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# COMPUTERIZATION OF INDIAN LIBRARIES



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P. S. G. KUMAR



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*Respectfully dedicated*  
*to*  
*My Late Parents*  
*Mrs Venkataratnam*  
*&*  
*Dr Sambasiva Rao*

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P.S.G. KUMAR



## ABBREVIATIONS

ADP	Automated Data Processing
AFSARI	Automation For Storage And Retrieval of Information
AGRIS	AGRIcultural Information System
ALGOL	ALGOrithmic Language
ALS	Automated Library Systems
Ann	Annals
AOC	Army Ordnance Corps
APPLE	Ariane Passenger PayLoad Experiment
ARIC	Agricultural Research Information Centre
ASM	American Society for Metals
ATIRA	Ahmedabad Textile Industry Research Institution
BARC	Bhabha Atomic Research Centre
BASIC	Beginners All-purpose Symbolic Instruction Code
BBC	British Broadcasting Corporation
BHEL	Bharat Heavy Electricals Ltd
BNB	British National Bibliography
BPS	Book Procurement System
BT	Broader Term
BTI	British Technology Index
Bull	Bulletin
CAC	Chemical Abstracts Condensates

CAS	Current Awareness Service
CC	Colon Classification
CDRI	Central Drug Research Institute
CEIS	Central Excise Information System
CF	Command File
CFTRI	Central Food Technological Research Institute
CI	Computronics India
CLAS	Computerized Library Acquisition System
CLR	Council on Library Resources
CLRI	Central Leather Research Institute
CMC	Computer Maintenance Corporation
CMERI	Central Mechanical Engineering Research Institute
CMTI	Central Machine Tools Institute
COBOL	COmmon BUssiness ORiented Language
COIN	COordination and INformation division of IIP
COM	Computer Output Microfilm
COMPENDEX	COMPUterized ENgineering inDEX
CORE	Computer REadable catalogue
CRT	Cathode Ray Tube
CSI	Computer Society of India
CSIR	Council of Scientific and Industrial Research
CWC	Central Water Commission
DBF	Data Base Files
DBID	Data Bank and Information Division, of Planning & Analysis Group of Electronics Commission
DBMS	Data Base Management System
DEC	Digital Electronics Corporation



# COMPUTERIZATION OF INDIAN LIBRARIES

DES DOC	DEfence Scientific DOCUmentation Centre
DFS	Document Finding System
DIN	Document Identification Number
DPAP	Drought Prone Area Programme
DRDL	Defence Research and Development Laboratory
DRDO	Defence Research and Developmental Organization
DRTC	Documentation Research and Training Centre
DST	Department of Science and Technology
ECIL	Electronics Corporation of India Limited
EDP	Electronic Data Processing
ELIDA	Electronic Information and DAta system
ENIAC	Electronic Numerical Integrator And Computer
ERDL	Explosives R & D Laboratory
FECL	Far-East Computers Limited
FID	International Federation for Documentation
FORTTRAN	FORmula TRANslator
FOSTIS	FOod Science and Technological Information System
FSTA	Food Science and Technology Abstracts
GBWRD	Ganga Basin Water Resource Organization
HAL	Hindustan Aeronautical Laboratory, Bangalore
HCL	Hindustan Computers Limited
HF	Holdings File
HMT	Hindustan Machine Tools
HR	Hierarchical Relationship
IARI	Indian Agricultural Research Institute

IASLIC	Indian Association of Special Libraries and Information Centres
IBM	International Business Machines
ICAR	Indian Council of Agricultural Research
ICL	International Computers Limited
IFIP	International Federation for Information Processing
IFLA	International Federation of Library Associations and Organization
IIM	Indian Institute of Management
IIP	Indian Institute of Petroleum
IIT	Indian Institute of Technology
IISc	Indian Institute of Science
ILA	Indian Library Association
IR	Information Retrieval
INIS	International Nuclear Information System
INSDOC	Indian National Scientific Documentation Centre
INSPEC	Information System for Physics Electrical and electronic engineering Computer and control engineering
IQ	Intelligence Quotient
ISA	Indian Science Abstracts
ISBN	International Standard Book Number
ISI	Indian Standards Institution Indian Statistical Institute
ISIS	Indian Standards Information System
ISONET	International Organization for Standards NETWORK
ISRO	Indian Space Research Organization
JCL	Job Control Language
KWAC	KeyWord And Context

KWIC	KeyWord In Context
KWOC	KeyWord Out of Context
KWUC	KeyWord and UDC
L	Library
LSDS	Low Speed Data Service
MABD	MAchine readable Bibliographic Data
MARC	MAchine Readable Catalog
MEDLARS	MEDical Literature Analysis and Retrieval System
MEDLINE	MEDlars on LINE
MeSH	Medical Subject Headings
MF	Main File
n	number
NCSDCT	National Centre for Software Development and Computing Technology
NCST	National Committee on Science and Technology
NCT	National Centre for Telematics
NFP	National Focal Point
NHR	Non-Hierarchical Relationship
NIC	National Informatics Centre
NICDAP	National Information Centre for Drugs And Pharmaceuticals
NICLAI	National Information Centre for Leather and Allied Industries
NICNET	National Informatics Centre NETwork
NML	National Medical Library
NPOL	Naval Physical and Oceanographic Laboratory
NT	Narrower Term
OCR	Optical Character Recognition
PAU	Punjab Agricultural University

PC	Personal Computer
PL/1	Program Language/1
PLAN	Program Language for Nineteen hundred
PMS	Periodical Management System
POPSI	POstulate based Permuted Subject Indexing
PRECIS	PREserved Context Indexing System
PRL	Physical Research Laboratory
P & T	Post and Telegraphs
R & D	Research and Development
RAM	Randum Access Memory
RCC	Regional Computer Centre
ROM	Read Only Memory
RRC	Reactor Research Centre
RRL	Regional Research Laboratory
RSS	Retrospective Search System
RT	Related Term
RUC	Regional Union Catalogue
Sc	Science
SCSV	Semi-Computerized Stock Verification
SDI	Selective Dissemination of Information
Sem	Seminar
SENDOC	Small Enterprises National DOcumentation Centre
SERC	Structural Engineering Research Centre
SIS	School Information System
SITE	Satellite Instructional Television Experiment
SLIC	Selective Listing In Combination
STEP	Satellite Telecommunications Experiment Project
TBDF	Trans-Border Data Flows

TEST	Thesaurus of Engineering and Scientific Terms
TIFR	Tata Institute of Fundamental Research
TV	Television
UGC	University Grants Commission
UIN	User Identity Number
Unesco	United Nations Educational Scientific and Cultural Organization
UNIMARC	UNiversal MARC
UNISIST	World Science Information System
v	volume
VDU	Visual Display Unit
VHF	Very High Frequency
WADEX	Word and Author inDEX

## INTRODUCTION

India has made great strides in computer and telecommunication technology. India was one of the first few nations which realized the potentialities of computers for bibliographical information work and routine library operations. It was almost two decades ago that such studies were started in India. However, these efforts were isolated, institution oriented, and confined to a few men of foresight, dedication and determination. But, when we look at these efforts in the light of a long span of 20 years, it is very disappointing. Only around 40 institutions have evolved some 80 computerized systems. Of these, 2/3 have been abandoned after initial experimental work. Instead of more and more institutions going in for automation, there has been a growing indifference among librarians. In spite of the decrease in the cost of computers and rapid advancement in computer, communication and related technology, libraries could not catch up with the trend. While automation in library and information work is developing at a rapid pace in other countries, in India, we seem to be going from bad to worse. This alarming situation made the author to make an in-depth study of the present situation and an objective analysis of the data and evolve a strategy for library automation in India.

In 1978, the author had the opportunity to attend the international Summer School in Advanced Information Work at the University of Sheffield (UK) which was sponsored by Unesco, FID and IFLA. At this school, he had the opportunity to learn and to have 'hands-on experience' in the use of computers in library and information work. This increased his interest in the subject and led him to take up this study.

### Objectives

The objectives of this study are

1. To get an overview of methods and means of adapting computer and communication technology in library organization and services at the international level,

2. To get an idea of the developments in the field of computer usage and its promotion in different business and economic activities in India,

3. To trace the developments in application of computer-communication systems in library automation in India,

4. To critically assess these developments from the point of effectiveness on the library organization and information services in India, and

5. To formulate a plan of action for further developments in library automation in India in a cohesive fashion.

### **Methodology**

The methodology followed for achieving the aforesaid objectives is as follows:

#### **1. Survey of literature on**

- (i) The developments in innovative computer technology and telematics in general at the international and national level, and
- (ii) Library automation published in India during the past 20 years;

2. Personal visits and interviews at the institutions where work on library automation is in progress and also through discussion with experts in the field of library automation;

3. Formulation of a set of criteria for library automation on the basis of the data collected from the survey;

4. A consolidation of problems and their relative merits in the context of changes in technology during the last twenty-five years and a projection of the changes likely to occur in the near future; and

5. A set of propositions and a phased plan of action on the basis of the analysis and interpretation from the surveys and personal interviews. The narrative method was used with a description of the systems, annotations and interpretations.

### **Conspectus**

The study is divided into five parts:

#### **1 Trends in Technology**

#### **2 The Stage of Computerization in Indian Libraries**



- 3 A Study in Comparison
- 4 Estimation
- 5 Conclusion

### 1. *Trends in Technology*

This part makes a survey of the technological developments in computers and computerization with special reference to their use in library and information work. The study is divided into two chapters: (i) The International Scene; and (ii) The Indian Scenario.

### 2. *The Stage of Computerization in Indian Libraries*

This part has two chapters: (i) Library automation in India, and (ii) Information programmes in India. The first chapter gives a historical perspective of the library automation in India followed by a description of computerized in-house operations in about 26 institutions. The chapter on 'Information Programmes in India' discusses the concepts of data, data base, data bank, international and indigenous data bases.

### 3. *A Study in Comparison*

In this part various indigenous computerized acquisition, classification, cataloguing, circulation, serial control and stocktaking systems have been studied in comparison and evaluated. Indexing and SDI systems were also discussed.

### 4. *Estimation*

This part covers the measures of evaluation: (i) Effectiveness (accuracy, volume of transaction, speed, etc); (ii) Cost-Effectiveness (manpower costs, material costs, durability, etc.); and (iii) cost-benefitness (rapidity, exhaustiveness, precision, etc.). The economics of computerization covers costs, system design, system components and performance, hardware and software, and operational economics.

### 5. *Conclusion*

In this part, a quick round up covers the computer age in India, details of the present study, operation-wise analysis, workshops, etc. organized on library automation in India, literature published, computer technology, planning and implementation of library automation, etc. Problems of computerization (social, economic, technical and back-up service) have been discussed in detail. In all, about 20 problems have been isolated. Under 'prospects', the