Management of Library Automation Software in Academic Libraries

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Abstract

Software is a generic term to describe the types of programs or list of instruction, which are needed to enabled the computer system to carry out the necessary processing. A set of programs written for one or more than one well defined task are called a software package. In other words we can say the physical devices such as input keyboard, CPU, monitor, disk drives, and printers are all hardware. In general the computer technology uses the term hard to indicate something that cannot change. Physical devices are supplied by manufactures and once supplied it is very difficult to change so they are called hardware. Manpower is an essential input in all organizational activities. Human resources means not only grouping of human being in an organization, but it specifies total knowledge, skills, talents, aptitudes etc. The development of efficiency of the library depends upon mainly on human resource collections and other facilities.

Therefore, ultimately it is man behind the machine who can ensure the effective utility of new kinds of information products. The libraries modernizing their services adopting the new information technology must pay special attention to development of their staff. Machine cannot be effectively utilized and services may not able to properly handle the new equipment acquired by any library. Staff must be trained either through an appropriate contract with the firm facilitating the supply of an equipment or through their deputation to relevant institutions providing short training for library staff pertaining to development in information technology.

KEYWORDS: Library Automation, Library Software, Academic Library

1. INTRODUCTION

The library or information centers to introduce changes in the management for effective control and dissemination of information. The information explosion and steady growth of literature has faced library and information professionals to device ways for bibliographic control. For this, computer has emerged as the most effective tool. With its capacity, speed, accuracy and memory, computer has made easy handling of large quantities of information. The purpose of library automation is to free the library professionals from the routine clerical work and allow them to provide more meaningful service to spread of knowledge and information. In the functioning of library or information centers, there are many repetitive jobs which can be easily handled by the computer and lot of human energy thus saved can be put to better use. A computer increases the efficiency and speed of library operations which is not possible in a manual system because of the physiology limitations of man.

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2. WHAT IS AUTOMATION

The word automation has been derived from a Greek word ‘Automate’ which means something which has the power of spontaneous motion of self movement. Automation when used in a library context refers to the computerization or mechanization of all library activities.

Library automation includes use of computers and other semi-automatic devices. These are semi-automatic because human intervention is involved in greater in extent, so when we talk of library automation these days, it is principally the use of computers, associated peripheral media (i.e., magnetic disks, optical medical etc.) computer based product and services in library work. In recent times, even the related topics such as information retrieval system, semi-automatic, automatic indexing systems and networking of automated systems are also treated as part of library automation. Although computers have a major role to play in library automation, telecommunications and reprographic technology have equally important role because of the extent of support they offer.

3. CHARACTERISTICS OF AUTOMATION

The main characteristics of an automated system are:
1. The operations/processes are carried out automatically.
2. Avoid or reduced human action and thus save time and labor.
3. It accelerates efficiency and speed in operations.
4. Expends the range and raises the quality of existing services.
5. Instantaneous answer to multiple quarries (Allagapa University, 2005)

4. OBJECTIVES OF THE STUDY:

1. To know the different types of library automation software.
2. To improve the existing services from the view point of: quality of service and user-friendliness.
3. To develop a library automation software in academic libraries.
4. To provide the services of the existing staff effectively through library software.
5. To avoid duplication of work of library collection.

5. RESEARCH METHODOLOGY:

The present study is based on review of literature of similar works.

6. NEED FOR AUTOMATION

There are several reasons for automating the library activities especially computerizing library activities. A computerized library is always better then a manually operated library in terms of organizing, processing and dissemination of information to the users effectively and efficiently. If a library is automated and connected to different library networks such as DELNET, INFLIBNET. It provides an opportunity to the users i.e.
students, teacher, research scholars to have an access to the academic world. The different factors contributing to the development of automated library system are:

6.1 **Information Explosion**: Manifold increase in the information output and its usage has made it a problem in storing and organizing the same. For the organizing this enormous information, manual and conventional methods of information organizing were not sufficient.

6.2 **Information in Machine-Readable form**: Now-a-days most of the documents are available in machine readable form and some of them are available only in machine readable form. There are even a few primary journals are available only in machine readable form. Because of the recent developments of Telecommunication system it has become possible to access such data from any part of the world.

6.3 **Economic Feasibility**: Sharing the resources become inevitable due escalation of prices in publishing and distributing of information among the libraries. To make it economical is sharing the resources, utilization of computers in libraries now-a-days become mandatory.

6.4 **Routine Jobs**: Relieving the pressure of profession from routine job in some sectional activities such as circulation control and to concentrate themselves upon the technical services it is better to automate the libraries.

6.5 **Increase in Users**: The increase in information users and need of specialization of information by these users necessities implementation of new methods such as SDI. These methods can be implemented in a better and faster way by using computers.

6.6 **Storage Capacity**: Increase in technology of storage devices made it possible to store huge amounts of information in a very small and compact media for the proper utilization of the space available.

Besides there are other reasons for computerizing the library housekeeping operations

1. To improve control over collection
2. To have an effective control over the entire operation
3. To improve the existing services from the viewpoint of
   i) Quality of service
   ii) User-friendliness
   iii) Regulatory
4. To share the resources among various libraries in a region effectively
5. To avoid duplication of work
6. Permits improved budget control.
7. To use the services of the existing staff effectively (Singh, 2007).

7. **BASIC OF LIBRARY AUTOMATION**
Library automation is the use of automatic and semi-automatic data processing machines to perform such traditional library activities as acquisition, cataloguing and circulation. Although these activities are not necessarily performed in traditionally associated with libraries, library automation may be distinguished from related fields such as information retrieval, automatic indexing and abstracting and automatic textual analysis.

Thus, a large number of libraries in the world have automated one or more of the functions such i) Acquisition ii) Serial Control iii) Circulation and d) Cataloguing. Depending on the type of library, all or some of these functions may be computerized according to their priority. Circulation control may be given first priority academic library while serial control may be given atop priority in a special library similarly acquisition may be computerized first in academic libraries. However, cataloguing is important for any library and its computerization must be on of the ultimate aim of the automation.

There are number of ways to go about automating these housekeeping operations such as developing one’s own software which is available in the market or using well proven application software packages or some leading packages like, LIBSYS, CDS/ISIS, MINISIS, SOUL, etc.

7.1 NECESSARY FOR THE AUTOMATION

The essential things for the automation of library are:

i. A good collection: Computerization of the academic library collection and other library services is to the serve the users better and to provide access to information for this purpose first of all the collection of the academic library should be good and tolerably comprehensive. Hence every academic library should aim at the good collection building first and computerize the library collection and its services next. The good collection of the university library is the intellectual barometer and it attracts teacher, students and research scholars like the bees to honeys.

ii. Budget: Finance is the backbone of any venture. As increasing the members of the library, cost of information materials, services and growth of information or information explosion, the budget of the libraries is also raised. That is also allowed us to automate the library activities and make maximum utilization of the library funds.

iii. Suitable computer Hardware: Selection and purchase of computer is a complex procedure. There are variety of computers and computer maker. An academic library would require a computer system. In computer systems there are LAN, MAN, WAN etc. An academic library would at least require a LAN with facilities for e-mail and Internet.

There are different types of firms and organizations to supply computer hardware and parts such as:

- Computer manufactures
- Independent terminals and peripheral manufactures
- Selling companies
• Brokers
• Retail shops

There are many computer manufactures such as IBM, Apple, UNIX, Wipro, HCL, Lenovo, HP etc. There are many indigenous makers and suppliers in India today. Standardizations in the hardware is an important factor. Fast changes are taking place in this area. Hence the librarians have to be cautious and think ten times before they decide about the computer hardware.

iv. Computer Software: Computer software are generally expensive. A software will include:
• Utilities/format conversion programmes
• Application software
• Database management system and data dictionary software
• Dated communication software
• Programming aids, testing aids etc.
• Additional system software

Software which is generally a package. It is invisible and unverifiable till it is acquired. There are many library need-based software packages today in the market. (Bhardwaj, 2000)

The list of commercially available software packages in the Indian market are given below. Bear about 47- library automation software packages in the Indian Market are available.

Table: 1 List of commercially available software

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Package Name</th>
<th>Organization/ Agency</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Archives (1,2,3)</td>
<td>Microfax Electronic System</td>
</tr>
<tr>
<td>2</td>
<td>Acquas, Ascat, Ascir, Asire, Seras</td>
<td>Ober Information system, Calcutta</td>
</tr>
<tr>
<td>3</td>
<td>Auto Lib</td>
<td>Chennai</td>
</tr>
<tr>
<td>4</td>
<td>Basicplus, Techliplus &amp; e-Granthalya</td>
<td>National Informatics Centre, New Delhi</td>
</tr>
<tr>
<td>5</td>
<td>Caliblan</td>
<td>Ralisar, Chennai</td>
</tr>
<tr>
<td>6</td>
<td>CLMS</td>
<td>Nutan Software &amp; Publishing, Almora</td>
</tr>
<tr>
<td>7</td>
<td>Collib</td>
<td>COLLIB Information System, Chennai</td>
</tr>
<tr>
<td>8</td>
<td>Catman</td>
<td>INSDOC, New Delhi</td>
</tr>
<tr>
<td>9</td>
<td>Defence Library Management System</td>
<td>DECIDOC, New Delhi</td>
</tr>
<tr>
<td>10</td>
<td>DELIS, DELDOS, DELPLUS, DEL WINDOWS</td>
<td>DELNET, Delhi</td>
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<tr>
<td>11</td>
<td>Golden Libra</td>
<td>Folden Age Software Technologies,</td>
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<tr>
<td>No.</td>
<td>Company Name</td>
<td>Location</td>
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</tr>
<tr>
<td>12</td>
<td>Granthalaya</td>
<td>Ananth Technologies, Hyderabad</td>
</tr>
<tr>
<td>13</td>
<td>Granthalaya</td>
<td>INSDOC, New Delhi</td>
</tr>
<tr>
<td>14</td>
<td>Kryger Library Manager</td>
<td>Blitz, Audio Visual, Pune</td>
</tr>
<tr>
<td>15</td>
<td>Librarian</td>
<td>Growth Compusoft Exports Ltd., Ahmedabad</td>
</tr>
<tr>
<td>16</td>
<td>Librarian (2.1,3.1 &amp; 4)</td>
<td>Soft-aid, Pune</td>
</tr>
<tr>
<td>17</td>
<td>Librarian Suite</td>
<td>Soft-aid, Pune</td>
</tr>
<tr>
<td>18</td>
<td>Library Management</td>
<td>Raychan Systematics, Bangalore</td>
</tr>
<tr>
<td>19</td>
<td>Library Manager</td>
<td>System Data Control Pvt. Ltd., Bombay</td>
</tr>
<tr>
<td>20</td>
<td>Libinf Manager</td>
<td>Reference Media System Tamil Nadu</td>
</tr>
<tr>
<td>21</td>
<td>Libman, Librace, Unlib (on Unix)</td>
<td>Kashab System, Chennai</td>
</tr>
<tr>
<td>22</td>
<td>Libris</td>
<td>Frontier Information Technologies Ltd., Secunderabad,</td>
</tr>
<tr>
<td>23</td>
<td>Liberator</td>
<td>CMC, Coimbatore</td>
</tr>
<tr>
<td>24</td>
<td>Libsoft</td>
<td>ET &amp; T, Corp., New Delhi</td>
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<tr>
<td>25</td>
<td>Libsoft</td>
<td>VM Computers PVT. Ltd., Bombay</td>
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<tr>
<td>26</td>
<td>Library 2000</td>
<td>Memex information Systems Ltd.</td>
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<tr>
<td>27</td>
<td>Libsys, Microsoft Libsys</td>
<td>Libsys Corp., New Delhi</td>
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<tr>
<td>28</td>
<td>LIMS</td>
<td>School of Computer Studies, Bangalore</td>
</tr>
<tr>
<td>29</td>
<td>Listplus</td>
<td>Computer System, Bangalore</td>
</tr>
<tr>
<td>30</td>
<td>Loansoft</td>
<td>Comptek Computer System, Hyderabad</td>
</tr>
<tr>
<td>31</td>
<td>Maitryee</td>
<td>CMC, Calcutta for CALIBNET Project</td>
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<tr>
<td>32</td>
<td>Mecsys</td>
<td>Mecon, Ranchi</td>
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<tr>
<td>33</td>
<td>Nilis</td>
<td>Asnuta Consultants</td>
</tr>
<tr>
<td>34</td>
<td>Nirmals</td>
<td>Nirmal Institute of Computer Expertise, Tiruchirapalli</td>
</tr>
<tr>
<td>35</td>
<td>Oasis for dos – Alice for Windows</td>
<td>Softlink India, New Delhi</td>
</tr>
<tr>
<td>36</td>
<td>PALMS (Prasad Automated Library Management System)</td>
<td>G.B. Pant Institute of Himalayan Environment and Development, Almora</td>
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<tr>
<td>37</td>
<td>Salim</td>
<td>Uptron India Ltd., New Delhi</td>
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<td>38</td>
<td>Sanjay</td>
<td>DECIDOC, New Delhi</td>
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<tr>
<td>39</td>
<td>Slim++</td>
<td>Algorythms, Bombay</td>
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<tr>
<td>40</td>
<td>SOUL</td>
<td>INFLIBNET, Ahmedabad</td>
</tr>
<tr>
<td>41</td>
<td>Suchika</td>
<td>DECIDOC, New Delhi</td>
</tr>
<tr>
<td>42</td>
<td>TELELIB</td>
<td>Tata Infotech Ltd., Mumbai</td>
</tr>
<tr>
<td>43</td>
<td>TLMS (Total Library Management System)</td>
<td>DECIDOC, New Delhi</td>
</tr>
<tr>
<td>44</td>
<td>Troodon</td>
<td>Info-Resources Management Service</td>
</tr>
<tr>
<td>45</td>
<td>Tulib</td>
<td>Tata Unisys Ltd., New Delhi</td>
</tr>
<tr>
<td>46</td>
<td>Ulisys</td>
<td>Wipro Information Technology, New Delhi</td>
</tr>
<tr>
<td>47</td>
<td>Wilisys</td>
<td>Wipro India, Bangalore</td>
</tr>
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</table>
Depending on their capability, the available library software packages can be grouped into three broad categories.

- Packages that do not particularly take into consideration the relevant standards and future requirements. These packages will require frequent modifications.
- Packages that adopt a broader approach and do take into consideration relevant standards. As such these will have a wide application and larger usage value.
- Broad based packages designed taking into consideration all the relevant standard and built-in-flexibility to meet future requirements.

8. PLAN FOR LIBRARY AUTOMATION

An automated library activity results when a computer is used to support a library such as acquisition, processing circulation of materials or provide access to information. In automated library activity staff and computer share responsibilities for performing work alternatively like a staff member performs first processing operations, the computer and the staff member. Due to sharing of responsibilities the automated activities can be called ‘human machine functions’. The computer is merely a tool enabling librarians to do things rapidly, accurately and less expensive than the manual methods. Complete automation without human intervention and control do not exist and are not like to exist in future.

8.1 SOFTWARE SELECTION

Hardware and software are two important components that are responsible for the success of automation. Software selection is one of the successes of automation. It is one of the major tasks of planning. Selection of software is a complicated issue and it partly depends on the number of functions to be automated. The software selection teams consisting of library professional and computer specialists have to visit automated libraries to examine the facilities available and problems encountered by the library staff. Observation and discussion with the actual users of software provides enough background information and help the team in selecting the appropriate software.

8.2 SOFTWARE AVAILABILITY

Software availability for the libraries may be classified into three categories: in-house, commercial and co-operative.

In-House: Parent organization in which the library is a part may have the computer department and software specialists. In such cases, the library can use their services to develop the required software. Presently, many Indian libraries are using such initially developed software’s. Spreadsheets and graphic packages. These can be used as tools for developing a broad range of application. The general purpose software packages like word processors and DBMS can be profitably in library and information work whenever a situation demanding their needs arises.

8.3 SPECIFIC SOFTWARE FOR LIBRARY
Micro revolution, especially the 16-bit variety has initiated a flood of software packages for library operation in the market. Library specific softwares can be conveniently into two varieties, information retrieval package and house keeping systems.

8.4 SELECTION OF SOFTWARE PACKAGES

For identifying, evaluating and selecting packaged software for library the following criteria may be adopted.

1. Develop functional specification of each job that you want to do with the software.
2. Make a survey of the suitable packages in use for envisaged tasks by consulting relevant directories and writing to the library and create a short list of appropriate basis of its specification and capabilities and clarification from the vendor. Review of software packages published in library journals may also be examined.
3. The reputation of the firm may also be considered while buying software.
4. Software must be compatibility to the computers on which it has to run. Some packages use a special peripheral devices like modem, hard disk etc. A few others are designed to be used with DBMS or spreadsheets while buying a software the concerned library should verify whether any companion programmes or a special devices/hardware are required or not.
5. Software must be flexible enough to work with both fixed and variable length records.
6. It should be user friendly.
7. The Vendor must support installation and provide training to operating personnel and user.
8. Important than all these criteria is cost if packages which must be with in budgeted amount and it, should include vendors change for training, installation, maintenance and updating. Buying package software arises many risks. But by careful study of needs and evaluating the available software packages, it is possible to find a right packaged.

8.5 SOURCES OF SOFTWARE

Several software directories, both general and specific to library and information work are available for identification, selection and procurement of software packages. For example the UNISIST “International inventory of software packages in information field” which gives detailed of many software packages for library and information work. Such directories are also made available as database files for on line searching by vendors like DIALOG, BRS etc. Besides these directories, Journals like Program (ASLIB) Electronic Library, (Learned information) ‘Library Technology Reports’. Frequently announce recently developed packages in this area.

8.6 SOFTWARE PACKAGES DEVELOPED IN INDIA

Some Libraries and information centres have developed software packages according to their requirements. These packages are used for
1. **Acquisition**: Developed by Bharat Heavy Electrical Ltd (BHEL), Defence Scientific Information Centre (DECIDOC), and Engineering Consultants (MECON), National Information Centre for Food Science (NIFOS, National Institute for Training in Educational Industrial Engineering (NITIE), Physical Research Laboratory (PRL) India Limited (SAIC), (R&D).

2. **Cataloguing**: Developed by DECIDOC, IPAG, MECON, National Aeronautics Laboratory (NAL), NITIE, PRL, SAIL (R&D).

3. **Circulation**: Developed by DECIDOC, IPAG, MECON, NITIE, PRL, SAIL (R&D).

4. **Serial Control**: Developed by DECIDOC

5. **Online Services**: Developed by DECIDOC, IPAG, MECON, NITIE, PRL, SAIL (R&D), Tamil Nadu University, Vikram Sarabhai Space Centre (VSSC)

6. **Report Generation**: Developed by Bureau of Indian Standard (BIS), DECIDOC, IPAG, Indian National Scientific and documentation Centre (INSDOC), MECON for Leather and Allied Industries (NICLAT), PRL.

7. **SDI & Retrospective searches**: Developed by BIS, DESIDOC, IPAG, INSDOC, MECON, NICFOS, NICLAT, BARC, Indian Agricultural Statistics Research Institute (IASRJ), PRL and Tata Institute of Fundamental Research. (Vasantha, 2000)

9. **PROBLEMS IN SELECTING THE LIBRARY SOFTWARE**

One of the main principles of software risk management is making the right technology tradeoffs by being directly informed by the business proposition. This is particularly essential when it comes to choosing software security technologies. This is about comparing and contrasting technologies and coming up with those that best meet derived requirements. Obviously, this is something that must usually be done early in the lifecycle, most often during the course of specifying and designing a system.

Designers and programmers conscientiously select technologies, but only the rare few consider all the possible tradeoffs when selecting a technology. Nowhere is this problem more apparent than in security. Of course, the process of selecting technologies can be boiled down easily, do your homework, and try to stay objective. (Cottage, 2011)

10. **IMPACT OF COST FACTOR ON LIBRARY SOFTWARE**

Software pricing isn’t a straightforward issue, since each procurement involves a special business arrangement between a library and its chosen vendor. I think that it’s reasonable to scale the cost of a product to such factors as the size of the library, the complexity of the installation, the number of simultaneous users, or the quantity of resources involved. While some may feel that it’s odd for different libraries to pay different amounts for the same software, adjusting the cost by these factors generally allows libraries with more modest needs and more modest budgets to pay less than those with more complex needs and larger budgets. The service and support needs for large and complex organizations cost more to fulfill than smaller-scale installations.
In the library automation industry, pricing is not only scaled according to multiple factors, it’s also a result of a private negotiation. A vendor will propose a price in response to a request for proposals based not only on its standard formula of size and complexity factors but also on the specific competitive situation. Procurement with highly competitive bidding may result in a different price proposal than might otherwise be offered.

Inflation, for example, will naturally be taken into consideration in comparing software prices over time. Prices may also vary according to international regions, scaled not only to currency exchange rates but also adjusted in tune with local business realities. (Emeryville, 2012)

11. CONCLUSION

The main reason for the high cost of software is that software projects are often very large, involving many users, and span over many years. The development of these systems is often done in an adhoc manner, resulting in frequent schedule slippage and cost overruns in software projects. Some projects are simply abandoned. Hence, there is an urgent need for proper software development methodologies and project management techniques.

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Allagapa University (2005), Emerging Thrust Areas in Library & Information Science, Directorate of Distance Education Publication, Koraikudi, India.


