

VIDYASAGAR UNIVERSITY

**JOURNAL OF
LIBRARY AND INFORMATION SCIENCE**

Volume : 2
1997



Vidyasagar University

Midnapore
West Bengal
India

Editorial

The publication of this journal is a product of professional and academic commitment, patronised by the enlightened University Authority. Only one volume of this Journal was published in the year 1987 under the title "Annals of library literature". In spite of our best intention, its annual rhythm could not be maintained, which is regretted. The current volume—that is, volume two, is being published in the year 1997 after a long gap. Recently the Vidyasagar University has adopted a uniform policy of attaching the name of the University in the title of the Journals to be published by the different departments of the University. In view of the fact we have changed the title of our departmental Journal from "Annals of library literature" to "Vidyasagar University Journal of Library and Information Science" (VUJLIS) from this current volume. VUJLIS endeavours to bring the recent developments in the field of Library and Information Science to the notice of librarians and information service professionals, teachers, students and others in the field. We are confident that this publication will henceforth be a regular one and contribute its mite for the healthy growth of the profession and the professionals.

All round co-operation has made the publication of this Journal possible. We are indebted to the University authority for providing necessary fund and encouragement in the publication of this Journal. We are grateful to all the authors of this Journal for responding to our request and sending their papers. Our special thanks are due to Gana Prakashani, Calcutta-700 090 for their sincere and very prompt services.

Amalansu Sengupta

on behalf of

Editorial Board

VUJLIS, 2, 1997

MIS in Educational Environments

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Abstract

The objective of this presentation has been to help development of a comprehensive notion about the Management Information Systems(MIS); and to characterise the Educational MIS. For this purpose, MIS has been analysed as a system, and as an information system. This exercise has been followed by the development of a generalised image of the manager and by the generalised enumeration of scientific management activities. Finally, the relationship between the MIS and the man-made production system in general and the educational manpower development system in particular has been established.

1 Introduction

"MIS" stands for "Management Information System". A MIS is a man-made system. Any man-made system has to function in an "Environment". The relationship between the system and its environment is extremely strong and intimate. The environment is not a part of the system. But, any change in the environment affects its systems. Reciprocally, any change in the system affects its environment. For this reason, the consideration of any man-made system must take into account its environment. It is necessary to take note of it from the very beginning. For, it is the characteristic features of the environment that govern the formulation of the ultimate goal of the concerned system; of its super systems of different removes, if there are any; and of its coordinate system, if any. Besides, the structures and functions of all the hierarchically related systems, that is, the whole set of superordinate, subordinate, coordinate, and collateral systems, are decided on the basis of their respective goals and environment. Here lies the importance of the environment in relation to a man-made system.

The original framework of the MIS evolved in the "Industrial Environment". A factory is a typical example of a system functioning in the industrial system. Such a system is a man-made production system. It produces commodities and services meant to be made commercially available to the members of the society. The products of a production system are technically referred to as the "Systems-Output". The output of a system takes shape because of some operations carried out as the "Systems-Throughput" or "Systems-Processes". In order to carry out the operations, the system has to utilise money, manpower, material, machines and equipment, and time. Together, all these are technically referred to as the "Systems-Input". To establish a full fledged production system, it is necessary to have land, buildings, roads, vehicles, electricity, water, telecommunication facilities, etc. All these are referred to as the "System-Infrastructure". The infrastructure forms an integral part of the systems-environment. All production systems irrespective of the nature of their

products or output are characterized by the specific nature of their environment, input, throughput, and output. For this reason, it is possible to conceptualise a generalised model of MIS. But, for a specific purpose, the practical meaningful image of the system emerges only when its design is conceptualized with reference to the specified environment in which it would function. For this reason, the universe of our discourse here is the "MIS in the Educational Environment". By implication, our primary concern here is to visualise the place of the "MIS in the Educational Environment" in the general frame work of the MIS; and to concretize its characteristic features to generate an appreciation for it by the managers of educational systems. For the purpose of reference, let us call the "MIS in the Educational Environment" as "Educational MIS". Having taken note of the environment we are specifically concerned with, let us now turn towards MIS to ascertain what it does imply as a system.

2 EDUCATIONAL MIS AS A SYSTEM

In fact, an educational MIS is a system in the true sense of the term. The concept of "System" in the true sense of the term, forms part of the General Systems Theory (GST). This theory was first formalized by Ludwig VonBartalanfy under the same title(11). As an element of GST, a "System" may be defined as follows:

"A system is a complex entity, deemed to be a whole; and it is made up of structurally and functionally related non-wholes or components. Any such relatively non-whole or component, in turn, may be deemed to be a whole; and which again is found to be made up of structurally and functionally related sub-components. By implication, any system may have its own supersystem on the one hand; and its own sub-systems on the other".

Such a system may be an abstract system; or it may be a concrete system. For example, any mathematical system is an abstract system. For the purpose of our universe of discourse, we can safely avoid any discussion on abstract systems. A concrete system may be a man-made (or artificial) system; For example, the river-system of a land mass is a natural system. For the purpose in hand, we need not devote any discussion on natural systems. The primary focus of our interest here centres round man-made systems; and let us turn our attention towards it only.

When we take man-made systems only into our consideration, it becomes necessary for us to enrich the definition of "System"; and the definition may take the following shape:

A man-made system is a complex entity deemed to be a whole, that functions in a specified environment to achieve a well-defined goal; and it is made up of structurally and functionally related non-wholes, or components, or sub-systems.

The rest of the definition remains unchanged. According to both the definitions, a "Component" is a participating non-whole of a system; which in turn, may be deemed to be a whole. In other words, the terms like "Supersystem", "Sub-system" and "Component" are all relative terms and not absolute terms, as the entities denoted by them are recognized in relation to some other entity.

The industrial systems are familiar examples of man-made systems. Like those, all man-made systems are production systems. But, their products are not always commodities and services

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that are meant to be made commercially available to their prospective consumers. On the other hand, there are man-made production systems which are meant for producing new information, new processes, and new products. Such systems are called Research Systems or Research and Development Systems (R & D Systems). Analogously, there are man-made production systems which are meant for developing educated man-power. Such a system is called an Educated Manpower Development System (EMDS). All educational systems are such systems. Therefore, our specific concern for the purpose in hand, is the EMDS; and no other kind of systems. Familiar examples of EMDS are the Schools, Colleges, Universities, and other academic and professional institutions of higher learning. By implication, therefore, in the general framework of systems, our concern is the MIS that is meant to function as a major component of a supersystem which may be any one kind of EMDS.

The Educational MIS of our concern is a major sub-system of its supersystem 'EMDS'. According to the definition of "System" an Educational MIS can also be viewed as a system by itself. As a system by itself, it is to function in the educational environment. The ultimate goal, in general, of the supersystem "EMDS" may be formulated as follows :

To develop educated manpower having knowledge and skills necessary and sufficient to prosecute further studies for the purpose of acquiring more knowledge and developing more skills so that this manpower can constitute and enrich the collective educational and intellectual strength and competence for work in the different vital spheres of the life of the concerned nation.

This goal of the EMDS implies as follows:

- (1) The EMDS is a subsystem of the National Development System (NDS).
- (2) The objective of the Educational MIS should be contributory to the achievement of the goal of the EMDS.
- (3) Each and every educational, training and research programme of the EMDS constitutes a subsystem of the EMDS; and it is a coordinate system to the Educational MIS, as its objective is contributory to the achievement of the goal of the EMDS.

The implications derived from the ultimate goal of the EMDS suggests the specific nature of the Educational MIS in broad attributive terms as follows: (1) The ultimate goal of the NDS is to ensure and promote the development in all the vital spheres of the life of a nation. To accomplish this goal, the NDS establishes EMDS. In turn, the EMDS establishes the Educational MIS to achieve its own objective. As a result, the ultimate goal of the Educational MIS is always contributory to the achievement of the ultimate goal of the EMDS. This way of looking towards the Educational MIS leads us to an obvious question: "What is the ultimate goal of the Educational MIS?" Therefore, let us now proceed to find a suitable answer to this question.

3 EDUCATIONAL MIS AS AN INFORMATION SYSTEM

From the very beginning we have noted that an Educational MIS is an "Information System". To understand the implication of an information system, it is necessary for us to devote some time to get our idea about the concept of "Information" clarified. Here is an attempt in that direction.

The intention of successful communication, calls for constructs arrived at by mentally systematizing constituents of different levels of a language, natural or artificial. For example, in the English language, sentences and their accepted or acceptable substitutes are such constructs. Because,

the English sentences are made up by mentally systematizing the constituents, such as, words, terms, phrases, and clauses, of the English language. In communication, such constructs are fully or partially, intended to (1) inspire, (2) urge, (3) advice, (4) warm, (5) appeal, (6) describe, (7) explain, (8) clarify, (9) enlighten, (10) educate, (11) inform, (12) provide recreation or emotional satisfaction, and so on. A construct formulated with such an intention by a communication may be regarded as one having the potentiality of conveying a "Message". A "Message", is basically the element of intention of the communicator, (and as interpreted by the communicatee), underlying one or more such constructs. "Message" is conceived only on the basis of the assumption of the existence of the communicator and the communicatee. Viewed from this angle, "Message" is the essence of what is exchanged between the communicator and the communicatee. In the context of systems, such an exchange may take place between the system and its environment, the system and its components of any levels, or between components of any status indicative relationships, such as, coordinate, superordinate, subordinate, and collateral. On the basis of the analysis furnished here, "Information" may be defined as follows :

Information is the Message conveyed or intended to be conveyed by a systematized body of Ideas, or its accepted or acceptable substitutes.

The term "Systematized" used in this definition is to be interpreted as a derivative of the term "System" as defined earlier.

Two varieties of information are universally recognized: (1) Discursive Information (e.g. this lecture on MIS); and (2) Non-discursive Information. The latter has two varieties (2.1) Quantitative non-discursive information (e.g. the answer "Married" in response to the question "What is your marital status?"); and (2.2) Quantitative non-discursive information (e.g. the answer "55 years" in response to the question "How old are you?").

The whole gamut of activities concerned with information includes (1) Information Generation and Utilization; (2) Information Communication; and (3) the whole range of activities concerned with Ensuring and promoting the Utilization of Existing Information. The continuous accumulation and proliferation of information at a tremendous rate is now described as a phenomenon of information explosion. In this context the acts of generating new information of communicating generated information, and of ensuring and promoting the utilisation of existing information have emerged as three distinct fields of activity. As a result, corresponding to each field has emerged a distinct "Systems"; and they are (1) Primary Information Generation System (PRIGS); (2) Primary Information Communication System (PRICS); and (3) Secondary Information Work and Service System (SIWSS). The term "Information System" may be defined as follows :

"Information system" is a generic term that comprehends (1) Primary Information Generation System (PRIGS); (2) Primary Information Communication System (PRICS); and (3) Secondary Information Work and Service system (SIWSS).

Unfortunately, the term "Information System" is used in several senses. The definition furnished earlier is its broad connotation; and it is fully logical also. However, in the narrow sense, the term "Information System" is used to refer to the SIWSS only. The reason behind it is not very clear; nor is it logically justifiable. However, it is said to be that the PRIGS is normally referred to by

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the term "Research System" or "Research and Development System" (R & D System). Similarly, the PRICS is normally referred to by the term "Publication System" or "Publication and Printing System" (P & G system). Besides, PRICS may be referred to by the term "Recording System" or "Reporting System" also. However, there is no such term in common usage for SIWSS. As a result, the term "Information System" is used in its narrow sense to refer to the SIWSS only. In this narrow sense, it is informed that is, it meets the information needs of its users. Typical examples of SIWSS are (1) Libraries; (2) Documentation Centres; (3) Information Centres; Data Centres; (4) Information Analysis Centres; and (5) Information Analysis and Consolidation Centres.

It may be noted here that in the examples of typical SIWSS's the MIS has not been included. The main reason is that when a system is meant for meeting the information needs of some organization or institution to help them make decisions, it becomes imperative for the system to undertake responsibilities of (1) generating primary information pertaining to all management activities; (2) communicating such generated primary information for carrying out management activities; and (3) ensuring and promoting the utilization of existing pertinent information through secondary information work and services that aim to furnish information about sources of information. Consequently, the MIS emerges as a complex of PRICS, and SIWSS. Such a complex is quite distinct from a typical SIWSS. Of course, it must be noted here that the PRIGS and PRICS, in this context, are not at all the same entities as the Research System, or the R & D System, or the P & P System, of the host organisation as they never form part of the MIS. The complex of PRICS, and SIWSS constituting the MIS has for its ultimate goal "To provide the Managers (key members) of an organisation with information to be used in its Management". To achieve this objective, the MIS has to (1) procure pertinent sources of information produced by external agencies; (2) to gather unrecorded but pertinent information from external sources and to record that systematically; (3) to generate new information internally which normally takes the form of management decisions and to record that; and (4) to communicate those decisions by circulating such records among concerned personnel for taking appropriate actions which in turn generate new information and the cycle begins again. Consequently, the SIWSS component of the MIS has to be equipped with sources of information procured externally and produced internally. This part of the work is taken care of by information scientists through the information centre of the host organization. On the other hand, the rest of the responsibilities are to be discharged by the managers and other administrative personnel. In this area, who is to do what in what form and for what purpose become evident when we take note of the concepts of "Manager" and "Management".

Let us now turn our attention towards these concepts.

4 THE CONCEPT OF "MANAGER"

On the basis of the analysis furnished earlier, we can safely conclude that a MIS is a complex of PRIGS, PRICS, and SIWISS in a very specific sense. It is information system created by the collaboration of the managers and information scientists. But, it is a system primarily of the managers and for the managers. The concept of "Manager" as used here is a generic concept irrespective of the environments in which they work. Any formal organisation including an educational institution, has to have managers. It is necessary to recognize them on the basis of their managerial responsibilities and activities, and not on the basis of their designations. For example, the Principal of a College is a Manager from all practical points of view. Of course, he may be simultaneously an academician. But he is concerned with his MIS as a manager. For the reason mentioned earlier, it is possible to develop a generalized image of a manager; and it is essential for the understanding

of a MIS. For all practical purposes, a "Manager" is a "Professional" whose "Profession" is the "Management" of a specified entity, such as, a business, an organisation, an institution; or within them a particular programme, project, phase, activity, operation, resource, process, or product. Obviously, therefore, a manager is not an ordinary person; he is a "Professional". This implies that he is committed to render a public service. He has acquired specialized knowledge and skills. For this purpose, he has undergone long and intensive preparatory training; may be it has been a case of self-study and practice. He knows his work, that is, his profession of management, adequately well. His understanding of the fundamental principles governing his work, is profound. He is a capable learner; and he is committed to continuing education for his professional advancement. He expects the same qualities from all his professional colleagues. He is appreciated for his high standard of achievements and conduct. He is a leader of his professional colleagues. He can think for himself. He can identify problems and opportunities, and can go after them. He can set the overall direction of his enterprise. He is alert about the inadequacy of the fixed-time of professional educational programmes. He believes in the introduction of the theoretical analysis of work, and standardization of practice. He believes that coordination and cooperation are essential ingredients to achieve the ultimate goal. All these qualities in a person makes him a professional; and it is only a professional who can aspire to be a successful manager; and it may be a case that he has cultivated all these qualities in him by self-initiatives and self-efforts. It holds good irrespective of any environment, such as, the environment of education, research, development, decision-making, administration, or production of commodities and services. This is the generalized image of the "Manager". The MIS is created by such managers; it is a system of these managers; and it is for those managers, this is, it is meant to serve them and them only. The efficiency and effectiveness of such managers are directly proportional to those of the MIS they have created. Here lies the significance of MIS in any environment.

5 THE CONCEPT OF "MANAGEMENT"

The work of the manager is not an ordinary work. To be in conformity with the generalized image of the manager, his work must be recognized as his "Profession"; and this profession is technically designated as "Management". The term "Management" is used in several senses. In one sense, it refers to the discipline of "Management Science". In another sense, it refers to the "Scientific Management Activities". Both the senses are relevant in relation to MIS. The focal concern of a manager for the purpose of management is a man-made production system. A system of this type consists of three major sub-systems or components; and they are the (1) Input sub-system; (2) Throughput Subsystem; and (3) Output sub-system. Each of these subsystems is fully amenable to all professional management activities. For all production systems, the items of input, in general, are (1) Manpower; (2) Material; (3) Machine and equipment; (4) Money; and (5) Time. For all production systems, the throughput, in general, consists of technical means, methods, processes, rules of procedure, etc. Similarly, the output, in general, consists of all the products of the concerned system depending upon its environment.

On one side lines the ultimate objective of the production system; and on the other side, there are the production system; and on the other side, there are the management activities meant to ensure the achievement of that objective. Such activities, therefore, must encompass within their purview of all that are needed in relation to the input, throughput and the output of the concerned system. As a result, these activities include (1) Planning, Designing and Developing; (2) Organising and staffing; (3) Operating; (4) Directing, controlling and coordinating; (5) Maintaining and Modernizing; (6) Marketing; (7) Reporting and Evaluating; and (8) Budgeting. It is not that all these activities

are equally applicable or relevant to every production system or to its every major subsystem. Behind all these activities, lies the most basic or fundamental concern of all management activities; and, that is, "The right decision for the right purpose at the right time which would result into something optimum for the largest at the least cost under the pressure of the system-constraints".

All decision-making is in fact "Planning". Planning consists of selecting the right decision from among all its alternatives. The products of planning, as a process, are "Plans". In this sense, the following are all plans:

1) The statement of objective; (2) The statement of policies and principles; (3) The rules of procedure for all operations; (4) The organizational chart; (5) Guidelines of staff selections; (6) Guidelines for staff posting; (7) Statement of duties and responsibilities of staff members; (8) Inspection procedures; (9) Monitoring procedures; (10) Maintenance specifications; (11) Guidelines for report generation and reporting instructions; (12) Specification of evaluation procedure and criteria; (13) Budget; (14) Programme documents; (15) Project documents; etc.

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The generalized image of the manager, and the generalized enumeration of scientific management activities may appear to be somewhat biased towards industrial production systems engaged in producing commodities and services to ensure their commercial availability. But in fact, it is not difficult to see their parallelism in other environments also. For example, their parallelism in relation to EMDS is quite evident.

The managers of EMDS have to be professionals in the true sense of the term. Their management activities include all those enumerated ones in some form or another. It is extremely desirable that in the performance of all management activities, the necessary attributes of manager as a professional, gets reflected. It is not very easy to satisfy this condition. The main hurdle in this respect is the non-availability of pertinent information at every step of every management task. The MIS, both conceptually and practically, takes the responsibility of ensuring the availability of all pertinent information to help right decision-making for the right purpose at the right time. For this purpose, the MIS procures all pertinent sources of information available externally. If needed information is not available in the externally procured sources, the MIS collects such information by its own initiatives and efforts and prepares records of such information. The needed information, in many cases, is found to be embedded in the internally generated sources (documents). The MIS establishes the formal links of receiving every bit of such internally generated documents, provided such documents are meant to be accessible to managers of all levels. All the records of information (documents) are subjected to meticulous analysis and processing specially from the point of view of the requirements of the managers. For each source, one or more surrogate-records are prepared. For each surrogate-record, inverted index entries are prepared to the extent warranted. The sources (documents) are stored systematically. The surrogate-entries and the inverted index entries are stored systematically either in manually accessible form or in computer readable form. The MIS receives queries from the managers for information needed by them; processes or formalizes those queries; matches those formalized queries with the inverted index entries and the surrogate-index entries; select the hit-entries; supplies the list of hit-entries in the form of information service; and supplies the original documents or their digests or their copies as required by the managers. These tasks are performed by the SIWSS component of the MIS which is normally manned by information scientists. On the basis of the documents supplied by the SIWSS component, the managers make their decisions; prepare records of decisions; arrange

for communicating their decisions to other managers if it is warranted; and send copies of the records of decisions to the SIWSS component for further actions of processing and storing. These tasks are performed by the PRIGS and PRICS components of the MIS which are normally manned by the managers themselves and by their associated administrative staff.

7 CONCLUSION

The survival, development, and reputation of any organization including EMDS depends largely on its efficiency and effectiveness. This efficiency and effectiveness flow from the efficiency and effectiveness of the productivity of its Managers. The Managers derive and ensure those from their sense of professionalism. For this reason, they have to be professionals in the true sense of the term. Then and then only, the managerial tasks performed by them would reflect the attributes of professionals, which is an essential requirement. Even if all these conditions are satisfied, the managers are helpless without an efficient and effective MIS. To have such a MIS, the EMDS must have professionally equipped information scientists to man the SIWSS component of the MIS. It must provide opportunities to its managers to get themselves equipped with all the qualities necessary to man the PRIGS and PRICS components of its MIS. All these points are not opinions; but today, they together constitute a well-established fact surviving the test time and experience.

The objective of this presentation has been to help development of a comprehensive notion about the MIS; and to characterize the Educational MIS. For this purpose, the MIS has been analyzed as a system, and as an information system. This exercise has been followed by the development of a generalized image of the manager; and by the generalized enumeration of scientific management activities. Finally, the relationship between the MIS and a man-made production system in general, and the EMDS in particular has been established. All these exercises have led us to a stage from where we can comfortably attempt to define the MIS and the Educational MIS.

In the background of the information analytically generated, the MIS may be defined as follows :

The National Development System (NDS) is a man-made system; and its ultimate goal is to ensure and promote the development in all the vital spheres of the life of the concerned nation. To achieve this objective, NDS establishes many groups of subsystems corresponding to all the vital spheres of the life of the concerned nation. One of the important group of subsystems may be designated as the Production Systems. The ultimate goal of this group of subsystems is to produce something or other to contribute to the development of the concerned nation. The outputs of these subsystems may be new information, new processes, new products, manpower, commodities, service, etc. The efficiency and effectiveness of a production system is largely the reflections of those of their managers and management activities. To ensure and promote such efficiency and effectiveness of the managers and management activities, the production systems establish their respective Management Information Systems (MIS). The ultimate goal of the MIS is to ensure and promote the utilisation of existing pertinent information by managers through secondary information work and service to help them make right decisions at the right time for the right purpose; prepare records

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(documents) of those decisions; and communicate those decisions to follow managers and workers for implementation by sending or circulating those records of decisions. For this reason, the MIS consists of three major subsystems, namely, (1) The Secondary Information Work and Service System (SIWSS); (2) the Primary Information Generation System (PRIGS); and (3) the Primary Information Communication Systems (PRICS).

The definition of an Educational MIS can be formulated comfortably in the light of the general definition of MIS as follows :

The Educational Manpower Development System (EMDS) is a major subsystem of NDS. Its ultimate goal is to develop educated manpower having knowledge and skills necessary and sufficient to prosecute further studies for the purpose of acquiring more knowledge and more skills so that this manpower can constitute and enrich the collective educational and intellectual strength and competence for work in the different vital spheres of the life of the concerned nation. For this purpose, the EMDS establish its MIS having the same objective, structure, and function of a general MIS. Such a MIS may be designated as an Educational MIS as it functions in the Educational Environment and contributes to the achievement of the goal of its host system, namely, the EMDS.

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A Journey from PRECIS to COMPASS

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ABSTRACT

The study centres round the examination of the essential features of the Computer Aided Subject System(=COMPASS) introduced for BNB. It starts with the description of objective conditions which led the British Library to replace PRECIS by the COMPASS. The objective Conditions are enumerated with particular reference to the revision of UKMARC, difficulties with the PRECIS index (especially in on-line searching) and the use of DDC number in the BNB. Finds that the principles and working procedures of COMPASS are more or less similar to PRECIS. The PRECIS primary operators (0), (4), (5) and (6) are not used for COMPASS. A new authority file, based on the concept of open-ended vocabulary, has been developed by using the WLN software. The BNB using COMPASS index appears to be much shorter and more user-friendly than earlier one. Concludes that the further development in the application of the British Library subject system in on-line searching might be possible once the necessary preconditions in the field of data and retrieval technology are created.

1 INTRODUCTION

PRECIS(=Preserved Context Index System) was developed by Dereck Austin in the later part of 1960s as an alternative procedure for deriving the subject headings and index entries for British National Bibliography(=BNB) which since 1952, for about 20 years, was following the chain indexing for deriving subject index entries. Two most important factors played the significant role in looking for an alternative method which ultimately resulted in the development of PRECIS:

- (1) Idea of replacing chain indexing technique of BNE; and
- (2) Involvement of BNB with the MARC project.

The concept of machine-readable catalogue(=MARC) brought a new era in the field of library and information service. Planning for MARC I began in 1966 and concluded in 1968. Idea behind MARC II was to develop one common format structure capable of containing bibliographic information for all physical forms of documents. It was realised that these machine-readable data could also be used as the source for producing the BNB itself. The British Library undertook the work to prepare the input in standard MARC format for British publications(=UKMARC) and decided in 1968 to use the MARC tapes as the source for its input (7). Upto that time BNB had three parts :

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- (i) Classified main part in which entries were organised according to DDC numbers;
- (ii) An alphabetical index of authors, titles, etc. (i.e. Name index); and
- (iii) An alphabetical subject index drawn according to the chain procedure.

It was possible to produce (i) and (ii) directly from the MARC tapes since all the necessary data are held in clearly labelled MARC fields and sub-fields. But no satisfactory source of subject index data was available in MARC. An investigation thus began for a means by which one could generate an alphabetical subject index directly from the machine-readable records. The aforesaid factors ultimately resulted in the development of PRECIS.

After three years' of experiment and trial in BNB (1971-73), the system as a whole stood up well to test its application to some 95,000 documents and the definitive version of PRECIS was introduced in 1974, the year that saw the publication of the first edition of the manual (1). In the light of the experiences gained through the application of PRECIS in UK, USA, Canada, Australia, Germany and in countries as linguistically and culturally far apart as Denmark, Italy, Poland, China, etc. some refinements were introduced, and the final version was fully described in the second edition of the manual published in 1984 (2).

Documents received by the British Library under the scheme of deposit of newly published items for copyright purposes were routed through a sequence of offices of the British Library Bibliographic Service Division (=BLBSD). Each office was responsible for a particular set of library techniques. For example, descriptive cataloguing was done by the Descriptive Cataloging Office; classification and indexing were done by another office—that is, Subject Systems Office (=SSO). The SSO was itself divided into various sections associated with the production of a range of subject data, only a selection of which was used for the BNB.

For these and other reasons, the organisation of work was appeared to be more complicated than in most other agencies. Further, the growing popularity of online searching, together with the need for financial stringency, led to a review of the work of BLBSD. In 1987, the BLBSD was divided into three separate organisations (4) : one responsible for National Bibliographic Service (=NBS), one for Telecommunications and computing, and the third for Acquisition, Processing and Cataloguing. Apart from the production of BNB, the NBS is also responsible for the UKMARC and the BLAISE (=British Library Automated Information Service). In 1990, it was decided to revise UKMARC and to replace PRECIS by a more simplified system of subject indexing. As a result Computer Aided Subject System (=COMPASS) was introduced for BNB from 1991 and the PRECIS was dropped (8,9,11). An attempt has been made in this paper to examine the essential features of the COMPASS, a new British Library subject system. Since most of the features of the PRECIS are common to the COMPASS they are not repeated here.

2 CRITICISMS AGAINST PRECIS

PRECIS was designed for a specific purpose of generating coextensive subject statement at each entry point in a form that was suitable for a printed bibliography. This was not necessarily the best format for online searching. It is worth recapitulating briefly some of the criticisms of PRECIS in order to put the COMPASS into perspective (3,5,6) :

- (1) The syntactic structure of PRECIS is unduly complex and time consuming. Its complex system of role operators served to provide the output string for printing, but were not otherwise utilized—though there is no reason why they should not have been.

- (2) PRECIS appears to be imprecise in some aspects; for example, in many instances it does not appear to make any difference whether a concept is coded (1) or (2), which suggests that the operators would not be of much help in searching a computer file, where they might be included.
- (3) Place name has been treated in several ways as part of the subject string. Depending on the sense, place name is coded by the operators (0), (1), (5) and occasionally (3).
- (4) The author information may be of value, if an individual or a corporate body is closely associated with a particular subject. Persons as subjects, for example of biographics, also form part of the PRECIS subject string. As a result entries for an individual may be found in both the Author/Title file and the subject file. Common practice for many years has been for libraries to file such entries in the Author/Title file, making this a Name file. If a record is being searched online, it is to some extent immaterial whereabouts in the records a piece of information occurs, so long as it is there to be found.
- (5) PRECIS allows very long headings. For example,

Acquisition. Books. Stock. Libraries.
Universities. United States
Selection. Approach plans—
Reports

In this example, everything before "Selection" is the heading. Long headings like this are not likely to be shared by more than one index element, and the main purpose of distinguishing headings from subheadings seems to be thwarted. Even when more than 100 index elements begin with "Acquisition", a PRECIS index display will repeat this term each time if the other component terms of the heading are different. By contrast, in a system in which the lead term alone always forms the heading, the lead term "Acquisition" could be displayed once for a large number of index elements.

- (6) PRECIS index generation rules are quite complex. It is insuperably difficult for an indexer to keep nearly 200 rules in mind every moment.
- (7) User of the PRECIS manual (be he a student, teacher, or a practising indexer) is too often confronted by the fine distinctions and interpretations which sometimes seem incomprehensible and inconsistent.

3 WORKING PROCEDURES OF COMPASS

Like PRECIS, COMPASS consists of two interrelated set of working procedures, each concerned with a particular group of inter-term relationships (2, 10). The first refers to the organization of terms in input strings by means of a scheme of role operators and codes; and their manipulation into index entries. This is the syntactical side of the system. The second set of procedures deals with semantic relationship between terms and their synonyms, broader terms, narrower terms, etc. These are organized as machine-held networks that serve as the sources of "see" and "see also" references in the printed index. These two sets of inter-term relationships form the backbone of the whole system.

3.1 Syntactical aspects

As stated above, syntactical relationship is based on the codes and role operators which regulate

A JOURNEY FROM PRECIS TO COMPASS

the writing of input string. The terms in the input string are organized by adopting the principle of context dependency—that is, each term in the input string sets the next term into its wider context. In other words, the meaning of each term in the string depends upon the meaning of its preceding term and taken together they all represent a single context. When terms are organized according to context-dependent order they form a one-to-one related sequence. This simply means that each of the terms in the input string is directly related to its next term. This principle of context dependency plays the most important role in conveying the meaning of an index entry.

Role operators used in COMPASS consist of primary operators and secondary operators. Primary operators control the sequence of terms in the input strings and determine the format of index entries. Secondary operators perform the secondary functions and any of the secondary operators always is to be preceded by a primary operator to which it relates. In order to minimize the complexity of PRECIS role operators, primary operators (1), (2) and (3) are used for COMPASS along with the secondary operators (p), (q), and (r). The PRECIS primary operators (0), (4), (5), and (6) are not used for COMPASS. Codes in respect of "connectives"—that is, \$v and \$w are used in the input string to construct pre-coordinate phrases and thus to disambiguate the resulting index entries. In a subject *"Assessment of students by teachers"*, for example, the following index entry :

Students

Assessment. Teachers

may lead to represent another subject *"Assessment of teachers by students"*. In cases such as this, use of "connectives" with the term (i.e. Assessment) dealing with the concept of action in the input string will reveal the subject property from the resulting index entry as displayed below :

Students

Assessment by teachers

Pre-coordination also has a role to play in an on-line information retrieval systems. An on-line search is usually based on keywords linked by the standard Boolean Operators (AND, OR, NOT). These operators allow the user to identify records where a given set of terms co-occurred in designated fields, but they cannot show how the concepts are interrelated. The on-line search of UKMARC file with the search statement "Teachers AND Students AND Assessment" will retrieve the documents on two different subjects as stated above. This can be largely avoided if the user can call for the display of a pre-coordinated subject statement, as a kind of filter, during search procedure.

Dates as a difference (coded with \$d) are not used in all cases like PRECIS. Historical periods may be listed in the input string from the DDC schedule.

In Literature, for example, the period subdivisions enumerated in the DDC are used so that the index entry and the class number coincide. The methods associated with the generation of COMPASS index entries are same as that of PRECIS index entries.

3.2 Semantic aspects

The PRECIS network of related terms (i.e.the RIN file) which served as the source of "see" and "see also" references in the printed subject index of BNB has been retained. The PRECIS manual (2) goes into great and technical detail about the on-line construction of input record for establishing semantic network of terms. The RIN file consists of the following :

- (1) **Indexing terms**—that is, all lead terms whether they call for references or not.
- (2) **Reference Indicator Number(=RIN)**—that is, the address of the term in the computer. A RIN is available from a computer-produced list and is written below the given indexing term while establishing the semantic network of terms. A RIN consists of seven digits, the final digit serving as a modulus eleven check for guarding errors in transcription.
- (3) **Relational Codes**—that is, the codes used to interrelate the RINs (addresses) in the computer-held file. As a result, the RIN file consists of an interlocked semantic network. Relational codes used to link RINs are :
 - \$m = Equivalence relationship;
 - \$n = Associative relationship;
 - \$o = Hierarchical relationship;

A new authority file has also been developed using to the software of Washington Library Network(=WLN). Like PRECIS, this new authority file of COMPASS is also based on the concept of open-ended vocabulary, which means that a new term can be admitted into the indexing vocabulary as soon as it has been encountered in documents. This file also incorporates entries from the RIN file as appropriate.

4 COMPASS AND UKMARC

When a document is handled by the office responsible for descriptive cataloguing, its details are recorded on a standard worksheet, organised by MARC fields. Not all the information in the MARC record is relevant to the subject of a document, but certain fields are related specifically to classification number and other related to subject headings. The different fields of the worksheet containing subject information for BNB are as follows(7) :

- 050 Library of Congress(=LC) classification number
- 082 Dewey Decimal Classification(=DDC) number
- 600 Personal name as subject
- 610 Corporate name as subject
- 650 Topical subject headings
- 651 Geographical subject headings
- 660 Subject topical descriptors
- 661 Subject geographical descriptors

Fields 690, 691 and 692 used earlier for PRECIS string, RIN, and SIN(*) respectively were

* SIN or Subject Indicator Number is the address of the subject data/subject package of a document in the computer. The subject data refers to the indexing form/record containing subject information of a document in terms of its PRECIS string, DDC number, LCSH, and LC classification number under the respective fields of the UKMARC. Indexing form/record was checked to ensure that all the necessary fields contain appropriate data, and the whole of subject data was then assigned to its own address (indicated by a SIN) in another random access file. Like a RIN, a SIN consists of a seven-digit number (including a modulus eleven check digit) struck from a computer-generated list. A SIN was written in field 692 in the indexing form/record and UKMARC record with the object of establishing link between the descriptive cataloguing data held in one file and the subject data held in a separate file. Whenever the cataloguing data were processed—for example, when producing MARC exchange tapes or the issues of BNB—the computer was directed by the SIN to the exact position in a random access file where all the necessary subject data could be located and extracted.

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discontinued, and these fields were replaced by the fields 660 and 661 with the introduction of COMPASS. Proper names as subject are located in the UKMARC fields 600 and 610, and are found in the Author/Title Index, marked "t" to distinguish them from the same name as author or title. With the introduction of COMPASS, BNB also stopped including Library of Congress Subject Headings(=LCSH) which was constructed from 6XX fields in the MARC records. LCSH contained headings with subdivisions, and headings subdivided according to "pattern headings", neither of which was in the printed version of LCSH.

5. COMPASS AND DDC

The indexer who writes the COMPASS input string also assigns the appropriate DDC number in the field 082. The initial step of subject analysis is done only once while preparing the COMPASS input string for a document and this input string is taken as the basis for all latter decisions relating to the derivation of the subject data for a given document, and their incorporation in the relevant fields of the worksheet meant for the BNB (8,9,11). The DDC numbers serve three different purposes :

1 DDC numbers organise entries for bibliographic records in the classified part of the BNB, and thus ensure collocation of entries.

2 DDC number is also used as a source of feature heading. Usually, up to three levels of heading from DDC number are given, but sometimes for four and even five levels of headings from the DDC number are give. There are no feature headings for more detailed subdivision. The index string drawn according to the COMPASS is appeared at the end of the main body of the entry, in italic. The aforesaid system of producing feature heading has been reported to be unsatisfactory from the users' point of view (6). In this connection, it is to be pointed out here that prior to the introduction of COMPASS, feature heading was constructed by the computer from the terms in PRECIS string selected in input order.

3 DDC numbers are now linked direct to the bibliographic records rathr than through the subject string. Prior to the introduction of COMPASS, the PRECIS strings were used to generate the DDC numbers and also the feature headings for the BNB classified sequence, so that users could find their way through the file without being unduly reliant on the class numbers; both these links were incorporated in the SIN file. The COMPASS has not been used for this purpose at all.

6 COMPASS AND BNB

As stated earlier, the COMPASS string is appeared at the end of the entry for bibliographic record of a document in the classified/main part of the BNB. The subject index of BNB refers to a class number in the following manner:

Library operations

Classification compared with indexing 025

In the classified part of the BNB, a number of entries or bibliographic records has been arranged under the class number 025. The above mentioned subject index directs the user to scan the entries under the class number 025 in the Classified//Main part of the BNB in order to find out the one which has at the end the subject heading "*Classification compared with indexing*".

The printed subject index of BNB appears to be much shorter and more user-friendly than earlier one. A C Foskett (6) has observed that in the BNB of 1990 using PRECIS index, there are ten

"see also" references for a term "Antiquities" and these are followed by 54 subject index entries, each modified by terms either in the qualifier or in the display to give a coextensive subject statement, leading to 54 different class. In the BNB of 1991 using COMPASS index, the heading "Antiquities" appears 28 places in the classified sequence leading to 28 different class numbers. To help the user, the subject index gives the context in which a particular piece of notation represents a given term. This looks like a relative index first devised by Melvil Dewey. In effect, every entry in the index is a "see" reference, taking us from the concept in verbal plane to its notational plane—that is, the heading used for arrangement of entries for bibliographic records in the classified or main part of the BNB.

7. CONCLUSION

Any system needs time for its testing and development. The COMPASS has been used by the BNB only for four years (1991-94). With the introduction of COMPASS, BNB stopped including LCSH headings until protests from users finally led to their reintroduction in 1995. It must be noted that use of the PRECIS SIN file went on until PRECIS was dropped. With the substitution of LCSH for COMPASS in 1995 the classified arrangement has no index at all. Instead, it has a parallel but not complementary alphabetical sequence—as is also the case with the Australian National Bibliography(=ANB). As a result, BNB no longer shows any direct translation of the notation. The further development in the application of the British Library subject system in on-line searching might be possible once the necessary preconditions in the field of data and retrieval technology are created.

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Data Recovery Utility for Library Professionals

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Abstract

Presents the importance of designing a bibliographic database in an integrated approach where all types of documents such as Journal articles, Books, Reports, Theses, Patents, Standards etc can be taken into consideration. Suggests to use CDS/ISIS, a DBMS package developed by the UNESCO for secondary information work and services, in developing an integrated database to meet the user need. Discusses thoroughly the organization of master file and its associate files mentioning the master file record format. Gives an account of block and offset numbers to be assigned automatically by machine to each master file records separately while storing it in the memory. Discusses clearly the procedure of using master file recovery utility. Includes appendices to support discussion.

1 INTRODUCTION

Any information system is aimed to provide timely, relevant and reliable information in the area of user's interest in any standard format which must be convenient to use. So it should maintain a huge database as well to satisfy this mission effectively and efficiently. In this respect designing and developing an integrated database is preferred which can be handled through a database management system (DBMS). Hence it can be viewed as a collection of a large number of interrelated data stored together. But while handling such a huge database with a computer, there is every possibility of being corrupted and damaged the database files which may be ended with a lost database. So data recovery/data hunting is a very important issue.

2 SCOPE

Though there are variation in types of databases, library and information professionals are mainly concerned with the bibliographical database where a record contains broadly citation, abstract, subject descriptors etc. In integrated approach, a bibliographic database, developed using CDS/ISIS, can take care of different types of documents like articles published in scientific journals, conference proceedings, reports, standards, patents, theses, books and even non-book material etc. Unlike other database, manipulating bibliographic database using computer is a bit complex because a large number of fields (as described in the CCF/B) are to be incorporated as far as possible (2).

3 MASTER FILE AND ITS ASSOCIATES

Computerized Documentation System/Integrated Set of Information Systems (CDS/ISIS), developed by Unesco, ensures its availability to all Indian Libraries, Information Centres, non-profit making organizations/institutions through NISSAT (National Information System for Science and Technology) to develop a local database of their own. Like other DBMS, CDS/ISIS is developed in such a manner that it maintains a master file separately for each database(3). A master file contains all the records of a given database where each record is identified by a unique number, assigned automatically by CDS/ISIS when the record is created, named as Master File Number (MFN). CDS/ISIS assigns .MST as extension to its master files (e.g. BIBLIO.MST, CDS.MST etc).

This DBMS package facilitates a fast accessing to each master file record with the help of a special associating file, named as Cross reference file. A cross reference file is an index file giving the location of each record. CDS/ISIS assigns .py.XRF as file extension to crossreference files (e.g. BIBLIO.XRF, CDS.XRF etc). Obviously master records of an MST file can be retrieved directly by their respective MFNs through corresponding XRF file (1).

Although these two files are physically separated, but a strong logical relationship exists among them. In case any of these two files gets corrupted or link between these two breaks down, retrieval of data becomes difficult. Generally, this happens due to computer virus, sudden power cut-off, by chance data stored in bad sectors of the disk etc or some other similar reasons. An immediate action is to be taken to recover data as many as possible. Though DBMS developers are supposed to incorporate such facility with their package, but they don't. In case of CDS/ISIS database, master file recovery utility (MSTRCV) is a programme which is developed to recover master records. Before using this programme a clear knowledge about the record format and the file structure is needed.

4 MASTER FILE ORGANIZATION

Like ISO 2709 format (for data exchange), a similar record structure is adopted for storing data in the master file. A master record is a variable length record consisting of following three sections : a fixed length leader, a directory and the variable length data fields. Besides, a master file control record is also maintained automatically containing the information about the MFN to be assigned to the next created record, last block number, offset of the next available position in the last block where the new record may be started (3).

4.1 Block format of master and crossreference files

Generally records are stored consecutively (one after the other) in the master file according to increasing MFNs i.e. in the order of their creation. Due to the variable field length nature, each record occupies exactly the master record length (MFRL) in bytes. The Computer memory is divided into physical blocks of 512 bytes each. Master file is stored in such block while a record may be continued over two or more blocks depending on its MFRL.

The starting position of each record is indicated by its offset. While the master file is created and/or updated, an index in respect of the position (i.e. Block and Offset number) of each record is maintained by the crossreference file.

The crossreference file is maintained as a table of pointers corresponding to MFNs of the master file. An entry of crossreference files, represented as pointer, contains Block number of the master file block containing a particular record in that master file block (3). Though MFNs are not included

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but it is understandable by the machine that the first entry is for MFN 1, the second for MFN 2 and so on.

4.2 Updating master file

Master file updating technique includes addition of new record(s), deletion of record(s) and modification of existing record(s). All these operations can be done through data entry services. New records are always added at the end of the master file and the new MFN is assigned accordingly. In addition, a new pointer is created in the XRF file.

Deletion of record is of two categories -- logical deletion and physical deletion. Whenever a record is deleted after calling it through data entry service, it is deleted logically. Logically deleted records are marked/flagged for deletion changing the record status from 0 to 1 and cannot be displayed, but can be reactivated, if required, removing the deletion mark. Records marked for deletion will be physically deleted or completely erased when the master file is reorganized. A physically deleted record can no longer be reactivated.

In case of modification of existing records, CDS/ISIS writes the record back at the end of the master file except when the inverted file updating for that record remains pending and record length remains unchanged. So old version and new modified version of same record exist in the master file. An old version of the record may be considered as logically deleted record. As many times a record is updated/modified that many version of the same record are added. Every time a new version of the record is created, a corresponding pointer entry is added to the XRF file and in the new version block/offset position are set to point the old version.

Obviously it is understood that as records are updated time to time, the size of the master file gets increased and there will be lost space occupied by the file which makes the disk full. No more records can be accommodated. Some times it may affect the master file such a manner that records may be lost. To avoid this situation the master file must be reorganized in a certain frequency because this master file reorganization process can erase the records marked for deletion physically and can release the unused space. Backup and restore facilities can be treated as the two steps to reorganize master file records. During back-up process only latest copy of each record is backed up while restore reads records sequentially from the back-up file and recreates master file and crossreference file. In fact exchange of records through Export and Import services can also reorganize master file if those are performed for the same database.

5 RECOVERY OF MASTER FILE RECORDS

In case of CDS/ISIS database, a programme MSTRCV (MaSTerfile ReCoVery utility) is used to recover the master file records. This programme attempts to recover the Master file records without using the XRF file. However, because the Master records may not be contiguous, manual intervention may be required as explained below.

To invoke this programme, an executable file name (MSTRCV.EXE) is to be typed at the DOS prompt

```
C:\ISIS>MSTRCV
```

Now this programme responses asking user to supply the name of the Master file (to be recovered) and of the corresponding XRF file are to be given.

MST : *The master file name including extension is to be mentioned here, e.g. CDS.MST*

XRF : The crossreference file name including extension (to be recorded) is to be mentioned at this prompt, e.g. CDS.XRF

Max MFN ? The highest MFN in the database is to be mentioned. This number need not be precise, but it must be high enough to cover the last MFN. For example if user realises that the highest record may be 153 but not sure, he may reply to this prompt with 200. This number is used to perform one of the consistency tests described below.

While answering to these prompts, a special attention is required about its correctness as at this point, the programme starts reading the master file sequentially and assumes that the records are contiguous.

For each processed record the following items of information are displayed (Appendix A) :

b/o	MFN=n	LEN=rl	BWB=bb	BWP=bp
1/64	MFN= 1	LEN= 18	BWB= 0	BWP= 0

where

- b implies the current block number
- o implies the offset in the block
- n implies the MFN of the record
- rl implies the record length
- bb implies the value of backward pointer-block number or MFBWB
- bp implies the value of backward pointer-offset number or MFBWP

The programme starts checking the consistences to determine a possible discontinuity on the following ground:

- a) The MFN must be positive and within a given range
- b) The record length must be positive, not less than 18 (Appendix A) and not greater than the system supported maximum record length (currently 8000 bytes for version 3.0)
- c) MFBWB and MFBWP must be positive or zero. If greater than 0 then MFBWB must be less or equal to the current block number i.e. b and MFBWP must not be greater than 502

If all tests are satisfied, the programme assumes that the record is in good condition and it tries to examine the next record.

If any of the above tests fails the programme stops and displays the current block. By visual examination, the beginning of the next record is to be identified. Normally a discontinuity will exist whenever a record has been shortened and rewritten in place. Therefore, the beginning of the next record is determined by examining the record content on the screen. To do this the values of b/o as displayed on the screen is important. This indicates where the programme is expecting the beginning of the next record. It can be identified through a visual examination over the block contents as displayed on the screen.

The block is displayed in lines of 20 bytes (Appendix C). Each work is displayed in ASCII(first line), as integer (second line) and in hexadecimal (third line). The offset of the first byte is displayed at the beginning of each line. The programme pauses at every 100 bytes displayed and prompts

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you with the following message :

C[ontinue display] **S**[et offset] **E**[xit (force end of file)]?

C to display the next 100 bytes of the block

S to tell the programme that the beginning of the next record is identified

E to tell the programme that this is the end of file.

If **S** is selected, programme will prompt to enter the offset of the record :

New offset ? *The offset of the MFN field of the record is to be supplied. Note that this is always an even number in the range 0-502.*

Using the provided offset, the programme will then proceed from there., Note that the consistency checks are repeated for that record.

This process is repeated until the whole file is examined (or selected **E** to the 'New Offset?' prompt).

At this point the new XRF is rewritten and the control record is reinitialized. The programme will ask confirmation as follows :

OK to rewrite XRF file (Y/N)?

Y => the crossreference file will be rewritten with the information gathered during the examination of the Master file

OK to reset MST control record (Y/N)?

Y => the master file control record is recreated by resetting NXTMFN to the highest MDN processed plus one, and NXTMFB and NXTMFP are set to point after that last record in the file.

However, before running this programme, it is advised to take a backup of these files, so that the scope of restarting remains in case of any mistake. If a backup file (.BKP) is used as input, the file must be renamed with the correct master file extension .MST.

6 CONCLUSION

CDS/ISIS is a powerful information retrieval software to render effective and efficient information services. Its use is also becoming wider in libraries and information centres. Different library activities are possible with the help of this DBMS package. The main advantage of CDS/ISIS is its ability of manipulating any number of databases containing different data elements. Maximum use with large data may lead to the file corruption though data integrity facility is improved by flushing master file buffer. So file recovery as well as data recovery is essential which may be needed at any moment.

As a precautionary measure, reorganizing master file is to be performed or in the other word the master file updating is to be carried out frequently to avoid file corruption.

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APPENDIX A*A partial listing of the output of the programme*

1 / 64	MFN=	1	LEN=	18	BWB=	0	BWP=	0
1 / 82	MFN=	2	LEN=	26	BWB=	0	BWP=	0
1 / 108	MFN=	3	LEN=	32	BWB=	0	BWP=	0
1 / 140	MFN=	4	LEN=	40	BWB=	0	BWP=	0

APPENDIX B*A partial listing of the out put of the programme in respect of the glossary database prepared for author's Ph D Work.*

8 / 352	MFN=	19	LEN=	088	BWB=	0	BWP=	0
8 / 440	MFN=	20	LEN=	060	BWB=	0	BWP=	0
9 / 000	MFN=	21	LEN=	192	BWB=	0	BWP=	0
9 / 192	MFN=	22	LEN=	122	BWB=	0	BWP=	0
9 / 314	MFN=	23	LEN=	556	BWB=	0	BWP=	0
10 / 358	MGN=	24	LEN=	172	BWB=	0	BWP=	0
11 / 018	MFN=	25	LEN=	284	BWB=	0	BWP=	0
11 / 302	MFN=	26	LEN=	144	BWB=	0	BWP=	0
11 / 446	MFN=	27	LEN=	168	BWB=	0	BWP=	0
12 / 102	MFN=	28	LEN=	336	BWB=	0	BWP=	0
12 / 438	MFN=	29	LEN=	160	BWB=	0	BWP=	0
13 / 086	MFN=	30	LEN=	206	BWB=	0	BWP=	0
13 / 292	MFN=	31	LEN=	130	BWB=	0	BWP=	0
13 / 422	MFN=	32	LEN=	244	BWB=	0	BWP=	0
14 / 154	MFN=	33	LEN=	126	BWB=	0	BWP=	0
14 / 280	MFN=	34	LEN=	208	BWB=	0	BWP=	0
14 / 488	MFN=	35	LEN=	242	BWB=	0	BWP=	0
15 / 218	MFN=	36	LEN=	276	BWB=	0	BWP=	0
15 / 494	MFN=	37	LEN=	150	BWB=	0	BWP=	0
16 / 132	MFN=	38	LEN=	100	BWB=	0	BWP=	0
16 / 232	MFN=	39	LEN=	138	BWB=	0	BWP=	0
16 / 370	MFN=	40	LEN=	174	BWB=	0	BWP=	0

DATA RECOVERY UTILITY FOR LIBRARY PROFESSIONALS

APPENDIX C

A partial listing of the current block no 35 where the programme halts

Block : 35

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300 28265 24864 28192 29739 29301 27745 27680 28257 24935 26485

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320 e, in other words, th

320 11365 26912 28526 26740 29285 30496 29295 292540 8236 26740

320 652C 2069 6E6F 7468 6572 2077 6F72 6473 2C20 7468

340 e plane of words, wo

340 8293 27760 28257 8293 26223 30496 29295 29540 8236 28535

340 6520 706C 616E 6520 6F66 2077 6F72 6473 2C20 776F

360 rd groups, phrases c

360 25714 26400 28530 28789 11379 28704 29288 29537 29541 25376

360 7264 2067 726F 7570 732C 2070 6872 6173 6573 2063

380 lauses sentences an

380 24940 29557 29541 8236 25971 29806 28261 25955 8307 28257

380 6C61 7573 6573 2C20 7365 6E74 656E 6365 7320 616E

C[ontinue display] S[et offset] E[xit (force and of file)]?

Tribal Community Information Services in India

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Abstract

Identifies the needs of Indian tribes relating to their daily livelihood and put those needs into the appropriate context of tribal community information services. Unesco's belief in the public library as the community information service centre for catering the needs for information in the different areas of human activity at the local level is highlighted. Describes the tribes in India with reference to their categorization, geographical distribution, practices, habits and beliefs. Indicators from which the nature and content of their information needs could be derived and the information sources they use to fulfill those needs are identified. Emphasizes the need for redefining the role of a public library in such a way that it covers programmes with the objectives of the development of the tribal community in India.

1. INTRODUCTION

As the situation prevails today it has become imperative for each and every public library to turn their attention to the needs of the community they served. It is recognized all over the world that a public library can play an important role for eradication of illiteracy and continuing education. Freedom, prosperity, and the development of the society and of individuals basically depend on satisfactory education as well as on free and unlimited access to knowledge, thought, culture and information. Unesco Public Library Manifesto, 1994 proclaims "Unesco's belief in the public library as a living force for education, culture and information and as an essential agent for the fostering of peace and spiritual welfare through the minds of men and women... The public library is the local centre of information making all kinds of knowledge and information readily available to its users. The services of the public library are provided on the basis of equality of access for all, regardless of age, race, sex, religion, nationality, language or social status. Specific services and materials must be provided for those users who cannot, for whatever reason, use the regular services and materials, for example, linguistic minorities, people with disabilities or people in hospital or prison"(28). In the light of the above proclamation, a public library of today has to play a much more important role than what it did even a few decades ago. The services of the public library are required to be redesigned in the form of community information services for the betterment of the community it serves. Community information service has been defined as "a positive decision to concentrate on enabling people particularly those in lower socio-economic groups to act either individually or collectively on their problems in the field of housing, employment, family and personal

matters, consumer affairs, household finance, education, welfare rights and civil rights"(5). The community information has two aspects: one is the nature of information provided and the other is the nature of the clientele served. A public library in community information services should play the role of a catalyst with the object of bridging the gap between the information needs of the community and the information they need.

In India, almost all of the tribes live in rural areas. They are minorities in the true sense with lower socio-economic profile. Such people are inarticulate and they should be provided with specific services and materials to solve the problems relating to their daily livelihood. This line of thinking suggests that the public library in a tribal community should develop its own goals as determined by the uniqueness of that community for which its services are sought. In this paper an attempt has been made to identify the needs of the tribes relating to their daily livelihood and to put them into the appropriate context of tribal community information services.

2. TRIBAL COMMUNITIES IN INDIA

The people of India include a very large number of tribes who subsist on hunting, fishing or by simple form of agriculture. These people are called either as "primitive tribes" or "aboriginal tribes". The question what Indian population groups belong to the 'aboriginal' or 'primitive' has been solved more or less definitely by the Constitution of India, Article 342. In order to provide special safeguards and more effective protection to these population groups, a list of the scheduled tribes had to be made, and the latest list of such tribes can be found in the Scheduled Castes & Scheduled Tribes Orders (Amendment) Act, 1976 (Number 108 of 1976 dated 18.9.76). In this order we find that 564 main tribes besides a number of sub-tribes are listed as 'Scheduled Tribes'.(10) State-wise size and distribution of population with percentage of Scheduled Tribes in India is given below :

TOTAL POPULATION & OF ST—1991(4)

Sl. No.	India/States or Union Territory	Total-population (.000)	Tribal population (.000)	% of Total population (.000)
0	India	838584	67758	8.08
1	Andhra Pradesh	66508	4200	6.31
2.	Arunachal Pradesh	865	550	63.66
3.	Assam	22414	2874	12.82
4.	Bihar	86374	6617	7.66
5.	Goa	1170	-	-
6.	Gujrat	41310	6162	14.92
7.	Hariyana	16464	-	-
8.	Himachal Pradesh	5171	218	4.22
9.	Kamataka	44977	1916	4.26
10.	Kerala	29099	321	1.10
11.	Madhya Pradesh	66181	15399	23.27
12	Maharashtra	78937	7318	9.27

TRIBAL COMMUNITY INFORMATION SERVICES IN INDIA

Sl. No.	India/States or Union Territory	Total-population (.000)	Tribal population (.000)	% of Total polulation (.000)
13.	Manipur	1837	632	34.41
14.	Meghalaya	1775	1518	85.53
15.	Mizoram	690	654	94.75
16.	Nagaland	1210	1061	87.70
17.	Orissa	31660	7032	22.21
18.	Punjab	20282	—	—
19.	Rajasthan	44006	5475	12.44
20.	Sikkim	406	91	22.36
21.	Tamil Nadu	55559	574	1.03
22.	Tripura	2757	853	30.95
23.	Uttar Pradesh	139112	288	0.21
24.	West Bengal	68078	3809	5.59

**Excluding Jammu & Kashmir (where 1991 census was not taken)*

Scheduled Tribes

Sl. No.	Union Territory	Total population (.000)	Tribal population (.000)	% of Total polulation (.000)
1.	Andaman & Nicobar	281	27	9.54
2.	Chandigarh	642	—	—
3.	Dadra & Nagar Haveli	138	109	78.99
4.	Daman & Deu	102	12	11.54
5.	Delhi	9421	—	—
6.	Laksha Deep	52	48	93.15
7.	Pandichery	808	—	—

Most of the tribal community live in the village or rural areas. Tribal communities in India are categorized into several groups by the experts (8, 11-13, 26, 27) on the basis of different characteristics. It will not be unrealistic to categorize settlements/communities in India simply into two broad groups : Urban and Rural. Generally, it will be misleading to the most of the people if we group the communities into more than two types. Under the broad heading of each community there may be several communities and such divided communities may be further sub-divided and more and more small or little communities may be derived out of such categorization. For example, under the Rural Community there may be Tribal Community, Peasant Community, Artisan Community, Folk Community, etc. Again, tribal community may be sub-divided into hunting and gathering community, the settled cultivating community, the shifting cultivators community etc.

3. INFORMATION NEEDS OF TRIBAL COMMUNITY

It is known to all that information need is logical eternal affairs. Every person requires information for his existence. There are different causes for information requirements. In the present day world we are living amidst the various scientific and technological discoveries and inventions. People has learnt to acquire the technological environment and able to handle the machineries so that getting of information on anything is in the hands of people. This information society still not has covered the traditional life style of the tribal communities in India. In spite of having the genuine needs for information no organised effort has yet been made to study the information transfer processes among the tribal communities in India. The application of modern tools and techniques for this purpose is still far away from them.

The proposition is true as we find in the writings of Sachchidananda(18) that among the tribals the primitive tribal groups are extremely vulnerable. They are still living in isolation and their life style shows little change over the years. They are at the pre-agricultural stage. They are small in number and have very poor technology and little literacy. Their population is stagnant or diminishing. There are 73 such groups which account for 14 lakh people. They have been pauperized due to shrinking of forest resources and decline of their crafts. They are subject to exploitation not only by the non tribals but also by advanced communities which live in their neighbourhood. The 28th report of Commission for SC & ST 1986-87 (2) also states that the criteria generally followed in identification of primitive tribal groups are (a) pre-agricultural level of technology following a hunting gathering way of life, (b) extremely low level of literacy, (c) small stagnant or diminishing population.

Information need may be known through the appraisal of the community. The profile of the community—its people and their role and characteristics features, its economic activity and occupational pattern, nature of social and cultural life and other aspects—are reliable indicators from which the nature and contents of information need could be derived. The specific conditions that prevail in a community exercise have profound influence on information needs. It is a sound procedure to draw information needs from an analysis and identification of the basic features of the community. (20)

Dr. Mrs. Sarada(20) further arises a question of procedure to know and assess the information needs of the people. Two problems are there. Firstly, people in small areas do not think about information needs. So the material gathered through the use of different methods to assess the information needs of the rural people are found to be complementary in character. This may be only a descriptive account of the rural people. Secondly, the rural people mostly are non-users to the library. A small minority groups are the clientele of the library. These articulate groups need some information. Due to their small numerical strength they are identified as a separate group for the purpose of constructing the information needs of the community.(21)

In the following paras the information needs and information seeking behaviour of some tribes in India have been mentioned.

The sentinelese and Jarowa live in the tropical forest in a natural state with bow and arrow as the only tool, with no clothes and with no tolerance for any outside interference in the sequestered life. They satisfy their impulses of hunger, fear and sex-appetite. Their cultural needs derived from and conditioned by the changing ecological phenomena are fulfilled through a four fold creative agency : object, action, organisation and knowledge. In a word, they are culturally independent. The Toda satisfy their bio-cultural needs through natural selection, utilitarian selection and

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transcendental selection. In their interaction with the Badaga they make utilitarian selection by receiving subsistence food stuffs and grain and with the Kota, Kurumba and Irula both utilitarian and transcendental selections are made. The Kota play a vital role in the economic and ritual life of the Toda. They supply many of the necessities including pottery, axes, knives, jewellery music for the funeral rites, a cloak for the corpse's cremation and grains for the funeral meal of the Toda family. The kurumba provide the Toda with Jungle products and some essential funerary objects. Toda obtain from Irula a particular kind of bamboo flute, their musical instrument.(19)

Most of the tribal communities depend on forests mainly because of food. It takes the form of shifting cultivation, fruits and flowers from trees and plants, animals and other live stock and finally the undergrowth which was the main source of survival in the lean season and during famines. The tribals depended on other forest produce for medicines, fodder, house building and implements.

The needs for information on shifting cultivation is very much found among the Soligas of Karnataka, tribals of Southern Orissa, Malayalar of Tamilnadu and Kerala, Baigas of Madhya Pradesh most tribes in the north-east, the Khonds and Saoras.

The minor forest products, such as, plants, fruits, flowers and leaves are used by the tribals and other forest dwellers as food and as a source of income too. For example, the Ho tribals of Singbhum may be referred here because trees and their products are an essential part of their diet.

Apart from food, the tribals depend on the forest fodder for their cattle, medicine, timber for their implements and houses, fences for their fields etc. (7)

The myth may be one of the information sources to the needs of tribals. The authority conflict of men and women in the Santhali Society gives the origin of witchcraft and then the myth plays a vital role as information source.(9)

The examination of the historical ecology and political economy of the Scheduled Tribes has reiterated the fact that the Scheduled Tribes do not constitute an undifferentiated mass(14). In the same context B. K. Roy Burman (15) has discussed the needs for information on specific processes through which changes of ethnic boundary took place. The relation between the socio-cultural process will have to be analytically examined in the case of tribal population growth. It is seen that the growth rate of the population of Good Tribes is fluctuating in 1961 census, 1971 census and 1981 census, where the population of Bhil tribes has increased from 1961 to 1981. This is due to the fact that Bhils had adopted the regional language as the mother tongue. The needs for information on the different patterns of adaptation by the Santhals, Oraons and Mundas may be mentioned here. B.K.Roy Burman(15) analytically showed in his writings that how the different patterns of adaptive changes in the social organisations of the Santal, Oraon and Munda, could serve as contingent facts facilitating the long term migrants of these communities at different periods of time and to different extents.

Tandon(24) observes that there is a wide variation in the dietary patterns of the aboriginal tribes of India living under contrasting conditions. A large number of tribes depend on their own pattern of agriculture, producing rice or other cereals including varieties of millets and some green leafy vegetables. Some live on cultivated tubers, mainly tapioca, some collect forest products such as wild roots, fruits, honey and others consume sour milk products.

Sharma(22) in course of a study of the growth and nutritional status of children, the Gond of Bastar and Khond of Kalahandi observes that until recently they lived mainly on food gathering and shifting cultivation but of late they have taken to agriculture.

Nutritional deficiency and ill health come from the food and drinks taking habit. The tribes have

to develop some adaptive measures to survive. Traditional information of Bhil tribes was that new born baby upto one year will not receive water so that cold may not catch the infant.(1)

Another report of ethnographers of earlier generation is about avoidance of milk by the tribals almost all over India. This does not appear to be good for health. This type of information is very much necessary for the tribals. Swain(23) has reported that avoidance of milk by tribals of Central India is the present picture.

It is the common belief among Santhal mothers of Bhadkidiu village of Singhbhum district that they do not eat any vegetables or non-vegetables except onion, garlic and salt for two weeks after delivery. Fish and meat are also avoided for six months to prevent irregularities.(6)

The need for recognition of food as health input and disease input is necessary for the tribals. What is good food and what is bad food, what is strong and what is weak—such distinction is to be known by the tribals. Moreover, distribution and sharing of food in which reciprocity, exploitation and monopoly situations may emerge under certain specific socio-economic and ecological conditions have also been reported (16).

It is necessary of having information on the preventive measures of diseases in the tribal areas, and at the same time there are regional differences in the prevalence of disease. In the South-Central Subregion Gond, Bondo-Poroja, Kuttia, Knodh, Lanjia, Saora, Chauchu etc., tribes inhibit and among them the growth retardation was marked among the pre-school children. In the North Central Zone the main tribal communities are the Santhals, Oraon, Munda, Ho in the eastern part. Communicable and water born diseases such as Malaria, TB, Leprosy, Polio etc. are quite high in this region. In the western region among the Bhil, Jhodia, Larli tribes high degree prevalence of malnutrition has been found. In the north eastern region the main tribes are the Adi, Naga, Khasi, Mizo and others. Malaria and High incidence of TB, VD and goitre is common in this region.

In the southern region the major tribal communities are Malayali, Kurumba, Soliga and others, TB, VD, Leprosy and Malaria are the important diseases in the region.

It is to be noted that main need for information on tribal development is not family planning but the speedy end of ruthless exploitation of human and natural resources in tribal areas. Tribal literacy also deserves the highest priority in our five year plans. Bose (3) states that the issue is not the preservation of tribal identity versus drawing out the tribals in mainstream of development. Roy Burman(17) also states that there is no inherent conflict between identity and tribal development.

Every culture irrespective of its simplicity and complexity, has its own beliefs and practices concerning diseases. Every culture evolves its own system of medicine in order to treat diseases in its own way. The belief in the supernatural powers with a group of powerful forces and deities which control and influence the happenings in the community. Basic information needs of the tribal communities may be summarized as follows.

1. They should have need for information in those matters that contribute for increase in agricultural productivity and related issues.
2. Most of the tribals are illiterate. They ought to have need for information for eradication of illiteracy and promotion of literacy programmes.
3. Facilities for housing, health and hygiene are poor in the rural areas. These should be improved and ought to have need for information for developmental programmes.
4. Maternal and child health, malnutrition, genetic disorders, socio cultural and environmental non-awareness of the tribals are the neglected aspects in the rural areas.
5. Need for information of water and sanitation facilities is one of the neglected aspect.

6. Poverty and social inequality are the part and parcel of the tribals. Mostly they are under or unemployed. The agriculture-based tribals also do not get the proper marketing facilities. Moreover exploitation by the non-tribals and advanced tribals deeply suggest that the need for information of the vulnerable tribal community is largely centred around problems of daily life and livelihood earning. Hence information needs are very much related to their occupational interests.

4. Sources of information in the Tribal Communities

Information needs basically depend upon situations. In the previous section we have seen that there may be so many requirements of information for the fulfilment of the needs of their everyday life. At the same context it is to be remembered that who will be suppliers of information. It is better to divide the suppliers of information into two phases : traditional and modern.

In the traditional phase the tribals are basically dependent upon their headman of the community, priest or religious leader, mythological stories provided by the elders of the family or community, ritual place, common gossiping centres, festival places, market place or 'hat' (once in a week/fortnight/month) etc. As the tribals hold a set of traditional values, culturally independent, inarticulate in nature and poor technological knowledge, their information seeking pattern also covers in the same line. They do not want to mix with other advanced communities and they do not bother to collect information of the ages. All these may be said to those tribal communities in India who were traditional in beliefs and practices and who are maintaining their independence in the present also.

In the modern phase the tribals are getting information from various sources. Besides their community leaders or religious leaders, the political parties, government organisations, such as panchayats, health centres, administrative offices, bank, post office etc., non government organisations, missionary establishments, market place, schools, library or information centres, media such as radio, TV, newspapers etc., both literate and non literate members of the own community, people of other communities especially of high class etc. are the sources of information. At present most of the tribal communities are taking education, avoiding shyness and alienated tendency, eradicating the prejudices and superstitions, receiving cultures of other communities and on the whole they do not see themselves as primitives. Among the tribals, there are two classes: advanced and non-advanced. The advanced tribals are receiving all the facilities given by the Government or other agencies. The non-advanced tribals are still holding a set of traditional values; they are lagging far behind from the advanced tribals and the communities of high class or 'varna'. Mostly they are unemployed or underemployed. Economically and socially they are being exploited by the people of other communities and the advanced group of tribals as well. For the survival of their existence not only the sources of information are important but also the arrangements of the right direction in the right way are utmost needed. The government offices, political parties may give direction in the right way and the library and information centres may take arrangements for them by providing referral and community information services.

5. Community Information Services through libraries

The Rural Library should play an important role by providing community information services. First of all, the role of the existing library system should be replaced and the model for the restructuring of the information centre will be in such a way that it should cover programmes with the objectives of the development of the tribal community. These may be enumerated as follows:

1. There should be a programme for the eradication of illiteracy. In such a case, the library may

participate in the International Literacy Campaign Programme.

2. A programme may focus on the encouragement of the tribal students for their education, through formal or informal schooling provided by the library professionals.
3. Inculcate reading habits among the tribal people particularly the younger ones. The libraries should develop services aimed at serving neo-literates of the community with suitable literature and prevent them from falling back to illiteracy and organise adult education classes for illiterates.
4. The libraries should develop special collections for the tribal community according to their needs. The libraries should develop audio and video collections and organise audio—visual programmes for their benefits.
5. Libraries should also be careful of developing and preserving the reading materials in respect of the particular language and script of the tribal community.
6. Community information should be provided by developing 'local history collection' including geographical or topographical situation of the place, history of the place and the place name, the history of the original inhabitants as well as the present inhabitants of the place, and their races, castes, geneology, etc.
7. The professionals of the rural libraries should take the responsibility of educating the mothers of the tribal community on how to seek and use of information, to initiate document and disseminate rural community information by calling for community participation.
8. The library & Information Centres may guide the tribal people for the use of various welfare measures such as the utilization of solar energy and so on.
9. An arrangement for occasional get-together among the library members of the tribal community may be held in the library premises. In this case the arrangement for some cultural programmes or the like may indirectly strengthen the information exchange and general awareness among the Tribes.
10. The library may motivate the people of the tribal community to hold their meeting for the settlement of their disputes, to attend any story telling classes, to organise any cultural programmes of the dance and music, to celebrate the birth days of national leaders, to observe any red letter day etc. by providing them the library premises to use freely in order to accelerate the exchange of information among the tribes.
11. The library and information centre may encourage the tribal people for their involvement in the socio-economic development projects in their leisure time.
12. Efforts should be given by the library & information centre to collect all sorts of information relating to and on the Tribal Community with an objective to make the tribal people aware of all the opportunities of education, employment, economic and cottage industry development, agricultural training, fishery management, water facilities, medical and health care, any type of preventive measures etc. both in the government and non-government levels, which they should avail for their own betterment and existence. The advantage of the modern computerized data storage and retrieval as well as access to the communication network systems may further facilitate the availability of information in respect of the tribal community.

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Total Quality Management in Libraries and Information Centres

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Abstract

Now a days information is treated as a product in Information Society. User satisfaction to the services offered in Libraries and Information Centres may be considered as a measure of qualitative standard of the services. Services given to the users should achieve a minimum standard. The need for Total Quality Management (TQM) and how to give quality services to the users through overall management of the library have been stressed.

Modern Concept of Library Service

Who dare to speak that without adequate reading materials; various tools and techniques like - library catalogue, documentation list, kardex or any other sort of library records and modern techniques of such operation like - computer, CD-ROM technology etc; without efficient and adequate number of library staff or the infrastructural facilities within the library or a good financial condition or financial assistance from government's end one could give proper service to his/her users. These are the part and parcel of Libraries and Information Centres and without which we could not assure the existence of it.

But now-a-days a question is often to hear - whether these men, money, and materials are sufficient for proper library organization and services? Did these are all which are able to satisfy most of the users demand? Or these are enough to meet any sort of future needs of the users and are able to adjust users suggestions or their diverse needs?

No, in modern times these are not sufficient. In addition to these the overall management of libraries and the philosophy behind the activities of the library personnel are paramount important. However, these concepts lead us to the quality management in libraries.

Concepts relating to quality management are :

Quality : In modern times information is treated as a product in Information Society. In the phrase 'Quality Control' the word 'Quality' does not have the popular meaning of 'best' in any abstract sense. To Libraries and Information Centres it means - best for satisfying certain users' demand, whether the demand is tangible (issue of a document, long range reference service, documentation service, service through various tools and techniques, eg, catalogue cards, kardex etc.) or intangible (arrangement of documents, type of service rendered, behaviour of library personnel etc).

Quality in Libraries and Information Centres is a user determination, not an administrative determination, not a marketing (or service) determination or a general management determination. It is based upon the users' actual experience with the service, measured against his/her requirements - stated or unstated, conscious or merely sensed, technically operational or entirely subjective - and always representing a moving target in a competitive market.

Control : Control represents a process for delegating responsibility and authority for a management activity while retaining the means of assuring satisfactory results. There are normally four steps of such control :

- a) Setting standards;
- b) Appraising conformance;
- c) Acting when necessary;
- d) Planning for improvements.

Total Quality Control : Total quality control is an effective system for integrating the quality development, quality maintenance and quality improvement efforts of the various groups in an organization so as to enable organization and dissemination of service at the most economical levels which allow for full users' satisfaction.

Total Quality Management : Total quality control includes in depth not only the activities of the quality control function, but most importantly the interdependent multifunctional quality activities throughout the organization. Its organization wise impact involves the managerial and technical implementation of user oriented quality activities as a prime responsibility of a general management and of the mainline operations of acquisition, processing and service section as well as the quality control function itself.

There is a British Standard BS 7850 which offers the following definition :

Total Quality Management (TQM) : Management philosophy and company practices that aim to harness the human and material resources of an organization in the most effective way to achieve the objectives of the organization.

Total quality management requires the management of processes, not just output. It is part of the philosophy of an enterprise rather than specific standard and although most libraries strive for high standards they have not established the formalized techniques for adopting the total quality approach inspite of the burgeoning publication of mission statements.

Tenner and DeToro (1992) suggest that TQM is based on :

one objective : continuous improvement;

three principles : customer focus, process improvement, and total involvement; and

six supporting elements : leadership, education and training, a supportive structure, communications, reward and recognition and measurement.

But these are the theoretical aspects of how the Libraries and Information Centres could organize its internal management to give a quality service to its users.

There is no single way to attain the standard. There are a series of work to attain the same and which are :

Quality Standard and Quality Management

BS 5750 leads the way to attain a standard by which the information centres able to give quality service. BS 5750, ISO 9000 or EN 29000 are more or less equivalent standard in the field of quality management. BS 5750 was used originally by UK Government department in processing equipment and supplies, mainly defence equipment and it is the standard for 'Quality System'. Although ISO 9000 is gradually becoming a recognised method of quality certification, it does not guarantee quality products or services by itself. It simply documents the process which is used by the organization to guarantee the quality of its products.

In spite of pros and cons about its bureaucracy or expensiveness it is more concerned with the customer wants. In other words take necessary arrangement to meet the needs of the users and take alternative courses of action to attain the quality and which are paramount important for quality management.

To know himself

The first and foremost criteria to give quality service to users are lying within the organization. Library management should keep in mind the following :

- a) To introduce the concept of quality both in the minds of management as well as in the minds of the employees in a library.
- b) All the information and services within a library are based on users' needs, wants and options - not by the thinking of management regarding users' needs or what is easy for them to deliver.
- c) To understand our employees' personal needs and wants and trying to satisfy those.
- d) To determine those motivating factors which will motivate the employees more because not everyone motivate in the same manner.
- e) To set up standard for individual activities to give services in different sections like - acquisition, technical, circulation, reference etc or for giving information services (which may include documentation service, CAS or short or long range reference service etc).

To know our users :

It is part and parcel of all Libraries and Information Centres to give quality service to its users is to know the needs of the users. Again to meet the needs of the users one should think about :

- a) **Types and kinds of users** : There are present as well as potential users in all Libraries and Information Centres. Again users may be from different communities like - students, teachers, research scholars, scientists, politicians, farmers or may be general public of recreational interest. These users may be male or female, of different religious groups and of any age limit.
- b) **Information needs** : Information needs of users in a library vary from one user to another. Again the taste and habits of the users are different. So before giving quality service one has to understand who are his/her users, what do they do and how well do they do it. The process to be followed is that first to understand our users and then determine the most appropriate information sources to purchase and the information products to develop.
- c) **Users' satisfaction** : With the existing stock and services to assess the information needs of the users and develop further only after understanding what do they need most.

- d) **To work with users** : The more one work with one's users the greater will be his/her understanding with the information needs of them and it become easier to anticipate changes of those needs.
- e) **Continuous work** : The information needs of the users will change over time or for any other reasons. By maintaining continuous discussion with them detect those information needs and adjust the existing product or services with those of required information accordingly.
- f) **User satisfaction survey** : The best way to assess the overall quality of library is probably the users satisfaction survey. In Libraries and Information Centres perhaps there are three broad group of services namely, document delivery, study facilities and information services. To give quality services to the users within these three groups of services there are many attributes : speed, accuracy, substance, accessibility, comprehensiveness or may be a combination of these. Therefore to give quality service it is better to assess it through user satisfaction survey.

In this regard it may be pointed out that staff involvement in this type of survey will enable to know their performance in doing work and the performance target they have to achieve.

Employees' Training and Motivation

Services are not generated by machine, they are produced by people, the employees in Libraries and Information Centres. Monitoring the quality of services is important, but alone is not enough to ensure long term success and users satisfaction but the key ingredient in good service is people. Again to be acquainted with the current trends of library services it is necessary to arrange different types of library training programmes to the library employees in all levels, ranging from library attendants, library assistants, senior librarians to the senior scientists in Libraries and Information Centres. These training programmes should based on experience and on the basis of the recommendations by their superiors. After training they should return to their local environment to become the head of that section or to inspire his/her colleagues about the knowledge he/she gathered during the training programme.

In spite of previous discussion mentioning various ways and means by which Libraries and Information Centres could attain its standard to give quality service to its users - there are several other measures may be pointed out which are also deeply concerned with quality management. Some of these measures are -

- a) **Responsiveness** - To maintain both the time and quality to users needs.
- b) **Uniqueness** - Try to give 100% total quality service and be aware of the fact that existing standard should never be decrease.
- c) **Incentives and rewards** - Extensive and sympathetic use of incentives as well as distribution of rewards are the secret measures to offer quality service to the users.
- d) **Internal Quality Audit** - It is the internal process of checking the quality of work or services and ascertain as to whether the target is reached or to take necessary steps to reach the same.
- e) **Decentralization** - It is better to use a form of decentralized management and to adopt the decentralized philosophy or the decentralized managerial approach that allowed individual staff members the flexibility to manage their operations while still maintaining corporate accountability. At the same time employee involvement and communication process help staff members for its proper understanding and better services to users.

TQM IN LIBRARIES AND INFORMATION CENTRES

However, the present scenario in Libraries and Information Centres is in some way different from that of the past two or three decades. Now-a-days, library awareness in the minds of users solve many problems of the library managers. Again the application of computers not only in national or regional level information centres but also gradual application of it in colleges and schools has changed the information needs of users in many respect. Computerization in Libraries and Information Centres and networking in national, regional and local level will change the library work and services in the next century.

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Information products and Services in the United Kingdom : The British Library Scene

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1 INTRODUCTION

The United Kingdom possesses a rich variety of library and information facilities and services. Researchers, business people and the public have unrestricted access to the world's published resources of knowledge and culture, to a greater degree than in most other countries. Access is provided through public libraries, academic libraries, backed up by the extensive resources and services of the British Library. New information technology has been widely adopted for library management and information distribution and the United Kingdom is a leader in database creation and marketing. British publishers produce some 48,000 new titles and 17,000 new editions a year, earning nearly £ 2000 million, including over £ 550 million from export sales. London has been described as the world's richest city in terms of information resources, but co-operative library networks, professional skills and good communications ensure that all parts of the country can have rapid and effective access to information, wherever it is held. Through the British Council, the expertise of the British Library and information profession is extended.

2. The British Library

The British Library was formed in 1973 by bringing together the British Museum Library, the National Reference Library for Science and Invention, the National Central Library, the National Lending Library for Science and Technology and the British National Bibliography. The office for Scientific and Technical Information (OSTI) became the British Library Research and Development Department (BLRDD) in 1974. The India Office Library and Records and the National Sound Archives were added in 1982 and 1983 respectively.

The British Library receives a grant-in-aid from the office of Arts and Libraries (OAL), which in 1991-92 amounted to £ 78 million. In the same period it earned £ 27.8 million from the sale of goods and services.

2.1 Science Reference and Information Service (SRIS)

It provides a comprehensive reference source of information in science, technology, business and commerce. Its collections, most of which are on open access and freely available to visitors, include 2,863,000 monographs and 3,400,000 reports in microfilm and it receives 55,000 current serials. It holds one of the world's most comprehensive collections of patent documents. Expert subject and linguistic guidance can be obtained from enquiry desks or by telephone for those who are unable to visit in person. Priced services include rapid photocopying, business information and

computer searching of databases.

2.2. Humanities and Social Sciences

This division holds and provides access to about 11,245,000 volumes, more than a half a million volumes and parcels in the Newspaper Library, about 1,26,000 volumes of manuscripts and a large variety of other materials, including a major collections of maps, one of the world's most comprehensive collections of manuscripts and printed music, and extensive philatelic collections. It also includes the National Preservation Office, which provides conservation services for the library and gives advice and information on conservation to other bodies, and the National Sound Archive which preserves recorded sound of all kinds. The collection of recordings of wild life sounds is the largest in the world. Their collections are as follows :-

Monograph and serial volumes	—	11,005,000
Newspapers (volumes)	—	590,00
Sound discs	—	863,000
Microforms	—	2,966,000

2.3 Document Supply Centre (DSC)

It provides a rapid national and international loan and photocopy service to 14,500 customers worldwide. Some 88% of the 3,250,000 requests received each year are satisfied from its own stock. The centre accepts requests by mail (about 45%) ART Tel (Computer-to-Computer), Telex, Database links, Fax and Telephone. Their collections are as follows :-

	Holdings	Annual Intake
Journals (Serials) : titles	223,000	55,000
Books(Monographs): Volumes	2,863,00	35,000
Reports in Microform	3,400,000	1,30,000
Other Reports	400,00	25,000
Doctoral Theses (UK & USA)	520,000	10,000
Conference Proceedings	285,000	18,000
Translations	512,000	12,000

In addition to its loan and photocopying services, the centre provides a medical information service, offering BLAISE-LINK access to Medline databases, literature searches and current awareness services. It is also a leading publisher of bibliographies, indexes and cover to cover translations of scientific and technical journals. Another service which DSC administers is Book Net, which coordinates the donation and distribution of library materials. DSC has historically provided the library with most of its revenue, earning £ 24.5 million in 1994-95.

Source of Requests

(UK customers)

University	31%
Other academic	9%
Public libraries	14%
Industry/Commercial	28%
Government	17%
Other/Unknown	1%

INFORMATION PRODUCTS AND SERVICES

Sosource of Requests

(Overseas customers)

Academic	29%
Public libraries	3%
Industry/Commercial	42%
Government	23%
Other/Unknown	3%

Demand

Requests received from UK	2,631,847
Requests received from overseas for photocopies	767,119
For loans	52,001
UK requests sent overseas for loan and photocopies	7,798
Customers in the UK and Overseas	15,167

Stock

Holdings

Shelving oppcupie	97 miles(156km)
Journals(Serials)	236,000 titles
Books (Monographs)	2,931,300 volumes
Reports in microfirom	3,620,000
Other reports	450,000
Doctoral Theses (US)	440,000
Doctoral Theses (UK)	100,000
Conference Proceedings	314,000
Translations	Over 539,000
Music	124,700
Roll microfilm over 1700 miles	2700 km
Microfiche (other than reports)	300,000

2.4. National Bibliographic Service (NBS)

It develops and markets products and services based upon the British National Bibliography (BNB) and the catalogues of the library collections. Its printed products include Books in English, Serials in the British Library, Name Authority List, UK Mar Manual and BLAISE Filing rules.

- Books in English (BIE)** Major world bibliography of books published in the English language. Published: 6 issues a year.
- Serials in the BL (SBL)** It lists new serial titles acquired by the BL in all subject areas and from all over the world. Published: quarterly.
- Name Authority List (NAL)** It saves time and money for cataloguers by making available over
(On Microfiche) 350,000 name headings (personal, corporate, govt. and conferences) as used in BL catalogues. It is also a useful aid for tracing authors' pseudonyms. Published : Monthly.

- UK MARC Manual** It offers a comprehensive guide to the UK MARC format for handling bibliographic records in machine readable form.
- BLAISE Filing Rules** It represent a major contribution to national standards of library catalogue filing practice. They are used in the automation programmes of the British Library.

The entire BNB is now available on CD-ROM, as the result of what started as a joint project with the French Bibliotheque Nationale. These two libraries were later joined by the Deutsche Bibliothek, with the result that all three national bibliographies are now on CD-ROM, using the same software.

2.5. Research and Development

This department makes funding available for the support research in library and information science topics. In 1994-95 it awarded L 2,10,9000 in support of 225 individual research activities. It also makes grants to other libraries and collections for conservation activities. It disseminates the results of research through publications, conferences, seminars, demonstrations and workshops.

3. Recent Developments

- 3.1. ARTTEL Version
- 3.2. EDIL PROJECT
- 3.3. Directory of Acronyms
- 3.4. BLAISE-LINK Transfer
- 3.5. EAGLE-FILES
- 3.6. ADONIS
- 3.7. SIGLE

4. BRITISH DATABASES

British Books in Print, CAB Abstracts, INSPEC, Jordan Watch, Martindale Online, PIRA, Reuter Monitor, SPEARHEAD, TEXTLINE, UKMARC, World Patent Index, World Repoprtter

5. Conclusion

The British Library is universally regarded as the most important library and information resource in the UK, containing the most comprehensive collection of material in one organisation anywhere in the world, it is only pre-eminent as a resource.

B. K. Ghosh

Role of Book Publishers in Information Industry

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Abstract

Highlights the role of books as communication media. Indicates the continuous rise of book production in USA even after the advent of television. The organisational structure of the present day book production with its four cardinal pillars and their interrelationship are depicted in the paper. The paper also deals with the role of publishers in the book industry and their positions in the intellectual system. The book as a typical product in the industry with various problems relating to finance, manpower, marketing etc. have been (pin)-pointed. A short review of Indian Publishing depicts the specific problems of Indian Publishers. The future role of Indian Publishers along with a few suggestions such as manpower training, need for strong and well developed Publishers' Associations indigenous & regional publishing etc. have been specifically brought into limelight.

Introduction :

The printed book, as we find today, is more than five hundred years old and still serving as a wonderful and most effective means of communication. It inherits turin faculties of permanence and portability which no other communication media even of modern days, perhaps possess.

During its first one hundred and fifty years of span, it was the only medium for communication of various types of information and it was not until the beginning of the 17th century, that the newspapers and the periodicals joined the fray for the same purpose. The importance of books for disseminating information did not diminish even after the emergence of newspapers and periodicals and not even during the present century when there is an exponential growth of non-book and various types of audo-visual materials.

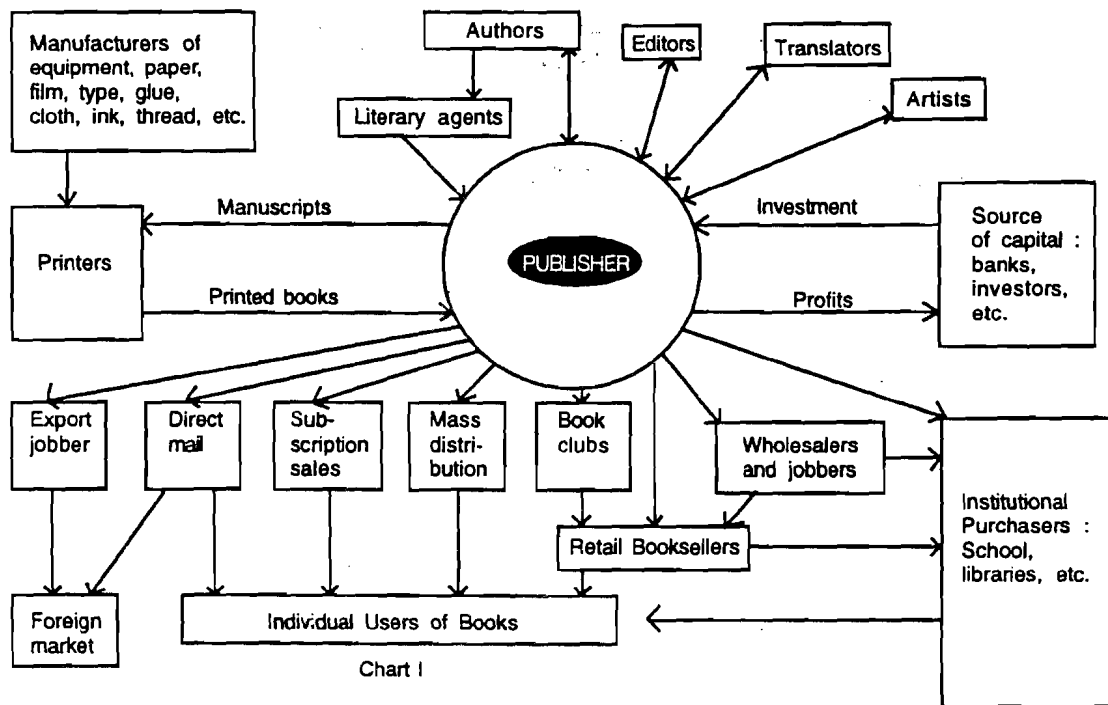
A statistics of book production in the United States shows that 'in 1950 when the impact of television first began to be felt, 11,022 books were published...in 1970, when the impact of computer began to reach major proportions, the number of books had risen to 36,071. In 1979, after almost thirty years of television and 10 years of major computer use, 45,182 books were published in the United States'. From another statistics of book production published in the United Kingdom we find that in 1960, 18,794 new titles were published and this number rose to 23,512 in 1970 and further to 37,382 in 1980. It undoubtedly indicates the evergrowing importance of books in the modern era when there are many more competitors in the field.

The term 'book industry' is very much in use for the last few decades and recently experts in the field in are equating it with other big industries such as 'automobile' or 'construction'. It has undoubtedly became a very significant product of the information industry.

1 Organizational Structure :

The organizational structure of book industry is getting more and more complicated. In the mid-fifteenth century when Guttenburg first brought this revolution and even after that there were only a few printers and technicians who are responsible for bringing out this indispensable commodity in its present form for the nourishment of the human mind. Gradually with the explosion of knowledge and with the improvement in the methods and machineries of production, more and more books were brought out and book-publishers had started playing a significant role in the information industry. The success of the whole publishing process in the present era depends not only on the book publisher but to a large complex. At the outset the four cardinal pillars on which the whole book industry stands erect are the author, the publisher, the printer and the bookseller.

The chart I shows the whole gamut of book industry keeping publisher in its central position.



THE BOOK INDUSTRY

The editor and the designer join this partnership who often serve a publishing house. The former is responsible for the contents and the latter for the physical side of the book. Some-times publishers themselves perform both these functions. If a book consists of illustrations, an illustrator joins the team. There are also persons in a few allied industries who significantly contribute in the production of a book. They are book binders, type-founders and paper manufacturers. At the end we have the book consumers who are to be satisfied with the finished product. The book publishing is also indirectly related to several agencies of government, e.g. the ministry or Department of industry for raw materials, commerce for import and export of books, finance for credit facilities, communications for postal rates, culture, information or education for library supplies and educational publishing.

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The most significant role in the book industry structure is undoubtedly of the publishers who works like an entrepreneur, gathers the raw material (the manuscript of the text) from the author, transforms it into various manufactured articles (the books) with the help of editors, designers, printers and binders and distributes them through a commercial market assisted by wholesalers and booksellers. The chart II shows the organizational structure of a typical book publishing company.

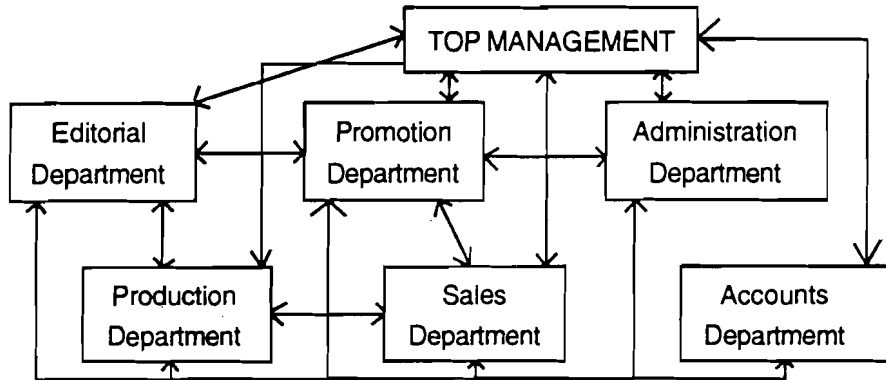


CHART II

Organisational Structure of a Typical Book Publishing Company

2 Publisher in the Intellectual System :

Any publishing firms many have to cope with the complexity of creative and scholarly networks. It discovers new talents, steps into fresh arena of knowledge, judges the quality and saleability of manuscripts and works out relationship wih individual authors.

2.1 Social Awareness :

A book publisher has to be alert enough with the nature, the components and trends of the educational system of any country, the condition of existing libraries, whether national, public, academic or special and also with the growth and fall of in the rate of literacy of any country. These are some of social sides which may have to be considered by any type of publishers, large, medium or small.

2.2 Economic Awareness :

As we know publishing is a business and therefore a publisher may have to be economically aware of the prevailing condition of a particular country. Some one observed that the 'best way to make a good publsher is to add the dollar sign to a good editor'. It clearly indicates that a publisher must have an acumen of a business man and he must know the pros and cons of the commercial side of the industry. It is he who will judge as to whether a manuscript submitted by an author has the potential to recoup the investment made on it and whether there is any hope for making profit out of it. He will have to weigh the scholarly merit of a practicular work against its sales potential. If a publisher finds that sales potential is too low, he thinks twice to publish even the highest quality of manuscript.

2.3 Intellectual Awareness :

In additional to social and economic awareness a publisher is expected to be familier with the world of arts and letters, science and social science. He is after all a 'gatekeeper' of knowledge. A publisher is not only a businessman but also an intellectual, a grammarian and a teacher too.

3 Book : A Typical Product :

A book publisher's role is much more complicated and difficult than an entrepreneur of any other industry. Why it is so? We know that books not only differ significantly from other manufactured goods. (viz. soap, powder and cornflax), they differ between themselves. There is not only a difference in the production of novels, text books, juvenile books or scholarly books but also there are differences in each type of novel, textbook, juvenile book or scholarly book. They differ in design, editorial treatment, typography, page layout, paper and binding. For example, there are various types of textbooks in history written in a practical language for a particular class. If a publisher publishes two-three types of such books in a particular period he may face innumerable problems. Each book is thus unique and no two titles in any can be identical.

The cost of designing of a particular type of book may be fixed one irrespective of a print run but choice of design will definitely have a 'chain reaction effect' upon subsequent stages of manufacturing process. It will ultimately have its impact on the total cost of production and thereby raise in the fixation of the price of a particular title. An alert book designer or the publisher may have to look into this matter very carefully.

The text-book market is the 'tail that wags the dog' in the publishing industry. A few text-book publishers of our country sometimes become over enthusiastic to increase their profit margin and hardly care to look into detail of the editorial or the printing side of their publication. As a result we find the pages of many text books meant for our school students are damaged within a very short time of their publication. We also find that books are not properly edited and appear with innumerable spelling mistakes. In many occasions in spite of their better printing and editing the standard of binding is so poor that it becomes very difficult to handle those books even for a couple of months. All these aspects ultimately impair the reputation of a publisher. It is felt that publishers are more serious about bringing out scholarly books and less in case of text books or children's books.

There are many books which are published for a limited readership. Publishers will have to be specially careful for these specialised readers. In these types of publications, publishers may not expect much profit but they have to work hard to raise the overall production standard of these books and it will definitely fetch a good name for them.

In developing countries where rate of literacy is not so high many publishers venture to produce books for neo-literates or even for illiterates. These publishers also face an arduous task as percentage of literacy or the number of neo-literates or illiterates vary from state to state, or differ in a particular region or even in town or a village. Unless they have a very clear cut knowledge of these numbers and the variations in their standards, their effort in this direction would be futile. Sometimes, they may have to prepare a guideline for the authors to write books for the 'mass culture' and direct and instruct the designer, the printer and the binder accordingly.

4 Financial Problems :

The finance is another big problem for book industry. In most of the countries book industry hardly gets financial priority as other industries obtain. This industry is mostly neglected as far as financial assistance is concerned. Sometimes in spite of their ability and knowledge, the publishers cannot bring out standard books of different types due to the paucity of funds. This problem is acute in developing countries and deeply felt particularly by the private publishers. Many times they accuse the government for not supplying them papers or printing materials in cheap rate. The public and the private sector do not always co-exist in the book industry. Both these sectors should work for the common purpose of disseminating knowledge and information.

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Thus there are various types of problems which are usually confronted by present day publishers and as in other industries, the publishers of developing countries, are lagging far behind in comparison to their counterparts in advanced countries. A time has come when the publisher, particularly of the developing countries may have to seriously think about a suitable management policy indicating overall planning in bringing out books. This may include a detailed investigation of the market, the type of readership, cost of production, the suitability of the product for the purpose for which it is intended, the competition and the type of competitors, the design and above all the budget.

5 Marketing Mechanism :

It is not only the production that alone matters to a book publisher but also the distribution and the selling factors do sometimes create problems for this industry. The chart III shows the

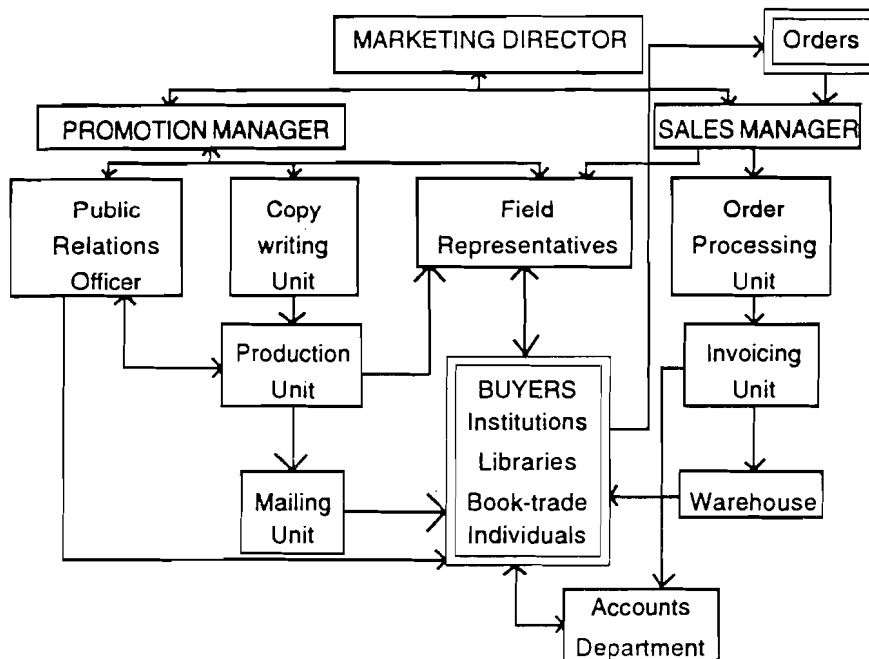
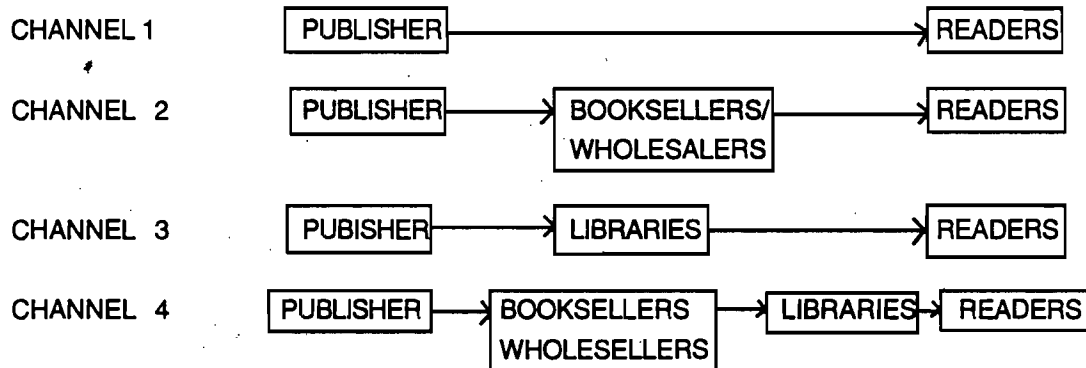


CHART III

The Organisation of the Marketing Function

organisation of the marketing function of a well established publishing firm. Here we find the Marketing Director as the incharge of the whole division, while 'Promotion Manager' and Sales Managers' are working under him and directly reporting to him. Not all publishing firms place both promotion and sales under the overall charge of a single senior manager. Field Representatives' also play an important role in marketing function who are usually under the administrative control of the sales manager and also occasionally instructed by the promotion manager. Buyers either place their orders to the sales manager directly or through field representatives. The promotion unit in general (showing in chart II) of the 'copy' writing unit (showing in char III) provide promotional materials to the mailing unit which ultimately send the necessary materials to the consumers i.e. different institution libraries or to the individuals related to book trade.

A publisher from the information industry has to be very much careful about the marketing mechanism which has to be adequate along with the efficient distribution channels. There are various channels of market outlets in book-publishing industry. In some cases books are directly despatched to the consumers by the publishers. But in most of the cases they go via wholesalers and/or the booksellers. In many occasions books are sent to the libraries and from there those are available to the readers. Following are a few channels of market outlets :



5.1 Promotion and Publishing :

The book marketing techniques should be as scientific as possible so that it may solve publisher's problem of inventory control. Publishers may have to know the different types of promotion and publicity activities such as :

- (a) Pre-publication promotion and publicity
- (b) On-publication promotion and publicity
- (c) Post-publication promotion and publicity

All these types include both direct and sales promotion. Publishers generally look for ways to capitalize on those feature of books most likely to capture the attention of the public through the press, radio and television. The publicity through the audio-visual media no doubt yield result provided a publisher can afford to that. It is therefore an urgent need to have cost-benefit analysis particularly of T.V. advertisement which is undoubtedly expensive.

In promotional activities the preparation of leaflets, folders, book jackets, posters, circulars and all types of display materials to be attractive enough. Advertisement of any type has to be based on the knowledge and the needs and desires of the reader.

5.2 Selling :

As far as selling of books are concerned they are almost identical with other commodities, though details differ. The first and foremost function of a publishing house in this respect is to (i) *Know the customers*. A publisher's customers included book distributors or whole salers, booksellers or retailers, local libraries, school and college libraries and also individual readers. After working the customers a publisher has to be aware of the (ii) *Sales Channels*. It also include export sales. He has to develop new channels of distribution and sales too. The last but not the least function in this respect is the (iii) *Actual selling*. This included getting orders, processing of orders, checking the availability of titles indicating prices, preparing invoices (bills), passing of the copies of invoices to the stockroom (for assembling and packing the order), to the stock ledger section for stock record and lastly to the accounts departments (already showed in chart III). Sales managers are

R. B. P. INFORMATION INDUSTRY

always kept informed of the defaults of payments for supplies on credit. All these involve a large amount of clerical work.

6 Manpower Planning and Training :

Thus we have so far witnessed that right from receiving of the manuscript from the author and up its selling, a publishing firm has to perform multifarious activities. It undoubtedly needs to build up a strong infrastructure of trained manpower in different areas in order to sail smoothly through all these stages. The publisher is the man who pushes the button setting the whole machinery of the book-publishing process in motion. An efficient group of personnel is definitely needed for smooth running of this machinery. A ranking and grading method for determining the personnel policies, job analysis and charts of job description are to be prepared.

Training is always a vital aspect in any management. In book industry training has to be provided broadly for three purposes, viz.,

- (a) to have professional knowledge.
- (b) to obtain specialised skills, and
- (c) to gain overall confidence

For designing a book the publisher needs to be trained in typography, printing and production techniques. If publisher has to perform editorial function, which most of the publishers do, he may have to understand fully the meaning and implications of copyright and of market and language rights etc. He is also expected to have a sound knowledge of the potential international market for the books, the work of sub-editing or 'copy-editing', proof correcting, checking indexes, illustration and diagrams and other additional materials. In order to perform marketing of books a publisher needs to have an understanding of the particular requirements of the promotional materials and the design and the wording of the material itself, which needs specialised training in the field.

Unesco is doing commendable work in this field. They have conducted several short courses in different parts of the world. British Council and Book Development Council are also working in this field along with a few publishers' associations. The Publishers association of the UK has courses on 'Editing' which include 'printing process and terminology', 'the role of the editor' 'art editing', 'copy preparation' 'market research' etc. As far as India is concerned we have a comprehensive course conducted by Delhi University. It is one of five vocational subjects which can be taken for a B.A. Pass Degree. It includes papers on 'Publishing Management', 'Editing' and 'Production' and 'Sales, and Distribution'.

7 Associations and the Industry :

A strong and efficient Publishers' Association is needed for any nation to bring into limelight the activities, problems and the prospects of publishing industry in particular on the information industry in general. 'American Book Publishers Council' and 'American Educational Publishers Institute'. merged in 1970 to become 'Association of American Publishers', which is the major voice of the book publishing industry in the United States. 'The Publishers Association of the UK' is also a strong and stable body. One of the most important organisations in this field is 'Information Industry Association' (IIA) founded in the city of Washington in late 1968 as a trade association to promote the development of private enterprise in the information field. The major role of IIA has been to bring the experiences and practices of traditional publishers together with those of the new technologies. This association can play a commendable role particularly for the present and future information societies.

8 Indian Scene : a short review :

India, as we know processes almost all the necessary pre-condition for publishing—a large

printing industry, editorial competence, paper manufacturing, and a network for the distribution of books. In spite of the fact that India ranks about eighth (some times seventh) in terms of titles published annually, the per capita publishing figures fall significantly below the world average. The total book production per million in India is also low. It all reflected nation's poverty and its low rate of literacy. In 1972, India's overall literacy was about 30 percent which rose only 36.2 percent in 1981. India will have to think seriously to raise its rate of literacy and standard of living. It will definitely have a great impact on Indian book industry. The reading habits among the masses have to be developed simultaneously which should be linked up with reading facilities. Moreover, reading materials for neo-literates are to be increased and free library facilities to all sections of people are to be provided in urban as well as rural areas. National Book Trust of India (NBT), National Council Research and Training (NCERT), Federation of Publishers and Book Sellers Association (FPBA), Indian Council for Social Science Research (ICSSR) etc. have already done some important work in this direction. A National Book Development Board was founded in 1967. Unesco is also helping India in this direction for a last few decades.

The Indian publishers in the private sector who look forward to publishing books, have to struggle very hard with meagre financial resources (not subsidised by bank loans). Recently a 15 member Committee comprising book publishers and representatives of different banks has been set up by the Government of West Bengal to study the financial problem faced by the publishers of the State. It was suggested to set up a 'financial cooperative' which would help them obtaining financial assistance.

Indian publishers are also perturbed with the editing part of a publication which according to some scholars are bad and incompetent. Very few publishers, excepting large publishing houses have a full time editorial and professional staff. There still lies the author-publisher credibility gap and hardly there is mutual understanding, trust and appreciation between them.

9 Conclusion :

The publishing industry is thus a hybrid and the role of book publishers in this surrounding is rather delicate and critical. He is the grand strategist and works as the director general of the whole enterprise of book publishing. A gambler cannot be a successful publisher, but to become successful, a publisher should know a bit of gambling. Publishers are always aware that they are living on the frontier of the mind and the spirit. They have to be closely attuned to the changing circumstances, to all cultural, educational, political and commercial advances of the world. The new technology is advancing rapidly even in many developing countries of the world. Modern technology, undoubtedly is imperative for present days, yet sometimes it comes as a bolt from the blue to some who fear that the 'older order changeth yielding place to new'. What should be the book publishers role in this computer-age? The current trends have destabilized the symbiotic relationship of authors publishers and libraries. With the help of the new technology the authors may even by-pass the publishers. The libraries are turning to networks and electronic delivery systems. This again threatens to disrupt the traditional book publishing and endanger the life of the book.

In this critical juncture the traditional book publishers are fighting tooth and nail to justify their existence. The book as we know has afforded an intimate communication of minds beyond time and space and hardly any electronic machine can ever match this precious role of the book. As knowledge is pushing with even increasing vigour into the frontiers of knowledge, the book publishers essential contribution to the creation of knowledge has become much more important than in the recent past.

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Publishers of developing countries have to accept this challenge and seriously think to enrich their book industry. All categories of publishers may have to devote much more time and energy for the development of indigenous publishing. They have to concentrate much more on distribution and utilization of books already produced rather than on the production of new titles.

A time has come when they have to make a clear distinction between the real need and the effective demand for books.

Scarcity of materials (e.g. paper, inks and binding materials) are more critical than that of machinery and skilled labour. Many nations which need low-priced book had to pay substantial import duties for book manufacturing materials which ultimately lead to the increase in the production cost of a book.

Regional language publishing is the need of the hour and publishers have to stress their energy on it. They have to strengthen their associations and work for the upliftment of the information industry personnel.

Finally, publishers have to work as co-ordinator in the information industry and they have to see that a cordial and healthy relationship is built up with all other partners of this industry viz., authors, editors, printers, booksellers, librarians and the users.

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Changing Scenerio in Library and Information Sectors

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Abstract

This paper traces out the changing scenerio in the field of library and information science starting from primitive society and changing through agrarian society, industrial society and reaching at present day's information soeciety. Factors of change are identified—most important factor is the changing information need of the society. It also mentions about today's challenge of library professionals.

Introduction

Information Age is upon us. One of the vital force of this age is information which drives all human activity. In fact information is considered as one of the two fundamental constituents of living being viz matter-energy and information. It comes in a multitude of different shapes - speech, pictures, video, office work, software, great art and kistsch, invoices, music, stock price, tax returns, orders to attack, love letters, novels and the news. We have also created many ways of conveying information, from cheap, large news print pages to postal systems to telephone, radio and television networks. Virtually all these schemes require humans at the receiving end and that then to act on the incoming information. All these things mentioned above are changing and these changes now a days are happening very rapidly. We the librarians are working in the wavefront of the changing world. The libraries and information sector are also changing. In this paper the changing scenario and the factors of change are described.

1 Factors of change

We know that library is a public institution which renders service primarily based on books. The term book is a generic name covering different types of infomational matter through which library service reaches to its patron. Books were not evolved in a single day. It has a prolonged history of development since ancient times.

Pierce Butler wrote that "a book is physical artifact only in a civilised society. The implications of this truism include many historical aspects. Before an author can write must have language and a graphic system for recording it. Neither of these is his own invention. Both of them are no more than arbitrary conventions of culture, both have attained their forms as the result of long evolution. Clay tablets, tanned skins and papyrus, each presents a different combinations of cheapness, portability and permanence. The slab, the roll, and the codex vary widely in their facilities for turning up a

reference.

Before entering into the text it is necessary to fix the notion of information as used in this text. Here information means a meaningful impression of the real world in the mind of human being.

2 Nature of Change at Societal Level

It is stated earlier that Library and information sector underwent several changes and these changes happened due in part to alteration in the need of society. These are as follows :

11 Primitive Society

In primitive society when most people lived in small group, often migratory groups, fed themselves by foraging, fishing, hunting or herding for survival by using tools and technology made of bones, stones, metals. Their energy requirement was very small. They were dependent on muscle power. Their information needs were on the existence of food, shelter and security and their communicative ability was very poor and was restricted to signs, gestures, and cave painting etc. Today even there are some tribes who are maintaining their livelihood based on these elements.

12 Agrarian Society

At some point, roughly 10 millenia ago, the agricultural revolution began, and it crept slowly across the planet spreading villages, settlements, cultivated land and a new way of life. The new society emerged which was identified as Agrarian Society.

This society was self sufficient one, their members lived in village, used small tools suitable for agriculture. Their energy was renewable in form, wood as a fuel, wind for sail, river current for padding wheels. Even animals and people were replaceable energy slaves. The information needed for economic production was comparatively simple and usually available at hand. The technology which they used was meant for small scale industry. Their communicative behavior was comparatively powerful than their predecessor for the reason they could devise language, alphabet to represent idea, they could record their experiences for sharing knowledge beyond their lifetime. Their documentary artifacts were transportable too. This agrarian character is retained by all societies.

13 Industrial Society

Alvin Toffler in his "Third Wave" mentioned that "three hundred years ago, give or take a half century, an explosion was heard that sent concussive shock waves racing across the earth, demolishing ancient societies and creating a wholly new civilization. This explosion was, of course, the industrial revolution. Industrial Society was a rich, many-sided social system that touched every aspect of human life and attached every feature of the agrarian society.

In an industrial economy, capital became the strategic resource. In such an economy large scale or heavy industries were established. Around these industries factory cities sprang up. Their energy requirement was met from the steam power, electrical power using fossil fuel such as coal, gas and oil. Industrial environment requires tight coordination of work done at many locations. Not only raw materials but great amount of information had to be produced and carefully distributed. That's why postal services were set up, which was regarded as right arm of our modern civilization.

In agrarian society all channels of communication were reserved for the rich and powerful men. Ordinary people had no access to them. Newer systems used for carrying information beyond the family or village were essentially closed and used for the purposes of social or political control. They were, in effect, weapons of the elite. This communication monopoly was smashed in Industrial

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society for the reason that mass production system needs massive flow of information that the old channels simply could no longer handle. After Second World War a lot change in technological sector was noticed. In the Industrial Era it was noticed that technological change was very slow which unable to meet demand of the market, mass markets were stable, and the competition was sluggish.

14 Information Society

Recently, some economists are talking about information society. In such an information economy, information is considered as the strategic resource. The people in such an economy may live in any location but they are capable to communicate among themselves through telecommunication networks. This does not mean that they are no longer practising agriculture or their is no heavy industry. Besides having high level agricultural technology and heavy industries, they are more and more employing people in information sector. At present 60% of the American work force are spending time in the production of information goods and services versus 13% in manufacturing-related efforts. In nutshell it can be said that in an information society more people are employed in collecting, storing, retrieving, amending and disseminating data than are providing food, fibres and minerals and manufacturing products.

Today the business environment has change in fundamental ways. Three driving forces were noticed (1) new technology especially information technology, (2) New values and lifestyles, and (3) new, hotly competitive global economy. Mass production line of the Industrial Era has given way to computerised, flexible manufacturing system that can reprogrammed quickly to make different products on the same assembly line.

2 Changes in Library and Information Sector

As stated earlier the library and information sector including librarianship has been undergoing a period of profound change.

The very definition of the term "library" has undergone a great change. It has had different meanings at different times and more than one at one time.

21 An early meaning, now obsolete, library is a place where books were written. Later on it became a storehouse of books managed by the scholars. At that time meaning of the term librarian was known for keeping books and denoted as "keeper of books". Later on Library became a public institution. Let us quote in full the definition mentioned by S R Ranganathan.

"A library is a public institution or establishment charged with the care of collection of books and the duty of making them accessible to those who require to use of them".

In his book Reference Service, Ranganathan, mentioned seven techniques to make the abovementioned functions successful. These are (1) open access (2) ticket system (3) classified arrangement (4) analytical entries (5) publicity (6) stack room guides (7) reference service.

22 Ancient Libraries

After civilized man began to make and keep written records, the formation of libraries was a logical development. The earliest form of library was what we would today consider an archive, since it was really a collection of government or religious documents. These libraries were composed of papyrus rolls, clay tablets, animal skins, birch bark etc. Generally speaking, the ancient library was a product of its civilisation. It appeared whenever a people had reached the point where they had writing materials, a written language and records to preserve. It progressed in size, complexity and

elaboratedness as civilization itself advanced. Those libraries were mainly used by scholars and notables. This sort of libraries continued to store manuscripts for several hundred years till the date of invention of printing with movable type.

23 Invention of printing and its impact on library

The coming of printing revolutionised communication and made it possible for dissemination of new ideas to thousands of people. Learning, long shut up in monasteries and in a few schools, emerged to become something that anyone with interest and initiative could pursue. Printing furthered Renaissance and facilitated Reformation. With more books being printed and read and more people becoming educated, Dark Ages rapidly came to an end. The printing press probably more than any other factor, was responsible for the beginning of the modern era.

In the library itself, the coming of the printed books brought many changes, but not at first.

24 Spread of library in Europe

As printing press had spread beyond the boundary of Germany, more and more libraries were established. Not only in Italy, libraries prospered in France, Germany, Austria, England and other parts in Europe. Not only were the libraries valuable in terms of holdings, but they were well organised and directed by scholar librarians who operated them according to definite library procedures, and kept their treasures available for use. In this connection names of three German scholars are needed to be mentioned. They were Gottfried Wilhelm von Leibniz (1646-1716) who was a theoretical as well as practical librarian, and he is remembered for his general philosophy of librarianship. Fritz Ebert wrote a book on the 'Training of the librarians' in early 19th Century. Johann Wolfgang Goethe (1749-1822) was for a time in charge of the libraries at Weimar and the University of Jena and took active interest in their growth and organization. In this connection name of another great librarian should be mentioned. He was Antony Panizzi who drew up rules for cataloguing in England.

25 Change in the profession

The term librarian was denoted to a person in the ancient Egypt was the palace or temple scribe, who helped to write and to preserve papyrus scrolls. In the Roman era, there was an imperial library administrator who concerned himself with the acquisition and administrative duties. The most important function of the librarian was to preserve the recorded knowledge. After the industrial revolution the main functions of the library were drastically changed. We have seen that throughout the 19th century there were a lot of developments. A new discipline called librarianship was emerged. Hans Wellisch in his article traced the history of the discipline librarianship. His findings are as follows :

251 Library economy to Librarianship

In 1876 with the foundation of ALA, publication of the first edition of Decimal Classification by Melvil Dewey and the Rules for Dictionary Catalogue by C A Cutter the discipline 'Library economy' was started. The term Library Economy is largely synonymous with the present day management meant primarily the physical handling of books and other documents in places where these were stored for preservation and possible future use.

252 Library Science

Towards the end of 19th Century, the field of Library Economy became gradually known as 'Library Science'. Wellisch commented further that 'merely changing library economy to library science did not, of course mean that many kind of truly scientific method was appeared to the study of library, their functions and operations'. With the pronouncement of Five laws of library science in 1933 by S R

Ranganathan this allegation became soundless.

253 Rise of Documentation

The first significant development in the field after Dewey and Cutter was made both conceptually and terminologically by Paul Otlet and Henry La Fontaine who founded the 'Institut International de bibliographie' in 1895, to encompass recorded human knowledge not only preserved in books but in any kind of document such as in articles, theses and reports and even in large or entirely non-verbal records such as maps, diagrams and pictures. The stressed particularly the aspect of subject content as being independent of form of presentation..... Soon they began to use the term "documentation" in their writings as defined it as :

"a process by which are brought together, classified and distributed all the documents of all kinds of all areas of human activity".

The documentation activity was further enhanced with the development of fine grain photography and microphotography. Controversies persist during 20's on the nomenclature viz Special Librarianship and documentation. In 1931 Institut de bibliographie was renamed to Institut de documentation and became Federation International de Documentation (FID) in 1938.

After World War II, the term documentation became fully established with the publication of Bradford's book bearing that title in which he said that

"documentation is the art of collecting, classifying and making readily accessible the records of all kinds of intellectual activity".

In later phase it was noticed that the term was used differently in Europe and in USA. The American Documentation Institute used the term and concerned with microfilm and punched cards as carriers of recorded knowledge, i.e. it stressed the same physical and technical aspects of documents. But in Europe documentation was chiefly concerned with subject content of recorded knowledge and its organisation. Thus, documentation in the US came to mean only part of what it meant in Europe - the technology or hardware, but scarcely conceptual content of the software.

254 Information Retrieval

This term introduced by Calvin Mooers in 1950 which denoted to the recovery from a given collection of documents and with stated probability, of a set of documents that includesall documents of specified content.... But Fairthorne in 1961 meant considerably beyond the topic of document retrieval through his inclusion of such topics as automation and self organizing systems, linguistics, mathematics and theory documentation. Vickery also dismissed information retrieval from communication standpoints : "Retrieval is a form of communication and we may expect its analysis to be aided by other studies in communication sciences".

From this juncture the term knowledge is being steadily substituted by the term information. Spanning over three decades from 1930s, several disciplines related to information were emerged. These are Linguistics, Decision theory, Game theory, Information Theory, Cybernetics, General Systems theory etc. These disciplines have tremendous impact on information studies.

By 1955, Information theory of Shannon and Weaver (1949) had diffused through a large number of disciplines, including several of the contributory disciplines of information science (Harmon).

255 Information Science

As far as can be ascertained by a fairly exhaustive search of the published literature, Wellisch

pointed out that the term Information Science was first used in 1959 as a designation for the study of recorded knowledge and its transfer in the widest sense.

In 1961-62 at a conference held in the Georgia Institute of Technology, Atlanta, USA, the term documentation was rejected and the scope and aims of Information Science superseding 'Information Retrieval' as a generic term for the whole field were determined. Wellisch had dealt the emergence and scope of Information Science by analysing 39 definitions published.

During 1960's Information Science became very important phenomenon. Electronic information technologies were gradually employed which subsequently diminished the central role of traditional libraries.

256 New emerging areas in information sector

Now several emerging subjects like Information Management, Information studies, Information Technology etc are considered as the focal point of study in information sector.

At present we are talking about digital library, virtual library, cybernetic library, cybrary instead print media oriented library.

3 Changes in the IT area

The IT has three basic components viz, Recording technology, Storage Technology and Communication Technology. It is said that we are now in the midst of a period of rapid information technology development and evolution. Let us have cursory glance over it.

Today by the term Information technology we understand electronic or computer technology only. Actually it was started in the prehistoric period when man was able to record his thought on the walls of cave. They used gestures, drum beating, fire signalling to communicate among themselves. Like other, information machines were also the product of Industrial Revolution. Invention of type writer, photography, duplicating machines, photocomposition machine etc was no less important than computer and telecommunication technology.

Various forms of manuscripts, printed books, periodicals, patent, report, travel description were the primary means of social communication till the end of 19th Century. It is also to be recognised that during this century several technological developments had changed societal character in various ways particularly in transportation and information sectors.

31 Nature of new communication technology

Modern telecommunication system began with the invention of telegraph by Samuel Morse in 1838 followed by the invention of telephone which was credited to Alexander Graham Bell who successfully demonstrated his telephone. Both the telephone and telegraph required wire to transmit message. But an Italian inventor Gulielmo Marconi invented a system to send message without wire. His invention of radio transmission around 1901 opened another dimension in telecommunication. Transfer of image through wireless television system was a product of many brains of many places in many hands but attributed to J L Baird in 1927. Another leap forward was the invention of digital computer. First digital computer was fabricated in 1946 in Pennsylvania University in 1946. In 1957 first sputnik was in the orbit of earth. Later on during the period of 1960's several communication satellites through which message from any part of the world could be sent to the other part. Reasons behind the technological development were attributed to the changing information need of the society and complexity of the civilisation viz there was need of the merchant communities to maintain an ongoing awareness of world events that affected trade and investments. Library service too was

affected by such technological changes.

4 Information's Brave New World

Global slowdown in economic growth had also has a tremendous influence on the economic health of North American libraries, most of which are facing unprecedented demand for service but which have inadequate resources with which to respond. As a backdrop, to all this turmoil the organizational structure of libraries and the practice of librarianship itself are being profoundly affected, caused by rapidly changing information technologies.

Unrelenting, accelerating technological change has brought libraries and librarians to the threshold of a new era, radically different from even the recent past.

41 The computerised systems libraries used as recently as the 1980's maintained an obvious and continuous relationship with traditional library functions. In spite of the power and expanded functional capabilities of on-line public access catalogs (OPACS) and integrated local systems, libraries still conform to a traditional model of local, physical collections made accessible by a variety of uncoordinated bibliographic tools.

42 Modern technologies have transformed library catalogues from simple resource directories to comprehensive information systems and are in the process of redeeming the promise of the information resources of the world's libraries and information centres delivered directly to desktops of users.

43 Physical information resources are giving way to digital data and electronic images. Developing and organising collections is becoming less important than facilitating access to information and information resources, regardless where they are located. This is possible only by using recent computer and telecommunication technology. With increasing usage of such technology libraries are taking new shape and character which some people are talking about digital library. Concept of such electronic library is not new but reality of it is. It is a managed environment of multimedia material in digital form designed for the benefit of its user population structured facilitate access to its contents and equipped with aids to the navigation of the global network.

44 For a number of years there have been predictions that by the 1990's we will be entering the year of the "paperless society" an era in which print or paper will give way completely to electronics, at least for more publications designed primarily to transmit factual information rather than to entertain or inspire. It is argued that the library will become disembodied because it will not contain any printed materials at all. Other pundits are not so optimistic by clearly saying that paperbased society will remain for pretty long period.

45 Information handling and delivery technologies have spawned a robust and lively information market and the emergence of commercial supplier of information services that may directly compete with libraries.

These developments have profound implications for researchers, scholars and general users of information and for librarians. They have both the power to displace traditional librarians and information specialists and/or to magnify their importance and contributions they can make to scholarship and the information transfer process. These changes are most evident.

46 The Impact of Automation on librarianship

Harris in her review referred to a lot articles on the deskilling effect of library automation. Bell's view was "to liberate workers in this field from dull, repetitive work, but that will provide them with a means by which to enhance prestige of their work and guarantee them a secure, and ever enlarging niche in the labour force. But Hall's view was "the older type of librarians is being deskilled, other

library skills are developed or are being replaced by the high level skill of another profession. But apprehension was there. Cataloguers will be freed from the drudgery of some repetitive tasks or will be deskilled.... Automation could potentially transform the heartland territory of reference.Use of paraprofessionals are on the rise....

"There are many who would disagree with the idea that librarianship is being deskilled or deprofessionalised". Some optimistic librarians think on the "New librarianship".

Many futurists agree that the most significant roles remaining to librarians in the face of automation will be teaching and consulting.

5. FUTURE CHANGES IN LIBRARY AND INFORMATION SECTOR

a) The library of the coming years will employ a variety of electronic services to satisfy the information needs of their users. These new technologies and services are assumed to be under the control and management of librarians.

b) Electronic information technologies are diminishing the central role of traditional libraries. On line Union catalogues and their associated communication networks allow ready access to the collective holdings of numerous libraries. They ensure that inter - library loan requests are transmitted expeditiously to libraries known to hold the items sought.

c) Many universities are now resorting to establish campuswide networks of their own. In addition to campuswide networks for institutional communication, major academic institutions may be linked to each other by one or more high capacity data communication networks. Through these networks, academic institutions and libraries may join with numerous similar institutions around the world through internet. Several hundred library catalogues and information databases are connected with internet and day by day more connections are available.

d) There are already many instances in which digital images of documents are created, distributed electronically, and stored in computer databases. Old and rare documents may shortly be more available readily in electronic form. A number of programmes have begun, or are planned, in which deteriorating documents are preserved as electronic images rather than on microfilm.

e) In the past 10 years, the number of new computensised bibliographic databases has grown nearly 25% per year. In the most recent 5 years the number of full text databases has increased more than 50% per year. Since their introduction in 1986, CD-ROM databases have grown in number by nearly 60% per year.

f) The full text electronic journals in the early nineties and now a days a large number of journals in electronic form are available. There is an obvious advantage over the printed media. Some institutions offering a large combination of journals in electronic form such as ADDNIS or IEEE journals. They are more timely and less costly to produce, distribute, index and maintain than are conventional journals in print form but their price is comparatively higher than the corresponding print form.

g) Electronic technology will make available to scholars, researchers, students and general users of libraries and enormous richness of information and services without the need to visit traditional libraries.

h) With the reduced importance of public libraries, librarian and information specialists will need to be proactive and promote their special services to their user communities. They will function more

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like consulting information engineers than traditional, passive information resource custodians and dispensers of documents.

6 Conclusion

The library and information sector is now facing serious challenge which emerges due to the changes in production line. Information is the new strategic resource, replacing land, labour, and capital. The challenge in to libraries as institutions is an awesome one. In an information Era, libraries must serve as the gates to the future. But, while serving as agents to facilitate change for others, they must also change in profound ways themselves. In fact, the libraries of the future may not be confined to a building; it will mean a process - an interactive information service.

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HTML : A Language to create Web Page

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Abstract

This paper is prepared to show the usefulness of Hypertext Markup Language (HTML) for the purpose of creating a Web Page for any Institutions, Organisations, Libraries or Information Centres. Discusses the impact of Internet in the field of Library & Information Science for satisfactory user services. Emphasizes on creation of Web Pages for institutions/organisations participating in the Internet. Describes HTML, a language to create Web page, in details including its all aspects. The navigational software -- Archie, Gopher, WAIS, WWW, are defined broadly. Browsers, Internet access softwares for end users, are also discussed emphasizing Netscape navigator. Categories of HTML tags are illustrated. Lastly sample Homepage for Vidyasagar University is illustrated with the help of appendices.

1 INTRODUCTION

The scope of using Internet and its associate technologies in the field of library and information science is becoming wider and popular. Again these emerging areas are changing faster than any professional can keep track of them. The appearance of the Internet has changed the dimension of this discipline. Access to the nascent information is possible through the Internet today, provided facilities for accessing to the Internet are available. The intelligent idea of resource sharing in our good old days has been appeared globally through this Internet.

Any participating library/information centre can create their homepages to present themselves before others. Homepage contains all about information of an organisation. Objectives, activities, staffs pattern, organisational structure, services etc can be included in a homepage. Generally the structure of this information is non-sequential (i.e. non-linear) which can be incorporated in a homepage adopting hypertext property and using markup language (4,5).

2 MARKUP LANGUAGE

A markup language is meant to give clues about the structure, content and behaviour of document either to machine or human beings. It is of mainly two categories -- descriptive markup language and procedural markup language. A descriptive markup language is to describe the structure and

behaviour of a document allowing the author to concentrate on the content and structure(6). This category gives less emphasis on formatting and presentation. Whereas the other category i.e. procedural markup language gives more emphasis on formatting and presentation than its structure.

For example, Hypertext Markup Language belongs to the first category i.e. a descriptive markup language. Because HTML tags decide -- how a browser can display the contents of an HTML document; how a browser can adopt multimedia representation with graphics, sound, video etc.; how it can handle and display hypertext links either within the same HTML file or to other documents or web - accessible services.

2.1 HyperText Markup Language or HTML

It is understood from the name itself that two main concepts are combined here -- Hypertext and Markup Language. Obviously, markup language is meant for embedding special tags those describe the structure as well as the behaviour of a document.

Hypertext is concerned with the non-linear or non-sequential presentation of information. Unlike paper texts where information is generally expected to be read in a sequential/linear manner, hypertext allow readers to navigate their own path through the information. This exploits the interactive nature of the electronic media and open up many new possibilities, but demands careful design by the author and degree of discipline by readers. In other words, the author provides links between the related pieces of information in a manner that allows and enables readers to choose which links they wish to explore. Links may be used to direct readers to additional information the same way that footnotes, glossaries do in paper texts. Also they may provide more direct links between related pieces of information. Mechanism are generally provided to allow readers to backtrack to their original position or to follow further links(2).

Now a vital question is -- whether an HTML document can be named as computer programme? Truly speaking HTML is not a programming language and an HTML document can not be called a programme. Because a computer programme is a set of instructions and operations to be applied to external data used as input. In case of HTML, instruction and data are combined to tell the browser how to render data contained in the document(6). HTML ensures plenty of structuring and layout controls to handle the presentation and linkage mechanism necessary to provide hypertext capabilities.

3 WEB PAGE

In Internet, the information related to any organisation are presented in the form of a page. They are named as homepage. Home page is the screen layout of the organisation/institution which contains its profile. It can have links to connect/append with other details/sites in the web. However when a home page is created, the following objectives must be taken care.

- i) to ensure that it contain attractive presentations ;
- ii) to have fast downloading facility ; and
- iii) to facilitate efficient user accessing to other sites.

In the Web page, the essential included information may be corporate profile, the information about organisation's past performance, products and services, the latest happenings in the company - like vacancies, recruitment information etc. (1,3).

3.1 Internet

Internet is popularly known as network of networks over the world. It is an extremely large, globally distributed and interconnected store houses of information and it can provide services to all the users who have access to Internet. Internet services are spanning from electronic mailing to document publishing over the World Wide Web in the form of Web pages, conducting business over the Net, Bulletin Board Services advertising of services and products over the Internet etc. There exists an unimaginable amount of information on Internet. To have an easy access to those some navigating tools for Internet are available. These navigation softwares are generally named as servers. A user can find the location of his required information through these servers.

3.1.1 Archie Servers

Archie Servers exist all over the world. Generally it provides an electronic directory services to keep track of files available on anonymous FTP servers. It allows searching of indexes of files; indexes are automatically updated once in a month with listing information from each site. Also archie servers allow users to search for programmes, data on text files. However, an archie server can be used through wellknown 'telnet' command(1).

3.1.2 Gopher Servers

Gopher is also one of the navigation tools on INTERNET. Gopher programme is designed to browse the resources by selecting options from successive menus. Basically Gopher gives a menu driven approach to search information and to keep track of two types of entities -- directory and resources of information to have access through menus. An index to the Gopher servers is also available which is named as Veronica (Very Easy Rodent Oriented Index to Computerised Archies) (1).

3.1.3 WAIS

WAIS stands for Wide Area Information Server. It is distributed text searching system based on a standard that describes a way for one computer to ask another to perform searches for it. WAIS searches through indexed material and finds articles containing group of words. The WAIS indexes the content of documents rather than document titles (3).

3.1.4 W W W

The W W W or W3 is the abbreviation of World Wide Web. It is the newest information services based on hypertext to arrive on the Internet. The W W W is a graphical navigational tool which allows the users to add picture sound, video etc. So W W W can use a set of hypertext documents having hypertext links, which are created using HTML tags. The W W W consists of documents and links. It merges the techniques of information retrieval and hypertext to make easy and efficient global information systems (3,6).

3.2 Browsers for Web

The Web access softwares are known as browsers. Browser acts as the interfacing tools for the Web which allows to browse information of the World Wide Web. They are also able to handle multimedia information i.e. audio, video, animation along with textual information. There exists many kinds of browsers which enable the user to handle hypertext documents. Each browser has a distinct method of interpreting the logical form of HTML formatted documents and thus disseminating physical form of information. Information are presented to users as pages of text, sound, video, animation etc. Also OLE (Object Linking and Embedding) facilities can be adopted for hypertext nature.

3.2.1 Lynx

Lynx is one of the Web browsers which can only display the textual data. The graphical or multimedia elements can not be delivered through this shareware Web browser. Lynx provides useful Web functionality for users on dumb terminal because it supports keyboard navigation and highlighted display of hypertext links.

3.2.2 Mosaic

Mosaic is the first popularly used graphical Web browser designed and developed at the National Centre for Super-computing Application (NCSA). Mosaic provides a powerful user friendly graphical interface where hypertextual links appear to connect other Web pages, or highlighted words in the text. Color is used to highlight text links and other elements like OLE.

3.2.3 Netscape

Netscape navigator is the most widely used graphical Web browser and popularly known as Netscape. The salient features of Netscape are :

- (i) It combines text, pictures, and animation in lots of attractive ways;
- (ii) It runs reasonable well even on in expensive dial-up connections;
- (iii) Consecutive versions are being updated to add new Internet Services; and
- (iv) Its authors give it away for free.

Netscape is the best organised, best performing and most efficient Web tool. Netscape recognizes the advanced HTML tags.

Netscape navigator supports a host of widely used enhancements to HTML. A clear interface, easy-to-use controls and a straight forward set up also add to this browser's appeal. The present work of preparing home page for Vidyasagar University is carried out using HTML and Netscape is the browser for it (6).

4 WEB PAGE AND HTML

A Web page using HTML generally has following three parts :

- i) A head, that identifies the document as HTML and establishes its title;
- ii) A body, that contains the content for a Web page. This is where all displayed text on a page comes from, as well as links to graphics, multimedia information, and to locations inside this HTML file or to other Web documents; and
- iii) A footer, that labels the page by identifying its author, date of creation and version number.

But HTML has flexibility of skipping some of these elements (6). For example, HTML does not include a separate tag to denote a page footer.

The general structure of a Web page prepared as HTML document is

```
<HTML>
<HEAD>
<TITLE> Vidyasagar University Home page</TITLE>
</HEAD>
```

HTML

```
<BODY>
<H1> VIDYASAGAR UNIVERSITY </H1>
... ..
... ..
</BODY>
</HTML>
```

Every HTML document should be bracketed by the identification tags <HTML> to open the document and </HTML> to close it. HTML document includes a pair tags, <HEAD> to physically identify the head of a document. The real content for any HTML document occurs in the body section, which is enclosed within <BODY> and </BODY> tags. Document's structure and layout are prepared using a variety of tags for text headings, embedded graphics, text paragraphs and placed within document's body (6).

4.1 HTML Tags

HTML tags are specially identified set of characters which are responsible for presenting the information with the required structure and layout. Tags should follow its syntax properly. Some general rules for writing a syntactically correct tags are as follows (3,6) :

- (i) Tags must be enclosed by left and right angular brackets with no space character within. For example. <HEAD>, <HTML> etc.
- (ii) Tags usually come in pairs - opening and closing tags. All the text that occurs between these two above mentioned types of tags is considered to be the focus of that tag and will be handled accordingly. For example, <TITLE> Vidyasagar University Home Page </TITLE> will show up on a window title.

Some tag has no closing part, they appear single, e.g. <P>, <HR> etc.

- (iii) Tags can sometime take on one or more attributes to define data sources or destination to specify URLs (Uniform Resource Locators).
- (iv) As a general practice it is better to use uppercase letter for tags to separate them from ordinary text. However, it must be remembered that HTML is not case sensitive.

Numerous tags of HTML are categorised into suitable ten groups.

4.1.1 Tag for Comments

Like other programming languages, comments give opportunity to HTML authors to annotate their documents as a whole or its parts, sections etc. Ordinarily browsers do not display them (6). Comments help its reader to understand the document's nature.

4.1.2 Tags for Document Structure

HTML has numerous tags which are responsible for layout structure of document. These tags are useful to establish links to other documents and to indicate support for electronic indexing capabilities (6). They are very important for developing a well-designed Web pages.

For example,

```
<BODY>
... ..
... ..
</BODY>
```

blocks out the body of the document where actual information is stored.

4.1.3 Tags for Document Headings

These tags facilitate to use headings of different levels to provide structure for a document's content, starting with its title, all the way down to sixth-level headings(6). For example, "<H2> </H2>" represents that text must be displayed as second level headings. Similarly "<TITLE> </TITLE>" supplies title that labels entire document.

4.1.4 Tags for Links

Tags for links establish links to author, to other document, or create another point for another link. They are the fundamental foundation for the Web's hypertext capabilities (6). For example, "<A> " helps in displaying highlighted text to represent its hypertext link capabilities.

4.1.5 Tags for Layout Elements

Layout element tags introduce specific items within the text of a document, including line breaks, horizontal rules to divide distinct text areas (6). For example <HR> draws a horizontal line across the page.

4.1.6 Tags for Graphics

Pictures are used in HTML document through tags. points to the graphics source, provides a text alternative for non graphical browsing (6).

4.1.7 Tags for Forms

These tags provide the essential mechanisms for soliciting reader feedback and input on the Web (6).

4.1.8 Tags for Paragraphs

Tags for paragraph break the text into paragraph. The <P> is the tag for paragraph while used, a new paragraph is started (6).

4.1.9 Tags for Lists

HTML includes numerous style for building lists. All of these provide useful tools for organizing lists of items or elements to improve readability (6). For example, "<DIR></DIR>" provide list of short elements.

4.1.10 Tags for Text Controls

HTML provides character formatting tags. For example, "...." provides bold face and "<I></I>" produces italicized text (6).

4.2 Sample Web Page

Now-a-days, different institutions have joined in the internet. Generally it is a good idea of creating a Web page to present their all-about information to interested users. With the intention of putting the Vidyasagar University on Internet, a project to design and development of a Web page is taken

HTML

into consideration. Some sample pages are shown in the Appendices.

Appendix I is a listing of the first or beginning page of HTML document prepared as a part of Vidyasagar University Homepage. Display of this page through netscape is shown in Appendix II. Here information as appear in the University diary are included establishing hierarchical relationship among pieces of information.

A careful study of Appendix I shows appearance of some tags. The explanation is here.

```
<HEAD>
```

```
<TITLE>VIDYASAGAR UNIVERSITY</TITLE>
```

```
<HEAD>
```

The `<HEAD>` defines page-level information about an HTML document whereas title provides the name or title for that HTML document which normally appears in the title bar of the browser's window. For example, while browsing this *viduni.htm* document, the name is given and appears on the top title bar of the netscape as 'Netscape – [Vidyasagar University]'. Now `<BODY>` section starts and ends with `</BODY>` enclosing the information is to be presented.

```
<H1><CENTER> VIDYASAGAR UNIVERSITY </CENTER> </H1>
```

`<H1>` represents the first level heading. Headers come in different styles and weights to help another for better organization of his document. `<CENTER>` puts the text in the middle of the line across the page. Fundamental hypertext links for a particular text are generated using `<A>` and `` tags and the corresponding file is referred by HREF. For example `Vice Chancellors `

The file *vc.htm* contains a list of Vice Chancellors and their tenures. In the output, hypertext terms are highlighted and a click of mouse button on that text establishes link to respective HTML file (*vc.htm*) where answers are available. Similarly one can proceed further clicking on highlighted terms.

5 CONCLUSION

Internet, the inter-connectivity of computers over telecommunication lines (i.e. computer networks) to support information access technologies for storing, retrieving and disseminating, is used in a large scale by interested institutions. It can also be characterised as open computer communication networks distributed globally. The growth of Internet based resources and services are valuable and slowly becoming popular. The network awareness and culture is growing rapidly, causing the revolutionary changes in handing information. However, the above list of services, tools, or browsers are no means an exhaustive, but points out to the most popular utilities as of now. Any institution, participated in Internet, can design its Web page using necessary sophisticated tools and techniques for storing its information establishing links among the pieces of information of different level. In this connection, a suitable methodology to design and develop the Web page is to be adopted. But the most important thing is organising information. It can be believed that library / information professionals can do it better.

In fact Library Professionals should take all responsibilities to organise information of his custody such a suitable manner that an attractive well-defined Web page can be designed and put on the Internet by them. Hopefully they will be in a position of performing efficient information work for the purpose of rendering effective information services through web page and it promises to proceed them a step forward towards a better tomorrow.

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APPENDIX I

[Listing of the first page of HTML document VIDUNI.HTM]

```
<HTML>
<HEAD>
<TITLE> VIDYASAGTAR UNIVERSITY </TITLE>
</HEAD>
<BODY>
<H1> <CENTER> VIDYASAGER UNIVERSITY </CENTER> </H1>
<H3> <CENTER> Shiksha Jnan Pragati </CENTER></H3>
<H2><CENTER> Welcome to Vidyasagar University Homepage </CENTER></H2>
<B> This is a <A HREF = "su.htm"> State University </A>. This University was established in the year
1983 as a non conventional University on the recommendation of the Gani Committee. It's academic
activities were inaugurated on Jan 15, 1986 by Mr Jyoti Basu, the Chief Minister of West Bengal.
</B>
<HR>
<P>
<H3> I Statutory Bodies </H3>
1 The Court
<P>
2 The Executive Council
<P>
3 The Faculty Council for Post Graduat Studies in Arts and Commerce
<P>
4 The Faculty Council for Post Graduate Studies in Science
<P>
5 The Council for Undergraduate Studies in Arts, Science and Commerce
<P>
<H3>II Chancellor & Vice Chancellor </H3>
1 The Chancellor
<P>
</b>
```

HTML

The Governor of West Bengal is the Ex-officio Chancellor of the University. Present Chancellor :</l>
Sri K V Raghunath Reddy , Governor of West Bengal.

<P>

2 The Vice Chancellor

<P>

i) Prof Amiya Kumar Dev since 21 July (after noon) 1995

<P>

ii) Vice Chancellors

<P>

<H3> III Academic Departments </H3>

<HR>

</BODY>

</HTML>

Appendix II

[Display of Vidyasagar University Homepage]

file : ///C:/HTML ASST/VIDUNI.HTM

VIDYASAGAR UNIVERSITY

Shiksha Jnan Pragati

Welcome to Vidyasagar University Homepage

This is a State University. This University was established in the year 1983 as a non conventional University on the recommendation of the Gani Committee. It's Academic activities were inaugurated on Jan 15, 1986 by Jyoti Basu, the Chief Minister of West Bengal.

I Statutory Bodies

1. The Court

2 The Executive Council

3. The Faculty Council for Post Graduate Studies in Arts and Commerce

4. The Faculty Council for Post Graduate Studies in Science

5. The Council for Undergraduate Studies in Arts, Science and Commerce

II Chancellor & Vice Chancellor

1. The Chancellor

The Governor of West Bengal is the Ex-officio Chancellor of the University. Present Chancellor : Sri K V Raghunath Reddy, Governor of West Bengal.

2 The Vice Chancellor

i) Prof Amiya Kumar Dev since 21 July (after noon) 1995

ii) Vice Chancellors

III) Academic Departments

APPENDIX III

[Listing of vc.htm document]

<HTML>

<HEAD>

<TITLE> Vice Chancellor </TITLE>

<BODY>

<H3> VICE CHANCELLORS </H3>

<P>

<l> The Vice Chancellors of Vidyasagar University since inception

</l>

<P>

1. Prof Bhupesh Chandra Mudherjee, 29 Sept 1981 to 31 Dec 1986

<P>

2. Prof Birendra Nath Goswami, 1 Jan 1987 to 7 April 1987

<P>

3. Dr Joytirmoy Pal Chaudhuri, 8 April 1987 to 30 April 1987

<P>

4. Prof Manas Kumar Chattopadhaya, 1 May 1987 to 9 June 1987

<l> (pro tempore) </l>

5/ Prof Manas Kumar Chattopadhaya, 10 June 1987 to 13 June 1991

<P>

6. Prof Manoranjan Maiti, 14 June 1991 to 21 July 1991 <l> (pro tempore) </l>

7, Prof Satya Narayan Ghosh, 22 July to 21 July 1995 <l> (fore noon) </l>

<P>

8. Prof Amiya Kumar Dev , 21 July 1995 <l>

(after noon) </l> - -

</BODY>

</HTML>

APPENDIX IV

[Display of VC.HTM document]

file : ///C:/HTML ASST/VC.HTM

VICE CHANCELLORS

The Vice Chancellors of Vidyasagar University since inception

1. Prof Bhupesh Chandra Mukherjee, 29 Sept 1981 to 31 Dec 1986

2 Prof Birendra Nath Goswami, 1 Jan 1987 to 7 April 1987

3. Dr Joytirmoy Pal Chaudhuri, 8 April 1987 to 30 April 1987

4. Prof Manas Kumar Chattopadhaya, 1 May 1987 to 9 June 1987 (*pro tempore*)

5. Prof Manas Kumar Chattopadhaya, 10 June 1987 to 13 June 1991

6. Prof Manoranjan Maiti, 14 June 1991 to 21 July 1991 (*pro tempore*)

7. Prof Satya Narayan Ghosh, 22 July 1991 to 21 July 1995 (*fore noon*)

8. Prof Amiya Kumar Dev, 21 July 1995 (*after noon*) --

Will Traditional Publication of Scholarly Journal Perish?

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Abstract

Journal subscription cost is rising day by day leading to the fall in number of subscriber. It is a real problem for subscriber as well as the publisher. Here, we are trying to find out whether electronic form can offer any solution. What is lying in the hand of electronic version of journals in future?

Introduction :

Electronic versions of traditional paper journals offer a number of advantages. Electronic journals are currently being developed in three main formats : simple text, page image, and structured text. Each of these formats has its own strengths and weaknesses, and there are some combinations of the three that offer interesting capabilities.

Automation is often described as automating what we currently do, which in turn changes what we do, resulting in another generation of automation. In many ways, changing what we do occurs simultaneously with the automation of an activity as users of information develop new ways to use the electronic medium.

Although it has been popular for some time to claim that the technical problems associated with the electronic delivery of journals have been solved, it is only recently that the operating systems, windowing systems, fonts, communication facilities, and computational capacities have matured enough to handle the demands placed on them by electronic journal applications.

Development of Electronic Journals :

As existing materials become electronic, there is a clear and predictable migration : the highly used a source is and the more that currency is important, the more quickly electronic versions become available. A third criterion is ease with which the transition can be made. Following these guidelines, reference materials, such as abstracting and indexing services, were available first. These materials are highly used, require being kept current, and are relatively compact. Abstracting and indexing databases also offered relatively few problems in computerization; text with a simple structure for the bibliographic information is perfectly adequate for these databases.

Next to be transferred are reference works, such as encyclopedias, dictionaries, and handbooks,

Even though these sources pose some technical problems, they are more valuable, and both online and CD-ROM versions are appearing.

Journals offer more problems. The typography of journals can be complex. Although simple textual versions have been available for sometime, fully functional journals have only become available more recently, both as page image and structured text.

The final stage will be access to books electronically. Some of this happening now in multimedia CD-ROM and online access.

Significant Features of Online Journals :

- relative importance of the individual articles is more over journal issues or even titles.
- importance of efficiencies of central storage and electronic mail are more in electronic form over traditional paper form.
- relative ease of publication compared to paper form.
- immediacy of communication with the authors.
- computer users connected to the Internet may obtain free software and make their information freely available to millions of people. Currently, the most popular method is via the World Wide Web. After this has been done, other users can add their own papers with only moderate effort. Thousands, if not tens of thousands, of sites are now doing this on the Internet.
- the documents being put up at these sites range from what are easily recognized as journals to much looser collection of files. What they have in common are hypertext links with which the author can point to other files of interest.
- Another common characteristic of these documents is the extensive use of colour graphics.

Advantages of Online Journal :

The electronic format offers many advantages to both users and publishers which paper publication cannot match

- Customization. Only the articles of interest are "delivered" and the user has some control over the appearance of the articles both printed and on the screen
- Integration with other work. As the capabilities of computers grow, a situation is rapidly developing in which many people do most of their work at personal computers. Scholars are using e-mail, word processing, filing and creating personal databases etc. At the same time, sitting at the same desk, on the same machine he/she is searching bibliographic databases and referring to articles of his/her interest. This ability is invaluable.

Full Text Searching. The retrieval capabilities of journals in electronic form are far better than those in paper. Every word in the article is a potential retrieval point so that even a caption of a figure can be used to find a half-remembered article.

- Speed of access.
- Speed and cost of publication. Avoiding the printing and mailing process can easily drop two or three weeks off the current publication cycle. Machine-readable text from authors is gradually lowering costs and reducing time as authoring and publishing systems become better integrated, and as electronic transmission is used more in the review process, additional time will be saved.

- Availability. Assuming an electronic version of a document is available at all, there is a much higher probability of a user actually receiving it than in a typical library where journal issues and individual articles may be in use, in the bindery, or missing altogether.
- Hypertext links. Existing journal articles contain a large number of links both within the article and to other articles. These will gradually become "hot" links in the electronic version, where a simple click on a reference will either lead on to where it was cited, to an abstract of it or to the article itself.
- Access. One have fairly good access to everything on the internet.

Impact on Libraries :

Libraries are likely to be as affected as any of the publishers. As more and more of the documents that libraries have traditionally collected, organised, stored, and provided access to become available instantly over the Internet, what is the purpose of the library? Of course libraries offer many more services than simply access to the published literature, but certainly this access forms the core of their services. What will not disappear will be the librarian's role in guiding users through the increasing number of information sources. Whether this person will be called a "librarian" and work in a library is less clear.

The different economic factors associated with online journals have yet to have much impact on libraries and publishers, but as their use increases, this will, have a profound effect as more centralized storage becomes feasible, and libraries' role in archiving journal issues diminishes.

Effect on Publishing :

Now the question is with the advent of electronic mechanisms and keeping in mind the above mentioned advantages one can get through electronic format, what will be the future of scholarly journal publication. Let's evaluate the situation from the point of view of publisher.

It is evident that all types of journal subscriptions have declined everywhere. Many factors contribute to the current decline in journal subscriptions, but most often cited factor is cost. The quantity of research continues to expand, but archival acquisition budgets are not able to keep pace with the advances.

The revenue produced by journals is the sum of all subscription sales, but the cost of publishing a journal varies only slightly when circulation rises or fall. For that reason publishers tend to view the "publishing process" as the series of steps and procedures that go into producing a journal's 'first copy'. (Printing and mailing, or alternate delivery methodologies are part of the 'distribution process').

Editorial management, including peer-review, represents about 10 percent of a journal's cost. Editorial mechanics adds another 30 percent. And finally, electronic production, including design, layout and illustration represents an additional 30 percent. Therefore, the total first copy cost of a scholarly journal is between 70 and 80 percent of its operating costs, depending on the number of pages published and the complexity of the text.

As the librarians and other archivists struggle with the conflicting realities of decreased budgets and increased costs, the advent of the Electronic Information Superhighway is increasingly identified as an all-encompassing solution, rather than simply a rapid delivery medium. Futurists

imagine a time when all knowledge is instantly accessible through global networks, free for the mutual benefit of mankind.

In fact, the preparation of a journal as an electronic file for distribution through a computer network incurs all of the same first copy costs associated with publishing a journal on paper. In addition, an electronic journal requires a further investment in search and retrieval software, as well as graphical user interface, in order to be accessed by computer from the database.

The potential of publicly maintained information networks, such as the Internet, are also widely misinterpreted. A responsible publisher of science journals would no sooner upload nonpeer-reviewed research on a network than print nonpeer reviewed research on paper. Both actions would corrupt the integrity of the archival record and impede the advance of science.

However we all know the advantages of electronic or online journal as mentioned. Electronic technology also makes important contributions to the publishing process. Computer technology reduces production turnaround by as much as one week per journal. In addition, electronic files are an ideal, cost-effective medium for transmitting raw data. The hope that journal costs might be absorbed into cyber-space is more a representation of the desire to reduce the burden on subscribers than it is a realistic scenario for the future of the publishing process.

There are various issues which are debatable till now. Here comes the issue of free access versus fee based. Obviously, commercial publishers must protect their financial interests and they are devising ways to charge for Web-based journals. But nonprofit academic institutions, which sponsor a great deal of today's research, may decide (if they choose to get into the Web publishing arena) that the goal of disseminating information takes precedence over the goal of making money.

Next comes the issue of Intellectual Property Right. Copyright law in its present form seems inappropriate when applied to the Internet.

Conclusion :

Whatever the problems be associated with the online journal, all these will be outweighed by the advantages one can incur from it. Publishing of scholarly journals in traditional form may continue side by side with electronic form. But, scholarly community will be more and more habituated in using electronic form and they will demand for more material to appear in that form and this change seems inevitable at this moment of development, even in a developing country like India.

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