019) presents a recommendation of a well-developed architecture technologies, and database platforms for library management systems which stresses the need and purposes of library

The 21st century information services delivery of Information centers using library automation concept has facilitated the delivery of digital content related to link resolvers, portal and meta-search interfaces, and electronic resource management modules often provided by third-party vendors. According to Reitz (2020), these includes, better integration of the information services delivery of the library with web environment, using personal computer clients as browse. The integration of suitable library automation system into the library operations enables patrons to have access to information materials at any time irrespective of their geographical locations (Omeluzor & Oyovwe-Tinuoye, 2016).

Library automation enhances quality of services rendered by any library with special attribute to timely, format and concise as the users may prefer. Olagoke and Kolawole (2019) in their study on effect of library automation on the performance of librarians in South West, Nigeria reported that the level of satisfaction derived was as a result of effective service delivery brought about due to the automated system in place in the library. Through automated systems, materials and resources needed for teaching, learning and research became easy to access. Automated circulation systems increases multiple access to information, ease access to information, increase sharing of information, save time, reduce error and help to keep track of location of items in the library (Onyebuchi, Daniel, Chima and Udoaku, 2015). It makes library staff to become more relevant and to meaningfully contribute to knowledge sharing as a service oriented institution.

3.4 Barriers to Effective Automation of Library

- Financial constraints: the cost involved in the maintenance of electronic publications is quite high. In this context, financial restraints are much more severe in developing nations like Nigeria than the developed ones. There is nowhere in the world that library budgets keep pace with the growth of information, documents and ever-increasing demand for them. The budget allotted to most of the libraries however, remains the same every year.

- Absence of planning: lack of adequate planning before embarking on full automation poses a challenge to effective automation in libraries

- Lack of competent manpower: Poor management and professional ICT skills

pose a challenge to library automation implementation. Some of the library staff lacks the competence to handle the ICT facilities.

- Poor maintenance culture: Most of the libraries in Nigeria have very poor maintenance culture and this has caused frequent computer and network breakdowns and failures. To ensure fast data entry, storage and retrieval, there is need for regular and consistent upgrade of ICT facilities.

Conclusion

Automating library for service delivery can provide better services to their users and can maintain the library more properly more than what a manual library can't do. Hence library professionals need to take right initiatives in right direction toward library activities and various repost generation becomes very easy in an automated library system. But the success of any library automation programme depends upon its proper planning and execution.

Library automation is not a sudden decision to be taken by a library and information centre, whether small or complex. Automation requires a lot of planning before one can embark on it because it could be very expensive in terms of equipment, staff and user training.

Library personnel of all cadres need to be trained and re-trained on effective utilization of automated software and the training should be based on all modules without separating one module from another.

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