Theme Paper

Automation of Academic Libraries in India : Status, Problems and Future

I.K. Ravichandra Rao

ABSTRACT

This paper discusses status, problems and future of the automation in academic libraries in India. Automation activities have picked up, at last! Challenges—manpower requirement, creation of machine readable catalogues, availability of fund—remain unchanged.

1. INTRODUCTION

INFLIBNET with an objective to promote automation activities in university libraries started in 1991. Since then 70 universities have been funded by UGC under INFLIBNET programme; some more universities have been funded for creating core facilities for information access. Creation of National Union Catalogues, development of software packages for libraries, conducting training programmes for library professionals, providing help, guidance and on-site training to academic libraries in computerization and networking, etc are some of the major activities of the INFLIBNET.

With all these supports, academic libraries in India still face several challenges in automating the libraries. Major challenges include [1,2]:

(a) Manpower requirement/development,

(b) Availability of a suitable and adequate IT infrastructure,

(c) Design, development and maintenance of machine-readable catalogues with certain standards,

(d) Lack of proper AMC services, consultancy services, especially in those libraries which are at remote places,

(e) Lack of proper infrastructure—space, continuous power supply, telecommunication facility, etc, and

(f) Availability of limited budget and increasing cost of the systems.

2. PRESENT STATUS

Microcomputers are now available in India at affordable prices. They are reliable and sufficient for automating a number of library operations such as acquisition, circulation, serial control, etc. In a survey conducted in 94-95 to evaluate technological infrastructure of Government funded academic and research libraries, Biradar [1] observed :

> "Of the total 1213 government-funded academic libraries in the institutions, 339 libraries responded; among them 64 per cent have PCs, 16 per cent have LAN, 9 per cent have UNIX systems, 46 per cent have library automation packages, 23 per cent have CD-ROM drive, 2 per cent have CD-NET, 11 per cent have online facility, 45 per cent have microfiche reader/printers and 23 per cent of them are members of a library network."

Further, it may be observed from his study that out of the 156 universities, 72 universities have responded and 60 per cent of them have PCs, 7 per cent have LAN, 6 per cent have UNIX, 43 per cent have library automation packages, 17 per cent have CD-ROM drives, 3 per cent have CD-Net, 1 per cent have online facility, 42 per cent have microfiche reader-printers and 64 per cent of them are members of library networks. They subscribe to 34 CD-ROM databases.

Table 1 gives the availability of technological infrastructure in university libraries/deemed universities, institutions of national imporatnce, etc [3].

This report indicates that, although the available infrastructure is fairly good in certain type of libraries, only 31 universities have library automation packages. However, it does not indicate whether they have only CDS/ISIS or something else for automation. Comparing

Professor, Documentation Research and Training Centre, Indian Statistical Institute, 8th Mile, Mysore Road, Bangalore-560059.

Table 1. Availability of IT infrastructure in libraries

Institutions	No. of libraries		PCs	LAN	Unix	Lib. auto S/W	CD-ROM		No. of data-bases Sub.	On-line faci-lity	Mem-bers of lib. net	Micro-fiche
	Con-tacted	Res-ponded					Drives	Net				
Universities	156	72	43	5	4	31	12	2	34	1	14	30
Deemed univ.	30	10	4	2	-	4	-	-	-	-	2	6
Institutions of nat imp	15	9	8	3	3	7	6	2	8	2	3	7
Engineering colleges	342	36	24	6	1	20	5	1	4	4	3	7
Medical colleges	148	47	15	4	-	9	12	-	5	1	1	16
DAE	15	9	7	2	-	7	4	-	8	2	-	4
CSIR	42	21	17	7	3	12	11	-	6	6	2	15
DRDO	51	9	8	4	2	7	5	-	1	4	2	7
ICAR	61	33	16	-	4	14	4	-	6	1	-	14
ICMR	26	8	8	2	3	3	3	1	1	1	1	4
DOE Organisation	8	3	3	2	1	3	2	1	5	1	2	8
Ministry of S&T	33	12	3	4	3	8	5	-	15	-	-	9
Ministry of E&F	21	6	3	1	-	-	1	-	3	-	-	2
Other Ministers	265	64	38	12	5	32	7	1	13	10	1	24
Total	1213	339	216	54	29	157	77	8	103	33	31	153

to early 90s, infrastructure in academic libraries is slowly improving and encouraging for library automation activities.

The survey clearly indicates that hardware and other IT facilities are available; but software is hardly available.

3. MANPOWER REQUIREMENTS/ DEVELOPMENT

A successful implementation of automation programme requires team efforts with higher degree of cooperation and co-ordination between library staff and IT experts. Further, librarians must have basic knowledge on working as well as operations of computers including basics of software and its applications. Some believe that a few of these problems can be tackled by hiring IT experts! Yes, one can do this. But, in reality librarians have failed to seek their cooperation in this regard. IT experts no doubt are good at installing turn-key projects. But, to carry out its continuous smooth operations, computer-skilled librarians are required. One cannot depend on IT experts forever.

Librarians, depending upon the levels at which they are working, require to know certain computer-skills. They are :

(a) Selection of hardware and software for library purposes,

(b) Design and development of databases, particularly the machine-readable catalogues,

(c) Ability to upgrade the systems,

(d) Skills related to Internet and digital libraries; particularly, it is required to know installation aspects and operation of Internet (there are a number of information sources on Internet; librarians need to know how to access them?),

(e) Capability to search CD-ROM databases, and

(f) Knowledge about software like DOS, Windows, UNIX, etc, network software, communication software, particularly for E-mail and for other operations such as file transfer; etc and applications software, such as CDS/ISIS, dBASE, BASIS Plus, SPSS, etc.

Skills in IT can be acquired only when one gets hands-on experience in laboratories or in real-life situations. Students of the library schools do not possess adequate skills to design, develop and implement automated systems, since the library schools hardly have sufficient facilities for this purpose. Other problems in this area are due to non-cooperation and lack of 'information sharing culture' among the computer-skilled librarians and also due to the trade secrecy.

One needs to undergo a series of training programmes periodically at different levels to acquire these skills. For speedy implementation of the automation, at least five to six staff members must undergo such training programmes and a team effort should be made to study, understand and implement automation programme in large academic libraries.

4. CREATION OF MACHINE-READABLE CATALOGUES

The other major problem in automation is to create a machine-readable catalogue of inhouse collections. For various reasons, it is not a simple task. For example, (i) data elements in bibliographical records vary from document to document—depending on serials, monographs, A/V materials, patents, standards, reports, etc and (ii) even information for a data element vary from record to record—author field may have single author, multiple authors, more than one name for the same author, etc; Title may have subtitle, translated title, transliterated title, etc. These types of problems can be tackled only by following certain standards (such as CCF, MARC, etc) and by following certain codes (such as AACR, CCC, etc). Without these standards, a machine-readable catalogue will not serve the purpose in a library.

In creating a bibliographical record, the first step is to fill-in a well-designed data sheet. Often, one ignores this step. While, filling-in, it may be required to physically examine the documents. The next step is to key-in and edit the data; the third step is to revalidate the data, preferably by another operator. This step is very much necessary to have accuracy in the bibliographical information. Thus, 30 to 45 minutes may require to keying in only a single record.

In terms of expenditure, it may cost Rs 10 to 15 to create a single record, provided a well-tested and proven software is available. At present, CDS/ISIS undoubtedly serves this purpose—to create library catalogues.

There are other methods to create a library catalogue—by downloading the relevant records (and editing appropriately) from the CD-ROM databases of OCLC or LC; this requires a high level of computer skill and it is equally time consuming. The other approach may be based on cooperative efforts. In such cases, a few libraries may create databases and other libraries in the region may download the records and edit them appropriately. This approach is totally dependent on the cooperation among the librarians.

5. WHAT IS IMPORTANT FOR AUTOMATION?

Information technology is used for several purposes in academic libraries. For instance, IT is now being used for library automation, information retrieval/DBMS activities, networking, and management information system/services. In the absence of proper computer culture, one has to carefully decide the order in which the activities to be computerised. Computerization of library activities may be started with library automation of house-keeping operations, including IR services based on CD-ROMs. Library automation may again perhaps be started with computerization of cataloguing, circulation, online access of catalogues, acquisition activities, serials control, and maintenance of accession file, shelf-list, etc.

Once the automation activities are well progressed, IR and DBMS activities, including the Internet-based information services can be strengthened and then move over to networking aspects. Finally, when all the three activities (library automation, IR & DBMS, and networking) are implemented successfully, librarians can plan to use the systems to generate and process various library statistics to strengthen MIS activities, especially in large academic libraries.

Thus, in any computerization activity, one has to properly set the goals and objectives with required level of automation. This requires a total commitment by the management and users' supports/demand for computerization of library activities. Further, design, development and implementation of each of these activities should be time-bound.

All these require a free flow of funds—a total support from the management. At present, budgetary constraints are too much. Funding agencies provide financial support mostly to buy hardware. This is not enough. Sufficient funds are required, to procure necessary software, AMC for both hardware and software, upgradation of the existing systems, to acquire new technology, as and when required, and for training and also for 'little bit of' experiments.

Over the decades, in many institutions, automation programmes were started and implemented as a piecemeal and on experimental basis. Moreover, results of such implementations and experiments are not made known to others to achieve cumulative growth. At least, here onwards, efforts should be made to publish such activities with all its merits and demerits. INFLIBNET can perhaps take initiative in this regard through its newsletter. This will go a long way in helping academic libraries in their automation programme.

6. FUTURE OF LIBRARY AUTOMATION

Automation activities in academic libraries in India slowly picked up with the support from INFLIBNET, UGC, NISSAT and other similar agencies combined with increased awareness of IT and its applications among librarians. Academic librarians in India are beginning to use E-mail, CD-ROMs, LAN, machine-readable catalogue, etc for resource sharing. This change in academic libraries is due to a rapidly changing telecommunication and technological environment, a desire for progress and declining resources. Perhaps the key to change is the willingness to share resources and to work together to bring a 'change'.

Many metropolitan networks are fast emerging and they are taking keen interest on automation activities in their respective regions. DELNET, a well developed library network in New Delhi region, has created a union catalogue of books, union list of serials and specialists' databases.

Untill now library automation refers only to computerization of house-keeping operations. Because of the developments in IT [4], it also covers information services based on CD-ROM databases, E-mail, etc. In the immediate future, most of the academic libraries in India will have a number of both bibliographical and full text CD-ROM databases, and access to Internet—users can access local, regional, national and international sources; such sources also will be used/accessed by librarians to answer a variety of reference queries. In such an environment, academic librarians must be familiar with Internet and its operations, availability of sources in Internet, operation of online databases—bibliographic, fulltext, CD-ROM, public access catalogue, and spreadsheet, DTP, etc.

Library automation seems to be inevitable. The major challenge now onwards will be providing sufficient resources to manage and operate an automated library.

7. CONCLUSION

Automation activities in academic libraries in India have slowly picked up. Funding agencies have now started providing hardware facilities. Software facilities are not adequate enough to start automation activities at a reasonable pace. Further, CD-ROM based information services and E-mail services are becoming popular. However, the challenges remain same over the last two-three decades—manpower requirements, preparation of machine-readable catalogues, free flow of funds, etc. Librarians have to overcome these challenges for a successful implementation of automation.

REFERENCES

1. *DESIDOC Bulletin of Information Technology,* **15**(2&3), 1995.

2. Ravichandra Rao, I.K. Library automation. Wiley Easten, New Delhi, 1993.

3. Biradar, S.K. A report on organisation study and market research for evaluation of technological infrastructure of government, academic and research libraries for dissemination of information to users. The survey was conducted at Informatics (India) Pvt Ltd, Bangalore; supervised by L.K. Venkatesh and A.H. Chachadi. The report was submitted to the Kousali Institute of Management Studies, Dharwad, as a part of the MBA Programme, 1994-95.

4. Ravichandra Rao. I.K. Advanced information technologies for libraries in India : Status and problems. Paper presented at the DRTC Workshop (30) on Advances in Information Technology: Impact on Library and Information Field, 29-31 October 1996. Bangalore, DRTC, 1996. Paper AA.