Chapter 5

Summary, Conclusions and Suggestions
5.A. Summary

The fast growth and development of information technology and communication technology has brought about drastic changes in information generation, storage and dissemination. Further the production and use of electronic documents has also been growing at such a fast pace that it warrants serious consideration, especially in college libraries and information centres. Unless college libraries are automated, it would be impossible to face with the new challenges posed by the electronic media, magnetic media, and optical media in processing information. Also, in view of the financial crunch, which is common to all college libraries, it is all the more necessary, that information, which seems to be growing endlessly, is shared by all the libraries. And readers of college libraries are very eager to have access to current information relating to their curriculum as well as world-wide information. Only library automation and networking can make it possible. Therefore it seems inevitable that college libraries should go for library automation and networking so as to have resource sharing and online access to information.

The important objectives of the study are identified and listed in Chapter-1. Accordingly the investigation was conducted. The most important purpose of this study is to design a feasible implementation plan for college library automation and networking for any size of college library. To obtain good results, this study is limited to the jurisdiction of Sri Venkateswara University and Sri Krishnadevaraya University in Andhra Pradesh in India. Further, the questionnaire method is employed to collect the relevant data and the same helped the researcher to obtain 60.52% of response from the college libraries under study. Finally this study enabled the researcher to assess the existing situation in college libraries regarding library automation and networking. Based on the literature survey conducted, the researcher
studied the latest trends in library automation and networking. This helped the researcher to suggest a feasible plan for college library automation and networking at the end of this chapter. This chapter presents summary of findings drawn from data analysis, conclusions and suggestions. The suggestions part contains two sections, namely, (a) suggestions on the basis of findings and (b) A proposed plan for college library automation and networking.

5.A.1. Summary of findings

The findings made on the basis of the data collected and analysed in the previous chapter, are summarised here under:

1. Out of the 233 colleges in the study area (Sri Venkateswara University and Sri Krishnadevaraya University), the librarians of 141 colleges (60.52%) responded to the questionnaires regarding college library automation and networking, and expressed their opinion on the different aspects of the theme of inquiry.

2. Seventy five point fifteen percent of the respondent college libraries are headed by qualified librarians and the rest headed by personnel placed in charge of the library. Among 63 out of 106 (59.43%) the professionally qualified librarians have the master's degree, M.L.I.Sc. This is a healthy sign for the professional growth of librarians. Better qualification always makes for better professionalism.

3. This study also reveals that in most colleges professionals and non-professionals in college library receive meager support. This is due to the non-implementation of staff norms prescribed by the State Government. Further the University authorities are not strictly observing the rules and regulations of affiliation. This shows the pathetic situation of college libraries.

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4. It is also found that the response of college librarians to get trained in computer applications, is mixed: While 13.47% of the college librarians are trained in computer applications, and 42.55% librarians are willing to undergo computer training, 43.97% express their unwillingness due to unknown fears about computers.

5. Sixty nine point and fifty percent of the sample college libraries are situated in single rooms in their respective college buildings. This may be due the moderate size of book collection as well as the size of the college concerned. But majority of the college libraries are suffering from lack of adequate space.

6. Seventy four point forty six percent of the sample college libraries have very limited furniture in terms of reading-room chairs, tables and book racks. This also depends on the size of the college, and on the strength of students and staff in the college.

7. Majority of the sample colleges do not provide phone facility exclusively for the library. Only 6.38% of the sample college libraries have this facility.

8. In a majority of the sample colleges the strength of the teaching staff is below 20. In general, research activities in a college much depends on the strength of the teaching staff. In turn research activities demand library automation. In the majority of the colleges the number of students is rather small, probably because of the mushroom growth of colleges.

9. In 61.70% of the college libraries, the collection of books is below 5000. The annual additions made in a majority of them show the same trend. This may be due to lack of adequate funds. It is also possible that in a few cases, funds meant for the library are diverted.
10. Sixty point ninety nine percent of the college libraries classify their book collection. But only 23.40% have cataloged the books. This may also be due to non-availability of funds for buying catalogue cards and catalogue cabinets.

11. The majority of college libraries are kept open during the college working hours (10.00 A.M. - 4.00 P.M.) only. This trend is possible due to equalizing the status of the college librarian with that of the college teacher in Andhra Pradesh. That is why college librarians are designated as lecturer in library science.

12. Majority of the college libraries are providing conventional services such as lending of books, for home reading, reference service, newspaper and magazines section.

13. A majority of the college libraries are providing book consultation service during their working hours.

14. This study has not been able to ascertain the budget allocation made to the college libraries under study. But it is quite certain that in general all government colleges and aided colleges do receive state Government grants for library books and journals. The colleges registered under 2F section of the UGC also receive from it lump sum grant for establishing book banks, in every plan period. The unaided colleges depend on reading room & library fee collection for library development.

15. Only one college among the respondent colleges has now adopted library automation. All the remaining colleges 99.29% have not.

16. Fifty eight point eighty six percent of the sample college librarians are willing to plan for the automation of their libraries, whereas 41.13% of college librarians are unwilling. There is a lot of confusion among the librarians regarding accepting or not accepting library automation.
17. Sixty six point sixty six percent of the sample colleges have computer centres on their premises. Among them 54.25% (51 colleges) already have Internet connectivity. These computer centres are the laboratories for computer courses run by the colleges.

18. Only six college libraries under study have computers exclusively for their use. Therefore the great majority of college libraries do not possess them for their exclusive use.

19. Thirty six point eighty seven percent of the college librarians assess that their readers are eager to have Internet connectivity for their libraries. Possibly the majority of readers may not be aware of the services of Internet (or) the librarians have not properly ascertained the opinion of readers.

20. Seventy three point seventy five percent of the college librarians agree to utilize Information technology for library automation in their college libraries, in view of the various benefits it brings.

21. For 89.36% of the college librarians the main hurdle for library automation is limited funds. For 60.28% of the college librarians the main problem of library automation lies in the problem of training the staff. For 41.13% of the sample librarians the main obstacle for library automation is the unwillingness of college managements to go for library automation. A very small number of librarians (7.80%) are afraid of the new technology for accepting library automation.

22. Viewed, as a whole then for the majority of college libraries finding finance to go for library automation is the chief problem. The other problems already mentioned are secondary and can be solved. They do not strictly stand in the way of library automation.
5.B. Conclusions

It is healthy sign to note that the majority of college librarians are better qualified and willing to go for library automation and networking so as to extend better services to their readers. It is observed that the main hurdle for implementing library automation and networking is the availability of the funds. However in the tenth plan the University Grants Commission and state governments are giving top priority for the application of information technology in all departments of administration. Therefore, it may not difficult to provide one-time grant for library automation networking in all degree colleges to improve educational standards at undergraduate level in our country.

In view of the availability of new technologies all libraries, of whatever type they may be, including college libraries, should opt for library automation networking for efficient and effective information management. Readers of the information age demand a piece of information rather a document. The information explosion, cost increase in the print media (publication of documents), availability of electronic documents emphasize the need for library automation and networking for purposes of economy and also to provide information precisely, exactly and expeditiously to the required reader. College libraries of today must adopt library automation and networking to join the main-stream information technology.

5.C. Suggestions based on findings

In the light of the detailed study of the college libraries affiliated to S.V.University and S.K.University, presented in the previous chapters, the following suggestions are given to improve the situation and make the libraries adopt library automation. The suggestions are given with the hope that they are feasible:
1. The university authorities and the state government must insist that the managements of affiliated colleges recruit without fail qualified librarians to head college libraries. They should keep watch over them and inspect periodically to verify whether the stipulated conditions are implemented or not. In the case of defaulting managements, the authorities concerned must not grant permanent affiliation unless qualified librarians are appointed. Similarly they must insist on the appointment of adequate library staff as per the staff formula recommended by the state Government for degree college libraries.

2. Generally young librarians prefer to undergo computer training organized by institutions such as the DRTC, INSDOC etc., whereas aged and old fashioned librarians are reluctant to undergo such training. This trend is found in almost all the states in our country.

To overcome this problem the university libraries would do well to organize in-service computer training programmes for working librarians, especially for those who have been in service for some time, without any financial commitment on the part of the college management. At the same time, fear of the new and rather computer technology must be removed from the minds of college librarians, who are reluctant to undergo computer training. Steps also have to be taken to train the senior supporting staff working in the library.

3. College managements should come forward to provide within college premises suitable accommodation and furniture for purposes of library automation, following the suggestions of experts. The colleges which are registered under 21 section of the UGC should approach the UGC with suitable proposals following the norms of the UGC, for separate buildings for libraries.
4. As telephone facilities are available today at reasonable cost in all parts of the country, providing a phone to a college library exclusively is not difficult nor is it expensive. The phone provided for the college library is used as a communication medium for information flow. Further a phone connection is compulsory for on-line information access. College managements therefore should realize that phone connections to libraries are necessary and that they are not a luxury, as they might have been at one time.

5. University authorities have full rights over all affiliated colleges to insist on their maintaining appropriate educational standards. In fact there are also norms laid down for establishing and maintaining of a good library in every college and the university has the authority to inspect the functioning of the college library from time to time especially when new courses are introduced etc. Therefore the university authority has its share of responsibility for the growth and development of a college library in the context of book collection, subscription to periodicals & library services. If the university authorities are strict in this respect, which they do not seem to be at present, the college libraries have to maintain continuously certain standards of book collection and library services to their readers.

6. College librarians on their part should not forget that their primary duty is to be of service to the readers, even though their status has been raised to be equal to that of a teacher in a college. Raised status demands greater responsibility. If libraries are kept open before and after the college hours, the readers would be greatly helped and they will be able to utilize the facilities better than they would be if the working hours of the library are restricted to the working hours of the college. Therefore librarians should plan to keep the libraries open during the hours suggested here in consultation with the managements of their
colleges. A library justifies itself fully, if it is made accessible to as many people as possible.

7. Today we are living in an age of information. Readers are anxious to have current and up-to-date information for their use, that too information relevant to their needs. Therefore, libraries should introduce new information services linked with information technology such as current awareness bulletin, on-line information access, e-mail service, electronic bulletin board, Internet access etc. All these services are possible through library automation and networking.

8. Once library automation and networking is established in a college library it becomes as easy to provide Internet browsing as a book-consultation within the library itself.

9. Developing countries like India have always acute financial problems. As a result, library funds are decreasing from time to time, while at the same time, cost of publication is increasing. Thanks to the new technologies, electronic documents are flourishing in the place of printed documents. The cost of electronic documents is much less than that of printed documents. Therefore college managements would do well to set apart a proportionate percentage of funds to be allocated as library grants for each financial year, so as to run the library with the essential services required by the readers. College managements should spend the reading room fee and library fee for library development only and must not divert them. Further they should also increase the college library and reading room fee in the same proportion as the other fees whenever they are raised so that the library is not at a disadvantage. The State Government also should earmark for each financial year, grants exclusively as book grants for all colleges, government and aided colleges alike, without any discrimination. Thus the financial position of a college
library can be raised and stabilised. Implicit in the suggestion made above is the thought that college managements should develop a respectful attitude towards their libraries. The library should be regarded as an essential, important, and inseparable part of the college rather than an adjunct.

10. The state government and the affiliating universities should seriously consider making it mandatory for all colleges under their jurisdiction to go for library automation and networking. This is necessary in view of the enormous and increasing importance that Information Technology has gained at present. The universities should frame appropriate and inviolable rules and regulations for maintaining library automation and networking in each college library. They should also make themselves responsible for college library automation and networking within their jurisdictions. Linking all college libraries within their jurisdictions with their respective university libraries would result in better library services and on-line information access and also enrich resource sharing uniformly among the college libraries regardless of their size. The State Government and Universities must by joint action try to create an information technology environment in all colleges for the better use of information technology.

11. Since majority of the sample colleges have computer centres on their premises it is easy to establish library automation in them with the help of the available expertise and experience of the computer personnel. The computer centre also can provide the preliminary training to the college librarians to handle/operate their computers for purposes of library automation.

12. Once the college libraries go for library automation, it increases the responsibility of their librarians to create an IT environment in their libraries so as to encourage the readers for internet accessibility and after electronic
services provided by the library. Thus the library can increase the readers taste

towards Internet use etc.

13. If the above suggestions are earnestly implemented, college libraries can

overcome many of their problems such as finance, staff training, unwillingness

of college managements and fear of new technology among older members,

which have been afflicting them for a long.

14. The INFLIBNET should immediately divert its attention towards degree

colleges and extend liberal financial assistance to college libraries for the

purchase of computers to the establish library automation, as was done to

university libraries in India. Further the INFLIBNET must supply the SOUL

package free of cost, as decided earlier at least to the college libraries to

encourage library automation in them and achieve uniformity in database

creation.

15. A proposal for college library automation and networking is suggested in the

following section of this chapter suitable to colleges of different sizes and of

different financial status and positions, affiliated to the two universities

selected for study. This proposal has been prepared based on the data collected

for the present inquiry, having particularly in mind its feasibility not only in the

sample college libraries but those in their developing countries.

Finally, managements of colleges should understand the benefits of new

technologies and implement library automation networking in their libraries for

enriching their quality. This step in the long would also enrich the society and the

nation as a whole. To reiterate what has already been said implicitly and explicitly,

much, if not everything, depends upon the management of colleges and their positive

attitude towards library automation and willingness to establish it. The problems

they and their libraries face are very real, but not impossible to overcome given the
vision and will. As the ancient adage says, where there is a will there is always a way. Resistance to new and innovation ideas and change among a section of employees in libraries, is natural and understandable. But if past experience in such matters is any guide, those who are averse to changes, would learn to make a virtue of necessity once they realize that it is inevitable.

5.3.1. Proposed plan for college library automation and networking

The college library automation and networking has been conceived on the basis of three important functions namely, a) college library automation, b) college library networking and c) internet connectivity.

a. College library automation:

The college library automation includes as its main functions, the following:

a) Acquisition control, b) Serials control, c) Circulation control, d) Database creation, e) Maintenance of Bibliographic database and f) User services.

a) Acquisition control

- Facilitates addition, deletion and modification in orders placed.
- Minimises repetitive work of bibliographic description of a document keeping in view the CCF for datasheet suggested by the INFLIBNET.
- Updates library database when decision regarding withdrawal of books. Weeding out of documents etc is taken up.
- Generates reports on: Order stop suppliers, List of Publishers and suppliers, Accessions, List of books received as donations, Reminders, Outstanding orders / bills.

b) Serials Control:

Subscription for current periodicals is very meager at the college library level. Hence, circulation processing is not essential in library automation here.
However, a big college library which has good current periodical subscription can include in its library automation serial control such as,

- Updating the list of journals on subscription,
- Registering new journals,
- Renewal of subscription,
- Generation of reports on: Reminders to vendors for non-receipt of issues, List of latest additions.

c) Circulation Control:

Circulation control is essential in library automation for every college library irrespective of its size. The libraries should keep the following points in mind in circulation processing:

- Maintain information on readers (students/staff)
- Issue/reservation records
- Inter library loan records Generate reports on: Outstanding books, Outstanding requests, Over dues for students and over dues for staff.

c) Database creation

In order to maintain uniformity in database creation at college library level, university level and all the R&D libraries within the country the INFLBNET (Information for library network) has brought out a common communication format (CCF) for books, journals etc. The guidelines for data capturing given by the INFLBNET is affixed in the annexure of this thesis. Following the guidelines a model datasheet for books and data sheet for retro-conversion is given below for purpose of college library automation.

The model datasheet for books and data input sheet for retro-conversion is provided in annexure-II.
e) Maintenance of bibliographic database

To update database, the following points are to be considered in college library automation:

- Updating the catalogue by matching it with the holdings.
- Maintenance of subjectwise, authorwise, titlewise bibliographies;
- Providing the college library management with timely summaries of the stage of processing of newly acquired holdings; and
- Providing a list of the latest additions.

f) User Service

- Answering queries on the holdings available
- Providing Current information services for the staff

b. College library networking:

College library network includes the following: a) pre-requisites for college library network, b) selection criteria, c) hardware configuration, d) software requirements, e) networking design, f) cost analysis, g) levels of college library network implementation plan, h) phase wise implementation.

a) Pre-requisites for college library network

In planning a college library network, the following factors are considered as most important:

i. Member college libraries must justify the need for a network in the region. Further, the development of a viable network demands planning not only among the network members but also between the members and users themselves.

ii. Member college libraries must agree upon a network policy, to be implemented. The policy must clearly state the objectives of the network, network structure, etc.
iii. Member college libraries must identify the funding agencies and mobilize their financial resources in advance so that they freely flow, while implementing the system. If necessary, network fee may be collected from each of the member college libraries. Experience of libraries in the west suggests that all networks based on a fee structure can be maintained without grant and are viable in the long run.

iv. If there is no adequate trained manpower in the member college libraries, attempts should be made to provide training to the existing librarian / library staff.

v. Member college libraries must have a full-fledged automation programme and a machine-readable catalogue for their respective document collections, for the purpose of creating databases. It is essential to agree upon a standard for bibliographical record format, preferably the INFLIBNET standard.

vi. Member college libraries must agree upon an indexing system to be followed. Each library may have the freedom to adopt an indexing system of its choice. In such cases, the software must be so developed as to enable switching from one system to another while searching. However, in a centralized database system, it is preferable to adopt a single system of indexing, i.e. the POSI chain indexing or any other similar hierarchical system.

vii. In addition to the databases (machine-readable catalogue), hardware, software and trained manpower, it is preferable to have certain other communication facilities such as E-mail, Fax, Telex and Telephones etc. as part of the network system in each of the member college libraries, for the effective working of the network.

viii. It is necessary to develop and agree upon performance criteria to evaluate the working of the network.
c. Network selection criteria:

Having decided to participate in a network, the intending library/information centre is faced with the question of selecting the most suitable network. The following factors help in making the choice:

1. Available network options,
2. Criteria to be used in deciding on the choice of the network,
3. Method of evaluating competing networks,
4. Selection of functions of the network to be used,
5. Reliability of the system,
6. Quality control standards decided by the network, and
7. Cost.

A network may fail if the basic objectives are not properly formulated. The reasons for network failure are likely to be the following:

1. Emphasis on only a single function (e.g., inter-library loan in library network), which is difficult to justify on the basis of cost-effective criterion;
2. Lack of attention to the use of appropriate technology;
3. Lack of attention to a formal system design, derived from stated goods and objectives;
4. No specification in developing functions;
5. No translating network by-laws into specific operating procedures;
6. Unrealistic budgeting and lack of expertise in developing long-term funding.

d. Hardware configuration:

College libraries can be categorized as of three types. First, there are the small college libraries with a limited number of courses and equally limited strength of students and the staff. Never, there are the medium sized college libraries with an average size of book collection and strength of students and teachers. Then, there are the big college libraries with a good book collection and a corresponding strength of
students as well as teachers. Accordingly, the hardware requirements are suggested for each type of college library is presented separately, as Model I, Model II and Model III.

**Table 5.1: Model I for Small college libraries:**

<table>
<thead>
<tr>
<th>Peripherals</th>
<th>Model - I</th>
<th>Price (Approximate) in Rupees</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAM</td>
<td>64 MB</td>
<td>900</td>
</tr>
<tr>
<td>Mother Board</td>
<td>810 Chipset</td>
<td>3,400</td>
</tr>
<tr>
<td>Processor</td>
<td>Intel Celeron 800 Mhz</td>
<td>4,000</td>
</tr>
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<td>Hard Disk</td>
<td>20 GB</td>
<td>4,200</td>
</tr>
<tr>
<td>Flexible disks</td>
<td>Floppy Drive, CD Drive</td>
<td>500, 1500</td>
</tr>
<tr>
<td>No of Terminals</td>
<td>1</td>
<td>---</td>
</tr>
<tr>
<td>Disk controls</td>
<td>IDE</td>
<td>---</td>
</tr>
<tr>
<td>Hubs</td>
<td>10 Mbps, 5 ports</td>
<td>1000</td>
</tr>
<tr>
<td>Printer</td>
<td>Dot matrix</td>
<td>7,600</td>
</tr>
<tr>
<td>Cabinets</td>
<td>AT</td>
<td>750</td>
</tr>
<tr>
<td>Keyboard</td>
<td>Normal</td>
<td>600</td>
</tr>
<tr>
<td>Speakers</td>
<td>160 W (PS22)</td>
<td>400</td>
</tr>
<tr>
<td>Mouse</td>
<td>Serial</td>
<td>500</td>
</tr>
<tr>
<td>Network interface card</td>
<td>10 Mbps</td>
<td>600</td>
</tr>
<tr>
<td>Modem</td>
<td>56 Kbps (Internal)</td>
<td>1000</td>
</tr>
<tr>
<td>Optional</td>
<td>Scanners, CD writers</td>
<td>12,200; 3900</td>
</tr>
<tr>
<td>Monitors</td>
<td>15&quot; color monitor</td>
<td>5250</td>
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</table>

**Table 5.2: Model II for Medium college libraries:**

<table>
<thead>
<tr>
<th>Peripherals</th>
<th>Model - II</th>
<th>Price (Approximate) in Rupees</th>
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</thead>
<tbody>
<tr>
<td>RAM</td>
<td>128 MB</td>
<td>1650</td>
</tr>
<tr>
<td>Mother Board</td>
<td>815 Chipset</td>
<td>4500</td>
</tr>
<tr>
<td>Processor</td>
<td>PIII 866 Mhz</td>
<td>5600</td>
</tr>
<tr>
<td>Hard Disk</td>
<td>30 GB</td>
<td>4800</td>
</tr>
<tr>
<td>Flexible disks</td>
<td>Floppy Drive, CD Drive, Zip Drive.</td>
<td>500, 1500, 4,800</td>
</tr>
<tr>
<td>No of Terminals</td>
<td>3</td>
<td>---</td>
</tr>
<tr>
<td>Disk controls</td>
<td>IDE</td>
<td>---</td>
</tr>
<tr>
<td>Hubs</td>
<td>10/100 Mbps 8 ports</td>
<td>2,200</td>
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<tr>
<td>Printer</td>
<td>Dot matrix, inkjet</td>
<td>14,000; 6,700</td>
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<td>Cabinets</td>
<td>ATX</td>
<td>1500</td>
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<td>Keyboard</td>
<td>Multimedia</td>
<td>750</td>
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<td>Speakers</td>
<td>440 Wals</td>
<td>650</td>
</tr>
<tr>
<td>Mouse</td>
<td>Serial / PS2</td>
<td>500 / 650</td>
</tr>
<tr>
<td>Network interface card</td>
<td>10/100 Mbps</td>
<td>850</td>
</tr>
<tr>
<td>Modem</td>
<td>56 Kbps (Internal)</td>
<td>1000</td>
</tr>
<tr>
<td>Optional</td>
<td>Scanners, CD writers, Web camera, e-Pad.</td>
<td>12,200, 3,800, 2,200, 1,600</td>
</tr>
<tr>
<td>Monitor</td>
<td>15&quot; color Monitor</td>
<td>5250</td>
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</table>
The costs mentioned are only approximate based on Market news in Information Technology magazines (i.e. v.11(3), January 2002, v.11(5), March 2002, v.11(6), April 2002), and the advertisements in newspapers such as The Hindu. But commonsense tells us that costs are subject to changes from time to time.

Assemble sets are also good for college level libraries to reduce the expenditure on hardware purchased.

c. Software requirements:

The purpose of Application software and different library software available has been described in detail in Chapter - 3. The selection of library software is also given in that chapter. Therefore, the evaluation techniques for software are explained hereunder as guidelines for choosing library software.

<table>
<thead>
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<th>Peripherals</th>
<th>Model - III</th>
<th>Price (Approximate) in Rupees</th>
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<td>RAM</td>
<td>256 MB</td>
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<tr>
<td>Mother Board</td>
<td>615 Chipset</td>
<td>4500</td>
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<tr>
<td>Processor</td>
<td>PIII 1 GHz</td>
<td>6200</td>
</tr>
<tr>
<td>Hard Disk</td>
<td>40 GB</td>
<td>5500</td>
</tr>
<tr>
<td>Flexible disks</td>
<td>Floppy Drive, CD Drive, Zip Drive.</td>
<td>500, 1500, 4,800</td>
</tr>
<tr>
<td>No of Terminals</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Disk controls</td>
<td>IDE / SCSI</td>
<td></td>
</tr>
<tr>
<td>Hubs</td>
<td>10/100 Mbps, 8 / 16 ports</td>
<td>2,200, 3500</td>
</tr>
<tr>
<td>Backup Devices</td>
<td>IDE / SCSI</td>
<td></td>
</tr>
<tr>
<td>Printer</td>
<td>Dot matrix, Laser Jet</td>
<td>14,000, 16700</td>
</tr>
<tr>
<td>Cabinets</td>
<td>ATX</td>
<td>1500</td>
</tr>
<tr>
<td>Keyboard</td>
<td>Multimedia</td>
<td>750</td>
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<tr>
<td>Speakers</td>
<td>880 Watts</td>
<td>1000</td>
</tr>
<tr>
<td>Mouse</td>
<td>Serial / PS2</td>
<td>500 / 650</td>
</tr>
<tr>
<td>Network Interface card</td>
<td>10/100 Mbps</td>
<td>850</td>
</tr>
<tr>
<td>Modem</td>
<td>56 Kbps (External)</td>
<td>2500</td>
</tr>
<tr>
<td>Optional</td>
<td>Scanners, CD writers, Web camera, e-Pad.</td>
<td>12,200, 3900, 2200, 1800</td>
</tr>
<tr>
<td>Monitors</td>
<td>15” color Monitor</td>
<td>5250</td>
</tr>
</tbody>
</table>

Note: The costs mentioned are only approximate based on Market news in Information Technology magazines (i.e. v.11(3), January 2002, v.11(5), March 2002, v.11(6), April 2002), and the advertisements in newspapers such as The Hindu. But commonsense tells us that costs are subject to changes from time to time.
Evaluation techniques for software:

1. Procedures for evaluation:

The following procedures may be considered to evaluate software packages,

(i). Select software after carefully examining the existing literature; concerning it and documentation.

(ii). Compare it with various other packages, from the following points of view:

   (a). Can it handle records of variable sizes?

   (b). Is it easy to edit a record?

   (c). Is it difficult to update the files (inserting or deleting a record)

   (d). How much memory and hard disk space are required?

   (e). Is it menu-driven?

   (f). Is it difficult to understand?

   (g). Is separate training required?

(iii). Post-installation service (if the software is corrupted for various reasons, write to the vendor to replace it)

2. Criteria for evaluation:

Some of the criteria for evaluation of software are:

   (a). Base of operation,

   (b). Quality of documentation,

   (c). Hardware limitations,

   (d). Speed of operation,

   (e). Security to multi user environment,

   (f). De-bugging facility and proper error messages while executing it,

   (g). Support from vendor,

3. Features of software:

Some of the important features of software are
(a) User friendliness,

(b) Provision to on-line interaction, especially while editing, inputting, retrieving, and in other data management operations.

(c) Provision to obtain outputs in various formats,

(d) Compatibility and portability,

Recommendations for suitable library software for college libraries:

Recommendation-I: (a) The INFLIBNET has developed a suitable library software package with thorough modifications and made available to all academic libraries and the R&D libraries in the whole country. This library software package is called Software for University Libraries or SOUL, for short. The following are the important reasons for recommending the SOUL to college libraries.

1. This software is prepared mainly for the benefit of university and college libraries following standards and formats such as the CCF, AACR2, LCSH.

2. It is now used by all university libraries in India, which have already been covered under financial assistance of the INFLIBNET.

3. It enables maintenance of uniformity in database creation among university and college libraries for better information access.

4. This software also includes network feature, which is important for library network activities.

5. This software is available at minimum cost when compared to any other commercial library software package. This SOUL package was first developed by the INFLIBNET for free distribution among all University libraries. Later it was priced at Rs.50,000 to University Libraries. It is anticipated that this package will be made available for college libraries either free of cost or at a minimum cost through negotiations. INFLIBNET offer free technical advice to the librarians where the SOUL is used.
6. The SOUL is also user-friendly.

(b). Delplus is a library management software package, it is developed by DEPNET (Developing Library Network), New Delhi. It is a standalone software and is designed to cater to the needs of various types of small and medium size libraries with a collection of books up to 1,00,000 at a subsidized price of Rs. 15,000. Delplus is user friendly and can be operated very easily with minimal computer knowledge. Therefore this software is more useful for college libraries. (Source: ILA BULLETIN 38.3 (2002)).

Recommendation – II:

In case a college library finds it difficult to acquire the SOUL package, it can develop its own software required for library functions by using Visual Basic.

Visual Basic is a programming language which is suitable for developing a library software package, especially functions like acquisition, circulation etc. This type of software is not only user-friendly but also compatible with the needs of small college libraries where book collection and user strength are very small. But while developing software by using the VB, the librarian should take care to follow the standards set by the INLIBNET for maintaining uniformity.

The technologies available for networking have already been described in detail, in Chapter – 3 of this study. Types of networks and their utility have also been illustrated in the same chapter.

f. Network design:

The following factors are to be borne in mind during implementing the library network.

1. The Proposed college library information systems are to be installed in the participating college libraries.
2. Creation of the data and validation for normal operation on these systems will take considerable amount of time.

3. Familiarization of the system to the library staff and its uses also needs time.

4. The initial demand for network usage will be low, as it takes time before all the libraries are brought to the level of automation before expecting any network services.

Network component specification:

X.25: X.25 is a Packet-switching wide area network developed by the ITU-T in 1976; since then it has undergone several revisions. According to the formal definition given in the ITU-T standard, X.25 is an interface between data terminal equipment (DTE) and data circuit-terminating equipment (DCE) for terminal operation in the packet mode on public data networks.

X.25 defines how a packet-mode terminal can be connected to a packet network for the exchange of data. It describes the procedures necessary for establishing, maintaining, and terminating connections. It also describes a set of services, called facilities, to provide functions such as reverse charge, call direct, and delay control.

X.25 is a subscriber network interface (SNI) protocol. It defines how the user's DTE communicates with the network and how packets are sent over that network using DCEs. It uses a virtual circuit approach to packet switching (SVC and PVC) and uses asynchronous (statistical) TDM to multiples packets.

g. Cost analysis:

The cost of configuration required for different levels of library automation under their respective headings is given in the models themselves to as to choose according to the availability of funds at each college level. The expenditure towards the purchase of computers is called one time expenditure or non-recurring
expenditure. Therefore college managements should come forward to invest once a lump sum to purchase computers for their college libraries for the purpose of library automation. With regard to software, a college library can develop its own software with the help of computer experts available in computer centres. Software packages such as the CDS/ISIS, SOUL are available either free of cost or at a very reasonable price for library automation. Hence acquiring software does not involve much expenditure. The recurring expenditure of college library automation will be to buy stationary for the preparation of datasheets, ribbon cartridges, ink cartridges, and to meet electricity charges. This recurring expenditure can be met from reading room fee, and library fee collected from readers for each financial year. The college library also can collect a nominal fee for online information access, information downloading, and e-mail from the teaching faculty mainly for utilising the facility for purposes of research.

The costs of the various automation parameters, hardware, software and communication, have been mentioned under various heads. The costs of other factors involved in computerization like site planning setting up the infrastructure, training etc. can only be determined with reference to specific library.

The training for the staff is available free of cost at the INFLIBNET. There are institutions such as the DRTC, INSDOC which offer training for a reasonable fee. Further, the UGC also provides refresher courses at selected institutions where necessary training is imparted to college librarians for library automation. Therefore, training of college library staff in this regard involves very little expenditure.

As a whole, the cost involved in college library automation is very nominal and affordable by any college library management. There is a provision that 10% of the UGC book grant can be utilized for library automation. Further the UGC also provides a special grant for purchasing computers for college library automation.
Therefore college managements and librarians must come forward to implement library automation for information access. Moreover, automation cannot be avoided for long, whatever be one's attitude to it. It is wisdom, therefore, to go for it as early as possible.

h. Levels of college library network:

It is proposed that in the study area three levels of college library network may be had and the limits of each specified: (1) City college library network (limiting to each town), (2) District college library network (limiting to each district) (3) College library network of each university, that is, college library network of SVU and that of SKU. These three levels of networks are graphically represented in the following page:

1. City college Library network:
   (a). Chittoor (Tirupati) (Figure 5.1)  
   (b). Cuddapah (Figure 5.2)  
   (c). Nellore (Figure 5.3)  
   (d). Anantapur (Figure 5.4)  
   (e). Kurnool (Figure 5.5)  

2. District College library Network
   (a). Chittoor (Tirupati) (Figure 5.6)  
   (b). Cuddapah (Figure 5.7)  
   (c). Nellore (Figure 5.8)  
   (d). Anantapur (Figure 5.9)  
   (e). Kurnool (Figure 5.10)  

3. College library network of SVU and college library network of SKU. (Figure 5.11, Figure 5.12)
Figure – 5.1:
City College Library Network for Chittoor and Tirupati towns
Figure 5.2:

City College Library Network for Cuddapah town
Figure – 5.3:

City College Library Network for Nellore town
Figure 5.5: City College Library Network for Kurnool town
Figure 5.6:
District College Library Network for Chittoor District
Figure – 5.7:

District College Library Network for Cuddapah District
Figure – 5.8:

District College Library Network for Nellore District
Figure – 5.9:

District College Library Network for Anantapur District
Figure - 5.10:
District College Library Network for Kurnool District
Figure – 5.11: College Library Network for S.V. University Area
Implementation plan:

In the earlier part of this section a proposed plan for college library automation and college library network has been presented with the requirements of hardware and software. Now a plan for its implementation is presented here.

Plan for implementation:

Successful implementation of the proposed plan for college library automation depends upon the following factors:

1. Having the minimum computer facility for each college library,
2. Interest of the librarian and his/her skills to maintain and develop computer in the college library,
3. Collection context and methods of database creation,
4. Reliable telecommunication facilities such as phone and Internet connectivity, and
5. Minimum infrastructure such as accommodation, furniture and equipment.

Phase wise implementation:

Implementation of the proposed plan for college library automation is based on the following conditions:

1. Introduction and development of computer culture among readers i.e. students and staff of the college library,
2. Creating awareness about the benefits of resource sharing among college libraries, the university library and information resource centres at the national and international level.
3. Keeping to a minimum and within the reach of students and teachers the cost of information (or) the cost of service charges so as to encourage their use of library automation & networking to have information access.
The plan may be implemented in three phases, as shown below:

**Phase I of Implementation:**

1. Establishing computers in the college library,
2. Acquiring suitable library software,
3. Data conversion (database creation),
4. Establishing offline queries through CD's,
5. Developing computer culture among students, teachers and staff of the college library,
6. Obtaining Internet connectivity through the DOT, VSNL, etc.

**Phase II of Implementation:**

1. Setting up the central host to establish city college library network,
2. Procurement of hardware required for the network and site preparation for each individual college library,
3. Creation of level databases,
4. Establishing network connectivity to all college libraries situated within the district.

**Phase III of Implementation:**

1. Connecting the district hub with the university library within the jurisdiction.
2. Conversion of offline query to online query for the users of libraries which have machines set up connected to the network,
3. The automation of college libraries can be undertaken as one network affiliated to each university, and the necessary training facilities may be extended from time to time by the university concerned.

This will become a full-fledged college library network of a university.
k. Internet connectivity:

Each college library should go for Internet connectivity for online information access through the World Wide Web so that it may have national and international access to information.

There are number of Internet Service Providers (ISP) in India. They can be broadly be classified into two groups: private ISPs and the ISPs which come under the purview of the Government of India. In the latter category, there are two organizations, namely

(i) Software Technology Parks of India (STPI) (ii) Videsh Sanchar Nigam Limited (VSNL)

In the private sector of Internet Service Providers, there are popular organizations, providing the Internet connectivity. The following table provides several of them:

<table>
<thead>
<tr>
<th>AMi Online</th>
<th>HCL Infinet</th>
<th>Nettinx</th>
<th>Southern Online</th>
</tr>
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<tbody>
<tr>
<td>Ankhnet</td>
<td>i91</td>
<td>Only Smart</td>
<td>Swift Online</td>
</tr>
<tr>
<td>BPL Net</td>
<td>KMR Online</td>
<td>Pacific Internet</td>
<td>Tring Tring</td>
</tr>
<tr>
<td>Calligera</td>
<td>LiveWireNet</td>
<td>Pioneer Online</td>
<td>Value Online</td>
</tr>
<tr>
<td>City Online</td>
<td>Manipal Control</td>
<td>Power Surface Net</td>
<td>W3C</td>
</tr>
<tr>
<td>Dishnet / DSL</td>
<td>Data</td>
<td>RoltaNet</td>
<td>Wilnet Online</td>
</tr>
<tr>
<td>Freedlalin.com</td>
<td>Mantra Online</td>
<td>Sempark Online</td>
<td>XPS Online</td>
</tr>
<tr>
<td>Glide Online</td>
<td>MTNL</td>
<td>Selyarn Online</td>
<td>Zee Next</td>
</tr>
<tr>
<td>Global Online</td>
<td>Net4India</td>
<td>Sigma Online</td>
<td></td>
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<tr>
<td></td>
<td>Netracker</td>
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The two major organizations of the Government of India providing Internet Service are presented in the following table for a comparison of their performance and effectiveness of services.

<table>
<thead>
<tr>
<th>STPI</th>
<th>VSNL</th>
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<tbody>
<tr>
<td>STPI is a society established by the Ministry of Information Technology, Government of India in the year 1991. Concerned with extending leased line Internet facility. Many Industrial, educational and research organizations have obtained Internet connectivity of</td>
<td>VSNL was established by the Ministry of Communication, Government of India in 1986 for Gateway Internet Access Services. A great majority of the customers are for PSTN dial-up Internet connectivity. There are only 3 corporate customers for 64 kbps leased line facility. Major</td>
</tr>
</tbody>
</table>
part of user community comprises private / personal connectivity. A discount of 50% (on port access charges), which was prevailing up to Dec 2000, has been cancelled from 1.1.2001. No discount for educational and government organization is allowed from 1.1.2001. Of late, it is announced that recognized educational and government organizations, including newspaper agencies are also eligible for 50% concession on annual port access charges. Recognized software exporters are eligible for 20% concession, (the annual export turnover has to be above US$1,00,000=00). Registration fee is refundable only when service becomes non-feasible, or subscriber surrenders the registration before the issue of demand note for payment. Minimum period of contract is enforced for leased line connectivity (one year). The transmission of information is through the local data circuits (cable network provided by the BSNL). Modems are connected by the telephone cable network so as to receive / transmit data converting signals of analog into digital and vice versa. Since cable network is involved in the transmission of data, it is difficult and usually time consuming to detect the reason for breakdown, and to fix the bug. Quite a number of links / locations are to be checked before ensuring the constraints and process for fault repair.

The proposed plan for college library automation network is designed based on new technologies available for automation networking consulting the computer science experts. This proposal will be of much useful to any type of college library to go for automation and networking for resource sharing and exchange of electronic information to meet the new challenges in the field of library and information services.