



# AN EMPIRICAL STUDY ON LIBRARY MANAGEMENT SYSTEM TO ENHANCE E- ACCESSIBILITY OF INFORMATIONAL DATABASE

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*Abstract* : Library Management System states to the practice of the computer to systematize the distinctive measures of libraries such as cataloging, circulation, storing, subscriptions. In the progression of library automation, the use of computers with other technologies in a library system varies to backing its structures and functional services. Library Management System is the adaptation of a collection's dealings from physical to hi-tech on-screen structure. The entire study has been taken the study identifies the various factors determining place to explain the make the most of usage of library automation software for researchers and academician through e-service accessibility and subscription facility by employing factor analysis. The identified factors have been categorized into three namely, (i) Operational factors, (ii) Strategical factors and (iii) Technological factors. The impact of the various factors on the of Library Automation Software to enhance e-services accessibility of library database has also been analyzed using PLS based SEM. The study reveals that the of Library Management System (LMS) to enhance e-services of e-accessibility of informational database are significantly influenced by all three factors. The study is a significant empirical contribution to enhance e-services accessibility of library database of higher education by employing right operational, strategical and technological Factors through Library Automation Software in the area of research.

*Index Terms* - Automation, Cataloging, LMS, Library, Strategical, Technological, Factors.

## I. INTRODUCTION

This research paper focused on the overview of library automation through Library Management System and the changing scenario of library management. The impact of LMS has changed the library operation and its functionality in to a fast to faster mode. User need not to visit shelf to shelf to find out a document. They just get their documents sitting in front of a desktop. Automation based on LMS has reduced the man power. This article will discuss about the concept of Library Management System automation, its requirement and various components helps to automate library. Some software package has given which are available for automation purposes. The library plays a critical role in our society it is an important component of any educational institution, which is hub of the teaching, and learning activities where students, researchers and teachers can explore the vast resources of information. In the age of ICT library scenario has been drastically changed in terms of collection, organization and services. Simultaneously, user's demands and attitudes have changed in its kinds. Also, the information seeking behavior of user has dynamically changed. They want relevant, authentic information very quickly within a single place at their hand. This concept has modeled challenges for library professionals for quick delivery of library services and information. This development in library field has brought the idea of Library Management System.

## II. REVIEW OF LITERATURE

Ansari, Mehtab et al (2017) highlighted the status and application of an automated cataloguing system in Central University libraries in North India. Data has been collected using questionnaires. Conference and opinion practices have also been used to bring impartiality in the present study. Results show that varying levels of progress have been made with respect to implementation of a cataloguing system.

Bachhav, Nitin B (2016) examines the status of library automation and major constraints faced by libraries while automating. The study found that college libraries are still in the state of infancy with regard to automation and all of the libraries use local viable software for automation. The study concludes with recommendations that would improve and ensure effective and well-organized use of the ICTs (Information and communication Technology) enabling libraries to provide their clients better services.

Krishnamurthy and Meeramani (2012) argued that the library automation ways in which information technology developments have changed the academic library over the last few decades and speculates about further variations to come in an determination to expose the major themes.

I H Jahagirdar (2012) describe library software collection as one of the important tools whereas implementing library automation. The Software consists of all landscapes regarded as the brain of any package; LMS support the general condition of the library like acquisition, cataloguing and circulation.

### III. OBJECTIVES OF THE STUDY

To analyse the impact of the identified factors on Library Management System to Enhance e-Accessibility of informational Database in higher education sector

### IV. RESEARCH METHODOLOGY

The study is an empirical one. The study is based on primary data. Cross sectional study design has been used for the study. The data required for the study has been collected from a representative sample of 110 users in higher education institutions by administrating the library information department sharing practice scale. The collected data has been analyzed using factor analysis. Structural equation modelling (SEM), also known as path analysis with latent variables (Bagozzi, 1984; Bagozzi and Yi, 1988), has been employed to test the theoretical model. In the present study, Partial Least Squares (PLS), a component-based SEM technique, is primarily adopted to examine the paths in the structural model.

#### Factors of Enhance e-Accessibility of information Database Practices

To identify the various factors to **Enhance e-Accessibility of information Database** in higher education sector, exploratory factors analysis has been performed to classify the items into different groups. Principal component analysis (PCA) method was selected to generate the initial solutions for the EFA.

Table I indicate that the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy worked out to 0.519, clearly establishing the reliability of the theories (Malhotra, 2007) and specify that the connection with the items is statistically significant and is suitable for exploratory factor analysis EFA to provide parsimonious set of factors (Tabachnick and Fidell, 2007). The Bartlett's examination of sphericity is significant which directs that the correlation among the dimension substances is higher than 0.3 and are suitable for EFA (Hair et al., 2006). Table II grants the information of communalities explained by each item. All the items shared above 0.5 communalities with their components.

**TABLE I KMO AND BARTLETT'S TEST**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.519
Bartlett's Test of Sphericity	Approx. Chi-Square	1703.074
	Df	751
	Sig.	0.000

**TABLE II COMMUNALITIES SHARED BY OPERATIONAL/STRATEGICAL/TECHNOLOGICAL ITEMS**

Item	Initial	Extraction	Item	Initial	Extraction	Item	Initial	Extraction
1	1.000	0.513	21	1.000	0.539	41	1.000	0.529
2	1.000	0.324	22	1.000	0.531	42	1.000	0.571
3	1.000	0.521	23	1.000	0.356	43	1.000	0.531
4	1.000	0.459	24	1.000	0.372	44	1.000	0.371
5	1.000	0.437	25	1.000	0.531	45	1.000	0.335
6	1.000	0.533	26	1.000	0.347	46	1.000	0.571
7	1.000	0.431	27	1.000	0.531	47	1.000	0.559
8	1.000	0.342	28	1.000	0.537	48	1.000	0.557
9	1.000	0.422	29	1.000	0.553	49	1.000	0.359
10	1.000	0.582	30	1.000	0.557	50	1.000	0.552
11	1.000	0.513	31	1.000	0.575	51	1.000	0.319
12	1.000	0.591	32	1.000	0.511	52	1.000	0.557
13	1.000	0.351	33	1.000	0.513	53	1.000	0.523
14	1.000	0.439	34	1.000	0.527	54	1.000	0.359
15	1.000	0.352	35	1.000	0.571	55	1.000	0.543

16	1.000	0.521	36	1.000	0.523	56	1.000	0.572
17	1.000	0.341	37	1.000	0.341	57	1.000	0.571
18	1.000	0.541	38	1.000	0.277	Extraction Method: Principal Component Analysis		
19	1.000	0.541	39	1.000	0.319			
20	1.000	0.551	40	1.000	0.531			

The results of factor analysis shown in table III and it indicate that a fifteen-factor solution has been developed. Only those factors which had an Eigen value of greater than 1.0 were retained. Also, the variable quantity, which clearly burdened on one factor, with loadings of greater than 0.5 were retained.

**TABLE III ROTATED COMPONENT MATRIX OF OPERATIONAL/STRATEGICAL ITEMS**

Item	Loading	Component	Item	Loading	Component
AQ- 1	0.531	Acquisition	PR -1	0.517	Purpose
AQ- 2	0.519		PR- 2	0.509	
AQ- 3	0.511		PR- 3	0.507	
CL- 1	0.560	Cataloguing	PR- 4	0.498	Policies
CL- 2	0.557	Periodical Control	PO -1	0.664	
PC- 1	0.428		PO -2	0.622	
PC- 2	0.416		PO -3	0.598	
PC- 3	0.413	Journal Indexing	PL- 1	0.724	Planning
PC- 4	0.320		PL- 2	0.628	
JI- 1	0.493		PL- 3	0.624	
JI- 2	0.436	Journal Indexing	PL- 4	0.554	Decisions
JI- 3	0.381		PL- 5	0.551	
JI- 4	0.351		PL- 6	0.544	
CC- 1	0.493	Circulation Control	DC -1	0.649	Decisions
CC- 2	0.486		DC -2	0.612	
CC- 3	0.482		DC -3	0.588	
SV- 1	0.551	Stock Verification	DC -4	0.435	Resources allocation
SV- 2	0.511	Integrated Library System	DC -5	0.433	
ILS -1	0.480		RA-1	0.528	
ILS -2	0.434		RA-2	0.518	
ILS- 3	0.383				

Table IV presents the total variance explained by each component. The number of factors that subsidized Eigen value greater than one was only significant and outstanding was omitted (cf. Hair *et al.*, 2006; Tabachnick and Fidell, 2007). The items have been converted into 15 components. These components composed explain 72.63% of the Library Information System enhancing the e-accessibility of Informational database to get use in the higher education sector.

**TABLE IV TOTAL VARIANCE EXPLAINED OF LIBRARY MANAGEMENT SYSTEM PRACTICES**

Comp	Initial Eigen values		
	Total	% of Variance	Cumulative %
1	9.371	10.327	43.794
2	3.329	5.467	39.153
3	3.727	7.783	23.988
4	2.451	3.329	22.536
5	1.675	2.377	19.196
6	0.763	1.731	11.029
7	1.452	1.685	11.362
8	1.312	0.672	11.279
9	1.976	1.472	11.018
10	1.851	1.759	11.704
11	0.853	1.573	10.037

12	0.672	1.291	10.183
13	0.751	1.952	10.241
14	0.672	1.342	11.075
15	0.291	1.674	12.974

The identified factors have been broadly classified in to three categories based on the nature of the factor. They are (i) Operational Factors (ii) Strategic factors and (iii) Technological factors. The factors grouped under each category have been described below.

**Operational Factors:** These are of the factors which are decided by the Functional characteristics and operational activity. Seven factors have been grouped under this category.

- Acquisition, (AQ)
- cataloguing, (CL)
- Periodical Control,(PC)
- Journal Indexing, (JI)
- Circulation Control (CC)
- Stock Verification (SV)
- Integrated Library System (ILS)

**Strategical factors:** Factors that determining the strategical practices which are closely depend on the characteristics of the functional process based on specific grouped under this category. Five such factors have been identified.

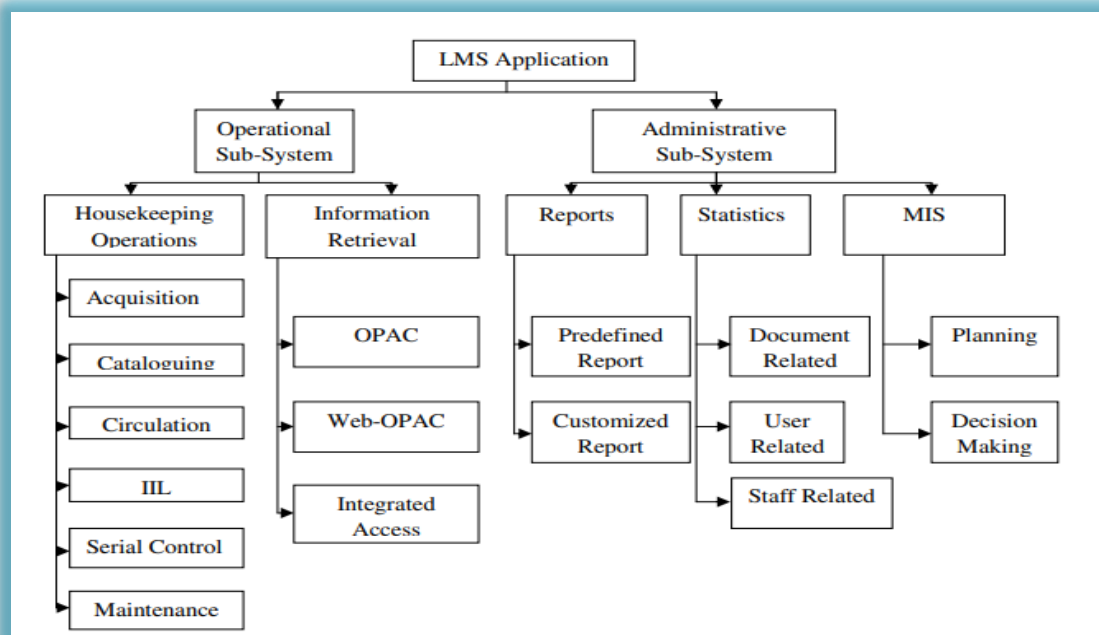
- Purpose, (PR)
- Policies, (PO)
- Planning (PL)
- Decisions (DC)
- Resources Allocation, (RA)

**Technological Factors:** *Technological factors have a bearing on the library automation practices for users. Three technological factors have been identified through the factor analysis.*

- Management Information System /Software/Metadata/Services (MIS /SMS)
- Information Related to Library Materials /Database/Subscription (IRLM/D/S)
- Information Related to Library Automation and Networking (IRLAN)

## V. RESULT AND DISCUSSION

LMS systems allow accessing multiple information sources from single window user interface and support digital archiving. Functions of Library Automation Software the LMSs are used as intelligent tools for performing in-house operations, information retrieval and MIS (Management Information System) activities. After analyzing the above table, we find that all the libraries under study are libraries are not using the same LMS. The Circulation, Acquisition, and OPAC services are offered by all the libraries. The Institute of Management Studies services. The LMS have brought a change in the line keeping operation of the library. Now a document in the library can be easily located. The library professionals have found implementation of Library Management System in library services easy and satisfying. This is the time of the users but has increased efficiency of the library professionals. The barcode technology has been found extremely useful in circulating the books. Borrowers' identification number is issued to each in the identity card or in smart card format. On scanning the users' barcode through barcode reader, it tells all the profile of the user. This lessens the conversation with the user by the library staff to red unnecessary noise in the library premises, thus helping in maintaining silence. This has been very much appreciated by the users. Though the users were not very much clear about different housekeeping operation carried out through the implementation of Library Management Software, but they highlighted the various kinds of jobs done through computer. Acquisition, cataloguing, Periodical Control, Journal Indexing, Circulation Control and Stock Verification is being carried out by these modern library Users' response towards the implementation of Library Management System in the library. In order to locate a source through these catalogue cards, it consumed a lot of time of the users. Sometimes if the users were able to locate the source, then it would not tell the status of the source, i.e. whether the source looked for is in the stack, course reserve, or in circulation. This computerized cataloguing has sorted out this problem. This OPAC can search the source by its author, title, subject, publisher, ISBN, key words, any words, date of publication etc. After locating the source, it is also able to display the status of the source. All these works are carried out within no time. Thus, it saves the time of the user. Hence the users have found this service very-very profitable in locating the material in any big libraries. 110 users have responded that the LMS has been found useful in the library. They have expressed their satisfaction that LMS has enhance e-accessibility of informational database. LMS Application provide easy access for relevant information and important content and citation related bibliographic database for student's researcher and educator to use for the benefit to gain the knowledge and share through research process.



All routine works and services of the library can be automated through library management system. Besides in some automation software packages there are provisions for article indexing, abstracting etc. Basically, these followings work of library are automated:- • Online public access catalogue • Circulation • Acquisition • Serial control • Intranet • Internet • Digital Libraries etc. makes easy access of library management system for various informational database.

## VI. CONCLUSION

Library Management System is most important tool to disseminate information to users in efficient manner and in faster speed. By using the modern tools such as Library Management System and use of software and with proper networking to provide timely accessibility to informational database. Education has become multidimensional. Application of software in teaching and learning has made things to learn much easier and clear. It improves quality of services rendered by the library management System. In this study the determinants of LMS practices have been identified using exploratory factor analysis. The identified factors have been categorized into three namely, (i) Operational factors, (ii) Strategical factors and (iii) Technological factors. LMS has provided technological and functional solutions, like all subject's information and database.

## VII. FUTURE SCOPE OF STUDY

- Study can extend with other LMS for effective structure for implementation.
- Study can further explain about virtual to consortium process of libraries.

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