

Challenges Faced in the Implementation of Library Automation in Affiliated Colleges of Sambalpur University

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Abstract

Library automation has become an essential component of modern academic libraries for improving efficiency, information retrieval, and user services. Despite rapid advancements in ICT, many college libraries in India, particularly in semi-urban and rural regions, continue to rely on traditional manual systems. The present study examines the condition of library automation and the challenges faced in implementing automation in colleges affiliated with Sambalpur University. The study adopts a descriptive and analytical research design using a quantitative approach. Data were collected through structured questionnaires, online surveys, and field interactions with librarians and college authorities from 43 purposively selected affiliated colleges. The research investigates the existing infrastructure, level of automation, funding sources, and major barriers affecting automation initiatives in college libraries. The findings reveal that 48.80% of the libraries are still non-automated, 23.30% are at the initial stage of automation, 20.90% are partially automated, and only 7% are fully automated. The study identifies lack of funding, insufficient trained manpower, limited awareness of library software, inadequate technical skills, and poor infrastructure as the major challenges hindering successful automation. Although most colleges possess basic digital facilities such as computers and internet connectivity, the adoption of advanced library management software remains limited. The study also highlights the heavy dependence on internal college budgets for automation activities, indicating the need for stronger institutional and governmental support. The paper concludes that effective library automation requires not only financial investment and technological infrastructure but also skilled manpower, continuous training, administrative support, and a positive attitude toward digital transformation. The study emphasizes the urgent need for strategic planning and policy intervention to modernize college libraries under Sambalpur University and enhance the quality of library services in the digital era.

Keywords: Library Automation, Academic Libraries, ICT, Integrated Library Management System (ILMS), Library Management Software, OPAC (Online Public Access Catalogue), Library Digitization

Introduction:

A library is an organized collection of resources, including books, magazine, journals, manuscripts, and digital media, made accessible to users for research, education, and recreation. It provides teaching-learning process for all user group and a well-equipped, well-maintained library is foundation on education. College libraries is important for all the user group, which offering different library services to

their user group. College libraries are the center of teaching and learning activities where students and teachers can explore a wide range of information resources. In the traditional libraries, spent a lot of time for searching relevant information. Computer are now used for everyday library tasks, which save time, reduced duplication, and makes library services more effectively.

This is the age of computerization, yet traditional manual library systems persist in Indian libraries, particularly in underdeveloped regions. In the development series, the library world has adapted to a computer environment in everyday operations as well as in information storage and retrieval. Automation, to a significant degree, can alleviate the burden of library work. It also protects against work-related stress and tiredness. It not only delivers effective services in a new era of bibliographical management but also grants access to necessary databases both domestically and internationally.

The term “automation” originates from the Greek word “automose,” which signifies something that possesses the ability for spontaneous movement or self-initiative. The concept of “automation” was initially presented by D. S. Harder in 1936, while he was associated with General Motor Company in the United States. He employed the word automation to refer to the automatic movement of parts among sequential production processes.

According to the Encyclopedia of Library and Information Science, “automation is the technology related to the design and creation of processes and systems that reduce the need for human involvement in operations” (Kent, 1977). According to McGraw Hill Encyclopedia of Science and Technology, automation is described as “a term that has no exact universally acknowledged technical definition but is commonly used to suggest the idea, progress, or application of highly automatic “machinery or control systems” (McGraw, 1982). Webster’s Third New International Dictionary of the English Language.

According to the Oxford English Dictionary, automation is defined as “the application of automatic control to any sector of industry or science; by extension, the utilization of electronic or mechanical devices to substitute human labor” (Simpson and Weiner, 1989).

Library automation can be described as the use of automatic and semiautomatic data processing machines (computers) to carry out conventional library housekeeping tasks such as acquisition, circulation, cataloging, and reference and serials management. At present, "Library Automation" is the most frequently used term to refer to the mechanization of library functions utilizing computers. (Uddin, 2009).

- **Gupta Arun Librarian, Government Women College Udhampur and Dr. Gupta (2023)** examine the present situation of library automation in their college in the Jammu division of J&K state of India. 46 out of the 49 college libraries that were polled responded for the situation, where information was gathered by using survey, interview, and questionnaire method. It is mainly qualitative as well as qualitative. They analysis that for library automation, staff availability, document collection, library automation hardware and software, and other library automation-related topics were the main goals of this research. The results indicated that the majority of colleges in the Jammu division were founded between 2005 to 2012, where most professionals have under five years of experience, but only 34 colleges have designated permanent librarians, a quarter of the college libraries contain a collection exceeding 20,000, half of them subscribe to electronic resources, and only 11per cent are fully computerized. From this study one third are utilizing “Koha” software, where most of them include a cataloguing module, some of utilising automation software here are “SOUL” and “Libsys” and insufficient professional staff is the primary issue. Conclusion behind here that the south Indian college library are much more better automated than the northern states.
- **Hussain Muhammad and Ameen Lubna (2023)** studied the condition of library automation in the

university libraries of Khyber, Pakistan. The survey research approach was utilized to gather information. The sample was taken from 27 regional public-sector Pakistan's universities. The information gathered via questionnaires and using descriptive statistics and presented through tables. The results emphasize the demographic details of the respondents, indicating that the majority were male. The research shows that most libraries were partially automated, still in the early phases of automation no libraries having achieved fully automation. In terms of software utilization, the most commonly utilized software was "Koha", "LIMS" and "SLIMS". The results can aid in decision-making processes and initiatives to enhance automation procedures, resource distribution, and training opportunities to improve library services and operations.

- **Singh Anup and Kumar Jatindra (2022)** reviewed that academic library is a hub for all educational activities of the affiliated academic institution. It is the heart of academic institutions and facilitates the teaching and learning process to achieve the objectives of modern education. Since this study show the condition of Automation and Networking in college libraries of Himachal Pradesh. A college library caters to the academic community, including students and faculty members. The significance of a college library and the reputation of librarian is not only on the variety of services offered but also on the effective methods by which they are delivered to the members. The status of a college library is how effectively the informational needs of its users are met. The paper provides insights from research on the state of library automation at state colleges in Himachal Pradesh. The study will also investigate the types of computer-based resources and services that libraries offer to their users, including e-journals, e-book, periodicals, CD-ROM databases, OPAC, OER, and more. Additionally, an evaluation of the college libraries' IT infrastructure, personnel, and use of library software packages will be conducted the administrative challenges. This current review paper is presented to explore the status of Automation in state college libraries of Himachal Pradesh and assess the extent to which users are satisfied with these services. For solving the problem of college libraries's automation there are diffident way, that are appointed IT skilled librarian or library employees, IT awareness among them, financial support from college management, provide training to employees. Now INFIBNET, DELNET and other institutions are gives training for computerisation the libraries.
- **Singh Dr. Shakuntala (2022)** examines that automation has become a crucial element of modern libraries. When Libraries are being automated they face several challenges, especially for College Libraries in Eastern Uttar Pradesh. The main issues associated with library automation, as noted in the study, can be divided into two groups: pre-automation challenges and post-automation challenges. Other challenges included, insufficient database design, a lack of information literacy training for users, and inadequate utilization of online resources etc. To provide services to its users, libraries uses various approaches, including computerized processes such as acquisition, automation, and OPAC. This report outlines some experiences and seeks to examine and evaluate the Automation Problems in College Libraries in Eastern Uttar Pradesh.

Need and Objectives of Library Automation:

Information overload has led to the creation of a vast volume of literature across all areas of knowledge. Consequently, printed materials are arriving at the library in massive quantities, making it unfeasible for a library to handle the collection manually. Nowadays, no user has the time to sift through the extensive collection of information to find the necessary and relevant data. They lack time to browse shelf by shelf to select a book. Thus, the need for library automation became essential. Most libraries have not yet been

automated. The different reasons that made the transition from a manually operated library system to an automated library system necessary are as follows:

Keeping records in a library can be efficiently accomplished in an automated setting.

- The issuing, returning, and renewing of books can be done swiftly, and document searches can be made through the Online Public Access Catalogue (OPAC), which serves as a significant asset for library automation.
- It will be cost effective.
- Preserve bibliographical records of all resources in a digital format.
- Offer bibliographical information via a single enumerative access point for the library's holdings.
- Minimize redundancy in the technical processes of housekeeping tasks.
- Facilitate quicker access to information.
- Share resources through library networking and adopt new IT methods to deliver high- quality information

Requirements for Library automation:

The fundamental necessities for any library automation Programmers are software, hardware, manpower, and funding. These four essential elements are elaborated upon below.

1. Software:

The effectiveness of library automation primarily relies on the type of software utilized for the task. The various kinds of library software that are accessible are as follows.

- In-house development software or custom-designed
- Software packages created by commercial agencies, organizations, and institutions.

2. Hardware

Hardware constitutes the next significant aspect of a library automation program, with various products and manufacturers present for this function. The hardware setup primarily relies on the software. There are two categories of PCs available in the marketplace, namely

- The branded PCs from well-known companies like HP, Compaq, IBM, etc.
- The assembled PC by commercial entities.

3. Manpower:

To implement any program, including a library automation program, trained personnel are necessary. Therefore, library professionals must receive proper training with essential computer skills to ensure the success of the automation program. Some software package vendors provide on-site training for the staff during the software installation. Additionally, users must be educated about the OPAC system.

4. Finance:

Finance is a crucial element for any program. The financial aspects of any automation program encompass both installation costs and ongoing expenses, which include maintenance, stationery, etc.

Problems for Automation:

There are several fundamental issues linked to library automation programs. The challenges can be outlined as below.

- The upfront cost for the automation program is quite substantial.
- Library personnel must participate in comprehensive training regarding automation.
- The professionals are initially psychologically affected.

- Other organizational departments must be organized for the successful implementation of the program.
- Retrospective data conversion for large libraries.

Need Of the Study

There are approximately 140 colleges affiliated by Sambalpur University. The libraries of colleges need to be automated for easy utilisation by student and other user. By the automation of libraries, it is helpful for managing job of librarian and providing better services to the students.

Following are the needs of library automation are :-

1. Save the time of the users
2. Control the library housekeeping operation
3. Information retrieval is easy
4. Error free services
5. Easy to update the record
6. Enhance library services
7. Prevent from duplication of work
8. Cost saving through automation
9. Database management is more effectively
10. Increase technical processing over a manual system

Rapid developments in science and technology have rendered the use of computers essential and created a particular scenario in nearly all aspects of human existence. Libraries incorporate computers into their daily housekeeping tasks in both offline and online formats, to ensure efficiency and effectiveness in the operation of the library. Library automation aids in better resource management and conserves time, money, and manpower. Automation serves to eliminate repetitive and routine tasks. For instance, the bibliographic information entered in the acquisition module for obtaining documents can be utilized for cataloging as well as for OPAC, circulation, and additionally it enables the creation of various customized reports whenever needed, and these reports assist in improved decision-making for the effective management of the library. Access to diverse statistical and other usage reports and performance reports will guarantee improved administration of the library. Other significant aspects linked to automation are speed and precision. It allows for the provision of efficient services adequately and more effectively reducing time and enhancing productivity. It is feasible for the library to offer current awareness services such as new arrivals, contents of books, and journals to its users.

Objective Of the Study

This study have several goals and objectives for the research of automation implementation in college libraries. Some of the major objectives of the study are;

- a. To identify the present infrastructure of college library affiliated to Sambalpur University.
- b. To evaluate the present status of automation for college library under Sambalpur University
- c. To examine the potential challenges faced by librarians for implementing automation system.

Research Methodology

These research uses a descriptive and analytical research design by applying quantitative approach to assess library automation in affiliated college of Sambalpur University. The study utilizes the data collection technique of field and online surveys and well-structured questionnaires, developed on the basis

previous study on automation surveys and supervisor input. Data is collected online through Google Forms, via email and contact numbers. As we all know there are 140 affiliated college under Sambalpur university but due to time constraint only 43 college were selected for our sample using the technique of purposive sampling. The target population in our study include librarians and college administration of the sampled college to know the actual value of library automation in selected college.

Data analysis and interpretation

The primary data collected through the above mentioned technique was analysis keeping in view with the objective of the study taken in our research, and the results and findings are presented in subsequent tables graphs in below mentioned paragraph. furthestmost, the findings are analysed and explained to draw meaningful conclusions and finding are represented below to draw the objective of study and to know the present statues of library automation in the 43-college library out of 119 affiliated college under Sambalpur university.

Demography of the Respondent

Odisha as we know is soul of incredible is emerging as one of the prominent hub for education in india ,it is the home of many important and oldest university of india ,one IIT,one NIT ,and other prominent institution of india ,namely Utkal university, sambalpur university, gm university,etc among them is Sambalpur university is one of the prominent university of western odisha serving 11 district of the state with 119 college under its control , with 15 GOVT. COLLEGE, 89 govt. aided college, rest private or semi govt. college. So fro the purpose of our study we have selected 43 college through stratified random sampling having equal representation of all district under the university control. the below analysis will be having the same discussion: -

TABLE 1: Types of Colleges

Types of Colleges	Number	percentage
Government	6	14%
Aided	29	67.40%
Self-financing	6	14%
Other	2	4.60%

Table 1 gives information about “Types of Colleges” under Sambalpur university taken for study. It was found that among the 43 colleges, the majority 29 (67.40per cent) are from aided colleges, 6(14per cent) are from government and self- financing colleges. Additionally, 2 colleges (4.60per cent) belong to other types of colleges. This indicated that aided colleges from this college group are major.

TABLE 2: establishment Year of Colleges

Establishment year	number	percentage
early 1980	13	30.23%
1981-1990	4	9.30%
1991-2000	17	39.53%
2001-2010	5	11.63%

2011-2020	4	9.30%
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Table 2 illustrate the distribution of college establishments over different time periods. The highest number of colleges i.e 17 (39.53per cent) were established between 1991 and 2000, that indicating a significant growth during that decade. This was followed by 13 colleges (30.23per cent) founded before 1980, showing that a substantial number of institutions were already in place early on. The decade from 1981 to 1990 and from 2001 to 2010 saw establishment of 9 college (9.30per cent) each in each decade taking the no’s up to 48 college(88percent) while from the year 2001 -2010 saw the establishment of 5 college (11.63 per cent) out of 43 college taken for study under Sambalpur university which has an around of 119 college affiliated to it.

TABLE 3: Current status of Library automation

Status of Library Automation	number	Percentage
Not Automated	21	48.80%
Initial Stage of automation	10	23.30%
Partially-Automated	9	20.90%
Fully Automated	3	7%

Table 3 shows the status of library automation in the 43 college library under Sambalpur university taken as a sample of our research.so when we go on to analyses the table we can see that majority of the college I.e 40 college library(93per cent) are not automated or in semi-automatic condition, further when we analyses more we can say 21college library (48.80per cent) are not at all automated till now operate in manual mode where as 10 college library (23.30per cent) are in the inertial stage of automation followed by 9 college library(20.90per cent) are in the partial or semi-automated condition, where as a very small fraction i.e 3 college library (7percent) are fully automated condition showing a very small pace of library automation in the college taken for study which in fact highlights the key problems (that is discussed in the next table) that are causing an hinderance to automation which in fact is increasing the inefficiency, slow management, misplacement due to manual operation ,lack of staff efficiency, lack of accountability ,loss of material in the libraries in the library taken for analysis.

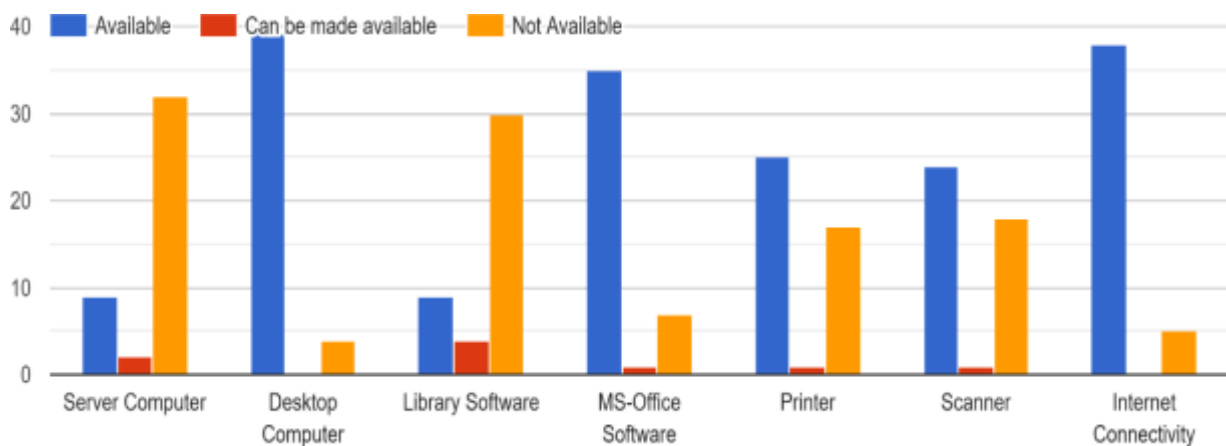


Figure 4: infrastructure available for Library automation

The above figure4 highlights the status of infrastructure that is available for carrying out library automation in the sample of study.so from the above table we can say that maximum no's of college have a strong basic digital access tools like desk top computer (39) and internet connectivity (28) for carrying out library automation .while maximum of the college of output device like scanner (24) and printer(25) for performing day to day library management and working while a significant no's of college lacks them i.e. 18 and 17.and when we come to using library software for library automation we can see that a maximum no's of college uses old school software like office package (35) for its library management where's as a small no's of college i.e 9 college uses advance library management software for its working where as significant no's 30 college lack them. The above finding explains that WHY the maximum no's of college library are in semi-automatic or inertial stage of library management as we can see that they possess minimum infrastructure but lacks essential library management software and as well as requires a through improvement is required with advance computer tools for carrying out library automation.

TABLE 5: Current/Potential Source of funding for Library Automation

Source of funding for Library automation	number	Percentage
College Budget	38	88.40%
Grant From University	3	7%
Grant from State Govt	5	11.50%
Grant from UGC	1	2.30%
Grant from College Management	7	16.30%
Other	3	7%

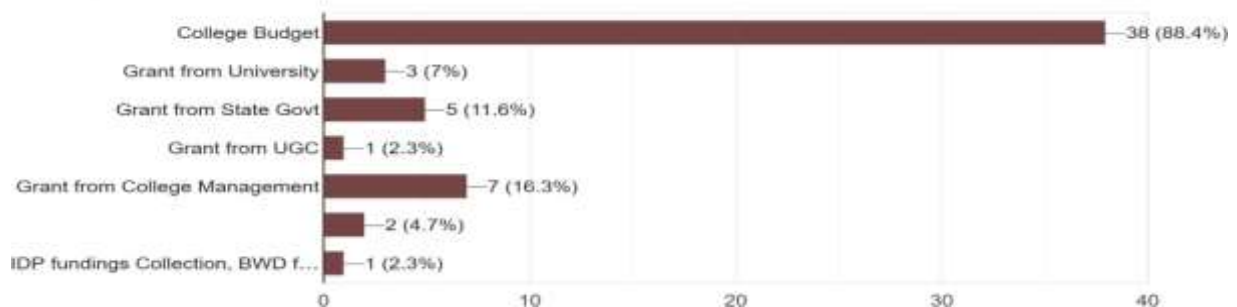


Figure 5: Sources of funding for Library automation

Table 5 highlights the important funding sources for library automation in our 43 sample college under Sambalpur university, the analyses of the table reveals that the majority of the funding i.e. 88.4per cent(38 college library) have received grants from college budget i.e from the different grants received by the college ,followed by 16.3per cent (7 college library) have received grants from the college management commette,whereas only 11.6per cent(5college) have received grants from state govt ,followed by 7per cent (3 college) have received grants from the university for setting up library automation work from the college. Whereas a significantly low i.e 2.30 per cent (only 1 college) has received grant from UGC for its library automation, showing that there is a very limited external and reliable sources for taking up library automation in the college and this heavy dependency on internal funding from its own sources is

becoming hinderance from carrying out scalability and sustainable library automation thus highlighting the needs for more diverse and robust funding route to support comprehensive library automation work.

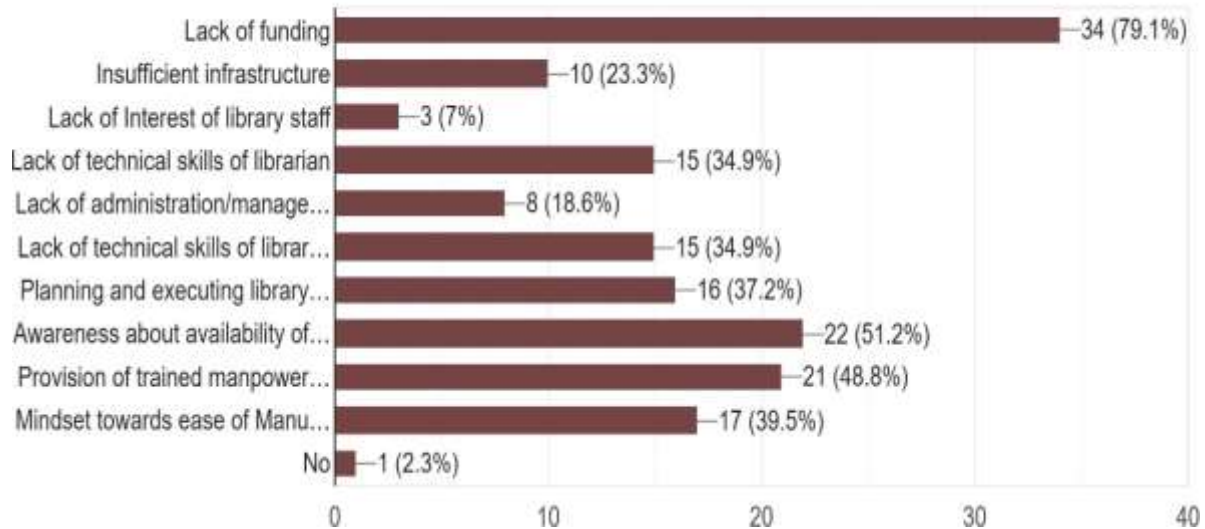


Figure 6: Problem faced by Colleges for Library Automation

Figure 6 is the most important table in the whole study as its shows the different important challenges faced by college library in implementing automation in there respective college library .so from the above table we can say that around 34 college library (79.10per cent) have complained that there is lack of funding from such implementation , whereas 22 college (51.20per cent) have shown a lack of awareness about availability of various library software ,whereas 21 college (48.80per cent) have shown a lack of trained manpower if library becomes automated,16 college (37.20percent) have shown a challenges of planning and executing library automation project, where as 15 college(34.90per cent) each have shown the challenges of lack of technical skill of librarian and library staff in implementing library automation in there respective college, where a very few i.e8college(18.60per cent) face the challenges of administrative and management support whereas only 3 college (7.00per cent) faces the challenges of lack of interest of library staff in implementation of automation in the college library. Thus from the above table we can say that successful implementation of automation in library not only requires financial investment and proper infrastructure but also requires proper technical training ,capacity building of the staff working in the library and a urges to shift in the attitude from manual management to modern and well equipped digital library which increases the efficiency and working and management structure of the library taken for our study.

Findings:

The following findings have been identified during the study of the objective taken

1. To evaluate the present status of automation for college libraries under Sambalpur University:

Nearly half (48.80%) of the libraries are still not automated, while 23.30% are in the initial stage and 20.90% are partially automated. Only 7% are fully automated, indicating a slow and uneven adoption of library automation across colleges.

2. To examine the potential challenges faced by librarians for implementing automation systems:

College libraries face several key challenges in implementing automation, with lack of funding (79.10%)

being the most significant barrier. Many also struggle with a shortage of technical skills among staff (34.90%), inadequate infrastructure (23.30%), and resistance to moving away from manual systems (39.50%). Additionally, limited awareness of available library software (51.20%) and the absence of trained manpower (48.80%) further hinder the automation process.

3. To identify the favourable factors for implementing library automation systems in college libraries under Sambalpur University:

Overall, administrative and library staff support for automation is strong, with 26 respondents indicating positive backing from both groups. Librarians' technical skills are also viewed favourably, with several rated as "Excellent," making them a key enabler for automation. Additionally, users generally possess good knowledge of computers and the internet, suggesting that user readiness is not a major barrier to implementing automated library systems.

Conclusion and recommendation:

Library automation leads to significant transformations in how libraries operate, resulting in the delivery of effective and efficient library services. The automation of libraries is still at early developmental stages in colleges located in Sambalpur University. Only 7% of the college libraries are fully automated which is a lower percentage, compared to other states, which shows that majority of the college libraries are not automated fully. The authorities of those colleges which are non-automated should take immediate steps to start automation of their library services, and those partially automated should go for full automation. Through library automation, librarians can manage library operations more efficiently and offer better services to users. Some libraries are currently utilizing library automation for only a limited number of modules such as acquisition, circulation, and cataloguing. Libraries need to implement all modules in their library automation, including OPAC, Serial Control, stock verification, budgeting, and so on.

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