

**Application and Use of Library Software
in Central University Libraries in
North India: A Study**

**ABSTRACT
of
Thesis**

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Abstract

1.1 Introduction

The advent of technologies like computer and telecommunication has resulted in revolutionary transformations in libraries. Computer is used to enhance efficiency and effectiveness of library operations and services. Traditional libraries having bulk of print documents are being transformed to paper less digital libraries which require minimal storage space. Virtual library, a library without walls, evolved out of this where one can globally access information at any time, using communication tools like Internet and computers.

Library software plays an important role in Library/Information Centre. Software performs different type of assignments e.g. administrative, general, housekeeping as well as routine work. A few special institutions started automation since 1970 with the application of software which nowadays are basic need to perform various activities (**Saffady, 1989**). Development of science and technology led to an information explosion out of which rapid changes took place. In order to meet out enormous user demands library system has immensely improved and upgraded it to face new challenges. The services offered by libraries have also undergone dramatic changes.

The core objective of Library Software is management and updating of library resources/ records and offer efficient service to the users. With this objective, institutions are involved in automation, digitization- transforming classic books to electronic format

for distribution through the Internet. These files can be directly accessed in HTML format while others can be downloaded in PDF format. Some publishers have books in both *digital* as well as *print* form.

Library software plays a vital role in management. It helps to achieve the objectives of an organization. It is used not only for co-operation, resource sharing and networking but also for operations like acquisition, cataloguing, circulation, serial control, stock-verification, online catalogue search, budget management etc.

Objectives of the study are to know the impact of automation and digitization in libraries of Central Universities of North India. It also aims to ascertain software used in process of digitization, digital content management and institutional repository. It evaluate the problems and difficulties faced by librarians and satisfaction level of the staff in day to day application of the software. Thereafter it deal with the compatibility issues to fulfill all the present needs of libraries. Popularity of the software used for automation and retrospective conversion/digital content management also a part of the study.

Due to information explosion and impact of technology enormous changes are taking place in library management system. Library automation is nothing but application of computers in routine library housekeeping operations such as acquisition process, cataloguing, serials control, circulation, stock verification etc. Before moving to in depth analysis of the process it is necessary to have historical background of library automation and digitization.

1.2 Objectives of the Study

The objectives of the study are as follows:

- a. To examine about the status of automation in the Libraries.
- b. To know the reasons for non-automated Libraries under study.
- c. To find out different activities, facilities and services being provided through Library Automation Software in Central University Libraries.
- d. To find out the prospects of digitization and networking in the Libraries.
- e. To evaluate different modules of Library Software in selected University Libraries.
- f. To identify the significance and benefits of Library Software in concerned Libraries.
- g. To know the opinion of Librarians on usage and performance of Library Software.

1.3 Hypotheses of the Study

The hypotheses of the study are as follows:

- a. Automation Process is very slow in the Libraries under study.
- b. Library Software fulfils various requirements of the Libraries.
- c. Application of Library software helps to great extent in the improvement of services provided by the Libraries.
- d. Staff of Automated Libraries are highly satisfied compare to non-automated libraries staff.

1.4 Scope and Limitation of the Study

The scope of the present study is confined to Central University Libraries of North India. Study covers Northern Indian States such as Haryana, Delhi, Himachal Pradesh, Jammu & Kashmir, Uttarakhand, Punjab and Uttar Pradesh. The study is limited to evaluate library

software packages at selected University Libraries of North India. Study aims to identify, as per objective of the research work, utility of software packages currently in use.

Following Universities have been covered under the study:

- a. Aligarh Muslim University (AMU)
- b. Allahabad University (AU)
- c. Babasaheb Bhimrao Ambedkar University (BBAU)
- d. Banaras Hindu University (BHU)
- e. Central University of Himachal Pradesh (CU-HP)
- f. Central University of Haryana (CU-HR)
- g. Central University of Jammu (CUJ)
- h. Central University of Kashmir (CUK)
- i. Central University of Punjab (CUP)
- j. University of Delhi (DU)
- k. Hemwati Nandan Bahuguna Garhwal University (HNBGU)
- l. Indira Gandhi National Open University (IGNOU)
- m. Jamia Millia Islamia (JMI)
- n. Jawaharlal Nehru University (JNU)
- o. South Asian University (SAU)

1.5 Research Methodology

Research methodology plays a vital role as it is the core of any research project carried out for a systematic and organized study of selected problems as well as its solutions. Methods provide guidelines and procedures to be followed for analyzing available information in a

structured way. It also offers a scientific approach to the available resources and relevant data related to research. Findings of the research can be drawn out of a systematic research methodology. Therefore it is very crucial to follow definite methodology to resolve the issues related to research. (Kothari, 2004) describes Research Methodology as ‘methods or techniques the researcher uses to perform research operations’.

This study is basically an evaluation of library application software used at the Central University Libraries of North India. Specific criteria have been selected for presentation of data of the libraries to make it relevant to the study.

1.5.1 Selection of the University Libraries

Fifteen University Libraries have been selected for this study because of the fact that scope of the study is limited to North Indian Central Universities. Furthermore, the study also consists of use and application of library software. Henceforth, it is pertinent to identify the impact of library software and its utilization as an inclusive aspect to the scope of the research.

1.5.2 Data Collection

Data collection is an important task associated with the process of creation of specific information relevant to the study. For the present study survey techniques have been adopted for this study and tool for the data collection questionnaire and interview have been followed:

a. Questionnaire Method

Data were collected through structured questionnaire and survey of the libraries under study. To ascertain the factual information opinion of librarians in reference

to library software were obtained using a structured questionnaire. On the basis of the questionnaire opinion on different issues pertaining to library house-keeping operations were also obtained. During survey some important points/information were jotted down in a note book for preparation of thesis.

Comprehensive questionnaire was designed to collect relevant data. It was distributed among concerned librarians. Response to the questionnaire was collected, analyzed and interpreted as per the objectives of the study.

b. Interview Method:

In order to collect accurate data, to ease the stress level of the respondents and arrive at the best possible results, interview is an important aspect of research methodology (Oliver, 2008). It is important to have the opinion of the librarians of the concerned libraries. The interview was conducted to know some general aspects related to the use and application of library software and future plan for library improvement.

1.5.3 Questionnaire for the Librarian

The questionnaire was personally served to the concerned librarians. A questionnaire, duly filled in by the librarian/ in-charge/ concerned authorities, was collected from every University. During the course of survey personal talks and discussions were also had with the librarians/ in-charge/ concerned authorities.

1.5.4 Presentation of Data

Collected data was analyzed and arranged in tabular form along with graphics. Analysis of the data indicated frequency, percentage and application of library software packages etc.

Simple mean method and *likert scale* was applied on some data where 1 represents poor and 5 for the best.

1.5.5 Data Analysis and Interpretation

The collected data from the Central University libraries of North India vide questionnaires, interview, and observation etc. was cross checked. The researcher made use of a self-designed coding sheet and statistical counting was done for each response. Finally, the obtained data have been organized, compared, tabulated, analysed, and interpreted making use of tables, figures percentages and statistical techniques etc. MS-Excel and simple statistical methods have been used to check and verify the validity of the results.

1.6 Organization of the Study

Further the study has been organized into five chapters:

Chapter 1: Introduction

Chapter first of the research work introduce the whole aspects of research topic undertaken. It describes Introduction, library automation and digitization, need of the study, scope, objectives, hypotheses, significance of the study and research methodology. It also discusses about library automation and digitization software used in North Indian Central University Libraries.

Chapter 2: Review of Literature

This chapter discusses about the literature accessed and scanned for the study whether published in India or abroad. For the present study the researcher consulted different information sources such as books, research articles, reports, university websites, resources

available on internet and other materials about the specific problems related to the research topic.

Chapter 3: Central Universities in North India: A Profile

This chapter discusses about brief history and introduction of universities. The study also describe present status of the libraries, its collection, services and other related information.

Chapter 4: Data Analysis and Interpretation

This chapter of the study discusses data analysis and interpretation. For the study relevant data collected through questionnaire, interview and personal observations analysed using the Data Analysis and Statistical Software (STATA) and Microsoft excel were used to feed and tabulate the data to find the results. Further the data presented in tables, graphs, pi-charts and percentage circles to lead findings on research problems and discussion made on the basis of analysis.

Chapter 5: Findings, Conclusion and Suggestions

This chapter of the study presents the summary of major Findings and outcomes on the basis of analysis and interpretation of data. The Conclusion as well as Suggestions of this chapter will be helpful in determining the need of improving the central university libraries selected for the research work. On the basis of analysis, the researcher concludes the suggestions for the improvement of status of library automation and digitization.

1.7 Summary of the Findings

The study reveals that most of the Central University Libraries in North India are engaged in the utilization of library software packages to complete their routine work and the use of such technologies help them to perform their work effectively and with efficacy apart

from the fulfillment of the maximum utilization of the available library resources and users' information requirements. The researcher has drawn the following specific findings of the study on the basis of data analyzed and interpreted:

- **Establishment of Central Universities in North India:** It is found that 5 (33.33%) Central Universities have been established in North India till 1947 and 4 (26.67%) during the period of 1948 to 2008 and a majority of 6 (40%) Central Universities were established during the period of 2009 to 2014 out of the 15 Universities. Therefore, the results indicate that there has been a dawdling growth for establishing a new University by the Government of India in North India.
- **Libraries Working Hours:** It is found that with regard to the reading room facility and circulation, a majority of the libraries 13 (86.67%), 11 (73.33%) are opening for 7 to 12 hours in a day respectively and just 2 (13%) of libraries have opened their reading rooms between 19- 24 hours. Therefore, the result clearly indicates that a majority of the University Libraries open for only 12 hours in a day.
- **Users Category in Central University Libraries:** It is noticed that all the Universities are offering Research Courses and Post Graduate courses whereas; 6 (40%) of the Universities do not offer Under Graduate courses.
- **Collection of Central University Libraries:** It is observed that a majority of the University Libraries do not have all types of resources while only a few libraries, such as, AMU and DU have a vast collection of all types of resources.
- **Strengths of Library Personnel:** It is amply clear that the largest number of library professionals are working in the Universities located in the Uttar Pradesh Region,

such as, BHU and AMU whereas other newly established Central University Libraries are facing an acute shortage of library professionals.

- **Qualification of Librarian:** The results found out that a majority of 11 (73.33%) librarians are highly qualified and having Ph.D. degree and 3 (20%) of the librarians have acquired only a Post Graduate degree (MLIS) in Library and Information Science.
- **Library Budget for the Year 2013- 2014:** It has also been observed that the highest budget allocated was in the range of Rs. 12.00 to Rs. 13 Crores; 1 (6.67%) University Library for the library resources and majority of 5 (33.33%) University Libraries was allotted the lowest range Rs. 0 to Rs. 1.00 Crores. The HNBSGU library does not provide the financial data or any detail about the expenditure on library resources.
- **Special Grants for Library Automation and Digitization:** It is found that majority of 9 (60%) University Libraries are not receiving special grants from the UGC or any other agency and just 6 (40%) University Libraries are receiving special grants from UGC and some other sources. To provide better library services, UGC and other supported agency should take initiative for the special grants for implementation of automation as well as digitization processes in the Central University Libraries.
- **Availability of Electronic Gadgets and Equipment in Libraries:** The results clearly indicated that among the University Libraries, JNU library has a rich collection (1518) of electronic gadgets and equipment followed by BHU 432, DU

412, IGNOU 327, AU 186 and JMI 143 respectively. While more than 50% of the University Libraries have less than 100 electronic gadgets and equipment to operate their varied day to day activities.

- **Operating Systems Used by the University Libraries:** It is observed that a majority of 12 (80%) of University Libraries have been using Windows7 Operating Software and 1 (6.677%) using Ubuntu. Therefore, it is clear that a majority of University Libraries have been using Windows7 Operating System.
- **Automation Software Used in the Libraries:** It is observed that a majority of 5 (33.33%) University Libraries are using Libsys software package and 6 (40%) University Libraries are using various types of library software for automation of their libraries.
- **Software Used for Library Digitization:** The result of the study clearly indicates that a majority of 11 (73.33%) University Libraries have not as yet implemented digitization software to develop their information resources into digital format and only 4 (26.67%) libraries are using software for digitization.
- **Automation in the University Libraries:** It also is observed that 12 (80%) of the University Libraries are automated out of 15 University Libraries and just 3 (20%) University Libraries are not automated. Therefore, it is absolutely clear that a majority of these University Libraries has been automated.
- **Present Status of Library Automation in University Libraries:** It is also noticed that a majority of 5 (33.33%) of University Libraries are fully automated, 4

(26.67%) found partially automated, 3 (20%) libraries are under the process of automation and 3 (20%) of University Libraries are not automated.

- **Phase-wise Development of Automation Process:** The result indicates that a majority of 5 (33.33%) University Libraries have been automated in the fourth phase (2011- 2014) and very few 1 (6.67%) library automated in the third Phase (2006-2010).
- **Time Consumed in Retrospective Conversion:** It is observed that a majority of 4 (26.67%) University Libraries have completed their automation work between “one to two years” along with some “more than four years” and just 2 (13.33%) University Libraries have been completed their automation work in “less than 1 year”.
- **Automated Activities in the University Libraries:** It is observed that a majority of the University Libraries 12 (100%) are using the cataloguing module and merely 5 (41.67%) are using software for Financial Management for generation of reports.
- **Automated Services provided by the University Libraries:** It is observed that out of 15 University Libraries 11 (91.67%) Libraries are providing OPAC services and only 1 (8.33%) Library is providing SMS alert services to the users.
- **Library Software Enables Improvement of Library Services:** It is observed that a majority of 11 (73.33%) respondents preferred “to great extent” where they believe that automation process enables improvement of library services and merely 1 (6.67%) respondents preferred “to some extent”.

- **Reasons for Non-automation:** It is observed that a majority of 3 (20%) University Libraries have indicated the reason due to “lack of library staff”, and 1 (6.67%) library indicated the reason to “any other”. Therefore, it is clear that lack of skilled staff emerged as one of the main reasons that are responsible for non-automation in the libraries.
- **Availability of Skilled Library Staff:** It is observed that a majority of 11 (73.33%) libraries indicate inadequate skilled staff as the major problem affecting the application of library software and just 4 (26.67%) libraries indicate that they have adequate skilled staff. For this reason, a majority of the libraries are surviving due to lack of skilled staff.
- **Standard Formats Supports by the Library Software:** The result indicates that a majority of 9 (60%) University Libraries Software’s are supporting MARC standard format, 5 (33.33%) supporting UNIMARC, 4 (26.67%) supporting CCF and only 1 (6.67%) supporting any other standard format in their automation process.
- **Status of Library Digitization:** It is clear that a majority of 7 (46.67%) of the University Libraries are not digitized, 4 (26.67%) libraries are in the initial stages, 3 (20%) libraries are in the mid stage and in progress and just 1 (6.67%) library has completed digitization. Therefore, the Central University libraries must be digitized to cope with the ever changing ICT environment.
- **Use and Compatibility of Library Software:** The result of the responses found that a majority 12 (80%) of libraries indicate that their automation software provide

facility, such as, Multi-user access facility, Facility to share bibliographic records, Access to database through internet, Statistical facilities in the software and 9 (60%) libraries indicate that automation software compatible and provide access to the Standard Z39.50.

- **Performance of Library Software:** It is clear that a majority of the University Libraries through the performance of library automation software is quite good. Furthermore, the status of the digitization process is not good.
- **Selection Criteria for Library Software:** It is observed that a majority of 11 (73.33%) University Libraries have selected the library software on the basis of software features, 8 (53.33%) selected on the basis of users' needs, 5 (33.33%), 2 (13.33%) selected the library software on the basis of any other criteria and just 1 (6.67%) on the basis of Users' Recommendation.
- **Evaluation Criteria for Library Software:** It is observed that a majority of 9 (60%) of the University Libraries have considered "customization" as a much preferred selection criteria, 8 (53.33%) libraries considered "software used by other Central University Libraries", "compatible for networking" and RFID compatibility, 7 (46.67%) considered User Training provided by the software developing agency along with Unicode Compatibility and just 6 (40%) libraries considered "Compatible for resource sharing" as a selection criteria.
- **User feedback facility for Library Software:** It is observed that a majority 8 (53.33%) of the University Libraries are collecting the user's feedback and the

remaining 7 (47.67%) of University Libraries having no provision for collecting user's feedback facility on this particular aspect.

- **Significance and Benefits of Library Software:** It is observed that a majority of 15 (100%) respondents have much preferred benefits to 'save the time of users, 14 (93.33%) preferred 'reduction of paper work', 13 (86.67%) preferred to 'archiving and preservation along with 24x7 availability and multi-user access facility', 10 (66.67%) preferred to resources management, 5 (33.33%) preferred to 'no more extension of building is required' and just 1 (6.67%) preferred to "reduce theft or misplacing of documents".
- **Barriers Faced During Library Automation:** It is observed that a majority of 11 (73.33%) respondents indicate Non-availability of Trained IT Staff, 5 (33.33%) indicate about Insufficient Funds along with Power Backup and Lack of Resources, 3 (20%) indicates Low Priority of Librarians and just 2 (13.33%) indicate Other Barriers. Therefore "Non-availability of Trained IT staff" has been emerged as a major barrier during the library automation process.
- **Access Facility of Library Catalogue through the Webpage:** It is observed that 9 (60%) libraries provide catalogue access facility through the webpage to the users and 6 (40%) libraries do not provide catalogue accessible facility linked through the webpage.
- **Problems Faced in Library Routine Work in Different Modules:** The result clearly indicates that a majority of 5 (41.67%) respondents are facing problems in Serial Control Module, 4 (33.33%) are facing the problem in Gap in Service and

Loss of Data along with Problems in the Acquisition System and Other Problems, 3 (25%) are facing Problems in the Circulation system, 2 (16.67%) are facing problems in Retrieval of Data: OPAC/ Web OPAC and just 1 (8.33%) library is facing problems in Cataloguing.

- **Staff Allowed to Attending Training Programs for Library Software:** It is observed that 13 (86.67%) libraries are allowed their library staff to attend the training programs related to library software and the remaining 2 (13%) libraries are not allowed to attend training program.
- **Annual Maintenance Contact (AMC) for Library Software:** It is observed that a majority of 10 (66.67) libraries do not have Annual Maintenance Contract and just 5 (33.33%) University Libraries have Annual Maintenance Contact for Library Software.
- **Satisfaction with Customer Support Services:** It is also observed that a majority of 8 (53.33%) respondents are satisfied that vendors provide better customer support services to resolve the problems and 7 (46%) respondents are found to be dissatisfied with customer support services.
- **Internet Connectivity in the Libraries:** It is observed that the majority of 10 (66.67%) respondents indicate that they are using Leased Lines, 8 (53.33%) of the libraries are using Wi-Fi, 4 (26.67%) libraries are using ISDN and 3 (20%) libraries are not responding about the internet connectivity.
- **Types of Library Networking:** The result also indicates that a majority of 7 (46.66%) libraries are connected through WAN, 4 (26.67%) of the libraries are

connected through LAN/ Campus Connectivity and 4 (26.67%) libraries are not responding.

- **Satisfaction Level of Library Staff:** It is also observed that the majority of 8 (53.33%) University library staff of automated libraries are found to be highly satisfied, 4 (26.67%) have been found to be satisfied and 3 (20%) in the traditional working environment, library staff are not satisfied. Hence, the results indicate that University Libraries agreed that automation has a positive impact to increase the satisfaction level of library staff.
- **Librarians Recommendation of Software for other Libraries:** It is observed that 8 (53.33%) respondents agreed and recommend software for automation to other libraries, which is presently being used in their libraries and 7 (46.67%) respondents are not in favor.

1.8 Results Of Hypothesis Testing

On the basis of the findings of the study, the hypotheses formulated are as follows:

H: 1- Automation Process is Very Slow in the Libraries under Study.

Out of 15 University Libraries, only 5 (33.33%) Libraries are fully automated, 4 (26.67%) are found to be partially automated, 3 (20%) libraries are under progress and 3 (20%) University Libraries are not automated. **(Table- 4.2.13)**

It has been observed that the highest majority of the University Libraries completed their automation process in only one phase which is in the fourth phase (2011-2014) although the remaining phase of the development indicates a very slow and sluggish development

of the automation process. (**Table- 4.2.14**) Therefore, hypothesis has been proved and accepted.

H: 2- Library Software Fulfill Various Requirements of the Libraries.

The table 4.2.16 and 4.2.17 indicate the hypothesis results by applying single table Chi-square formula on the activities and services providing through Library Software. The result found that the Chi-Square calculated value is smaller than Chi-square critical (table) value. The result of hypothesis testing shows there is no significant difference in the opinion about required activities and services provided through Library Software. It is clear that Library Software fulfills various requirements of the libraries. Therefore, above stated hypothesis has been proved and accepted.

H: 3- Application of Library software helps to great extent in the improvement of services provided by the Libraries.

The Table 4.2.18 indicates hypothesis result about Library Software that it helps to great extent in the improvement of services. The result of hypothesis testing shows that most of the respondents firmly believed in the statement that library software helps to a great extent in the improvement of services provided by the libraries. Thus, the above stated hypothesis has been proved and accepted.

H: 4- Staff of Automated Libraries are Highly Satisfied as Compared to Non-automated Libraries Staff.

The Table 4.2.37 indicates hypothesis result about the satisfaction of library professionals working in automated libraries and non-automated libraries in Central University Libraries of North India. The result of hypothesis shows that a majority of 12 (80%) staff working

in the automated libraries are highly satisfied as compared to 3 (20%) non-automated libraries staff. On the basis of the result, it can be conclude that most of the library professionals working in automated libraries are highly satisfied. Thus, the hypothesis has been proved and accepted.

1.9 Conclusion

For the study questionnaire was circulated to all the Central University Libraries in North India to identify utility of library software packages. The researcher surveyed in 15 University Libraries to collect data and all the University Librarians responded and provide valuable information related to the researcher topic.

The study concludes that out of 15 libraries, 12 (80%) libraries are automated and 3 (20%) libraries are not automated. In order to identify the extent of the library automation the librarians were asked to specify the extent of automation; 5 (33.33%) libraries are fully automated, 4 (26.67%) libraries partially automated, 3 (20%) libraries are in initial stage.

Respectively, 4 (27%) University Libraries are digitized and 11 (73%) University Libraries are not digitized. In order to identify the extent of the library digitization the librarians were asked to specify the extent of digitization; 3 (20%) University Libraries are middle in process and 1 (7%) University Library is fully digitized. Thus, the study concludes that status of the surveyed University Libraries towards utilization of software is not satisfactory.

The study concludes that maximum libraries are using proprietary software for automation and open source for digitization due to its features.

It is presumed that libraries of Central Universities had implemented software package to complete in-house operation and services. However, the status is found that activities and services like self- check in/out, complete serials management, Web OPAC, SMS alert, installation of RFID are yet to be completed in the University Libraries under investigation. On the other hand, status of some University Libraries such as JNU, DU, IGNOU and JMI found satisfactory.

At present a large number of University Libraries are involved in implementing software packages to operate library tasks and services. However, staff of the libraries due to insufficient knowledge cannot operate properly. Therefore, the need of more studies for technological changes and improvements in University Libraries. It is also essential to the Librarians and University authorities for implementing effective and successful automated library system in order to maximum utilization of information resources and also for the satisfaction of users' community.

1.10 Area for Further Research

The study is limited to the use and application of library software packages in Central University Libraries of North India. During the study, the researcher felt that the following topics may be carried out for further research to improve the utilization of library software packages:

- Utilization of Library Software packages in the State/ Central University Libraries.
- Use and Application of Library Software packages in the Selected University Libraries in SAARC Countries: A comparative study.

- Assessment of Library Software packages in University Libraries at State/ India level.
- A comparative study on the use and application of software among University Libraries: newly established Central University Libraries or oldest Central University Libraries.