

# An Evaluative Study of Automation Software Applications and Database Management Systems in Academic Libraries

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## ABSTRACT

Library automation not only improves the image of the library services but also provides additional services to the users with the existing staff. It provides equal opportunities to all staff members for organizational learning, reengineering, and benchmarking. The present study demonstrates and elaborates the library automation software and its types used in self-financing engineering college (SFEC) libraries in duration wise analysis. A well-structured questionnaire was distributed among library professionals in engineering colleges in Tamil Nadu to evaluate the library automation software.

**Keywords:** Automation Software, DBMS, Self-financing Engg. Colleges

## 1. INTRODUCTION

The term library automation was generally used in the past for house-keeping operations of the library. Today it has expanded its scope and includes all those technologies which libraries and information centres use for collection, processing, storage, retrieval, dissemination, and transmission of all types of information at local, regional, national, and international level.

According to Daniel, library automation assured a great deal of importance in libraries in the mid-1960s. Since then, it has become a household word in librarianship. Library automation may be defined as the application of automatic and semi-automatic data processing machines to perform functions such as acquisition, circulation cataloguing, reference service, and serial control. This is the reason for the librarian to urge for developing e-resources for the effective and efficient library service.

## 2. ICT IN LIBRARIES

The term, information and communication technologies (ICT), refers to forms of technology that are used to transmit, store, create, share or exchange information. This broad definition of ICT includes such technologies as: radio, television, video, DVD, telephone (both fixed line and mobile phones), satellite systems, computer and network hardware and software; as well as the equipment and services associated with these technologies, such as videoconferencing and electronic mail. In recent years, there is a visible shift from the old ways to the modern ways of information delivery systems. With the advent of global information society, information and communication technologies are increasingly being adopted as effective tools for reaching rural communities. Yet the benefits of the information revolution are still much debated, particularly, in the case of developing countries like India.

However, privatization, liberalization policies aimed at increasing competition in this strategic sector have increased the role of the private sector in providing ICT infrastructure. They have also hastened the adoption by many developing countries of new networking and telecommunication technologies, helped by their rapidly declining costs. Still, private telecommunication companies hesitate to provide infrastructure for rural and low-density areas and Governments still have a critical role to play in direct investment, creating and enabling environment or such interventions as setting up universal access funds by which companies can help Governments pay for community networks and public access points. Recent estimates suggest that 80 per cent of total ICT expenditures go to content, 15 per cent to software and application technologies and only 5 per cent to infrastructure. In recent years, the Asian and Pacific region have invested more heavily than other regions into this area, channeling close to 10 per cent of its expenditure in basic ICT infrastructure.

Information Communication Technology (ICT) is one of the important buzzwords of today's IT world. It has changed the society into information society and our way of life. It has been integrated in every walk of our life. Its impact has been evident in railway, air reservations, banking and insurance sectors, postal services, biotechnology, bioinformatics, biomedical sciences, health care sector, telemedicine, media and communications, teaching – learning, library and information services, printing technology, e-resources, digitization of documents, digital library, library networking, e-commerce, & trade, entertainment, and what not? It has penetrated everywhere and it makes our life comfortable and easy. A major part of the functionality of the computer and communication technologies will be vitalized by the software and it will

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form a very significant part of the cost of total ICT solution. This in fact gives ample opportunity for the Third World to capitalize on the ICT trends. While the computers have grown from simple bio-medical or mono-medical devices that understood only characters and numbers to Graphical User Interface based ones to totally multi-media and virtual reality engines, the software has also kept pace with it. Starting from the era of scientific computation and simple data processing chores, it has matured, traversed the path of expert systems to that of emulating human performance to hear, talk and think and the very futuristic software that will give superhuman powers to the computer. The vital role that software innovation will play in the future will be the basis of our knowledge society. The software will enable the computer to grow from raw number crunching device with poor knowledge content to a device that is superhuman in every aspect of qualitative and quantitative computing and perception.

### 3. SOFTWARE

The new digital ICT is not single technology but combination of hardware, software, multimedia, and delivery systems. Today, ICT in education encompasses a great range of rapidly evolving technologies such as desktop, notebook, and handheld computers, digital cameras, local area networking, Bluetooth, the Internet, cloud computing. Starting from the era of scientific computation and simple data processing chores, it has matured, traversed the path of expert systems to that of emulating human performance to hear, talk and think and the very futuristic software that will give superhuman powers to the computer. The vital role that software innovation will play in the future will be the basis of our knowledge society. The software will enable the computer to grow from raw number crunching device with poor knowledge content to a device that is superhuman in every aspect of qualitative and quantitative computing and perception. Software is the program that runs the computer to produce the required results. It is, in fact, the most important component of the automation process. Someone said, "A computer without software is similar to a man without his brain, or a library with neither books nor librarians". Therefore, on principle, the selection of software comes before hardware. When we talk about library software, we mean the software needed for library housekeeping routines and information retrieval services. Hundreds of library packages have been developed and run successfully in advanced countries and there are many directories and other tools available that help librarians to select suitable software for their libraries.

### 4. LIBRARY AUTOMATION

The application of computer and networking technologies has improved the efficiency of library services. Library automation was first giant step towards the use of

ICT based products & services in libraries. It brings out the revolution and save tremendous time of users and library staff for collecting and disseminating information. The networking of libraries has dramatically changed the old concept of libraries in new information storage and retrieval mechanism has now become very faster, easier and specifically the computer to manual card system. Library automation makes the provision to provide the 'right information to right reader at the right time in a right form in a right personal way' it is the basic aim of libraries. Information communication technology is not only highly important for profit, but for individual academic institution to develop and promote technological improvement. Hence the call of the day is to care and share not only information sources, but also the infrastructure facilities and skilled manpower resources among the libraries.

### 5. LIBRARY AUTOMATION: Benefits

- Proven development process and quality management system.
- The circulation is one of the most affected area of library services, which saved a lot of time of users as well as staff; The transaction of books and library document is very easy process, so there will be no queue of users in library;
- The over due charges fixed by the staff only one time and S/w will provide results automatically;
- The users can search information from anywhere at any time through OPAC; It provides the multimedia facility, some automation S/w gives the image of resources in OPAC
- The Users can easily do the reserve the books thorough OPAC and they can do self circulation of library resources;
- The library automation helps to avoid the theft of library resources with RFID system;

### 6. REVIEW OF LITERATURE

Singh, (2001) identified the Indian Institutes of Technology (IITs) have been recognized all over the world as centers of excellence in learning, training and research in the fields of engineering and technology. This paper describes the present state of computerization in six IIT libraries. The different aspects covered are hardware, software, applications, databases, CD-ROMs, online search services, networking and marketing of products and services. Future plans have also been covered where available. The data was gathered through questionnaires. In addition, annual reports and other primary documents of the libraries were used. Ahmad & Iqbal (2009) found that the Library automation fulfills the above demand of libraries by providing the library activities as: very efficiently, rapidly, effectively, adequately and economically. Thus, the ICT

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made possible for automation in libraries Rai, Namrata (2011) discussed the progress of library management software and to trace out the characteristics and trends of software with special reference to packages that provide either web interface for some of their modules or total web-based solutions for all management modules. The paper also seeks to compare services and facilities and technologies incorporated in library automation packages. Breeding, Marshall (2011) looked at the development of library technology, focusing on library automation, integrated library systems (ILS), and the use of open source software. Additional topics discussed include the competition between supports of ILS and proprietary library services vendors, the decreases in library finance, and litigation between library service companies over the violation of antitrust laws. Dhanavandan discussed the Library automation not only improves the image of the library services but also provides additional services to the users with the existing staff. It provides equal opportunities to all staff members for organizational learning, reengineering, and benchmarking. The present study demonstrates and elaborates the library automation software and it types used in self financing engineering college (SFEC) libraries in Tamil Nadu. the religious minority and linguistic minority institution libraries are fully equipped with library application software in Tamil Nadu

## 7. PURPOSE OF THE STUDY

The purpose of library automation software is to facilitate access to details of electronic information, print material. Library services to ensure that the information needs of the user community are met, regardless of their location. It enables libraries to deliver valuable information that already exists within library walls electronically to patrons. To create new digital resources locally, and to integrate local digital resources with remote ones. The number of people accessing digital collections through the WWW also shows explosive rates of growth. Finally, internationalization is making a "global information environment" a reality.

## 8. OBJECTIVES

1. To assess the library automation software facilities available in the SFEC libraries.
2. To identify library application software packages.
3. To assess the value and importance of library application software packages.
4. To compare the software packages used by the SFEC libraries.

## 9. METHODOLOGY

This study analyzes the status of library automation software facilities available in the libraries of self

engineering colleges in Tamil Nadu. Nearly 200 questionnaires were distributed among the library professionals of the engineering Colleges libraries in Tamil Nadu. Nearly 140 responses were received. The relevant data are collected from the librarians of the concerned institutions by employing mailed questionnaire method. The respondents have properly answered the queries posed by the researcher. After completion of answering, they returned the questionnaires to the researcher.. The general data interpretation is done with the application of percentage analysis, analysis of variance.

## 10. ANALYSIS AND INTERPRETATIONS

**Table 1:** Questionnaire distributed among Sample Institutions

Sl. No.	Questionnaire Distributed	Questionnaire Received	%
1	200	140 (70.00)	60 (30.00)

As per the above Tale 1, the 200 questionnaires were distributed to the various self financing engineering college libraries in Tamil Nadu.140 respondents are replied out of 200 libraries. But, rest of the 60 (30%) libraries from the self financing engineering colleges in Tamil Nadu is not replied.

### a. Classification of Institutions

The engineering colleges in Tamil Nadu have been classified based on the year of establishment for the purpose of analyzing. Such the categories are Long, Medium and Short duration institutions. Long Duration Institutions denotes the engineering college in Tamil Nadu which were started 15 years ago i.e., prior to 1995. Medium Duration Institutions denotes the institutions which were started in the last 10 years. i.e., before 2005. And, Short Duration Institutions denotes the institutions which were started in the after 2005.

**Table 2:** Questionnaires received among SFEC Libraries

Duration of Institutions	No. of Received	%
Long Duration	18	12.86
Medium Duration	70	50.00
Short Duration	52	37.14
Total	140	100

Table 2 indicates the questionnaires received the among the various self financing engineering colleges in Tamil Nadu towards the duration wise based on the year of

establishment. 18 libraries (12.86) of the long duration institutions are replied the questionnaires and 70 libraries (50.00%) are responding from the medium duration institutions and 52 libraries (37.14) of the short duration institutions are also replied.

**Table 3:** Status of Accreditation of SFE Colleges in Tamil Nadu

Sl.No	Duration	NBA	ISO	NBA ISO	Total
1	Long	6 (35.30)	8 (47.05)	3 (17.65)	17 (23.0)
2	Medium	13 (33.33)	18 (46.15)	8 (20.52)	39 (52.7)
3	Short	5 (27.78)	8 (44.44)	5 (27.78)	18 (24.3)
	Total	24 (32.43)	34 (45.95)	16 (21.62)	74 (100)

(Figures in parentheses denote percentage)

Table 3 indicates that 52.7 percent of the self financing engineering colleges have got the accreditation either from ISO/NBA or from both which belong to medium duration. 24.3 percent of the short duration institutions have acquired the accreditation from ISO/NBA or from both. 22.9 percent of the institutions which belong to long duration institutions have got the accreditation from ISO/NBA or from both. It is evident from the discussion that majority of the institution (52.7%) are of the medium duration institutions.

**Table 4:** Library Application Software Used by the SFEC Libraries in Tamil Nadu

Software	Long Duration		Medium Duration		Short Duration		Total	
	No.	Per.	No.	Per.	No.	Per.	No.	Per.
Autolib	6	(33.33)	20	(28.57)	8	(15.38)	34	(24.28)
Nirmal	4	(22.2s2)	3	(4.29)	3	(5.77)	10	(7.14)
Libasoft	5	(27.28)	17	(24.28)	10	(19.23)	32	(22.85)
Lipsys	-	-	3	(4.29)	6	(11.54)	9	(6.42)
Lips I Net	-	--	2	(2.86)	2	(3.85)	4	(2.85)
Winsoft	2	(11.11)	2	(2.86)	1	(1.92)	5	(3.59)
Delplus	1	(5.56)	2	(2.86)	4	(7.69)	7	(5.00)
Slim++	-	-	3	(4.29)	3	(5.77)	6	(4.28)
Winsis	-	-	2	(2.86)	4	(7.69)	6	(4.28)
In house Prepared	-	-	15	(21.43)	5	(9.61)	20	(14.28)
No Software	-	-	1	(1.43)	6	(11.54)	7	(5.00)
Total	18		70		52		140	

(Figures in parentheses denote percentage)

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Data presented in table 4 indicates the institutional duration wise library application software facilities in the self financing engineering colleges in Tamil Nadu. Majority of the long duration institution libraries (33.33%) have Auto lib software and 28.57 percent in the case of medium duration institution libraries. In the case of short duration

libraries 19.23 percent of the libraries have Liba soft software. It could be seen clearly from the above discussion that the long duration institutions occupy the first position in possession of Auto lib and medium duration and short duration institutions have the first position in Liba soft software.

ANOVA Summary: Result Library Application Software Vs Institutions

ANOVA						
Source of Variation	SS	df	MS	F	P-value	F crit
Rows	116.2222	2	58.11111	5.104703	0.015095	3.443361
Columns	440.8889	10	40.08081	3.520852	0.00578	2.258517
Error	250.4444	20	11.38384			
Total	807.5556	35				

Source: Computed

The anova two way model is applied for further discussion. At one point the computed anova value is 5.10 which is greater than its tabulated value at 5 percent level of significance. Hence variation with respect to library application software used in the libraries is statistically identified as significant. At another point the computed anova value is 3.52 which is greater than its tabulated value at 5 percent level of significance. Hence, it is found that the variation in the library application software in the libraries of self financing engineering colleges in Tamil Nadu is significant. A similar result has been observed with respect to duration wise of library application software in the library network of the selected self financing engineering colleges.

Table 5: Data Base Software Used by the SFEC Libraries in Tamil Nadu

Duration	Yes	No	Total
Long	18 (100.00)	0	18 (100.00)
Medium	69 (98.57)	1 (1.43)	70 (100.00)
Short	46 (88.46)	6 (11.54)	52 (100.00)
Total	133 (95.00)	7 (5.00)	140

(Figures in parentheses denote percentage)

The table 5 indicates the institutional duration wise database software facilities in the self financing engineering colleges in Tamil Nadu. All the long duration has database software facilities in their libraries. But only one medium duration institution and six (11.54) institutions are not having database software facilities in their library premises.

Table 6: Types of Data Base Software Used in SFEC Libraries in Tamil Nadu

Database	Long Duration		Medium Duration		Short Duration		Total	
	No.	Per.	No.	Per.	No.	Per.	No.	Per.
Oracle	6	(33.33)	25	(36.23)	10	(21.73)	41	(30.82)
MS Access	6	(33.33)	20	(29.99)	12	(6.08)	38	(28.57)
SQL Sever	4	(22.22)	15	(21.74)	15	(32.60)	34	(25.56)
Foxpro	2	(11.11)	9	(13.04)	9	(19.56)	20	(15.03)
Total	18		69		46		133	(100.00)

Table 32 presents data based on institution duration wise, in relation to Relational Data Base Management Software use pattern in the self financing engineering college libraries. Majority of long duration institutions have M.S. Access (42.86%) data base software. Most of the medium duration institutions (44.23%) have oracle and M.S.

Access (36.53%) in their libraries. Majority of the short duration institutions have SQL server (41.67%) data base software. It could be seen clearly from the above discussion that the possession of SQL and Sybase forms of data management system is common among long duration institutions than those of others.

### Chi-square Summary Result

Chi square calculated value	18.90
Degrees of freedom	6
Chi square table value 5%	12.6

Chi-square test is applied for further discussion. The computed Chi-square value is 18.90 which is greater than its tabulated value at 5 percent level of significance. Hence, the difference among the institution duration wise is statistically identified as significant with respect to database software facility.

### 10. CONCLUSION

The self financing engineering college libraries are having 95 per cent of the colleges use the library automation software. In the case of different commercial library softwares the Auto lib takes the first position and Liba soft the second and In house prepared software the third position in the utilization of the library automation software. But in the case of long duration institutions all the libraries has automation facilities.

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