

## **INFORMATION TECHNOLOGY ADOPTION IN LIBRARIES OF KERALA: A SURVEY OF SELECTED LIBRARIES IN THIRUVANANTHAPURAM**

---

**V. K. J. Jeevan**

Assistant Librarian  
Indian Institute of Technology  
Kharagpur  
West Bengal 721 302  
E-mail: vkjj@rediffmail.com

**Saji S. Nair**

Library Assistant  
Regional Cancer Centre  
Thiruvananthapuram  
Kerala  
E-mail: saji@rcctvm.org

*The paper presents the results of a questionnaire based survey conducted among the premier libraries in the Thiruvananthapuram city of Kerala to assess the Information Technology adoption in these libraries. Results reveal that the libraries are very positive about the use of IT in libraries and many of the libraries are IT intensive.*

### **INTRODUCTION**

There is increased acceptance of the utility of computer and information technology tools for better organization of information resources and effective rendering of services in libraries. Singh describes the present state of computerization in six Indian Institutes of Technology (IIT) libraries [1]. Sridhar explains the purpose of modernization of library services through the introduction of information technology [2]. Another study on 121 colleges in Karnataka found that only 45 are using computers for library activities [3]. With the help of questionnaires, personal visits and interviews, Kumar examined the impact of modern technologies on libraries [4]. The trend in computer and information technology applications in libraries is more or less the same in Kerala too, like other states in the country. There are many studies on the public library system in the state [5-9], followed by college libraries [10,11]. There are not many studies conducted on IT applications in Kerala's libraries and that specifically not in special libraries. One study describes the installation and utilization of Internet services at the CHMK Library, University of Calicut, the first university library in the State to get Internet connection through VSAT. Another study surveyed the manpower investment in special libraries in Kerala [12].

Being a small state with better facilities for education and increased literacy rates, Kerala has an edge over many other states of the country regarding various socio-economic development indicators.

### **METHODOLOGY**

A questionnaire was developed for seeking response from librarians regarding the different IT components useful for better library organization and comprehensive as well as swift information services. The questionnaire was distributed to premier libraries in Thiruvananthapuram by personally visiting the libraries and after briefing the librarians about the objectives of the study. However, due to time constraints and operational difficulties, detailed question answer sessions before or after the filling up of questionnaire were not conducted. The questionnaires were distributed in February 2003 and the responses were collected in 2-3 months time.

### **PARTICIPANTS**

Questionnaire was distributed in around 25 premier scientific, technical and research libraries both under Central and State Governments based in Thiruvananthapuram, the capital city of Kerala. The following 18 libraries responded to the questionnaire: British Council, Central Tuber Crops Research Institute, Centre for Development Studies, College of Agriculture (Vellayani) of the Kerala Agriculture University, Electronic Research and Development Centre of India, Liquid Propulsion System Centre, Government Dental College, Government Medical College, University of Kerala,

National Transportation Planning and Research Centre, Rajiv Gandhi Centre for Biotechnology, Regional Cancer Centre, Regional Research Laboratory, Sree Chitra Tirunal Institute for Medical Sciences and Technology, State Central Library, State Council of Educational Research and Training, Tropical Botanic Garden and Research Institute, and Vikram Sarabhai Space Centre. The remaining libraries either did not return the questionnaires even after repeated follow up or expressed their inability to participate in the study.

### LIMITATIONS OF THE STUDY

The study was based on the analysis of responses received from the librarians. No effort was made to verify and validate the answers by visiting the libraries due to time and resource constraints. Some librarians left many columns blank and few librarians left some columns blank in the questionnaire. Further, no post questionnaire survey was made to assess the implementation of the future plans suggested by many of them.

### ANALYSIS AND RESULTS

The period during which the library/institution was established is given in Table 1. Out of the eighteen libraries, five were established between 1971 and 1980, and three each during 1961-70, 1981-90, and 1991-2000. The oldest among the respondent libraries was established in the year 1829. Twelve of the libraries are in autonomous institutions (seven funded by the Central Government and five by the State Government), two of the libraries come under Central Government and three libraries fall within the State Government, and one belongs to a foreign government. A maximum number of nine libraries are in R & D institutions, followed by seven libraries affiliated to academic institutions and two are public libraries.

It was noted that seven libraries belong to science and technology, five are libraries of medical institutions, three are related to agriculture, one is a university library and two libraries delve on other subjects.

All the eighteen libraries participated in the study have telephone facilities whereas only half of the

Table 1 — Decade of Establishment of Surveyed Libraries

| Year of Establishment | No. of Libraries |
|-----------------------|------------------|
| 1829                  | 1                |
| 1941-1950             | 1                |
| 1951-1960             | 2                |
| 1961-1970             | 3                |
| 1971-1980             | 5                |
| 1981-1990             | 3                |
| 1991-2000             | 3                |

libraries have fax facility too. Six libraries have institutional web sites, out of which two have separate library web sites.

### Library Staffing

Eleven of these libraries are headed by librarians with postgraduate degree and four librarians have extra qualifications (see Table 2). Fourteen librarians have MLIS degree and nine librarians attended IT courses. Only one librarian has PhD qualifications.

Among other staff, seven of the libraries have only one professional staff whereas one library has twenty four such staff. In two libraries six professional staffs each are present. However, a majority of libraries are run by one librarian, one or two library assistants and few attendants.

### Library Users

Nine of the eighteen libraries studied have less than 500 in-house users. However, all these libraries attract external users. In many cases, the external users are 5-10 times more than the number of internal users. Only two libraries have more than 25000 users and three special libraries have internal users in the range of few 1000s. The exact picture of users in these libraries is highlighted in Table 3.

### Library Collection Books

Ten of the eighteen libraries have less than 12000 books, five have collection ranging from 25000 to

Table 2 — Qualifications of Librarian

| Educational Qualifications |               |          |                      | Professional Qualifications |      |          |        |                     |
|----------------------------|---------------|----------|----------------------|-----------------------------|------|----------|--------|---------------------|
| Graduate                   | Post Graduate | M. Phil. | Other Qualifications | BLIS                        | MLIS | M. Phil. | Ph. D. | Attended IT courses |
| 7                          | 11            | 1        | 4                    | 4                           | 14   | 1        | 1      | 9                   |

Table 3 — Users of participating libraries

| No. In-house Users | No. of Libraries | No. of External Users | No. of Libraries |
|--------------------|------------------|-----------------------|------------------|
| 1- 50              | 1                | 200-300               | 1                |
| 51-100             | 1                | 300-400               | 2                |
| 101-150            | 1                | 700-800               | 2                |
| 151-200            | 1                | 1200-1300             | 3                |
| 301-350            | 2                | 2000                  | 1                |
| 451-500            | 2                | 2500                  | 4                |
| 501-550            | 1                | 25000                 | 1                |
| 551-1000           | 2                |                       |                  |
| 1001-1500          | 1                |                       |                  |
| 1501-2000          | 1                |                       |                  |
| 3001-3500          | 1                |                       |                  |
| 25000              | 2                |                       |                  |

Table 4 — Collection

| No. of Books | No. of Libraries | No. of Theses | No. of Libraries | No. of Standards | No. of Libraries | No. of Cassettes      | No. of Libraries |
|--------------|------------------|---------------|------------------|------------------|------------------|-----------------------|------------------|
| 501-1000     | 1                | 1-50          | 1                | 1-500            | 1                | 1-50                  | 2                |
| 1501-2000    | 2                | 51-100        | 1                | 501-1000         | 1                | 51-100                | 1                |
| 3501-4000    | 1                | 101-150       | 1                | 1501-2000        | 1                | 101-150               | 1                |
| 5501-6000    | 1                | 301-350       | 1                | 10000            | 1                | 251-300               | 1                |
| 6001-6500    | 1                | 451-500       | 1                | 15000            | 1                |                       |                  |
| 6501-7000    | 1                | 1201-1250     | 1                |                  |                  |                       |                  |
| 8501-9000    | 1                | No. of        | No. of           | No. of           | No. of           | No. of                | No. of           |
| 10000-12000  | 2                | Microforms    | Libraries        | CD-ROMs          | Libraries        | Reports & other items | Libraries        |
| 25000        | 2                |               |                  |                  |                  |                       |                  |
| 40000        | 2                | 750           | 1                | 1-50             | 3                | 3000-5000             | 3                |
| 60000        | 1                |               |                  | 51-100           | 1                | 8000                  | 1                |
| 98000        | 1                |               |                  | 151-200          | 1                | 17000                 | 1                |
| 279000       | 2                |               |                  | 201-250          | 1                | 127000                | 1                |
|              |                  |               |                  | 3000             | 1                |                       |                  |

60000, and only three libraries have book collection in the order of lakhs. Six of the libraries have theses collection, five have standards, and an equal number of libraries have cassettes. Only one library has microforms, but seven libraries have CD-ROM collections, and six libraries have reports collection. One specialized R & D library has more than 1.25 lakhs reports. The collection is summarized in Table 4.

### Journals

Unlike the books and other monographs collection, the journal base in many of the libraries is small as evident from Table 5. Around eleven of the libraries subscribe to less than 100 Indian journals and seven libraries subscribe to less than 100 foreign journals. Two libraries subscribe to more than 300 Indian journals and one library subscribes to more

Table 5 — Journals

| Current Journals          |                  |                            |                  | Bound Periodicals        |                  |
|---------------------------|------------------|----------------------------|------------------|--------------------------|------------------|
| No. of Indian periodicals | No. of Libraries | No. of Foreign periodicals | No. of Libraries | No. of Bound Periodicals | No. of Libraries |
| 1-50                      | 8                | 1-25                       | 3                | 1-50                     | 1                |
| 51-100                    | 3                | 26-50                      | 2                | 51-500                   | 1                |
| 201-250                   | 1                | 51-75                      | 3                | 501-1000                 | 1                |
| 301-350                   | 2                | 76-100                     | 2                | 2001-3000                | 2                |
|                           |                  | 101-125                    | 1                | 4001-5000                | 1                |
|                           |                  | 151-175                    | 2                | 7000                     | 1                |
|                           |                  | 451-475                    | 1                | 13000                    | 1                |
|                           |                  |                            |                  | 18000                    | 1                |
|                           |                  |                            |                  | 35000                    | 1                |
|                           |                  |                            |                  | 40000                    | 1                |

Table 6 — Institution Vs Library Budget

| Institution's Budget (in Rs.) | Library Budget | % of Library Budget to Institution's Budget |
|-------------------------------|----------------|---------------------------------------------|
| 175.32 crores                 | 2.35 crores    | 1.34                                        |
| 92.17 crores                  | 2.20 crores    | 2.39                                        |
| 69.01 crores                  | 40 lakhs       | 0.58                                        |
| 75 lakhs                      | 9 lakhs        | 12                                          |

Table 7 — Budget for Libraries, Books, and Journals

| Library Budget (in Rs. Lakhs) | No. of Libraries | Budget for Books (in Rs. Lakhs) | No. of Libraries | Budget for Journals (in Rs. Lakhs) | No. of Libraries |
|-------------------------------|------------------|---------------------------------|------------------|------------------------------------|------------------|
| 200-250                       | 2                | 31-35                           | 1                | 170                                | 1                |
| 101-150                       | 1                | 16-20                           | 1                | 41-50                              | 1                |
| 51-100                        | 1                | 11-15                           | 4                | 31-40                              | 1                |
| 41-50                         | 2                | 6-10                            | 2                | 21-30                              | 2                |
| 31-40                         | 2                | 1-5                             | 3                | 16-20                              | 1                |
| 11-20                         | 2                |                                 |                  | 11-15                              | 1                |
| 1-10                          | 5                |                                 |                  | 1-5                                | 4                |

than 450 foreign journals. Only two libraries subscribe to more than 150 foreign journals and but four libraries have more than 10000 volumes of bound periodicals.

#### **Electronic Journals**

Thirteen libraries have access to electronic journals. Out of these nine libraries each have indexing &

abstracting as well as current issues of journals, whereas only five libraries have access to back volumes of journals in full text form.

The libraries were also asked the reasons for not subscribing to journals in electronic form. Five of the libraries pointed out high subscription costs hindered them from opting for electronic journals,

Table 8 — Computer Usage

| Year | Computer | Library Automation | Electronic databases | Email | Internet |
|------|----------|--------------------|----------------------|-------|----------|
| 1986 | 1        |                    |                      |       |          |
| 1987 | 1        |                    | 1                    |       |          |
| 1989 | 1        |                    |                      |       |          |
| 1990 | 1        | 1                  |                      | 1     |          |
| 1992 | 1        |                    | 2                    |       |          |
| 1993 | 2        | 1                  | 1                    |       |          |
| 1994 | 1        | 1                  |                      |       |          |
| 1995 | 1        | 2                  | 2                    | 3     | 2        |
| 1996 |          |                    |                      | 1     | 1        |
| 1997 | 1        | 1                  | 1                    | 1     | 2        |
| 1998 | 3        |                    | 1                    | 2     | 1        |
| 1999 | 1        |                    |                      |       | 1        |
| 2000 |          | 4                  | 3                    | 4     | 2        |
| 2001 | 1        | 1                  | 1                    |       | 2        |
| 2002 | 2        |                    | 1                    | 1     | 3        |

whereas in the case of four libraries, journals they require were not available in electronic format. Three libraries cited high initial investment preventing them from accessing e-journals. The lack of sufficient computers as a reason for not-subscribing to e-journals was mentioned by one of the libraries and one library expressed their preference for print journals to e-journals.

### Library Budget

Out of the eighteen libraries, only four libraries answered the question pertaining to the institute budget vs library budget. It was found that only one library spends 12% of its budget for library, while in the case of other three, this varied from 0.58 to 2.39% as given in Table 6.

Regarding the library budget, only three libraries have a budget of over Rs. 1 crore and eleven libraries spent less than Rs. 50 lakhs, out of which five libraries have less than Rs. 10 lakhs as annual budget. Three libraries spent less than five lakhs for books, four libraries spent in between Rs. 11-15 lakhs, and one library spent over Rs. 30 lakhs for books. Four libraries spent less than five lakhs for journals and one library spent over Rs. 1.7 cores for the same as shown in Table 7.

Twelve libraries informed that there is no fixed mode of allocation of budget for library. Six libraries clarified that the budget allocated for information

technology is appropriate while nine libraries feel that the IT budget is on the lower side.

### Computer usage

The year from which IT made foray into the libraries is summarized in Table 8. Some libraries started using computers in 1986 however the activities gained momentum in many libraries only after 1995. Four libraries adopted automation systems in the year 2000 and an equal number of libraries also started using email in the same year.

Eight libraries use Internet connection provided by VSNL, four libraries use the same from BSNL, and the remaining seven libraries use different ISPs, three libraries use Asianet Cable, one library uses service offered by HCL Infinet, two libraries use NICNET, and one library CSIRNET. This shows that there are a number of Internet Service Providers in the city.

Different libraries have adopted different automation packages for library housekeeping work. Six libraries use LibSys, three libraries use automation package developed in-house, two libraries each adopt Alice for Windows and LibSoft, and one library each uses CDS/ISIS, Libsuite, SOUL, and WINISIS. A few libraries have purchased automation packages but have not implemented the same.

Table 9 — Hardware

| No. of Libraries | No. of Work-stations | No. of Multimedia PCs | No. of Stand-alone PCs | No. of Printers |
|------------------|----------------------|-----------------------|------------------------|-----------------|
| 1                | 1                    | 4                     | 2                      | 4               |
| 2                |                      | 1                     | 3                      | 3               |
| 3                | 1                    | 2                     |                        | 5               |
| 4                | 1                    | 2                     | 1                      | 2               |
| 5                |                      |                       | 3                      | 2               |
| 6                |                      | 1                     | 1                      |                 |
| 7                |                      | 1                     |                        |                 |
| 10               |                      |                       | 1                      |                 |
| 12               | 1                    | 1                     |                        |                 |
| 14               |                      | 1                     |                        |                 |
| 15               |                      |                       |                        | 1               |
| 40               |                      | 1                     |                        |                 |

### Computer Hardware and Software

Table 9 presents the computer hardware available in these libraries. Majority of the libraries have one to five computers and one library has more than 40 computers. Four libraries have UNIX servers and one library has Linux server, ten libraries have one NT server and two libraries have three NT servers each. Two libraries have more than five printers, and one library has as many as fifteen printers, whereas only one library uses scanner.

Sixteen libraries use Windows operating system, one library still works with DOS system, four libraries have UNIX servers and one library uses Linux server. Sixteen libraries prefer MS Office package for word processing applications. As far as database packages are concerned, three libraries use WINISIS, one library has CDS/ISIS package, and one library uses Oracle. One library each told that they use WINSPIRS, Endnotes, Ecutter, WinZip, and Acrobat Reader.

Referring to a query about the library's participation in a Network or Consortium, nine libraries answered that they are not a member of any. Two libraries are members of the Developing Library Network (DELNET), one library is a member of British Council Libraries Consortium, one library has resource sharing arrangement with other ISRO

Libraries, and one library is a member of the CSIR Consortia.

One library said that network/consortium agreements are not adopted because "library is not fully automated yet", another library suggested 'lack of automation at present', and a third library opined the 'non-availability of network/consortium in the locality'.

### Information Services

#### Current Awareness Services

Eight of the surveyed libraries offer no electronic information services. Services offered by other libraries included online services, intranet services, CD-ROM search services, and designing website of the parent institution. Five libraries provide Current Awareness Services (CAS) out of which two libraries provide the service over the LAN.

#### CD-ROM Search Services

Eleven libraries offer CD-ROM Search Services and five libraries are not providing such services. The databases used for this service by different libraries are Embase, Agricola, Eric, Econlit, ISID, CAB Journals/databases, Cancer CD, ASCO Proceedings, AGRIS, CIARL, Aerospace Abstracts,

Compendex, CCI, UTIS, BIS, ASTM, and US Military Standards. The frequency of this service in different libraries varied from weekly to monthly and quarterly. Only two libraries used profiles for conducting search services from CD-ROM databases. Nine libraries provide these services by searching the matching results by their professional staff whereas eight libraries encouraged end-user searching. Ten libraries do not charge for this service while one library offers this service on a payment basis. Six libraries provide this service to faculty members, three libraries offer it to scientists, four libraries do so to their technical staff, seven libraries offer this service to research scholars, six libraries include postgraduate students for CD-ROM search service, two libraries extend this service to undergraduate students, and two libraries offer this service to all the members. Some libraries use more than one database for this service whereas some libraries include reference sources, educational and subject CDs too. Two libraries are providing the search results in print form and one library does so through email.

### **Internet Services**

Three libraries are not offering any Internet facilities on their premises, twelve libraries provide facilities for email to clients, thirteen libraries have internet browsing facilities, and twelve libraries are answering reference queries through email. One library facilitates Internet searches by library professionals and another library provides search services from online journals of CAB. Three libraries interfaced OPAC with web site, one library each does so for monthly accession list, journals subscribed, new book details, article alert, virtual library links, jobs, tenders, and membership information.

### **Digital Library Development**

There was a question on digital library development and eight libraries stated that they do not have any such facility now while five libraries answered that digital library facilities were started in their libraries. Two libraries have plans to start such developments within a year, three libraries will do so in two years and other four libraries have plans to host digital libraries in the next five years or so.

### **Impact of IT on Library Functions**

The libraries were asked to give their preferences on the impact of information technology on library professionals, library users, information organization, information services, and library as a whole. All the eighteen libraries opined about the positive impact of IT on the day-to-day work, efficiency, and productivity of library professionals.

Libraries were asked to give their opinion about what effect IT would have on library functions. All the eighteen libraries that participated in the study mentioned that library services, user satisfaction, meeting users' demands, and library image improved after information technology applications. Fifteen libraries felt that library material usage will improve as a result of IT applications whereas two libraries said on the contrary, and one library claimed that no such benefits were experienced as the usage remained the same as before availability of IT applications.

### **Future Plans for IT Application**

On future plans concerning IT applications by the libraries, the response varied from automating libraries to establishment of digital library. Conversion of rare collections to CD-ROMs, providing Internet browsing facilities, CD-ROM search services were also part of the future plans. One library plans to explore subscription to online journals and another is planning a Kerala Reference section and special collection of rare materials. A major academic library is pursuing creation of online union catalogue of departmental libraries for networking.

### **Problems and Solutions**

Problems faced in IT adoption included, inadequacy of funds, shortage of IT skilled manpower, difficulties in periodic up-gradation of infrastructural facilities, frequent change and advancement of technology, high hardware and software costs, insufficient training of professionals and absence of hands-on training.

When further asked about possible solutions to the different problems in IT applications the following

were suggested: reengineering/revamping of existing library and information systems, drastic restructuring of library and information science education for better manpower, more funds, creating awareness among users about modern equipments and automated services, contract with networking agency, annual maintenance contract (AMC) for hardware and software installations, more and better training programmes, and assistance from computer professional colleagues.

## CONCLUSION

Eighteen libraries have been surveyed to study the information technology adoption in libraries in Kerala. All eighteen libraries were of the opinion that IT had a positive impact on the day to day work of the library and that IT played a positive role in enhancing services, user satisfaction, meeting users' demands, and overall library image.

However, as the case with any service, for the library also, users are the best judge to assess the information facilities and services. This study reflects the views of librarians only who may adopt an ideal stand even on those issues where the users have a poor opinion. Therefore, there is need to take into account the feedback of the users in various categories to have a realistic assessment of the status of information facilities available and information services rendered by these libraries.

## REFERENCES

1. SINGH (S P). Computer applications in Indian Institutes of Technology libraries. *Electronic Library*. 19, 2; 2001; 92-101.
2. SRIDHAR (M S). Modernisation of library services using IT potential and trends. *Herald of Library Science*. 39, 1-2; 2000; 28-41.
3. MAHESHWARAPPA (B S), TADASAD (P G). Availability and use of computers among college libraries in Karnataka State. *Library Science with a Slant to Documentation and Information Studies*. 36, 4; 1999; 241-248.
4. KUMAR (R P). An overview of modern technologies applications in Indian libraries. *International Information and Library Review*. 26, 4; 1994; 327-339.
5. PILLAI (P G). Library movement in Kerala. *IASLIC Bulletin*. 44, 1; 1999, 39-42.
6. DAS (I V). Public library movement in Kerala. *Herald of Library Science*. 38, 1-2; 1999; 83-89.
7. VENKATAPPIAH (V). Some observations on the public library system in Kerala State. *Herald of Library Science*. 38, 1-2; 1999; 89-95.
8. NAIR (R R). Origins of the people's library movement in Kerala. *Grantha*. 4, 1&2; 1994; 29-36.
9. NAIR (N S). Public libraries in Kerala - origin and development. *Grantha*. 4, 1&2; 1994; 61-67.
10. BAVAKUTTY (M). College library personnel in Kerala. *International Library Review*. 18, 2; 1986; 187-193.
11. BAVAKUTTY (M). College libraries in Kerala: a survey report. *International Library Review*. 16, 4; 1984; 437-446.
12. DEVARAJAN (G). Manpower investment in special libraries in Kerala: a survey, Proceedings of the Seventeenth All India Conference of IASLIC, Jaipur, 27-30 December 1989, Calcutta, Indian Association of Special Libraries and Information Centres (IASLIC), 1989, p 31-36.