CHAPTER- VI

MAJOR FINDINGS, SUGGESTIONS AND CONCLUSION

6.0 Introduction

The chapter involves on outcome of the data analysis and interpretation; Major findings are discussed and followed by suggestions and recommendations, which would be in consonance with the objectives of the study, finally conclusions of the study are presented.

The purpose of this research as already pronounced to find out the level of Digital Library Initiatives globally, nationally and locally. The main focus of this study is to find out the level of digital library initiatives at local level, in Karnataka, and in Research Institutions and Research and Development Organizations in particular. In this process it discusses as a basis for the Library Automation, ICT Infrastructure facilities, Digital Library Initiatives, manpower skills and expertise and problems faced while implementing the digital libraries.

The study desired to explore and solicit the perceived conditions for digital library initiatives in Karnataka and for understanding the gaps to planning its further subjectivity and growth. Digital Library Initiatives in India had started two decades ago, that to in Research Institutes and R & D organizations libraries some projects were started long ago to slowly given way to the development of electronic and subsequently digital library. As the research had revealed, it seemed that digital library initiatives were developing and progressing slowly and gradually. Such a progress was an indicator that digital library concept was diffusing into the modern research libraries scenario in India. The result of this as a complementary development, have built up some satisfactory IT infrastructure and also undertaken to
automate their libraries as one of the basic requirement for any IT related
development and culminating to a digital library. Most of research institutions and R
and D organizations in general in India are acquiring electronic resources through
digital library consortia and it is presumed to be one facet of digital library initiative,
for instance provision of electronic information services based on born digital
resources. This has resulted into local widespread development of
websites/homepages for the extension of services and also deploying the
organizational internal publications, along with digitization projects that were planned
and executed, mostly independently at various scales and levels.

The actual need for the study crop up because studies on digital library
initiatives in Research Institute and R & D organization at national level had not been
done much regardless of the fact that digital library initiatives had been extensively
taking shaped worldwide. The entire research therefore has found some wide gaps
that are seen on digital library initiatives in comparisons with other countries,
specifically in the categories of institutions under study. Thus the findings of this
study are shared with the researchers in this area are discussed in the light of its
objectives of the study and hypotheses.

6.1. Major Findings of the Study

6.1.1. An Overview of the Research Study

- The digital content creation has gradually begun few decades ago in the last
  part of 20th Century, its pace accelerated after the 1990s with the
  advancements in the ICT.

- The digital content is available in two categories – born digital and digital
  archiving. The born digital is mostly for current information content, and is
undertaken prospectively as new information is generated and is automatically brought out in digital form.

- The archival digitization is of very quantity and the resources are also in various forms and subjected to digitization. The forms include books, periodicals, reports, thesis and dissertations, patents and so on, and are in good demand by the users. So the archival digitization is a long term programme and has to be undertaken at global level.

- The archival digitization has been responsible for digital library initiatives worldwide, and now comprises of digital projects on theses and dissertations, books and journals.

- There are projects of digitization of old classical materials like the palm leaf manuscripts, hand written books, printed classics and rare books, scholarly publications.

- This has resulted in under taking several projects on variety of materials.

- The need for the study has necessitated that the digital library initiatives in Research Institute and R & D organization in India has not been such that digital library initiatives in comparison with global level are quite minimum.

- The research therefore found a wider gap on digital library initiatives in India in comparison with global initiatives, specifically in the categories of institutions under study.

- The institutions and organizations though have built up a satisfactory level of IT infrastructure and also automated their libraries a basic prerequisite for any IT related development and culminating to a digital library. It is also found
research institutions and R and D organizations in general in India are subscribing e-resources through digital library consortia and being one facet of digital library initiative. Besides this they have created facilities for the deployment of local resources through intranet, but digitization projects that were planned and executed, mostly independently at various scales and local levels.

6.1.2. On Study Sample

In India, there are several research institutions and R and D Organizations under different larger bodies, like CSIR, ICAR, MCI, ICSSR, DRDO etc., these are spread across the length and breadth of the Country, so it was intended to begin the study from the grass root level, the local level, hence 40 Research Institutions and R and D Organizations located in Karnataka are taken as sample for study. Out of which 31 are Research Institutions and 9 are R and D Organizations. Some of these are very old, established in early 20th Century, for example the Indian Institute of Science, established in 1909, and the latest being the National Institute of Unani Medicine, Bangalore, established in 2004. The sample Institutions also represent wide range of subjects, Science and Technology (6), Medical and Biological Sciences (9), Agriculture (7), Social Sciences and Humanities (2), Food Science (2) Electronics and Computer Science (2).

6.1.3. Base for Digital Library Initiatives under the Study

The conceptual bases for the DLI needed are how the institutions under study are tuned to accept the digital library concepts. It is found from the study that most of the institutions are subscribing to the e-resources under digital library consortia arrangement. It is found that, 77.5% of the institutions are acquiring e-journals
through subscribing and under consortia, to the tune of nearly 61,000 journals. It is observed 80% of them are also acquiring e-databases and 67.50% are have e-books to the extent of 20,000+ and apart from these, the standards, reports and patents are also found in the category of born digital collection. Further it is also observed that the institutions under study are also providing e-information services to a goo extent. It is revealed from the study 87.5% of the institutions are giving Online access to databases, 67.50% are having OPAC and Web OPAC 65% and 60% are providing e-Bibliographic and CD-ROM search services, and 45% are having Ask Librarian service (Table-5.26, Ch. 5).

The institutions have good sanctioned manpower, though may not be adequate, and in the range of different categories, and some institutions even have Scientific and Technical personnel to handle the technical work efficiently and stand in policies for skill development (Table-5.30 and 5.31, Ch.5). Only they lack In-house training programmes. All the Institutions show full complement of professional expertise for the digital information handling (Table-5.33, Ch.5). This profile of institutions implies that they stand tuned to the digital library services in their institutions. So they could take up projects on digital archiving of the some important and classic collections of their respective institution. It seems IISc, Indian Institute of advanced studies, Raman Research Institute and Indian Institute of Astrophysics have some notable projects of digital library.

6.1.4. Digital Library Initiatives: ICT Infrastructure

The creation of digital library out of the institutional archives and the use of the digital library require some minimum ICT infrastructure, trained manpower, hardware, software, utilities, internet connectivity, and accessories and so on.
The Institutions and organizations under study have good basic hardware and software infrastructure for undertaking digital library projects (Table-5.36 and 5.39). It is found that average number of computers possessed by them comes to 8.57 and printers and UPS backup and storage back-up is up to 95%. It is also found some older devices and equipment’s are also possessed by a very small number of institutions. Essential equipment, the Scanner which is required for data capture is available in 97.50% libraries.

The windows-based Operating systems are held by 97.50%. Almost all institutions have automated their libraries, fully and some partially, but surprisingly 37.50% of the institutions are using In-house developed Library Automation Packages and 30% the commercial software LibSys. Only a small number of them are using the OSS software as the latter is of recent development. Digital Library Software is also held by all institutions, again in this case too, the In-house built packages are in more number of institutions 57.50% of libraries. DSpace one of the most popular DL Software is used in 20% libraries and Green Stone are used in 5% libraries. DBMS is inbuilt software, however it is possessed by all libraries and 95% libraries use MySQL. Most of other software systems are in small number and they are not essential for the Digital Library projects.

It is found that 92.50% of the institutions and organizations have full automated their libraries and only 7.5% of them have partially automated. The network connectivity through LAN is found in all the institutions and 7.5% have wireless and 7.5% have intranet connectivity too. In regard to communication and Internet facilities available at the Institutions and organizations it is found that the all the institutions are well connected through Telephony, Fax and the both facilities.
All the institutions’ libraries have Internet Connectivity, among which 97.50% have leased line and only 2.5% (1) institution has dial-up facility. The Internet Service provider is mostly public sector undertaking ERNET 60%, BSNL 25% and NICNET 2.5%. Among the private organizations, VSLN and TATAINDICOM share the remaining.

It is revealed from the analysis that 29 (72.50%) of the organizations have 1 GB+ speed of access to internet and have been using the Mozilla Fire Fox as web browser. The web portal is created for accessing e-resources and 92.50% of these web portals are managed by library staff, and only 2 by computer science experts and one is outsourced.

In summary the findings show that most of the research institutions and organizations are having a good hardware, software and network communication infrastructure for undertaking Digital Library projects and deploying them for access and use.

6.1.5. Digital Library Initiatives—Resources and Projects

The digital resources, born digital require putting them into service and providing facilities for search and access. It is not known what resources are actually possessed by the institutions and organizations to undertake digital archiving projects. The Raman Research Institute and the Indian Institute of Astrophysics has taken up some concrete projects to digitize internal resources. The Indian Institute of Science is participating in an international project, Million Books Digitization and has been part of Digital Library of India project. However, the Indian Institute of Science has been a premier institution to build the first IR – Science Eprints, using the Eprints digital library software, in late 1990s.
It is still a very hazy picture on the digital library initiatives undertaken by most of the institutions and organizations which are selected for study. So the findings still reveal that an in-depth study DLI is to be carried out with key objective to find out the resources and facilities available for undertaking concrete projects.

6.1.6. Digital Library Initiatives – Manpower and ICT Skills

The findings on the ICT infrastructure reveal that the manpower in the study institution might possess good and reasonable ICT Skills in respect of handling IT based library system and services. It is well found that the library staffs possess most skills in fully as revealed from the data presented in Table-5.33. Only some specialized skills like, computer expertise and troubleshooting are not possessed by all the professional staff the table reveals.

However it is revealed that the staffs are giving opportunity to acquire additional professional qualifications 95% and 90%, as revealed from Table-5.30, but there need for a policy to upgrade the professional skills to handle the advances in ICT areas. It has already been mentioned that the expert skills should be enhanced through a programme of in-house training facility in a continuous manner.

These findings on ICT infrastructure, with good hardware, software and communication infrastructure and supported by available manpower skills and expertise it is evident that the institutions’ libraries have good opportunity to pool these resources to undertake digital library projects. Only it is necessary that they should explore the resources and materials that are subjected to digitization and a good digital library is created for sharing their resources.
6.1.7. Digital Library Initiatives Under the study: A State of the Art

In this overview seven different aspects are observed they are;

a) Digital Library projects

b) Digital Materials available

c) Access and Copyright issues

d) Reasons for Preservation and uses of digital preservation.

e) Types of Resources - already in digital form

f) Scanning Equipment and Facilities and

g) The Conversion formats for text, structure, graphic and audio-visuals

The findings are presented here below.

a) The study comprised 40 libraries of Research Institutions and R and D organizations from Karnataka, of which majority of them 35 are from Bangalore. The study analyzed digital library initiatives in 17 different aspects among which only 37 (92.50%) of libraries have some digital library projects worth name, and remaining 3 (7.50%) libraries have no projects to name. The findings reveal that 50% of libraries of institutions under study have Institutional Repositories and 27 (55%) have a separate section for Digital Library. As many as 40 different Digital Library Software are in possession and Green Stone Digital Library software is used in 3 libraries, EPrints is used in 1 libraries and DSpace is using in 8 libraries, open source software’s are used by 7 libraries and In-house developed software’s are used in 11 libraries.

b) Among the materials available in digital form, the books in digital form are in most libraries i.e. 8(20%) libraries, Reports in 17.50% and theses and dissertations in 15% libraries are digitized materials. Only in 5 libraries more than 1000 and in 4
libraries it is less than 1000 digitized collection is available. The born digital the figures are 52.50% of them have less than 1000 and in 35% libraries it is more than 1000 collection. The method of conversion to digital form is both by keying in and scanning, used in all 40 libraries. It found that among the digitized materials 35% are library’s own material and only 10% are purchases.

c) In all cases of digital library projects, where the digitized materials are available, the copyright is owned by the libraries 100%. The kinds of rights given are Access 87.50%, Onsite Access 52.50%, and On Campus Onsite Access in 85% and Off Campus Onsite access is in 12% libraries. In which 95% of users have “Onsite users have remote access” and 42.50% Offsite users remote access.

d) Several reasons are attributed for adapting to digitizing the resources. The data is presented in Table – 5.61. The findings show that, 39 (97.5%) state it is due to the reason that the digital materials occupy Easy to access through Intranet 39 (97.50%) and Access to updated 37 (92.50%) and anytime and anywhere access in 35 (87.5%) libraries.

The reasons for using digital preservation are 100% for longevity, Access is 34 (85%) cases. The Refreshing aspect is considered most in the use of preservation technology with 97.5% libraries. The Data Archiving in 32.50% of the institution libraries.

e) The types of resources available in digital library are, Pre-prints of journal articles 92.50%, Annual Reports 87.50%, Conference Papers 85% and 65% are Project Reports. The others are very negligible.
f) As many as four different types of Scanners are available among which 80% are page scanners, 65% are document scanners. All the 100% libraries have facilities for converting Textual Matters by Scanning. It is found Adobe Professional to convert pictures is available in 32.50% libraries in remaining it is minimal with only 2.5%.

g) Many Graphic, Structure, Audio-Visual and Page layout formats are in use. Among them, jpeg is found in 97.5% libraries, 12.5% is in Tiff, the HTML is the most structured format with 97.5% and XML is 27.5%. In the case of audio and visuals, MPEG is the most popular use with 97.50% AVI in 65% and MP3 in 95% and WAV in 82.5% libraries. Among the page layout the PDF with 52.5% is in most cases and XML in 42.5% libraries.

6.1.8. Digital Library Initiatives – Challenges and Constraints

As many as 17 different types of challenges and constraints identified and faced by the libraries on digital initiatives are presented (Table-5.63) In most of the libraries they expressed opinion that strongly disagree on the Financial and Funding problem as the constraint and challenge to take up digitization projects, for the query ‘initial costs are very high’ most of them expressed uncertain i.e., in 97.50% cases. The top management interest is also considered as lacunae in 100% cases and of similar extent it is no lack of coordination and lack of interest among the library staff. The lack of professional recognition and lack of trained staff are other major constraints with expressed opinion in as many as 38 (95%) libraries, and they strongly disagree with library staffs are not interested in digital materials shows 37 (92.5%) libraries. Users are also not interested in avoiding digital materials in as many as 30 (75%) libraries and the legal and copyright issues are challenges in 62.5% libraries.
6.2. Chi Square Tests and Tests of Significance

The tests of significance in some main issues of digital initiatives are presented in Chapter 5, Section 5.8.

The study examined several e-services offered by the Institutions and Organizations, such as Document Delivery, OPAC and Web OPAC, Digital Reference Service and Search services on CD-ROM databases and so on. The Table value in all these services was 2.059 (df=1) (Table-5.28) is higher than the calculated $X^2$ value. So there is a significance difference between institution type and all the e-services provided by them.

A test of significance is also conducted on Manpower training and skill development programmes. In case of “Short term training”, “In house training” and for acquiring additional qualifications there is no significant difference among the institutions, where as in case of Deputing to Conferences and Seminars there is a difference as the Calculated value 5.783 is more than the Table value 3.84 (Table-5.31). The level of professional staff expertise there is no significance difference as most calculated values are less than the table value (Table -5.31).

The Tables 5.36 and 5.39 show the values for Hardware and Software facilities. In the case of Hardware the significant difference is found in case of Barcode Scanners, Readers and Printers, Ink Jet Printers and in all other cases of hardware there is no significant difference. The software shows there is significant difference in case of use of Operating System, Windows and Windows/Linux. In the case of Library Automation Software there is significant difference among the institutions, as many institutions are using the In-house developed software (Table-5.57). The use of Digital Library Software also shows similar inference as many of
them are using Green Stone Digital Library Software. (Table-5.58). The Table 5.43 shows that there is significant difference in the case of use of DL for IR by the institutions. Excepting the Content Management Software, in all other cases of Software use by the institutions there is no significant difference among them (See Tables 5.44-5.50, and there is a significant difference in the use of Antivirus Software (Table-5.51).

On the availability of library automation and communication networking, excepting the case of participating library consortium, there is no significance difference between the research institutions and organizations, the value of \( X^2 \) significance difference in them is 9.038 much more than the table value 2.059 are 0.05 level. So this is to be considered for the digital library services in the born digital resources. (Table-5.28).

In the case of digital library initiatives, there is no significance difference between the research institutions and R and D organizations, in case of other activities related to digital library initiatives, like having institutional repositories, separate section on digital library, using digital library software and offsite users to have remote access, have very significant difference. (Table-5.59). Recalling the data presented in the Table –5.59, only 50% libraries have the separate section on digital library, institutional repositories, and having the digital library software.

Finally, the challenges and constraints of digital library initiatives are tested using the Chi Square test. Excepting the “preservation problems” in case of other problems like, funding, legal problems, lack of adequate trained staff, there is no significant difference between the institutions and organizations as all the problems are equally shared by them (Table-5.64).
6.3 “t” Test Analysis

A ‘t’ test analysis is also conducted, the results on the digital library initiatives are presented under Tables–5.60 to Table 5.65. As already inferred in the Chi Square test, that there is a significant difference among the institutions and organizations in the context of a) Digital Library Initiatives (Table–5.60) undertaking Digitization and Digital Preservation activity (Table-5.62), and there is a significant difference in the skills, and expertise, availability of Hardware and Software (Tables-5.38 and 5.55). This implies that there is lack of initiatives on undertaking digital library projects even though there is expertise, ICT infrastructure, and that might be due to Funding and Management issues and which can be looked into very seriously.

In order to confirm this above inference, and a correlation analysis has found thirteen variables for regression analysis out of which only two factors are closely associated with the digital library initiatives and they might be funding and lack of management initiatives, which have close correlation. So the results of Regression and ANOVA of the libraries of Research Institutions and R and D Organizations are presented in Table–5.67 & 5.69 and it reveals that in case of Library Automation, Skill Development, Hardware and Software and the Digital preservation, are statistically significant and that imply for undertaking effective digital library initiatives.

6.4. Suggestions

The findings of the study, and the conclusions made there-off suggest the following Recommendations and be initiated by the bodies concerned with LIS profession like the National and State Associations and other concerned regulatory bodies.
1. The scientific and research community in Research Institutions and R & D Organizations heavily depending on the latest and up to date information. Therefore to attract and retain the scientific community. Therefore library and information centers should frame a balanced collection development policy to subscribe i.e., print, electronic and online journals by adopting pick and choose with perpetual and remote access model.

2. The library and information centers should strengthen the ICT infrastructure facilities. Libraries must be equipped with adequate computer, servers and peripheral with latest configurations. For this purpose necessary budgetary provision should made available for the proper maintenance and upgradation of the state of the art ICT infrastructure facilities in all the Research Institutions and R & D Organizations.

3. Library and information centers should strengthen the campus LAN, WiFi Connectivity, hosting all library related resources and databases on Cloud computing platform is an added advantage to access library resources and services within and outside the institute/organization The resources such as OPAC, e-journals, e-books, IR and digitized documents can be accessed through cloud on 24/7.

4. It is interesting to note that all the research institutes and R & D organizations libraries are automated the libraries using different library automation software and majority of the libraries are using in-house software. In this regard the study suggests that all the research institutes and R & D organization libraries can make use of common Integrated Library Management Software (ILMS) for
automation, preferably Free and Open Source ILMS software, which facilitate
greater resource sharing and networking of libraries and information centers.

5. Library and Information Centers should take necessary steps to create an
interactive web-portal. It should act as an information gateway to access all
types of e-resources. In this context libraries can adopt standard web-discovery
tools or can be develop a need based web discovery service in collaboration with
leading e-publishers for effective and efficient information retrieval of all types
of library resources.

6. The research institutes and R & D libraries should utilize the web 2.0 tools and
Social networking software to provide an innovative library and information
services. The social networking tools like facebook, twitter, web blog, RSS, IM
etc., can be used to sharing of information such as latest developments in their
areas of research, latest scientific and technological events, new arrivals,
research reviews and research in progress etc., this makes the library and
information centers are more user centric.

7. Institutional Repositories (IRs) are the showcase of the scholarly intellectual
output of the research institutes and R & D organizations, it facilitate improve
the visibility and image of the organization not only in India but also at the
International level. Only half of the research institutes and R & D organizations
are having IR under the study area. Looking at the greater advantages of IRs it is
suggested that all the research institutes and R & D organizations should
develop an IR to host all their scholarly intellectual content and institutional
heritage collection using standard Open Sources IR software.
8. In the field of scientific research and technological innovations there are good number of experts video lectures and seminars/conferences videos are available in various public domain sites such as MIT open Coursewhere, Khan Academy, MOOCs, Youtube, NASA etc., In addition to this many academic and scientific societies brought out annual, memorial and endowments scientific lecture series delivered by the scientific and technological experts around the world. To preserve and provide access to these lectures videos, the library and information centers need to develop Audi/visual Multimedia lecture room, where the scientific community can spend some good time to watch/listen popular lecture videos as and when they required and during free time. On the other hand the libraries can also provide a hyperlink from the library website with the thematic or A to Z list of such lecture videos.

9. Users must be given adequate digital information literacy programme to access digital and electronic resources by organizing orientation programme on regular intervals for effective utilization of all types of digital and digitized library resources and services. Further libraries can also create web enabled multimedia based digital information literacy programme using YouTube and this can be leveraged through library website, virtual tour, digital library tour etc.

10. Analysis points out that overall quality of the professional staff at all research institutes and R & D organization’s libraries are satisfactory. However, one should not be content with these findings. An adequate motivation and incentives (promotion from time to time) need to be given to the professional staff to improve upon different types of professional skills in discharging their
duties efficiently. Once satisfactory level of efficiency is achieved then the staff must be strive double to keep that level consistent and to improve upon it.

11. Library and Information Science (LIS) professionals working in different research institutes and R & D organizations must show interest in developing innovative and emerging technological skills and competencies. The authorities of the research institute and R & D organizations must be have some provision/mechanism for continuing professional development programme for LIS professionals in order to cope up with technological innovations and to work in a networked environment. Further the LIS professionals should take personal and professional interest and to utilize all the opportunities like attending regular Short Term Training (STT) programme, workshops, national and international conferences/seminars to present and learn innovative best practices.

12. There is a need for bringing suitable amendments to the Indian Copyright Act, to promote digitization of some rare and classic materials of Indian origin so that this knowledge can be shared globally, towards building a knowledge society.

13. The National Mission on Libraries should initiate the census of all libraries in India and the terms of reference of this census should include the survey of knowledge resources available in Indian Libraries Research Institutions and R & D Organizations which are worth to digitizing and to share them globally.

14. Nearly half the Research Institute and R & D libraries in Karnataka are head in charge of the Library and Information centers. It is recommended from the study that the concerned competent authorities need appoint professionally qualified
Librarian or Information Scientist to management and provide better library and information services to scientific community.

15. Nearly half of the research Institutions and R & D Organizations libraries are functioning as a part of main building of the research institute. It suggest that the concerned authorities both central and state government need to provide financial assistant for construction of new independent library building for better functioning and to create information common space with green library building concept.

16. Further the networking of all the Research Institutions and R & D organization libraries in India in general and Karnataka in particular to facilitate greater resource sharing between and among the research institutions and R & D organization it minimize the cost of resources and maximize user satisfaction.

6.5. Conclusion

The findings from this research brought that digital library in Research Institute and R & D organization’s development in India is indeed migrating from the electronic phase but the development is still behind compared to those digital library initiatives explored in the literature review. While foreign digital library initiatives were mostly international in nature, done collaboratively, digital library initiatives were very much localized and done independently.

The comparison might be unfair but that was the benchmark that could be used. The DLI in Chapter three and four reflected attempts on taking digital library initiatives much higher than just information disseminator and this study purposely included some of the well-known digital library projects with the intention to learn and imitate.
The research findings are based on most important issues which are key points to digital libraries in Research Institutes and R & D organizations and the same has been grouped, thus Digital library planning, Barriers to digital library development; Lack of understanding on digital library concept; National support system; Human resource and digital library/ICT training; Collaboration; Digital library policy, legal framework and blueprint; ICT facilities and national information infrastructure; Increased usage of online services and sources; and Leadership. The perceived conditions for digital library future growth had been embedded accordingly and discussed.

6.6. Future Areas of Research

The study has undertaken a sample of population limited to Karnataka State and to the Research Institutions and R and D Organizations. It is therefore suggested to conduct further not only in Research Institutes and R & D Organizations of Karnataka but also India covering universities and colleges.


2. Digital Library Literacy and Competencies among the Scientists & Technologists working in different Research Institutions and R & D Organizations of Karnataka: A study.

3. Status and Use of Institutional Repositories (IR’s) by the Scientific Community to improve their Scholarly Communication in Research Institutes and R & D Organizations of Karnataka: An Analytical study.

4. In Karnataka there are some Colleges which are as old as 150 years and historically and resource-wise they are very significant. Hence a suggestion is
made to explore the materials that are worth digitization and a comprehensive plan and a project be initiated to convert them into digital archives for the benefit of Academic, Research & Scientific Community.

5. The Karnataka has a rich tradition of fostering higher education through the private organizations and some of them are as old as 100 years. As their institutions have good libraries and they must fund their libraries to undertake digitization of some rare and classic materials available in their respective libraries.

6. If all the colleges under the private and government management take up digital arching projects simultaneously, in a short span of time a consolidated digital library of some rare and classic resources can be built and shared with national and international bodies.

7. The comparison with the other countries suggests that there is wider gap in India and Karnataka on DLI and there are some known benchmark that could be used. The literature review on digital library showed attempts on taking digital library projects and this study purposely suggested some well-known digital library projects with the intention to learn and imitate and carry forward the digital library project in our country.

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