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Research Report

**Application of Information Communication
Technology in the Libraries & Information
Centres of the Defence Research and
Development Organisation and the Council of
Scientific and Industrial Research of Delhi:
A Study***

K P SINGH**

0 INTRODUCTION

The present century is the age of digital nervous system, which aims at leveraging the two-core revolutions, PC and the Internet. The advancement in information processing, storage and communication technologies have revolutionized the role of the libraries and information centres all over the world. As a result, libraries are facing new challenges, new competitions, new demands, and providing variety of information services now-a-days. To meet the new challenges and multifarious information needs of users, libraries and information centres are reconsolidating, reshaping, and redesigning their services and information products by incorporating new technologies and tools, repackaging: information resources and advanced training programme to library and information science professionals. Huge amount of information is being generated at every moment in various forms and contents such as printed materials (books, periodicals, conference proceedings, technical reports, standards and patents etc., offline i.e. floppies, audio tapes, CD-ROM, etc.) and Online (Web). The information is a dynamic and unending resource that affects all disciplines and all walks of life. Hence, information becomes an essential

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ingredient of our life and a basic input to education, research, planning, and development activities. Information Communication Technology (ICT) is the science of information handling and processing, particularly by computers used to support communication of knowledge in scientific and technical, economical and social fields. ICT has a convergence of two fold of technologies namely, computers and communications tools. In other words, it is a mosaic of technologies, products, tools & techniques combined to provide new electronic dimension to Information handling and management.

1 OBJECTIVES OF THE STUDY

The present study has the following objectives:

- (a) To know the availability of Information Communication Technology infrastructure in the Libraries and Information Centres of the Defence Research and Development Organization (DRDO) and the Council of Scientific and Industrial Research (CSIR) located at Delhi;
- (b) To know about the hardware and software used;
- (c) To know the various areas of application of ICT on libraries and information centres;
- (d) To know the opinion of the librarians about the application of ICT on libraries and information centres;
- (e) To know the merits and demerits of the application of ICTM libraries and information centres.

2 SCOPE OF THE STUDY

The present study is intended to look into the application of ICT in the libraries and information centres of the Defence Research and Development Organisation (DRDO) and the Council of Scientific and Industrial Research (CSIR) Located at Delhi. The DRDO and the CSIR institutions are the mission oriented and are playing a pivotal role in the designing and developing the critical technologies for the growth and development of country. Therefore, the present study Includes only the libraries and Information centres located at Delhi, Which includes:

- (a) The Defence Science Library, DESIDOC;
- (b) The Laser and Science Technology Centre (LASTEC) Library;
- (c) The Institute of System Studies and Analysis (ISSA) Library;
- (d) The Solid State Physics Laboratory (SSPL) Library;
- (e) The Institute of Nuclear Medicine & Allied Sciences (INMAS) Library;

- (f) The Defence Institute of Physiological and Allied Sciences (DIPAS) Library;
- (g) The Defence Institute of Psychological Research (DIPR) Library;
- (h) The National Institute of Science Communication and Information Resources (NISCAIR) Library formerly INSDOC;
- (i) The National Institute of Science, Technology and Development Studies (NISTADS) Library;
- (j) The Central Road Research Institute (CRRI) Library;
- (k) The Institute of Genomes and Integrated Biology (IGIB) formerly CBT Library; and
- (l) The National Physical Laboratory (NPL) Library.

3 METHODOLOGY AND PROCEDURE FOLLOWED

For conducting any research, systematic planning of study is most vital upon which the whole process of research study depends. Such planning acts as a frame of the guidelines while investigating the problem. For the purpose of the present study, the following methods of research have been used.

31 LITERATURE SURVEY

Literature survey was conducted into two stages. In first stage, literature was scanned to have clear understanding of the various facets, concepts of study. In the second stage, actual literature search on various components of information communication technology was carried out. The articles collected on various aspects of research study were segregated further, within the framework of the objectives of the study. Therefore, an extensive survey of available literature published in national and foreign publications was conducted in the field of application of Information Communication Technology in libraries and information centres. General findings, reviews and suggestions of various studies on various facets of application of Information Communication Technology in libraries and information centre have been given in chapter 2 i.e. 'Review of Literature'. The sources used for scanning and study of the literature include both primary and secondary sources of information, such as periodicals indexes, abstracts, articles in journals and reference books, etc.

32 QUESTIONNAIRE METHOD

The purpose of questionnaire method was to obtain accurate and reliable information for the research study. Therefore, questionnaire method was used to obtain free, frank, and unbiased the required data from the librarians.

321 *Designing the Questionnaire*

One set of structured questionnaire was designed for the librarians. The questionnaire was pre-tested by conducting a pilot study at four libraries i.e. Solid State Physics Laboratory (SSPL), Central Road Research Institute (CRRI), Institute of Nuclear Medicine & Allied Sciences (INMAS), and National Physical Laboratory (NPL) Library. While designing the questionnaire, due care was taken to make it comprehensive by including all essential aspects without sacrificing its simplicity and objectivity. Keeping in view the objectives and scope of the study, relevant points needed for the study were covered and the questionnaire was designed. Depending upon the need, the questionnaire includes different types of questions such as dichotomous type questions (Yes or No), multiple-choice questions, and opinion scale questions. Every question has been so framed that it should be easy to understand and take little time of the librarians to provide the needed information. The questionnaire was subjected to pilot study as explained below.

33 PILOT STUDY

Pilot study was conducted from respondents' point of view. Conduct of pilot study helps to ensure the conceptual clarity of various aspects covered in the questionnaire, simplicity of language used therein, standardization of questions, and also to know the existing drawbacks, defects and ambiguities in the questionnaire, if any. For this purpose before finalization of questionnaire, a draft questionnaire was distributed for pilot study to the librarians of three randomly selected libraries of the DRDO and the CSIR located at Delhi (names mentioned below). These four libraries includes:

- (i) The Solid State Physics Laboratory (SSPL);
- (ii) The Central Road Research Institute (CRRI);
- (iii) The Institute of Nuclear Medicine & Allied Sciences (INMAS);
- (iv) The National Physical Laboratory (NPL) Library.

Conduct of pilot study was found to be very helpful as the number of suggestions were received from the librarians of these libraries. Some of these suggestions were found to be very useful for improving the questionnaire to get the required data for the study.

34 ADMINISTERING THE QUESTIONNAIRE

The finalized questionnaire was administered to the librarians of the twelve selected libraries and information centres of DRDO and CSIR located at Delhi covered in the study. The questionnaire was distributed personally. Some librarians sent the filled questionnaire within 1-2 weeks but in few cases when no response was received after waiting for more than a month, the librarians were personally contacted on telephone and personal visits were made for

reminding and collecting the filled up questionnaire. General data required for the study was collected from the library during the personal visits made to these libraries.

35 INTERVIEW METHOD

The most obvious alternative as well as supplement to the use of a questionnaire is the personal interview. The advantages of this approach are the richness of free and frank response, ability to clarify doubts arising while responding to the questionnaire, opportunity to have follow up and by implications provide much better data in many situations. Another reason for using interview method was that since the questionnaire was comprehensive, requiring more time to be spent by librarian, some of the filled-up questionnaires were returned with incomplete information, so in such cases it was necessary to supplement the remaining information through personal interviews, and discussions with the librarians. Therefore, structured as well as unstructured interviews were conducted with librarians and library professionals. Such interviews were arranged in a most cordial manner. While collecting data through this method, it has been observed that in spite of the busy schedule of the librarians they spared their time and data so gathered was more accurate and reliable. Information even on most sensitive issues could be collected with least problem.

4 ORGANIZATION OF THE STUDY

The present study aims to find the application of ICT in the Libraries and Information Centres of the Defence Research and Development Organization (DRDO) and the Council of Scientific and Industrial Research (CSIR) located at Delhi. The study had been organized into seven chapters. **Chapter 1: Introduction** provides an overview of the topic, highlights the problems, scope, objectives of the study, limitation of the study; definitions of the basic terms appeared in the study and the research design and research procedure used to conduct the study. **Chapter 2: Review of Literature** gave the findings of an extensive review literature of primary and secondary sources of information related to various aspects such as information, communication, technology, ICT application in library, automation, networking, impact of ICT on libraries, software, etc. **Chapter 3: Information Communication Technology:** An overview provides an overall overview of the multifarious concepts of ICT such as background, conceptual meaning of information communication technology, need and purpose of information communication technology, advantages of information communication technology, possible area of application of information communication technology in libraries and information centres and basics of information communication technology. **Chapter 4: Profile of the DRDO Libraries and Information Centres:** gives the basic information about the genesis and organization of Defence R&D Organisation and also detail about

the DRDO institute and the profile of their libraries and information centres located at Delhi. Under the library profile information about its staff, budget, collection, and services, etc. has been included. **Chapter 5: Profile of the CSIR Libraries and Information Centres:** gives the outline information about the structure and organization of Council of Scientific Industrial Research and also information about the CSIR institute and the profile of its libraries and information centres located at Delhi. Under the library profile information about its staff, budget, collection, and services, etc. has covered. **Chapter 6: Data Analysis and Interpretation** deals with the analysis of data collected through the questionnaire. The data has been analyzed and presented into various tables (i.e., Library profile, Library Budget, Library Staff, Library Collections, Availability of Software Infrastructure, Availability of Hardware Infrastructure, Availability of Networking Facilities, Application of ICT in Housekeeping activities of LIS, etc.). **Chapter 7: Findings and Conclusion:** This chapter gives the findings and conclusion of the research study and three appendices namely Questionnaire for the Librarian, List of the DRDO Libraries and Information Centres, and the List of the CSIR Libraries and Information Centres.

5 FINDINGS

Objective one: The first objective of this study was to know the availability of information communication technology infrastructures in the libraries and information centres of the Defence Research and Development Organization (DRDO) and the Council of Scientific and Industrial Research (CSIR) located at Delhi. For this librarians were asked to furnish the information related to the various ICT infrastructures available in their respective library and information centres. It was found that the availability of ICT infrastructure in the Defence Science Library of DESIDOC and the National Science Library of NISCAIR has large numbers of PC, Apple Mac, Mainframe computers, CD-ROM Drivers, CD Writers, Scanner, Modem, Barcode Reader, and Photocopier for carried out the LIS activities, the actual numbers of quantity of these ICT items. This was also found that each library and information centre of the DRDO and the CSIR has at least one photocopier and the photocopying services are free for the users of their respective library and information centres.

Objectives Two and Three: Objectives two and three of this study was to know about the hardware and software available and used in the libraries and information centres. Since the software packages are always considered as the blood of the hardware system, which brings the equipments into real use and application that cannot be function without software packages and similarly the hardware are also the basic components of ICT which enable to integrate the software packages in operations of LIS activities. It was found that library and information centres of the DRDO and CSIR are using the various software packages for performing the different type of jobs.

- For library automation that all libraries and information centres of the

DRDO are using SUCHIKA (A library software package comprises of acquisition, circulation, OPAC, article indexing, serials control modules) developed by DESIDOC. Where as the library and information centres of the CSIR namely, CRRI, NIST ADS, and IGIB are using the Libsys (A commercial developed library software package by LIBSYS Corp., New Delhi.) and the National Science Library of NISCAIR is using GRANTHALAYA (A library software package developed by NISCAIR), the NPL library also using in housed developed library software package based on CDS/ISIS.

- For Operating System the majority of the library and information centres of the DRDO and the CSIR are using the Windows. The DSL of DESIDOC and the NSL of NISCAIR in addition to Windows are also using the UNIX.
- For Word Processing it was surprise to found that hundred percent of the library and information centres of the DRDO and the CSIR are using only MS- Word (A segment of the MS-Office developed by Microsoft Corp., USA).
- For tabulation work (Spreadsheet software) the all libraries and information centres of the DRDO and the CSIR are using MS-Excel (A segment of the MS-Office developed by Microsoft Corp., USA). Few libraries and information centres are also using Lotus 1-2-3 software for the spreadsheet work.
- For the DTP and multimedia work only the DSL of DESIDOC, the NSL of NISCAIR are using Adobe PageMaker, Ventura, PhotoShop, and Director.

Objective Four: The fourth objective of this study was to know the various areas of application of information communication technology in the Libraries and Information Centres of the DRDO and the CSIR located at Delhi. It was found that the libraries and information centres are using ICT in various areas of the LIS activities.

- For Housing keeping jobs that the major library and information centres of the DRDO and the CSIR are using ICT in all housing keeping activities i.e., acquisition, cataloguing, serial control, and management.
- For OPAC all the library and information centres of the DRDO and the CSIR have developed ICT based information retrieval system i.e., Online Public Access Catalogue (OPAC).
- For CAS and SDI services except DIPR Library of the DRDO and IGIB library of the CSIR all the libraries and information centres are using computerized CAS and SDI .
- Online searching the majority of libraries and information centres of the DRDO and the CSIR are using ICT based online searching of information.

- CD-Rom Search this was found that all the libraries and information centres of the DRDO and the CSIR are using CD-ROM search facility
- Internet Search it was found that hundred percent library and information centres of the DRDO and the CSIR are using Internet.

Objective Five: The fifth objective of this study was to know the opinion of the librarians about the application of information communication technology in libraries and information centres of the Defence Research and Development Organization (DRDO) and the Council of Scientific and Industrial Research (CSIR) located at Delhi.

It was found that all the librarians of the library and information centres of the DRDO and the CSIR were opinion that ICT based content should be introduced in the course curricula of LIS training schools and also have the provision of practical exposure of the computerized LIS activities.

The majority of the librarians also opinions that due to the paucity of funds, and unskilled hands are the major issues in LIS services and maintenance of the library and information centres effectively and efficiently.

6 CONCLUSION

After analyzing the data collected for this study, it seems that the most of the libraries and information centres of the DRDO and the CSIR like Defence Science Library of DESIDOC and National Science Library of NISCAIR are using the ICT in almost all areas of LIS activities. Further it is to add that these two libraries are the central point of designing and developing the ICT based products and services, application software, creation of bibliographic databases, and establishing the Wide Intranet for resource sharing. The NPL Library of CSIR and the SSPL Library of the DRDO are using ICT largely in LIS activities and both the libraries have an excellent ICT infrastructure. However, few library and information centres particularly of the DRDO such as LASTEC Library, DIPR Library, and ISSA Library are in the preliminary stage in the application of ICT in LIS activities as the basic information needs of the scientists of these institutions are meet with the Defence Science Library of DESIDOC.