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Library Consortia Formation Models in India:
A Comparative Study

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Abstract

A consortium is to maximize the accessibility of information and minimize the cost and duplication without losing the individual identity. The collective strength of consortia facilitates the libraries to get the benefit of wider access to electronic resources at affordable cost and at the best terms and conditions. There are many approaches to cooperation, and many models are developed and utilized successfully. Consortia are generally based on various models evolved in variety of forms depending upon mode of formation and funding. This paper presents consortia models applicable in India.

1 Introduction

We are presently living in a Knowledge Society, which is characterized by need and use of information by the people of society for various purposes, activities and development. However, the ever-increasing complex needs of the information seekers on one side and the information explosion on the other side, followed by the ever shrinking library budgets, price escalation, etc., have become the serious problems in providing adequate and suitable documents / information services by the library and information centres[1].

The factors like, voluminous growth of published documents, increasing cost of information resources and technological advancements provide newer methods of information processing, retrieval and dissemination. These factors have made partnership a necessity. This partnership leverages provision of more effective services. Partnership brings better solutions due to mutual interests and complementary skills. The professional relationship among the partners must be based on mutual respect and an interest in participation in a win/win manner. A successful partnership may take years to develop the trust among all participants needed to share[2].

It has become imperative for the library and information centres (LICs), both in India and abroad, to focus their attention on library consortia as a means to overcome the information inadequacy and the insufficient library budgets[3].

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Initiations are made by libraries to join in a consortium for the access of a wide range of information resources which otherwise cannot be owned or acquired by any one single library / information centre on their own. In consortia, libraries and information centres located in a geographical area or libraries concerned with a common subject field come together to procure the information resources either in print or in non-print forms, including the web based electronic resources. Consortia facilitate the member libraries to gain access to a large number of resources. The information and communication technologies (ICTs) are helpful to library consortia in accessing information electronically, irrespective of the local boundaries.

The present approach towards consortia and resource sharing adopted by Indian libraries need radical changes to evolve responsive partnerships in order to achieve best performance in service. The current practices of journal acquisition in most of the libraries in the colleges and universities in India are print based; in which each library is an island with regard to access of information. Moreover, there is wide disparity in the availability and use of information among different universities and colleges. But, consortia based acquisition and electronic desktop delivery of information can eliminate this gulf and increase the access and use considerably. Thus, the difficulty now faced by the students, teachers and scientists in getting academic and research information will reduce[4].

Library cooperation is not a new phenomenon in India, but the availability of sophisticated technologies has resulted in a much more favourable environment of cooperative ventures, such as collaborative collection development and innovative interlibrary cooperation. Such coordination of resource sharing is facilitated by a networked environment causing easier formation of library consortium based on electronic sharing of information resources. A widespread use of converging technologies in the field of library and information management has accelerated the process of collaborative collection development for maximizing information access. As a result, there is a shift in the process of resource sharing from print to electronic media, as libraries in India strive to cope with the dynamics of a changing work processes driven by the technology. This change is necessitated due to rising consciousness of users for the possible new demands posing on the library system, the prevalence of new information formats and the ability of these information and communication technologies to serve such user demands more efficiently[5].

This study aims to survey the library consortium formation models practiced in India. The study is mainly restricted to national level library consortia in India.

2 Methodology of the Study

This study employed the survey method to collect the data. The survey was done through the use of the mail questionnaire because the samples come from a wide geographical area.

At first a study was conducted to understand the concepts and models related to the library consortia. For this purpose, various print as well as online information sources were consulted. Later a structured questionnaire was prepared to collect data from the authority of the national level library consortia. The questionnaire covered many aspects containing various questions pertaining to general profile of consortium; the mission, vision, objectives and goals of library consortium; library consortia formation models; administration and organization of library consortia; role of information and communication technology (ICT) in functioning of library consortia; budget & staff; acquisitions of online journals/databases; and promotion of scholarly communications. The questionnaires were distributed to the consortia managers and data were collected. Further, the collected data were classified and analysis was done and necessary inferences were drawn.

For this purpose, a total of 08 questionnaires were distributed among below mentioned national level library consortia under study.
1. Consortium for e-Resources in Agriculture;
2. Council of Scientific & Industrial Research e-Journals Consortium;
3. Forum for Resource Sharing in Astronomy and Astrophysics (FORSA);
4. Health Science Library and Information Network Consortium;
5. INDEST-AICTE Consortium;
6. Indian Council of Medical Research Library Consortium;
7. Indian Institute of Management (IIM) Library Consortium; and
8. UGC-Infonet Digital Library Consortium.

3 Library Consortia : Review

The library consortium is a collective activity of group of library towards a common goal of sharing resources. It is not only about sharing the resources but also improving access of information. It refers to cooperation and coordination between and amongst libraries for the purpose of sharing information resources. A consortium is to maximize the accessibility of information and minimize the cost and duplication without losing the individual identity.

A library consortium is a formal association of libraries, not under the same institutional control, but usually restricted to a geographical area, number of libraries, types of materials, or subject interest, which is established to develop and implement resources sharing among members. The objective of library consortia is to control and reduce the information costs, to improve resource sharing, to develop a network information environment via campus systems, campus networks and the internet, and to share licensing issues with each other[6 & 7].

There is sufficient published literature on the topic, which indicates that the concept is not new, and it refers to co-operation, coordination and collaboration between and amongst

libraries for the purpose of sharing information resources[8]. However the usage of the word became popular in 1980s onwards in general.

The exact date when first of all the library consortium was introduced is not known but the concept of a consortium in the form of partnership or association has long been an ideology of librarianship[9].

A library consortium is any local, statewide, regional or interstate cooperative association of libraries that provides for the systematic and effective coordination of the resource of public, academic, and special libraries and information centers, for improving services to the clientele of such libraries[10].

Library consortium is a collective activity of any group of libraries towards a common goal. The collective strength of consortia facilitates the libraries to get the benefit of wider access to electronic resources at affordable cost and at the best terms and conditions. The consortia-based subscription can be successfully deployed to meet the pressures such as diminishing budget, increased user's demands, and rising cost of electronic resources[11].

Today consortium has become a buzzword for the libraries of higher educational institutions of the country and the credit goes to the successful functioning of UGC-Infonet Digital Library Consortium and INDEST-AICTE Consortium. Library consortia are created to help libraries to obtain better prices by buying joint access for a greater number of users, expanding access to print and electronic collections and developing new services to meet their customers' needs[12]. The primary objective here is to negotiate with publisher at least possible price for all the members.

3.1 Library Consortia Model

Experience has shown that the concept of consortia works well between organizations which are similar in size, funding and those which are headed by enlightened library administrators. Research libraries are in a better situation with reference to the availability of facilities and funds. Establishing a consortium between homogenous groups of members is slightly easier than bringing the heterogeneous group together.

A consortium may be based on library type – academic, medical, or public. A regional consortium may be based on a geographical principle. A statewide or nationwide consortium may incorporate all its libraries, government-funded and those in private institutions.

There are many approaches to cooperation, and many models have been developed and utilised successfully. Some are relatively simple, others are far more complex, but all of them have considerable potential in a variety of environments.

The types of consortia are generally based on various models evolved in variety of forms depending upon affiliation and funding sources of participations. The various library consortia models given by eminent professionals are mentioned below.

3.1.1 Michael Sinclair has given four models of co-operative activity among libraries[13]. These are -

1. Bi-Nodal Partnership Model - It is simply a pair of libraries which have agreed to exchange information and materials. It is typically an exchange agreement in which the libraries agree on a value of the exchange rate. Sometimes more advanced libraries agreeing on something like a two-for-one exchange agreement (i. e. two of its items equal one item of the other library).

2. Multi-Nodal Partnership Model – This is an extension of the bi-nodal model in which a number of libraries contribute to a common collection in some sense, and all draw services from this common resource at an agreed rate. This is the simplest type of consortium arrangement and would work well within a single country.

3. Service Partnership Model – In this model, one library in a pair or a group makes available its facilities to produce a group output such as a co-operative OPAC. The output is made available to members of the group. All participating libraries contribute to the output, and one of them acts as a facilitating node or manager of the output. It is still a participatory arrangement.

4. Outsourcing Partnership Model - This is the most sophisticated in some ways as it resembles a business arrangement. Here, an external organisation (typically a bibliographic utility or aggregator) is engaged by the participating libraries to provide a common service. This is often viewed as a risky arrangement because the participating libraries enter into a contractual arrangement with a third party who is not one of them (for example OCLC). This enterprise inputs materials for the participants and produces an agreed output for those participants and perhaps for non-participants as well.

3.1.2 Alisha Market and others have given three basic library consortium models[14]. These models are -

1. National Centralized Model – This model is based on the central role of the national library which organizes the shared management of electronic resources in the context of a national strategy or long-term project in which the management of electronic licenses is one component. The funding model is based on centralized funding from the Ministry of Education and own funding of consortium members. The examples are the Nordic Consortia, the FinELib Consortium (FinELib, Finland)[15], the Swedish National Library (BIBSAM, Sweden)[16], Hellenic Academic Libraries Link (HEAL-Link, Greece)[17], etc.

2. National Decentralized Model – In this model, the sphere of action is the acquisition and management of electronic licenses in a university context. Generally the programme originates in a national perspective, but does not necessarily form part of a specific

project or broader strategic design linked with other national digital projects or initiatives. The example is the Consortia in France, the Consortium Universitaire des Périodiques Numériques (COUPERIN, France)[18].

3. Regional Model – This model is a form of cooperation structured in a regional context, namely a territorial area corresponding to federal or decentralized systems. Its funding sources come exclusively or principally from the decentralized level. The examples are the Consortia in Belgium, the Consortium of Catalonia University Libraries (CBUC)[19], CIBER, Italy[20], Consorzio Interuniversitario Lombardo per L'Elaborazione Automatica (CILEA)[21], Center for International Private Enterprise (CIPE)[22], the Sistema Bibliotecario Biomedica Lombardo (SBBL)[23], etc.

3.1.3 Allen & Hirshon Model: According to this model, library consortia are categorized in groups depending on the level of organizational decentralization / centralization, different values and objectives, governance structure and also on the political realities of its membership. The development of library consortia is continuous process and each consortium model stands at a point on a continuum. The points on the continuum are – informal, loosely knit federations, multi-type/ multi-state networks, formal, tightly knit federations, centrally funded statewide consortia, etc[24].

3.1.4 O'Connor Model: O'Connor provided four models which are predominantly based on how the consortia are funded[25]. These are:

1. Off the top – It is the most straightforward model in which members are drawn together by the availability of funds for a purpose. In this, the systems and electronic resources are provided centrally. Examples of this model are OhioLink and GALILEO[26].

2. Get on with it – In this, the initial grant money for its establishment is made available by the central government to stimulate the action. But it is clear that this government funding is only for initial development it must be replaced with institutional funding for the further development. The examples are CEIRC (CAUL Electronic Information Resources Committee)[27], CSIRO (the Commonwealth scientific and industrial research organisation in Australia)[28] and CONZUL (the Committee of New Zealand University Libraries)[29].

3. Let's help ourselves – In this, a company is established to provide library services or businesses to a group of consortia internationally. One consortium in this group becomes a negotiating arm for the group. In this way one consortium becomes the leader consortium for other consortia. SOLINET in Atlanta is a very good example[30].

4. Do it our way - This is analogous to 'Off the top' model but the difference is that it is nationally funded and focused with the involvement of it into the development of software products. The example is Joint Information Systems Committee (JISC)[31] in the UK.

3.1.5 Helmer Model: John F. Helmer[32] identifies a wide variety of library consortia models based on the following characteristics -

    a.   Formed by the Government mandate,

    b.   License electronic resources,

    c.   Offer other services,

    d.   Has legal status,

    e.   Has central office with or without staff, and

    f.   With or without central funding.

3.1.6 Haavisto Model : The model given by Haavisto is for library-licensing consortia in terms of how a consortium is managed and what needs to be looked at when entering into a consortial agreement. He expresses that a consortium can be managed by either (a) a member of the consortium, (b) a new legal entity founded by the partners, or (c) an outside agent (commercial, subscription agent or alike). He also mentioned various points to be included in a consortium agreement[33].

A country may use more than one model for formation of library consortia based on its comfort. For example, in the UK there are discipline-based, regional, and national consortia[34].

3.1.7 Specific Models in India: Since the consortium concept is still new in India, there are neither defined guidelines nor established models to help the librarians to establish a formal consortium where the members are legally bound and also protected for their decisions[35]. A variety of organizational models of consortia have been emerged in India based on their objectives, structures, participants, funding sources, etc. A few of the prevalent categories of models of library consortia represent a proto-type of a variety, which are being practiced in the library community in India. The models are:

    1. Open Ended Model: In this model, any library can join within a defined framework or terms of references, and numbers of members are not fixed, eventually flexible. Here the participating libraries have the freedom to join or leave from the consortium. This type of consortia are generally driven by small homogeneous groups who have a need to cross-share the resources in a specific subject area. This model suffers from sustainability problem, as the members can quit at any time.

    2. Closed Group Model: In this model, normally the consortium is formed within a defined group based on certain criteria. This type of consortium emerges either by coalition, affiliation and collaboration among them. The constituent members are homogeneous among themselves where the members have a common need to cross share the resources in a specific area. Here the guidelines and administration is fairly simple and easy.

    3. Shared-Budget Model: In this model, the participating libraries take the lead and

form the consortium. The operational aspects of the consortium, especially the management of funds etc., are individually handled. This type of consortium emerges with the proportional sharing of funds of the participating members and operates through the Memorandom of Understanding (MoU) for better and strong understanding.

4. Centrally Funded Model: Here the existence of the consortium solely depends on the central funding agency and eventually the regulations are imposed by the funding authority. Here source of funding often dictates the structure of the consortium. The strength of this model is that the financial responsibility of running the consortium is shouldered by the parent body.

5. Publisher Initiated Model: Here, the publisher offeres a deep discounted consortium price to the participating libraries on a national level. The pre-condition was that there should not be any drop in their print subscriptions. Such pricing practices by the eminent publishers / societies are coming up for the developing countries - like India. It is hoped that several such initiatives will be coming up from publishers' side in the near future. The Emerald Full-Text Library published by the Emerald Publishing Group (formerly MCB University Press)[36], Consortia price for ScienceDirect (from Elsevier Sc. & Associates)[37], for MathSciNet (from AMS)[38] and so many are the examples.

6. National Venture Model: Basically this is a national level initiative. In India, it is partly initiated through UGC-InfoNet Digital Library[39] and INDEST-AITCE consortia[40] (national prices for various e-resources). A national consortium can greatly reduce duplication of efforts / resources and also provide greater purchasing power. Still the implementation is pending in this direction. National level licensing of information products could be achieved towards this end. It is hoped that National Knowledge Commission will take such initiatives in near future.

7. Headquarter Executed Model: Such type of consortia is driven by the Headquarter of a particular organization. Here the head-office of the branches / institutes solely shoulders the financial responsibility of the consortium and the consortium is fully guided and executed by the head quarter. Example is ISI consortium.

8. Gateway Model: The design of gateway model resembles the top-down structure which typically has three tiers consisting of national centers, regional centers, and local centers and libraries as end-users. This model is in a certain way comparable to the aviation control model where an information center serves as a hub to which passengers are transported from different locations within the country, and then transported as a group to a foreign destination[41].

There is no single best model for a library consortium. Even it is also ambiguous, who can become partners through consortia. Allen and Hirshon[42] suggest three potential partners

(information providers, service providers & libraries) are wishing to participate in a consortium. Initially, library consortia were most prominent in the academic sector. This feature of library consortia is changing. Considering the size and volume of efforts to be required to implement the consortia approach, it will help to understand the potential requirements, processes and above all the costs involved in undertaking the proposal in real situation.

4 Reasons for Formation of Library Consortia

On one hand funds crunch and on the other hand growing needs for information, to stay in the competition and knowledge-based economy, placed the libraries at the cross roads of profession, feeling of being thrown out. Levels of technology deployment adequate for providing value added services and for efficient processing, retrieval and dissemination are necessary for continuous quality improvement. Competition among the teachers to give out to the students the appropriate and at the right time information from various sources including the peer source, among students for up to date information etc. requires each library to have a large information collection but this is possible if large amount of funds are available which are not simply there. The demands for new information and sources are unending because the changes are happening thick and fast. No one library or more can ever think of becoming on their own sufficient. Hence it is necessary to enter into a collaborative arrangement where by while effecting savings, the resource base expands. The savings could be used for adding new resources.

5 Findings

Out of 08 questionnaires distributed, the responses for 06 were received from the consortium managers. The responding consortia were –
1. Consortium for e-Resources in Agriculture (CeRA);
2. National Knowledge Resource Consortium (NKRC) (formerly CSIR e-Journal Consortium);
3. Health Science Library and Information Network Consortium (HELINET);
4. INDEST-AICTE Consortium;
5. Indian Institute of Management (IIM) Library Consortium; and
6. UGC-Infonet Digital Library Consortium.
The data from respondents are presented in the following table.

Table : Consortia Formation Models

Name of Consortium ?	CeRA	NKRC	HELINET	INDEST-AICTE Consortium	IIM	UGC-Infonet Digital Library Consortium
Model based on organizational structure	Closed group	Closed group		Open – ended	Closed group & decentralized	Open – ended
Model based on source of fund	assistant from World Bank	centrally funded. self sustained &	shared budget	centrally funded	shared budget	centrally funded
Model based on area of coverage	national	national	regional	national	national	national
Model based on nature of participants	Academic, homogenous	academic & research institution, homogenous	academic, homogenous	Academic, homogenous	Academic, homogenous	Academic, homogenous
Model based on legal status	formal	formal		Semi-formal	informal	formal

On the analysis of responses received, it is observed that there is no single best model for a library consortium in India. Each consortium is having characteristics of many models. The CeRA is closed group, national level, homogenous and academic consortium. The National Knowledge Resource Consortium is closed group, centrally funded, national level, homogenous and academic consortium. The HELINET is shared budget, regional level, homogenous and academic consortium. The INDEST-AICTE Consortium is open-ended, centrally funded, national level, homogenous and academic consortium. The IIM Library Consortium is closed group, shared budget, national level, homogenous, decentralized and informal consortium. The UGC-Infonet Digital Library Consortium is open-ended, centrally funded, national level, homogenous and academic consortium.

Thus, we find that fifty percent consortia under study are closed group while fifty percent are open-ended. Most of consortia are centrally funded and national level. Only single consortium under study is regional level which is also trying to be national level by extending its coverage area. All the consortia under study are academic and homogenous in nature.

6 Conclusion

The possibilities of information communication technologies, digital information, electronic document delivery, library consortia, and web based operations, etc. have helped to provide better services to the users. But, wide disparity in the availability and use of academic and research information still prevails among different universities and research institutions in India. Since the present pattern of higher education and research is inter-disciplinary, clear cut demarcation of areas of subject interest and information requirement is difficult. That means,

the information requirements are cross-disciplinary and also at micro-level. This underlines the need for providing access of information in all subject areas to the students, teachers and researchers in all branches.

The proliferation of electronic resources in the networked society has resulted in the development of shared subscription or consortia-based subscription to journals everywhere in the world. Shared subscription or consortia-based subscription to electronic resources through the consortia of libraries permits successful deployment and desktop access to electronic resources at a highly discounted rates on the one hand and it meets with the increasing pressures of diminishing budget, increased user's demand and rising cost of journals on the other hand. Consortia in India are still a new concept that requires proper guidelines and methodologies.

We need to develop (1) more workable models, (2) models that can be understood, (3) models affordable by libraries and (4) models sustainable to Indian environment.

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Organizing Information in the Digital Era

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Abstract

A pertinent question is raised, why 'Google' is not sufficient for the information retrieval. Comparison has drawn between traditional knowledge organization tools techniques with that of modern electronic resources. Changing role of librarians is also emphasized. China Academic Digital Library and Information System has been put forward here as a model. Various technical standards and specifications are described with necessary details to analyze the gravity of the problem.

1 Introduction

In 1998 Aimee Glassel , an Internet Cataloguer, wrote an interesting article, entitled "Was Ranganathan Yahoo?". It helped us to introspect into the domain of information organization in the digital environment. To day's digital world can access information resources in a variety of ways – library OPACs, online bibliographic and full-text databases, e-books, e-journals. intranet, digital repositories, and most ubiquitous Internet. To arrange all these resources systematically to a structured whole is obviously a challenging task.

Library and information services have, over the years, have developed and used special tools, techniques and standards for organizing information resources. The main objective of the information organization activity in the library was to facilitate easy access to shelved information resources, along with other objectives like facilitating resource sharing, etc. Traditional information organization tools and standards have been used in the library world quite successfully for a long time, but the appearance of digital information resources over the past few decades has changed the scenario altogether. There are other contenders like computer professionals, information vendors have also encroached into our arena, with a claim that they are also doing the same thing in a different environment.

2 Comparison with our Conventional Role

It is frequently said that, while organizing online resources we tend to shift from idea plane to verbal plane only; while in all other cases we have to move up to notational plane of work.

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By that what we mean is that our traditional role of classifying any document starts at idea plane, next it moves into verbal plane, finally we have to convert the verbal level to notational plane. To mark any document and park them in the real world, we can not do away with out notational plane of work. We need to translate the subject of all those documents into the artificial language of ordinal numbers to facilitate browsing of those documents before our users.

To allow people know what is available with us and letting them to view those records, we used to prepare Catalogue. To place similar items together we did classification. Finally to provide subject access librarians used controlled and pre-coordinated subject headings. We have been accustomed with catalogue codes like AACR2R, bibliographic formats like MARC21, Subject Heading lists like LCSH, Classification schemes like DDC, UDC, CC, etc.

Now a paradigm shift has been occurred towards database or intranet/internet based resources. We need to structure, process the fields and records as required by a specific database model. Databases may be bibliographic, full-text based, even comprises of numerical data as required for budget. Designing a pro-user interface for all these databases also poses a new dimension. Often vocabulary control tools like thesauri are also used.

To organize intranet / internet based resources we need to analyze the functions of search engines, with specially designed IR programs and tools. Subject Gateways provide access to different online databases available remotely.

The above diagram is taken from the National project of China, as described in Building the New-generation China Academic Digital Library Information System (CADLIS): A Review and Prospectus by Wang Wenqing and Chen Ling of The National Administrative Center for CALIS, Peking University. This can be described as the framework for organizing digital resources and providing digital services to the academic and research community of China.

Coming back to the question of Glassel, what she intended to mean is that Ranganathan's idea of facet sequence and its verbal representation for any subject could well be borrowed to organize the digital resources in today's world.

As Prof. M P Satija described about the ideas of Ranganathan towards organization of knowledge in any form, that as a student in librarianship in 1924, Ranganathan found that the Dewey Decimal Classification and other classification schemes in use at the time were faulty in their underlying principle of attempting to list all the possible subjects, assign each a predetermined class number, and subsequently fit every book into existing pigeon-holes. What Ranganathan recognized was that the world of knowledge was growing very quickly, with new areas of knowledge being discovered and new ways to combine existing subjects, and that any classification that attempted to enumerate a finite number of subjects without full capabilities for expansion to allow for new areas of knowledge could never meet the needs of the future.

3 Technical Standards and Specifications

In the process of organization we have to follow certain standards and specifications that are essential to communicate and exchange information in the global village. As mentioned earlier China has undertaken the following standards and specifications for their academic and research domain. It is also evident from their consortia built at the national level for procurement of online journals published all over the world.

List of Technical Standards and Specifications of CADLIS

No.	Category	Class
1	Basics	Spec for unique identifiers for digital resources; Spec for encoding resources and their types; Spec for registry of services, metadata formats, collections, repositories, applications and nodes, etc.
2	Metadata	Spec for basic and extended metadata; Spec for descriptive, administrative and technical metadata; Spec for cross-mapping between different metadata formats, etc.
3	Union Cataloging	MARC rules for Chinese print serial publications, music books, and western books; Rules for union cataloging of Japanese books; Spec for Chinese titles; The 2nd version of the Handbook of CADLIS Union-Cataloging for Chinese Books, etc.
4	Digital Objects	Specs for digitizing full-text, pictures, audio, video, courses, etc.; Spec for composite objects, Spec for website resources; Spec for descriptions and packaging of resources in OAI-ORE, RDF/ATOM formats, etc.
5	Resource Organization	Spec for knowledge organization (Web 3.0); Spec for collections of resources; Spec for classification within CALIS; Rules for mapping between CALIS Classification and Classification of China MOE (Ministry of Education); Rules for Mapping between CALIS Classification and Chinese Library Classification; Rules for Mapping between CALIS Classification and Dewey Decimal Classification, etc.
6	Resource Storage	Spec for Storage and Management of Digital Resources, etc.

No.	Category	Class
7	Resource Publishing	Spec for Publishing Digital Resources; Spec for Data Indexing, etc.
8	Data Conversion	A series of Specs for Data conversion between metadata in XML and MARC 2709, between private formats and general formats in union databases; between XML formats and RDF, between formats of METS and ORE, etc.
9	Resource Search	Spec for general search language; Spec for metadata search; Spec for navigation of resources, etc.
10	Resource Access and Presentation	A series of specs for accessing and presenting all kinds of digital objects (e-books, ETD, articles, courses, rubbings, atlas, audio, video, etc.); Spec for linking resources, etc.
11	Interfaces	Spec for unified and federated authentication and related APIs; Spec for APIs for billing and payment; Spec for logs and statistics; Spec for monitoring applications; Spec for APIs of e-reserve, ETD, union-catalog, virtual reference, journal database, etc.
12	Service Integration	A series of specs for integration of inter-library Loan and document delivery, collaborative reference, union-cataloging, portals, special collections, e-reserve, linking system, billing and payment, evaluation system, etc.
13	Platform Development	Basic spec for developing SaaS applications; Spec for client components; Spec for server components; Spec for N-servers.
14	Operations and Management	Specs for basic operations of data and system management and maintenance, software license management, member management, domain-sharing management; Specs for professional operations of union cataloging, inter-library loan and document Delivery, ETD deposit and service, e-reserve, digital collections, virtual reference, etc.

No.	Category	Class
15	Security of Data and Systems	Security of data, applications, access, hosting, network, storage, etc.
16	Evaluation of Resources and Services	General rules for evaluations of resources and services; Rules for evaluation of imported resources, special collections, books and journals, ancient resources, audio and video material, etc.; Rules for evaluation of reference, inter-library loan and document delivery, acquisitions, etc.

4 Conclusion

Nevertheless we have been developing and using quite a sizable number of information organizing tools and techniques for quite some time. We have faced lot of problems in this journey, and we could overcome them in due course of time. Our Classification schemes, Cataloguing codes, bibliographic formats for presentation and exchange of data, different vocabulary control devices have been helping in our endeavour to organize the world of information, providing access to them those who are in need anywhere in the world – sharing and distributing. But we must keep in mind that these tools and techniques are designed predominantly to handle the printed world of knowledge. These are not quite suitable, rather fully fit for organizing electronic world, more specifically internet resources. New technologies incorporating web ontology (XML, RDF and OWL) and some Web 2.0 technologies like RSS are coming to rescue our profession.

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Currency of Newspaper Items: An Assessment Study

*Dr. Goutam Maity**

Abstract

Newspapers are important sources of information for research activities and for various application activities. Attempts to assess the currency of items generated by newspapers. Makes a study based on a sample set of newspapers. Finds that the currency of items provided by a newspaper may be considered as a criterion for selecting input to a retrieval system Designers of newspaper Information retrieval systems may get some directions from the observations of this study.

1 Introduction

Since long back newspaper has been playing a crucial role in human communication process. Considering the power and importance of newspaper, Napoleon 1 (1769-1821) told, four hostile newspapers are more to be feared than a thousand bayonets (GREY). It is frequently used by people from all strata of the society for their current awareness and occasionally with retrospective use in view. The businessmen and industrialists, politicians and administrators, economists and researchers, in various fields of knowledge, seek information from newspapers for solving day to day problems as well as for their research and development works. The generation of wide varieties of information in large quantity makes it distinct from other information media. However, a reader wants his/her news to be new. News coming out of the press must be really hot, in the sense of being not only exciting but new, not till then known (KAMATH). It is known that newspapers are read for current information. Although, TV and radio broadcast current news. But they are not available in some permanently recorded format which helps the readers to re-read. There is none, available in recorded format that takes only a few hours time lag to report the incidents.

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2 Objectives

Since a newspaper is read mainly for its current information, thus the newspapers also generate information mainly with the aim of satisfying demands for current information of the information seekers. LANCASTER found the factors 'those relating to the characteristics of the literature' as one of the major factors that might influence information seeking and retrieval. It is thought that a minute study of the currency of the items generated through newspapers may reveal some facts that are helpful in designing a newspaper information retrieval system. In view of the above, an attempt has been made here to assess the currency of newspaper items generated by different newspapers.

3 Methodology

In order to assess the currency of newspaper items generated by different newspapers, it is necessary to decide on the unit of analysis, population and sampling element. As the newspapers transmit their information through different items, hence the item may provide an obvious unit for quantitative analysis. In view of the above, unit of analysis for this purpose, became the item. Such measure was adopted for convenience, and considering that these would not hamper our purpose.

Now in regard to our goal, the population might be the current items generated by all the newspapers published throughout India. But it was not possible and convenient to cover the population due to the large volume and wide varieties of items generated by these, and thus, a sample population was considered for this study. The sample thus selected included *ten, big* (having circulation more than 1,00,000) *newspapers* on *news and current affairs*, published from *metropolitan cities of India*, covering the month of *December, 2003*, of which five were from each of *Bengali* and *English* languages. The selected Bengali newspapers were Ananda Bazar Patrika, Bartaman, Sangbad Pratidin, Aajkal and Ganashakti. Among the English newspapers, The Statesman (Kolkata), The Telegraph (Kolkata), Hindustan Times (Delhi), The Hindu (Chennai) and The Times of India (Mumbai) were selected. The details of the procedure that were followed in different stages towards selection of sample newspapers may be presented through the following Table.

Selection of Sample Newspapers

Stage	Parameter	Number
1st	Daily newspapers in India	55,780
2nd	Newspapers on news and current affairs	972
3rd	Newspapers published from metropolitan cities	223
4th	Big newspapers (having more than 1,00,000 circulation)	122
5th	By language of exposition	
	English newspapers	08
	Bengali newspapers	07
6th	By circulation	Number of copies sold per day
	Five English newspapers	
	Hindustan Times (Delhi)	11,12,160
	The Hindu (Chennai)	9,22,407
	The Times of India (Mumbai)	5,54,057
	* The Telegraph (Kolkata)	3,02,523
	The Statesman (Kolkata)	1,62,512
	Five Bengali newspapers	9,00,991
	* Ananda Bazar Patrika (Kolkata)	4,61,996
	Bartaman (Kolkata)	2,74,556
	Sangbad Pratidin (Kolkata)	1,47,048
	Aajkal (Kolkata)	1,34,558
	Ganashakti (Kolkata)	

Selection of sample is based on data available in :

I) *REGISTRAR OF NEWSPAPERS FOR INDIA (RNI), GOVERNMENT OF INDIA.* 2003. *Press in India, 2002–2003: Part-1. New Delhi: Ministry of Information and Broadcasting, Government of India; 2003.*

II) *AUDIT BUREAU OF CIRCULATION (ABC), INDIA. Average Daily Paid Circulation: January–June, 2003. Mumbai, India: ABC, India; 2003.* for circulation

4 Findings

As the newspapers are read for their currency, so it may be hypothesized that the newspapers generate current information in maximum number. And among all the current information generated by the dailies, news items originating the previous day of publication occur in maximum number (MAITY, 2003). The following Table tries to show the currency of newspaper items generated by different newspapers.

Distribution of Newspapers Items by Currency

Newspaper		Hindustan Times		The Hindu		The Telegraph		The Statesman		The Times of India		Aajkal		Ananda Bazar Patrika		Bartaman		Sangbad Pratidin		Ganashakti		Total	%
		No1	%	No1	%	No1	%	No1	%	No1	%	No1	%	No1	%	No1	%	No1	%	No1	%		
Age																							
Same day 's news	No1	-	-	199	5.14	-	-	-	-	4	0.16	-	-	-		-	-	-	-	-	-	203	0.70
	%	-	-	98.03	-	-	-	-	-	1.97	-	-	-	-		-	-	-	-	-	-	100.00	-
1 day old news	No1	4344	91.41	3600	92.90	3406	96.76	3282	99.73	141	5.70	2214	93.30	2188	95.54	1864	83.70	1780	81.54	2028	95.98	24847	85.39
	%	17.48	-	14.49	-	13.71	-	13.21	-	0.57	-	8.91	-	8.81	-	7.50	-	7.16		8.16	-	100.00	-
2 days old news	No1	368	7.75	53	1.37	80	2.27	9	0.27	2285	92.36	124	5.22	84	3.67	270	12.12	350	16.03	75	3.55	3698	12.71
	%	9.95	-	1.43	-	2.16	-	0.24	-	61.80	-	3.35	-	2.27	-	7.30	-	9.47	-	2.03	-	100.00	-
3 days old news	No1	13	0.27	23	0.59	34	0.97	-	-	44	1.78	22	0.93	18	0.79	75	3.37	31	1.42	10	0.47	270	0..93
	%	4.81	-	8.52	-	12.59	-	0.00	-	16.30	-	8.15	-	6.67	-	27.78	-	11.48	-	3.70	-	100.00	-

* No1 = Number of items

Table - Continued

Table - *(Continued)*

Newspaper	Hindustan Times		The Hindu		The Telegraph		The Statesman		The Times of India		Aajkal		Ananda Bazar Patrika		Bartaman		Sangbad Pratidin		Ganashakti		Total	
	No1	%	No1	%	No1	%	No1	%	No1	%	No1	%	No1	%	No1	%	No1	%	No1	%	No1	%
Age																						
4 days old news No1	27	0.57	-	-	-	-	-	-	-	-	13	0.55	-	-	18	0.81	22	1.01	-	-	80	0..27
%	33.7	-	-	-	-	-	-	-	-	-	16.25	-	-	-	22.50	-	27.50	-	-	-	100.00	-
Total No1	4752	100	3875	100	3520	100	3291	100	2474	100	2373	100	2290	100	2227	100	2183	100	2113	100	29098	100.00
%	-	16..33	-	13..32	-	12.10	-	11..31	-	8..50	-	8.16	-	7.87	-	7.65	-	7..50	-	7..26	100.00	-

* No1 = Number of items

Analysis of the above Table reveals that out of the total news items, generated by the newspapers, maximum number (85.39%) is coming as one day old news items (i.e. news of the previous day). Besides, 12.71% of items are covered by two days old items, followed by 0.93% are covered by three days old items, and 0.27% are covered by four days old news items. Therefore, it is found that the newspapers generate current news in maximum quantity, and among the current news the items originating from the previous day of publication (i.e. one day old news) occur in maximum number. The findings of this survey, hence, proves the validity of the observations, mentioned above, by MAITY (2003).

Another interesting feature, which is needed to be focused that the newspapers also generate same day's news (0.70%). Though the quantity is little, still it is significant in justifying the importance of current information wanted by the readers, which in turn motivates the newspapers to publish more current information.

Among the newspapers, Hindustan Times has published maximum number of current information (16.33%) followed by The Hindu (13.32%), and The Telegraph (12.10%). Among the Bengali newspapers, Aajkal has covered maximum number of current items (8.16%) followed by Ananda Bazar Patrika (7.87%). Others are found to generate less current items.

Out of the newspapers, considered as sample under this study, maximum number of one day old newspaper items has appeared in Hindustan Times (17.48%) followed by The Hindu (14.49%), The Telegraph (13.71%) and The Statesman (13.21%). Besides, The Times of India, exceptionally, has generated insignificant amount (0.57%) of one day old news items. It is to be noted that the quantity of production of all the current items appeared in most of the newspapers, mentioned earlier, runs parallel with the quantity of one day old news items, produced by them.

As to comparision of currency within/of an individual newspaper, The Statesman has generated maximum number of one day old news items (99.73%), whereas only 0.27% two days old news items. The Telegraph has generated 96.76% one day old news items followed by 2.27% two days old items, and 0.97% three days old items. As regards the Bengali newspapers, Ganashakti has covered maximum number of 95.98% one day old news items followed by 3.55% two days old items and only 0.47% three days old items. Besides, Ananda Bazar Patrika has generated 95.54% one day old news items followed by 3.67% two days old items and 0.79% three days old items.

5 Conclusion

The discussion made here is restricted only to seeking of current information from the newspapers. It is to be inferred form this present study that newspapers generate mostly current information. And among the current items, they generate one day old news mostly. But

what factors are influencing the newspapers to do so? KAMATH feels that the reader wants his news to be new. News coming out the press must be really hot, not till then known. A study made by MAITY(2003) found that the newspapers generate huge amount of current information in order to serve the need and demand for current information of the readers which they seek to keep themselves aware of the developments in the field of their special interest or to widen their general knowledge. Thus it may be assumed that the readers' demand influence the newspapers to generate current information in maximum number.

On the basis of the above findings, the currency of information covered by the newspaper(s) may be considered by the designers and developers of a newspaper information retrieval system, as a criterion for selecting input to a retrieval system. Since the newspaper(s) generating maximum current information is/are likely to be used mostly for current information, and subsequently for retrospective purposes. Besides, the newspaper establishments may modify or improve their policy, regarding the currency of news items, and thereby they would design or redesign the presentation of items in their newspapers.

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Oceanographic Information Exchange: Indian Scenario

*Dr. Nitai RayChoudhury**

Abstract

The oceans, which cover 2/3rd of the earth surface, are accepted as the birthplace of life earth. They are a major potential source of food, minerals and power, all of which are required in ever increasing quantities. 'Oceanography', i.e. 'the science of the ocean' has been recognized a very important disciplines of all over world including India. As a logical consequence, there has been a major growth in the number of institutions for R&D activities and higher education in the field of Oceanography. This situation, in turn, calls for building information infrastructure to support oceanographic study and research. The paper has identified international bodies like, IOC, EurOcean, ICES, ICSU, WMO, who have contributed greatly to the generation and dissemination of oceanographic information. Their efforts have developed notable global oceanographic information programme, like, IODE, GCOS, GEMS, GOOS, IT IS, OBIS. In India, MoES has launched Ocean Observation and Information services (OOIS) through several programmes to understand the role of ocean data and data products for supporting coastal and offshore developmental activities and oceanographic research in India. India has established marine data and information centres to acquire, process, store and disseminate the oceanographic data and information. The paper has suggested building a prototype model of National Oceanographic Information System and Network(NOISAN) for India, a common space where oceanographic data and information will be traced, organized, indexed, accessed and evaluated.

1 Introduction

The Oceans, which cover 2/3rd of the earth surface, contain valuable wealth living and non-living resources. It is generally accepted as the birth place of life on earth. It is a major potential source of food, minerals and power, all of which are required in ever increasing quantities by societies. Thus, curiosity about the ocean world manifested itself early in human history and as such, the Oceanography, i.e. 'the science of the ocean' has been recognized a very important discipline all over the world. India has a very long maritime history. The

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peninsula is surrounded by the Arabian Sea, Bay of Bengal and Indian Ocean. The vast coastline is about 7500 kilometers[5]. Its territory includes 1256 islands. The area of Exclusive Economic Zone (EEZ) of the country is 2.02 million square kilometer covering an area extended up to 200 nautical miles from the shoreline[7]. The vast coastal and offshore environments support a wide variety of marine ecosystem, rich in species diversity and economic development activities. Availability of such consistent wealth be living or non-living, has undoubtedly made a considerable impact on the country's economy. This, in turn, acted as a catalyst for the proliferation of number of institutions for R&D activities and higher education in the field of Oceanography during the post-independence era[9]. This state of affairs calls for building the information infrastructure to support the oceanographic study and research for our national development. Infrastructure includes not only the acquisition of hardware and software and computer and telecommunication technologies but also capacity building for the management of oceanographic data and information at local, regional and national levels.

2 Objectives

International bibliographic activities had proved beyond doubt that the fruits of international collaboration could not reach most of the users of information unless each country developed its own national information system on the principle of networking. Oceanographic activities throughout the world have led to the development of several international agencies and programmes. Agencies like, Intergovernmental Oceanographic Commission (IOC), European Centre for Information on Marine Science and Technology (EurOcean), International Council for the Exploration of Sea (ICES), the International Council for Science (ICSU), the World Meteorological Organization (WMO), Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) and many more have contributed greatly to the generation and dissemination of oceanographic information. All these efforts have developed some notable global oceanographic information programmes, namely, International Oceanographic Data and Information Exchange (IODE), Global Climate Observing System (GCOS), Global Environment Monitoring System (GEMS), Global Ocean Observing System (GOOS), Integrated Taxonomic Information System (ITIS), Ocean Biogeographic Information System (OBIS) and so on. In order to achieve national goals set up by our planners in the field of Oceanography, it has been considered essential to build up a strong national information infrastructure on Oceanography through co-operation of all libraries and information centres according to well defined guiding principle and objectives.

The progress of Oceanography depends not only on the ability of the marine scientists and oceanographers to collect, process and analyze their own data, but also to the extent to which they have access to data collected by other scientists in other laboratories both at home

and abroad. And so, computer based data management has become an integral component of modern Oceanography. Oceanography as a discipline is interdisciplinary in nature and therefore, calls for the controlled and integrated approach for information generation, processing and decision making. Recognizing the importance of the subject, the Government of India established Ministry of Earth Sciences (MoES) in 2006 with the aim of creating a deeper understanding of the oceanic regime of the Indian peninsula. In light of the above, as well as, in realizing the importance of oceanographic information, the Ministry of Earth Sciences (MoES), erstwhile, Department of Ocean Development (DOD) has launched Ocean Observation and Information Services (OOIS) through several programmes to understand the role of the ocean data and data products for supporting coastal and offshore developmental activities and oceanographic research in India. Thus, there is a need to establish a good numbers of data centres and information centers and augmentation of libraries with differing functions and scope in research institutes, government departments and universities to provide information support to all categories of users. In view of foregoing, the objectives of the present paper are:

- To identify information sources on Oceanography available throughout the world vis-à-vis India;
- To find out oceanographic information services offered through network facilities established in India;
- To determine as to what extent the objectives of the National Oceanographic Information System are actually being achieved;
- To suggest ways for the improvement of Oceanographic Information System in India.

3 Methodology

The state-of-the art of Oceanographic Information Systems and Services, both at international and national level has been examined in various ways. To unearth the picture, following tools have been used:

Identification of major institutes responsible for the management of ocean data and information by searching published literatures and Internet resources;

Determination of the structure of Oceanographic Information Systems, both at international and national level, responsible for the exchange of oceanographic data and information; Oceanographic information resources available globally as well as at national level have been identified through review of literature, both printed and digital.

4 Oceanographic Data and Information Resources: Global Scenario

The global scenario of Oceanographic Information System (OIS) shows its rapid growth

and development in different parts of the world. A detailed study in this area reveals the present status of Oceanographic Information Systems and Data Centres prevailing throughout the world. Most of these services provide a vast pool of information and data with USA dominating the situation. There are good number of institutes, having international recognition and coverage, engaged in the management of oceanographic data and information. They are arranged alphabetically, except The Intergovernmental Oceanographic Commission of United Nation.

The Intergovernmental Oceanographic Commission (IOC) - 1960

European Centre for Information on Marine Sc. and Tech. (EurOcean) - 2000

International Council for the Exploration of Sea (ICES) - 1902

Joint WMO-IOC Technology Commission - 1999

The International Council for Science (ICSU) - 1931

The World Meteorological Organization (WMO) - 1951

The Intergovernmental Oceanographic Commission (IOC), a constituent body of the United Nation (UN) was established to increase the knowledge on marine science and marine resources with the aim of promotion of scientific researches. The IOC along with other agencies has come forward with a positive attitude to achieve the vision of universal oceanographic data system. The objective is to enhance marine research, exploitation and development by facilitating the exchange of oceanographic data and information between the participating member states and by meeting the needs of potential users for data and information products. The network has been able to collect, control the quality of, and archive millions of ocean data and information and makes them available to the member states. The data centres are responsible for the discovery, acquiring, archiving, accessing and assessing oceanographic data and data products. The mission is to ensure the delivery of scientific, technical, factual and legislative information to the user community.

4.1 International Oceanographic Data and Information Exchange (IODE)

The IOC at its first General Assembly in 1961 has recommended the system of International Oceanographic Data and Information Exchange[3]. The objectives of IODE are as follows:

To promote data exchange in the framework of World Data Centre (WDC) system of the International Council for science (ICSU);

To promulgate the concept of Declared National Programme (DNP) and National Oceanographic Data Centre (NODC) as national activities being carried out with the intention of exchange of data;

To standardize the formats of international exchange of marine science data;

To assist in the development of National Oceanographic Data Centre.

The IODE system forms a worldwide service oriented network consisting of:
World Data Centre for Oceanography (WDC)
Responsible National Oceanographic Data Centre (RNODC)
National Oceanographic Data Centre (NODC)
Designated National Agencies (DNA)

There are 3 WDC for Oceanography, 9 RNODC and 65 NODC in the world. Since 1961, 65 member states of the IOC have been established NODC or DNA responsible for international oceanographic data exchange. NODC and DNA support both national and international clients with oceanographic data and information services. The missions of the NODC or DNA vary from centre to centre depending on local facility and needs. Some member states that have not established an NODC, have instead officially assigned the responsibility of international exchange of data and information to some other agency within the member state. These agencies are referred to as Designated National Agencies (DNA). With regard to international exchange the most fundamental responsibility of the NODC within the IODE is to actively seek and acquire from national sources those data, which are exchangeable internationally and to process and quality control the data and submit them in a timely fashion to the appropriate WDC for Oceanography or RNODC. In return, the NODC can request and receive from WDC for Oceanography or RNODC similar data or inventory information, which they need for their own requirement. Figure 1 illustrates the operational frame work IODE.
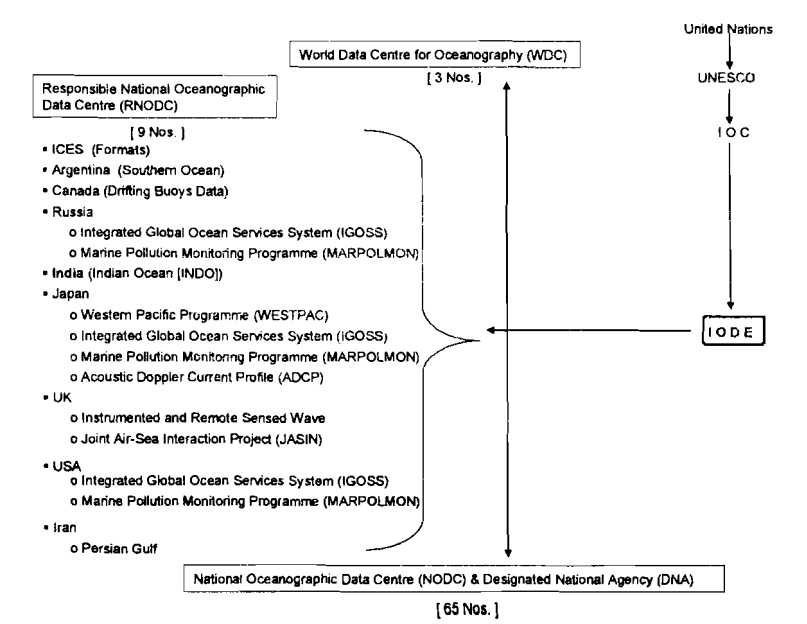
Figure 1: Operational Frame Work of Oceanographic Information System

4.1.1   Services of IODE

The IODE system also takes the advice from Group of Experts or Steering Teams to implement and fulfill its mission. They are:

Group of Experts on Technical aspect of Data Exchange (GETADE)

Group of Experts on Marine Information Management (GEMIM)

Group of Experts on Biological and Chemical Data Management and Exchange Practice (GEBICH)

The IODE offers various web-based services for the user community of the member states. They are:

Ocean Portal (http://www.oceanportal.org/) – Ocean Portal is a high level directory of ocean data and information. This portal contains the detailed description of 583 information resources; 893 data resources containing 57 Data Centres, Data Catalogues, and Data Products; 1445 Organizations, Projects, Programmes; 94 Coastal Zone Management Conventions / Treaties / Laws / Resource Conservations; 58 Carriers and Employment / Expertise Information and 27 Calendars, Meetings and Events.

Ocean Teacher (http://www.oceanteacher.org/) – The objective of Ocean Teacher is to provide training tools for oceanographic data and information exchange. The tools are used during IODE Training courses but can also be used for self training and continuous professional development.

Ocean Expert (http://www.oceanexpert.org/) - Ocean Expert or the Global Directory of Marine (and Freshwater) Professionals (GLODIR) is a database developed and maintained by IOC containing information on individuals involved in all aspects of marine and freshwater research and management. It is intended to be used as a tool for scientists, policy makers and any one who needs to contact a marine professional. It is a product developed in 1997 under the auspices of the IODE Group of Experts on Marine Information Management (GEMIM). It is a free product but can be used only for non-profit purposes. It currently contains 10404 records.

Marine XML (http://www.marinexml.net/) - This is an established Marine XML Consortium to ensure that the global marine community can make best use of the benefit afforded by XML technology. The inaugural meeting took place at Oxford shire, UK in Feb 2003 and was attended by 23 experts in marine data management across the world.

MEDI (http://ioc.unesco.org/medi/) - Marine Environmental Data Inventory (MEDI) is an inventory of information about marine related datasets and is used with the framework of IODE system. The MEDI metadata authoring tool has been developed to encourage data collections

and scientists to produce metadata descriptions for their datasets.

ODINAFRICA (http://www.odinafrica.net/) - Oceanographic Data and Information Network for Africa

ODINCARSA (http://www.odincarsa.net/) - Oceanographic Data and Information Network for Asia

4.1.2 Indian Data Centre of IODE

Indian Oceanographic Data Centre (IODC), also known as National Oceanographic Data Centre (NODC), established at the National Institute of Oceanography (NIO) in the year 1964, has been recognized as a national and international facility to acquire, process, store and disseminate the oceanographic data/information pertaining to the Arabian Sea, Bay of Bengal, Laccadive Sea, Andaman and Nicobar Sea and Indian Ocean. The centre is responsible to provide oceanographic data/information for developing a knowledge base to maximize the economic, environmental and societal benefits at national and international levels. The centre ensures that users get quality data. As a nodal point for Indian Ocean data management, the centre has been recognized as Responsible National Oceanographic Data Centre (RNODC) for Indian Ocean by IODE. The IODC has a coordinator responsible for the management of the data centre.

5 Oceanographic Data and Information Resources: Indian Scenario

India has established its reputation in the world for carrying out oceanographic research. The major Indian programmes being persuaded in the field of marine sciences include exploration and exploitation of living and non-living marine resources, study of air sea interactions, coastal zone management and scientific expedition to Antarctica. Much about the oceans still remains to be understood, largely due to lack of detailed and accurate observations[2]. The Ocean Policy was enunciated in 1982[4]. The underlying philosophy is the sustainable and environment friendly exploration and utilization of ocean resources for the socio-economic benefit of the country. Therefore, centralized management of oceanographic data not only improves the accessibility of oceanographic information to end-users but also ensures that data are preserved for long-term use[8]. The Ocean Policy also calls for the establishment of a centralized data system with appropriate mechanism for collection, collation and dissemination of ocean related information both from indigenous and foreign sources[6]. Figure 2 sketches diagrammatically the components of Indian Oceanographic information dissemination scenario.
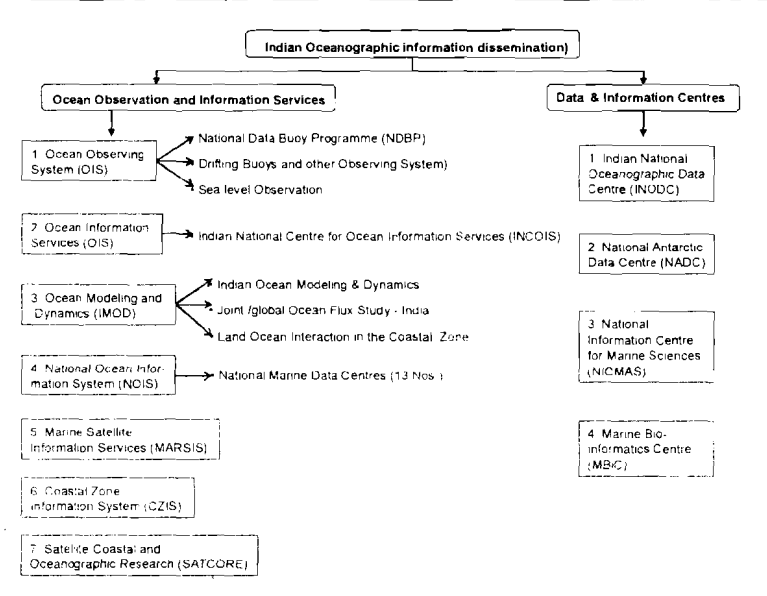
Figure 2: Components of Indian Oceanographic Information System

5.1 Ocean Observation and Information Services (OOIS)

In order to fulfill the objectives of ocean policy and to provide information support to potential users, the then Department of Ocean Development (DOD) has launched the programme of Ocean Observation and Information Services (OOIS). Figure 2 illustrates the OOIS programme comprising of different information services and systems for the benefit of the user community. Though these programmes have been launched and operated separately with specific objectives, in some cases, they are interlinked with each other so as to share the data and information pertaining to Oceanography.

5.1.1 Ocean Observing System (OOS)

The Ocean Observing System has been designed to acquire in-situ meteorological and oceanographic data on real time basis from the ocean and seas around India. Various instruments of modern technology like moored data buoys, drifting buoys, expendable bathy thermographs (XBT), current meter arrays, tide gauges etc. are being deployed in different areas of seas to collect in-situ data continuously after specific time intervals. One of the important features of the programme is the validation of the satellite data with the in-situ data collected and generated under this programme. The important parameters measured under this programme are: Surface wind; Waves; Atmospheric Pressure; Temperature; Sea Surface Temperature (SST); Salinity; Dissolved Oxygen (DO); Hydrocarbon; Nutrients; Sea Level; Radio Active Substances and others. The system so far has established 3 different programmes, namely:

National Data Buoy Programme (NDBP);

Drifting Buoys and other Observing System;

Sea Level Observation;

5.1.2 Ocean Information Services (OIS)

The objective of OIS is not only to disseminate data products to the potential users but also to provide need based ocean information consultancy services to the corporate sectors, central and state government agencies under one roof. Near real-time data products such as, Sea Surface Temperature (SST), Potential Fishing Zone (PFZ) advisories, up-welling zones, maps, eddies, chlorophyll, suspended sediment load etc. are disseminated to the potential users. Modular Optical Scanner (MOS) sensor has been deployed and algorithms to retrieve chlorophyll data from Indian Ocean were developed. Marine Data Centres (MDC) which were set up under DOD's National Ocean Information System (NOIS) programme have been integrated with OIS.

5.1.2.1 Indian National Centre for Ocean Information Services (INCOIS)

Indian National Centre for Ocean Information Services (INCOIS) was established in 1999. The vision of INCOIS is to be the knowledge and information technology enterprise for oceanic realm. It has the mission to provide the best possible ocean information and advisory services to the society, industry and scientific community through sustained ocean observations and constant improvement by means of systematic and focused research. It is designed to meet the user demands of data products and need-based consultancy in coastal ocean realm with specific responsibility.

5.1. 3 Ocean Modeling and Dynamics (OMOD)

Knowledge of ocean dynamics is a prerequisite for prediction of ocean models. It is important to understand oceanic processes for utilization of the ocean resources in a sustainable way and making the benefit cost effective. OMOD consists of 3 programmes, namely:

Indian Ocean Modeling and Dynamics (INDOMOD);

Joint Global Ocean Flux Study - India (JGOFX- India);   •

Land Ocean Interaction in the Coastal Zone (LOICZ);

5.1.4 National Ocean Information System (NOIS)

In India, good numbers of R&D organizations, academic institutions, government bodies, industries are actively engaged in oceanographic study and research. The data and information generated by these institutes need to be required by other institutes vis-à-vis. So there must be some sort of communication media to disseminate these data and information among the institutes and individuals who wish to have access these data. To ensure productive and purposeful use of the data generated by these institutes, they must be interlinked through a network of data centre. The National Ocean Information System (NOIS), launched in 1989, has been functioning in this regard. NOIS has identified and selected expert R&D institutes

specializing in ocean science and technology and has established National Marine Data Centres (NMDC) to accomplish the objectives of collection, collation, validation, storage and dissemination of data and information. In order to enable the centres to exchange data among themselves and also with other centres, a satellite based network system with the help of National Informatics Centre (NIC) has been installed. This involved installation of C-200 Micro Earth Stations (MES) at all Marine Data Centres. The NICNET facility at NIC, New Delhi acts as Master Earth Station (MAS) for the NOIS data exchange programme.

5.1. 4.1 National Marine Data Centre (NMDC)

Thirteen National Marine Data Centre (NMDC) have been established to provide subject oriented information to institutes and individual users interested in a particular field of endeavour. The following are the National Marine Data Centres with specific parameters.

	Name of the Institute	Parameter
1	India Meteorological Department, Pune	Ocean Surface Meteorology
2	Geological Survey of India, Kolkata	Marine Geology
3	K.D. Malvia Institute of Petroleum Exploration, Dehradun	Magnetic, Seismic data
4	Survey of India, Dehradun	Tidal Level
5	Naval Hydrographic Office, Dehradun	Bathymetry
6	Central Salt and Marine Chemicals Research Institute	Marine Algal Resources
7	National Institute of Oceanography, R.C., Mumbai	Marine Pollution
8	Fishery Survey of India, Mumbai	Offshore Fisheries
9	National Institute of Oceanography, Goa	Physical, Chemical & Biological Oceanography
10	Central Marine Fisheries Research Institute, Kochi	Coastal Fisheries
11	Institute for Ocean Management, Chennai	Coastal Geomorphology
12	National Remote Sensing Agency, Hyderabad	Ocean related remote sensing
13	Central Drug Research Laboratory, Lucknow	Bio-active substance of sea

Table 1: National Marine Data Centre with assigned parameter

The DOD has developed various database with a view of fostering the dissemination of oceanographic data and information to the potential users. Each database has definite users having specific requirements. The table 2 shows the use and uses of marine database.

	Data	User and usages
1	Marine Geology	Development of strategy for exploration of minerals; development of suitable technology for mining;
2	Magnetic & seismic	Oil exploration and production agencies; R&D organizations studying the geophysical aspects of the ocean;
3	Ocean Surface Meteorology	As an input in weather prediction over land validation of climate models, navigation, ocean currents;
4	Marine Pollution	Control of pollution by concerned authorities, development of mathematical models for dynamics of pollution, health of the sea;
5	Physical Oceanography	Naval applications, design of offshore structure, navigational channels in ports, sedimentation processes, coastal erosion;
6	Coastal Geomorphology	Coastal land use development, brackish water aquaculture, coastal erosion and accretion, protection of ecologically sensitive areas, exploitation of mineral resources;
7	Coastal and offshore fisheries	Protection of endangered species, development of strategy for rational exploitation of exploited resources and developmental plans for utilization of unexploited resources;
8	Tidal Level	Monitoring of sea level variations, development of mathematical models of inundation, impact study of sea level rise;
9	Remote Sensing	SST data for climate studies, preparation of PFZ maps, designing of onshore and offshore structures, chlorophyll data for assessing the productivity of sea, detection of oil spills;

Table 2 : Database: their user and usage

5.1.5   Marine Satellite Information System (MARSIS)

Marine Satellite Information System (MARSIS) was launched in June 1990 to address certain aspects of remote sensing applications for coastal regions and oceans. The objective is to develop society related data products, both directly relevant for use by the coastal communities or for use in the planning and developmental activities of the coastal zone, apart from scientific research. The ultimate goal is to integrate remotely sensed information with the in-situ data collected by the conventional technologies towards generation of user oriented data products for effective utilization of ocean resources. MARSIS developed data products, like. SST; PFZ; Wet land maps; Coral reef maps.

5.1.6   Coastal Zone Information System (CZIS)

The EEZ of India is extensively used for socio-economic development of the country. Thus the availability of proper data for the preservation, conservation and management of the coastal zone is very important. Coastal Zone Information System (CZIS) is developed as a tool to assemble, analyse, store, utilize, retrieve and manipulate the data for the purpose of the coastal zone management. The coastal zone maps provide a set of benchmarks and reference conditions, usually called base line data in the coastal areas to monitor long-term dynamics of the coastal system.

5.1.7   Satellite Coastal and Oceanographic Research (SATCORE)

The Satellite Coastal and Oceanographic Research (SATCORE) programme develops the algorithms and models of the oceanographic parameters. The objective is to convert the ocean data to user friendly software packages for making them operational use under the Oceanographic Information System (OIS).

5.2   Data & Information Centre

Data are normally collected through the process of observation, surveys, research output and analysis. Oceanographic data collected from different sources by different methods are required to be stored and made available to those who require them. A Data Centre is an organization from where data services are offered. India has the following data and information centres.

5.2.1   Indian National Oceanographic Data Centre (INODC)

Indian National Oceanographic Data Centre (INODC) has been recognized as a national facility to acquire, process, store and disseminate the oceanographic data pertaining to Arabian Sea, Laccadive Sea, Andaman and Nicobar Sea, Bay of Bengal and the Indian Ocean[1]. The

centre has started its functioning at the NIO, Goa in 1966. As a nodal point for the Indian Ocean data management, the centre has been recognized as Responsible National Oceanographic Data Centre (RNODC) for Indian Ocean and its territory by International Oceanographic Data and Information Exchange (IODE). The Data Centre ensures that user gets good quality and accurate data, which can generate useful information. It acquires data and information from NIO scientists and scientists from other national organizations, government departments and Data Centres of other countries. It also holds data collected during the International Indian Ocean Expedition (IIOE) organized by the UNESCO and Scientific Committee on Oceanic Research (SCOR) with participation of 20 countries and 40 research vessels during 1960-65.

5.2.1.1 Functions of INODC

INODC has been entrusted with the following functions:

Acquisition of data and information - It receives data obtained from the declared National Oceanographic Programme (NOP) and research programme for Indian Ocean (INDO) in standard format.

Processing (coding and quality checking) - The data acquired is reformatted, if necessary, checked for its quality and accuracy and compressed to suit computer aided storage system.

Storage (Database management) - Stores inventory level information on Station Inventory Information System (SIIS) and actual data in Integrated File System (IFS) for efficient data management.

Preparation of data products - Inventories, atlases, charts, data reports, directories etc. are various data products that the INODC publishes.

Dissemination of data - Processed archived data is made available to end users in suitable formats on magnetic media and paper prints as per users demands.

Submission of data to WDC - The INODC sends and submits data to WDC as an when received.

Training - The Data Centre conducts formal and informal training sessions for various data centre personnel of the Indian subcontinent.

Data available with INODC is checked for quality, stored, indexed and preserved in flat file form in various data banks. The following data banks are available in the centre.

Sl. No.	Data Banks	Important Parameters
1.	Mechanical Bathy Thermographs	Temperature, Bathymetry;
2.	Extendable Bathy Thermographs	Temperature, Bathymetry;
3.	Nansen Cast	Depth, Temperature, Salinity;
4.	Surface Meteorology	Temperature, Wind speed, Wind direction, Pressure, cloud, sea state;
5.	Time Series Inventory	Current, Waves;
6.	Primary Productivity	Pigments, Chlorophyll;
7.	Zoo Plankton	Zoo Plankton;
8.	Zoo Benthos	Zoo Benthos;
9.	Nutrient and Oxygen	Nitrate, Nitrite, pH, Ammonia, Phosphate, Silicate;
10.	Geological	Grain size analysis, Coarse fraction, Petrography, Water sample analysis;

Table 3: Data Banks with important Parameters

5.2.2 National Antarctic Data Centre (NADC)

National Antarctic Data Centre, established at National Centre for Antarctic and Ocean Research (NCAOR), Goa, is a repository of the Antarctic science database for India. The vast amount of data generated from Antarctic Expeditions in all areas of science are collated, formatted and synthesized for accessibility and utilization. The NADC uses on-line search tool and on-line data entry via Internet to facilitate easy and free exchange of data among the scientific community. The international data format called Directory Interchange Format (DIF) has been implemented for trouble-free and reliable exchange of data over the Internet keeping the concurrency with Australian Antarctic Data Centre and Global Change Master Directory of NASA.

5.2.3   National Information Centre for Marine Sciences (NICMAS)

The centre has been established at NIO Library funded by the National Information System in Science and Technology (NISSAT). The prime objectives of NICMAS are:

Create marine science information infrastructure as per the needs of the S&T staff of the institute;

Build and place databases over the internal and external computer networks for effective information dissemination;

Maximize the use of available marine science information by extending the facilities and services to the scientists of other institutes at cost;

Cooperate with the national and international agencies having similar interests.

5.2.4 Marine Bio-informatics Centre

Marine Bio-informatics Centre (MBiC) has been established at the National Institute of Ocean Technology (NIOT), Chennai to accomplish various objectives. The centre is developed as the supporting facility for the ongoing project of Ocean Science and Technology for Islands (OSTI). The OSTI projects generate data related to marine environment, diversity, density, abundance of species along the Indian coastal water. Further, biochemical and molecular biology studies are being under taken in different areas like nutrition, pathology, endocrinology, drug designing and bioactive antifouling compounds. MBiC is responsible for making them available for the potential user agencies. The selective distribution of database serves the scholars, scientists, academicians, policy makers working in areas of marine biology and biotechnology. The MBiC is designed and integrate to work in three major areas.

Taxonomy database of marine organisms;

Bio-informatics software and molecular database;

Laboratory studies on marine proteomics and genomics.

6 Discussion

Research in Oceanography has been progressing fast throughout the world vis-à-vis India. Recognizing the importance of the ocean, the marine environment and its resources for life on earth, the United Nations has declared 1998 as the 'International Year of the Ocean'. This provides a window of opportunity for all to become aware of the ocean issues and to undertake our common responsibility to sustain the greatest common heritage we have. Today, oceanographers and marine scientists all over the world want to establish long-term ocean floor observatories with arrays of sensors and instruments that make continuous measurements of various ocean properties and events. In spite of the establishment of various ocean observation mechanisms to collect, analyze, process and disseminate oceanographic data and information throughout the world, people who have the need are unable to access available data. Unfortunately, not only common people but also marine scientists are generally very poorly informed about oceanographic data and information. India is not an exception.

It has been observed through this study that most of the information services work in isolation and there is lack of coordination in their activities. It has also been identified that the NOIS is not comprehensive in its coverage and even the flow of information is not satisfactory.

Considering the colossal gap between the information needs, existing information resources and the functioning of OOIS, the study has urged to develop a prototype model of National Oceanographic Information System and Network (NOISAN) for India, a common space where oceanographic data and information will be traced, organized, indexed, accessed and evaluated. The NOISAN will establish a network among the participating institutes for effective organization and dissemination of oceanographic information by establishing requisite number of subject specific Marine Data Centres and Marine Data Sub-Centres.

The Ministry of Earth Sciences (MoES) should encourage the subject experts of various disciplines, marine scientists, information scientists, library professionals to work together in a team to develop tools and standards, improve infrastructure and capacity building to accelerate national, regional and global progress in collection, collation, analysis, prediction and dissemination of knowledge about biotic and abiotic resources of the Indian peninsula and make their sustainable use.

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Quality Management System in a Library : An Overview

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Abstract

The quality of products and processes has become an unquestionable value for any organisation; the ability to move forward and adapt to the changing needs and expectations of customers' governs the survival of the organisations. Implementing a quality management system using ISO 9001 - the International Standard for Quality Management Systems - requirements - can help a library in serving and meeting the needs of the customers. This article discusses the concept of quality management system and its role in a library, development of ISO 9000 standards, present Indian scenario, and main clauses applicable for libraries. Libraries can be seen as service organizations, they act in very dynamic environments where users are increasingly demanding new types of services. Thus, the adoption of a quality management system helps libraries in meeting the needs of the customers. ISO 9001 offers not only a useful approach to quality but it is also an excellent guide on how to manage a library effectively. Therefore, benefits of QMS for libraries and best practices which are helpful for a library in achieving quality and effectiveness have also been discussed in this paper.

1 Introduction

Today library is not only a storehouse of books and other reading materials but also a center for knowledge generation and production of various knowledge based documents and services for the use of various end-users in different environments. At this paradigm, library needs to continually anticipate user needs and requires strong leadership to satisfy those changing needs. To be competitive, it is essential for libraries to provide more consistent quality and value to their customers. Now is the time to place behind us the old adversarial approach to managing library work and to develop better and more direct relationships with customers, to initiate more teamwork, and to produce better quality work. The application of quality management system principle can help libraries to meet these changing needs to the great extent. Today, several libraries and information service centres have adopted quality

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management practices in recent years, following their perceived success in manufacturing industries, with particular emphasis on improving service quality. "Quality" initiatives permeate all activities and involves all staff, and concerned with getting things right, at the right time, and for the right user.

The library functions in respect to quality management can be viewed in three phases: before service. during service, and after service. Library services ultimately focus on satisfying the information needs of customers. Therefore, the customer-oriented library should regard technical services as resource development system to ensure that every customer has resources properly acquired, organized, displayed or accessed. Having direct contact with customers, the public services should be regarded as information service delivery system and focus on providing information to customers accurately, promptly, and responsively to help customers to solve problems. build up their knowledge and ultimately enhance their productivity. The quality management principle as per ISO 9001 standard helps in achieving the goals and objectives set out in its policy and strategy. It provides consistency and satisfaction in terms of methods, materials, equipment etc, and interacts with all activities of the organization, beginning with the identification of customer requirements and ending with their satisfaction, at every transaction interface. The standard also guide library administrator /manager to coordinate and allocate resources as well as provide support for technical services and clients' services to satisfy customer's needs, and helps in evaluating service performance at a regular interval and to continually improve their quality of library services. Following are the major aspects to be looked into while implementing a quality management:

- Establish what the library should be offering or doing; defining how it should be done.
- Evaluating what can be done to improve the processes and service product offerings.
- Find out the problems of implied needs and identify the critical problem area.
- Find out the customer complaints. if any

2 Definitional Analysis

Quality has many meanings, and while some are subjective, such as "excellent" or "outstanding," in the quality management field, quality is defined as "the degree to which a product or service fulfills requirements," or "fitness for use." Most organizations produce products and deliver services to meet specific customer criteria. There are, however, implied requirements based on knowledge of user expectations or precedents set from prior transactions. Oxford dictionary defines quality as "degree, especially high degree of goodness or worth." The Webster's dictionary defines it as "grade of excellence". In ISO 8402 standard quality is described as "the totality of features and characteristics of a product or service that

bear on its ability to satisfy stated or implied needs". Also ISO 8402 defines quality systems as "the organizational structure responsibilities, procedures, processes and resources needed to implement quality management". The ISO 9000: 2000 defines the quality as "degree to which a set of inherent characteristics fulfils requirements". Again as per the same standard, 'requirement is the need or expectation (of the customer) that is stated, generally implied or obligatory.' Meel (1999) defines quality "as customer satisfaction through product or by service". However, the term quality cannot be easily defined, a common man might define quality as superior or exceptionally high standards of goods and services. ISO defines the quality management as "the aspect of overall management function that determines and implements the quality policy". Juran (1962) defines quality management as "the totality of ways for achieving quality (quality management includes all three processes of the Juran Triology: quality planning, quality control and quality improvement). Stewart (1998) stated quality management as "management of the quality system".

3 Development of ISO Standards

ISO 9001 is by far the world's most established quality framework, currently being used by 1,064,000 organizations in 178 countries worldwide, and sets the standard not only for quality management systems, but management systems in general. The first edition of ISO 9000 series of standards were published in 1987, originally issued as BS 5750, focused on quality control via retroactive checking and corrective actions. The 1987 version of ISO standard was consisting of:

- ISO 9000: 1987 Guidelines for the application of ISO 9001, 9002, and 9003.
- ISO 9001: 1987 Design, development, production, installation, and service
- ISO 9002: 1987 Manufacture, installation and service
- ISO 9003: 1987 Inspection and testing
- ISO 9004:1987 Quality management and quality system elements -guidelines.

The second revision of this standard was published in July 1994 keeping the same structure with minor changes in contents, mainly emphasizing quality assurance via preventive actions, and required evidence of compliance with documented procedures and also minimizing over emphasis on documentation. The main purposes of ISO 9000: 1994 and ISO 9004-1994 was to serve as guidelines or to provide definitions. The standards which were used for external quality assurance purposes were ISO 9001, 9002 and 9003. The ISO 9001: 1994 was comprises of 20 main quality clauses.

The third revision of ISO 9000 standard approved by the committee on 22nd February 1999 and published in 2000. This standard effectively replaced the previous three quality standards and made the choice of standard simpler for organisation. This version changed the

focus from procedure to process and restructured to provide a comprehensive model for bringing consistency in operation and continual improvement. The ISO 9000: 2000 family includes three quality standards:

- ISO 9000:2000 Quality Management Systems – Fundamentals and Vocabulary
- ISO 9001:2000 Quality Management Systems – Requirements
- ISO 9004:2000 Quality Management Systems – Guidance for Performance Improvement.

ISO 9001:2000 presents requirements, while ISO 9000:2000 and ISO 9004:2000 present guidelines. All of these are process standards and not product standards. This new version has done enormous changes, cover every aspect of an efficient Quality Management System (QMS) and this version carried a revised title, which no longer includes the term Quality assurance. This reflects the fact that the quality management system requirements specified in this edition address quality assurance of product as well as customer satisfaction. ISO 9000:2000 introduced the concept of process effectiveness via process performance metrics, and so reduced the emphasis on having documented procedures if clear evidence could be presented to show that the process was working well. Expectations of continuous process improvement and tracking customer satisfaction were made explicit at this revision. The ISO 9000: 2000 standard combined into ISO 9001: 2000 and ISO 9004: 2000. These version eliminated ISO 9002 as it was most suitable for manufacturing sectors and consists of only 8 elements. Also this version has done changes in semantics and languages to make reading easy and understandable.

The fourth edition of the ISO 9001 standard came in 2008. Compared to ISO 9001:2000 the new edition contains:

- No new requirements
- Some useful clarifications to existing requirements
- Mainly editorial changes
- A few examples of increased compatibility with ISO 14001:2004

At present, ISO 9000 family of standards currently includes three quality standards:

- ISO 9000: 2005 Quality Management Systems — Fundamentals and Vocabulary.
- ISO 9001: 2008 Quality Management Systems – Requirements.
- ISO 9004: 2009 Managing for the Sustained Success of an Organisation - A Quality Management Approach.

4 Main Clause in ISO: 9001- 2008

The main clauses useful for libraries in implementing a Quality Management system are:

- Section 4: Quality Management System - An organisation should have a documented

system with effective procedures in order to control records and documents.

• Section 5: Management Responsibility - The Quality Management System should contain a quality policy. The senior management must demonstrate management commitment, conduct management reviews, and assign authority and responsibility.

• Section 6: Resource Management - Monitor and review requirements for resources, infrastructure and environment, human resources and training.

• Section 7: Product Realization - This section of the standard outlines the needs for planning, purchasing, design and development, production, purchasing, and service provisions.

• Section 8: Measurement, analysis and improvement- All of which are mandatory procedures as defined by ISO 9001 including sub clauses internal audit, improvement, monitoring and measurement.

Main strategies needed for the implementation of a Quality management system are:

- Develop your process
- Document your process
- Implement your process
- Maintain your process
- Monitor your process
- Measure your process
- Analyze your process
- Control your process
- Improve your process

5 Current Scenario of Quality Management System (QMS) in Indian Libraries

In India, following libraries have adopted ISO 9001 standard and some of them are already certified:

i)   Central Library of Indian Institute of Technology, Madras

ii)   Asiatic Society, Mumbai

iii)   LIS Department of Jammu & Kashmir University

iv)   Central Institute of Indian Languages Library, Mysore

v)   C-DAC, Mumbai

vi)   Heavy Engineering Corporation Ltd

vii)   RDSO, Lucknow

viii)   Indian Council of Forestry Research & Education, Dehradun

ix)   Department of Commerce of Government of India (Indian Institute of Foreign Trade (IIFT))

x)   Vikram Sarabhai Library of IIM, Ahmedabad

xi)   National Aeronautical Library (NAL), Bangalore

xii)   Institute of Management Studies

xiii)   Indian Institute of Automobile Engineering, Chennai

xiv)   Institute of Technical Education & Research, Bhubaneswar

xv)   Manipal University Library, Manipal

xvi)   All India Management Association, New Delhi

xvii)   Indian Institute of Port Management, Kolkata

xviii) Marine Engineering Research Institute

6 Benefits of QMS in a Library

A quality management system gives the framework we need to monitor and improve performance in any area. It helps all kinds of organizations to succeed through improved customer satisfaction, staff motivation and continual improvement. The benefits that a QMS system offers are :

- Increased level of managing processes in the library.
- Better set-up of activities inside the library, accurate definition of authority and responsibility.
- Helps library to identify and satisfy the actual needs and expectation of their customers.
- Better co-ordination and cooperation among stakeholders.
- Achieving cost-effectiveness.
- Improvement of the library processes and services as per customer needs.
- Improvement of competitiveness of library activities and services.
- Proactive behaviour of library staffs.
- Better co-ordination and cooperation among stakeholders.

7 Best Practices for a Library

The following best practices may be introduced for implementing a Quality Management System as per ISO 9001 standards:

A) Documentation Requirements

i)   Establish goals, objectives, priorities and strategies to support the needs of the organisation.

ii)   Identify customers and stakeholders, i.e. the users or beneficiaries of products or services (which are the outputs of a process)

iii)   Formulate the library's quality policy, which is a formal statement from management, closely linked to the organisations objective and to customer needs.

iv)   Establish quality objectives; plan processes; document them to ensure the effective

planning, operation and control of its processes.

v) Develop a quality manual for effective implementation of QMS.

vi) A library should maintained its important documents and records to ensure the effectiveness, planning and proper control of its processes

vii) A library shall establish a documented procedure to define the controls needed for the identification, storage, protection, retrieval, retention and disposition of records. Everyone must have access to up-to-date documents and be aware of how to use them.

viii) Plan quality into products and services and the processes that are used to produce them.

B) Management Responsibility

i) Setup a quality committee/quality circle, which will provide direction on the preparation and implementation of a quality management framework.

ii) Promote awareness of the quality policy; disseminate progress on quality performance and customer satisfaction and changes in the quality management system.

iii) Conduct meeting with the top management of the organization at a regular interval, and discuss the current state of the development, future programme etc. Take the following issues in the management review meeting:
   - Audit results;
   - Feedback from customers;
   - Process performance and product conformity;
   - Status of preventive and corrective actions;
   - Follow up actions from previous management reviews;
   - Changes that could affect the quality management system;
   - Improvement recommendations;

iv) Analysis of actual and potential failures and their impact on quality in library services.

v) Assign job responsibilities and authority to all staff members and communicate the responsibility and authority to staff to make their roles clear and also the relevance of the role for achieving the final goals of the library.

vi) Take continual improvement programme at regular interval to improve the library activities and services further.

vii) Cultivate a culture that provides employees with the opportunity to realize their fullest potential to pursue the quality and performance objectives. Boosts employee and team moral as they work together to bring about change.

viii) Ensure that Librarians/library personnel should be well behaved and maintain proper co-ordination and co-operation among all of them.

ix) Take improvement programme at half yearly interval to cope with the current development and changing user requirement.

C) Resource Management

i)   Ensure adequate library budget to meet the requirements of the library stakeholders as well as developing library infrastructure facilities.

ii) nsure adequate infrastructure facilities like, buildings, reading room, equipments, computers, software, hardware, communication facilities to ensure improved library service.

iii) Ensure suitable work environment which motivates both staff and users to perform their roles.

iv) Improve the physical layout of the library. All the sections of the library should be functional and well attached to each other.

v)   Establish proper communication method to communicate with each section. library staff and top management of the library. Also create systems for communicating with customers about product information, inquiries, feedback and complaints.

vi) Ensure that library personnel performing work affecting conformity to product requirements shall be competent on the basis of appropriate education, training, skills and experience.

vii) Ensure that all library staff members must receive regular training, including skill training; on job guidance; retraining.

viii) Organise interactive session among the library staff, which will help staff members in developing their knowledge.

vix) Organise orientation / awareness / information literacy programme for library stakeholders at regular interval.

x)   Empowers front-line staff to make improvements and better decisions. Trust library staff to act responsibly and give them the appropriate authority to make decisions that can improve the quality of work they do.

xi) Give new staff a thorough orientation about the library services and on the quality management system concepts and principles.

xii) Ensure that library personnel working in diff   a s a ompetent in performing their work effectively and efficiently.

xiii) Promote teamwork by helping staff in di   departm   i   pent. Fostering interrelationship among departments

D) Product Realization

i)   Formulate work planning and progress m   proper manag ment of libra resources.

ii) Determine customer requirements and maintain records showing how the library is managing the different processes, and developing its collection etc.

iii) Develop the library collection as per the requirement stated by the library stakeholders.

iv) A special library should place order for documents by following the proper approval system, and maintain records related to acquisition of document in a systematic manner.

v) Technical processing of library documents should be done consistently by following standard code.

vi) Ensure proper house-keeping system, as well as emphasize on identification and traceability of documents. This can be possible by introducing proper classification system, bar coding system or by an accession number or any other suitable methods.

vii) Design library services as per the requirement of the library users. The consolidation and re-packaging of the information products should be according to user's specifications and demand.

viii) Computerisation of library will help in achieving consistency, and promptness in services.

ix) Circulate information on new or changed services introduced by the library.

x) Plan the stages of development and implement verification system adopting a new system in the library

E) Measurement, Analysis and Improvements

i) Determine key areas where each process requires monitoring and measurement, and ensure that all monitoring and measuring devices are properly maintained.

ii) Track complaints and record the complaints in a register, solve the problem as quickly as possible.

iii) Develop documented procedures for dealing with actual and potential non-conformances. Examine the root causes of the problems and keep records to use as a tool to improve the system.

iv) Measure the different services and operations in terms of cost-effectiveness.

v) Review library performance at regular interval and determine whether the quality system is working and what improvement can be made. While assessing the performance, it is important to deal with past problems and potential problems. Maintain records of these activities and the resulting decisions, and monitor their effectiveness.

vi) Evaluate library performance periodically, considering the library usage statistics, utilization of funds, etc. The library usage can be determined from circulation statistics, number of reference queries meet by the librarian, online search and retrieval statistics, number of services delivered in a certain time, and average number of users who visited the library for consultation of library documents. The library professionals can also take help of quality indicators laid down by NAAC for academic libraries.

vii) Obtain feedback from users at regular interval, analyse and use it for improvement.

viii) Form an internal quality audit team, taking member from outside the library departments,

and train them about the auditing system.

ix)   Conduct internal audit at minimum six month interval. Internal quality audits shall be scheduled on the basis of the status and importance of the activity to be audited and shall be carried out by personnel independent of those having direct responsibility for the activity being audited.

x)   Take decisions about the quality system based on recorded data and the system should be regularly audited and evaluated for conformance and effectiveness.

xi)   The results of the audits shall be recorded and brought to the attention of the personnel having responsibility in the area audited.

xii)   The management personnel responsible for the area shall take corrective action on deficiencies found during the audit and based on the audit results preventive action should be taken so that the problem does not recur by initiating corrective actions.

8 Conclusion

The QMS system will lead a library by providing, competitive advantages, management leadership, continual improvement, work development, reduce cost, employee satisfaction and increase their value, staff empowerment and involvement, communication and teamwork, commitment on the different parts of management, customer satisfaction and sustainability of a organizations. The Indian libraries have enough scope for implementing ISO standards in their respective environments due to the nature of services offered to the users. By formulating a strategic plan, and following it with a commitment for continual quality improvement, library managers can transform and improve their library. The best practices will also be useful for libraries those who are interested in applying quality management system as per the ISO 9001 standard. All libraries must take effective step for the implementation of the QMS. Though, the implementation process is long and the result may not be observed immediately. With hard and committed effort a profound achievement can be attained. It requires training, involvement of experts from different fields of study and a considerable amount of investment. The system will help in achieving the reduction in cost, better relation with customers and suppliers, more committed and motivated workforce, and internationally competitive library services.

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Text Encoding Initiatives: A Consortium-based Standards for Representing of Text in Digital Form

*Dr. Subarna K. Das**

Abstract

The Text Encoding Initiative (TEI) is a consortium which collectively develops and maintains a standard for the representation of texts in digital form. Its chief deliverable is a set of Guidelines which specify encoding methods for machine-readable texts, chiefly in the humanities, social sciences and linguistics. It is an international interdisciplinary standard intended to assist libraries, museums, publishers, and scholars in representing literary and linguistic texts in digital form to facilitate research and teaching. The encoding scheme is designed to maximize expressivity. The present paper attempts to highlight the fundamentals of TEI as metadata schema for identifying digital resource description in changing environment.

1 Introduction

Text Encoding Initiative defines a general-purpose scheme that makes it possible to encode different textual views. "Grew out of technology based textual analysis applications employed by Humanities scholars"e.g., tracing the use of the word 'love' in the genre poems within a specific historical period. Focus has been on text capture (in electronic form from already existing text in another medium) rather than text creation, i.e., no other text copy exists. Assumes texts and works on texts have a common core of textual features. 'TEI' is short for 'Text Encoding Initiative'. The TEI is an international organization founded in 1987 to develop guidelines for encoding machine-readable texts in the humanities and social sciences. 'TEI' is also used to refer to the TEI Guidelines themselves, and to the set of schemas they describe. The term is sometimes also used to refer to the TEI Consortium (TEI-C), which was established in 2001 to provide ongoing support for further development of the guidelines. 2.The Text Encoding Initiative (TEI) is a consortium which collectively develops and maintains a standard for the representation of texts in digital form. Its chief deliverable is a set of Guidelines which specify encoding methods for machine-readable texts, chiefly in the humanities, social sciences and linguistics. Since 1994, the TEI Guidelines have been widely used by libraries, museums, publishers, and individual scholars to present texts for online research, teaching, and

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preservation. In addition to the Guidelines themselves, the Consortium provides a variety of supporting resources, including resources for learning TEI, information on projects using the TEI, TEI-related publications, and software developed for or adapted to the TEI. 3. The Text Encoding Initiative (TEI), a consortium of institutions and research projects, maintains and develops a standard for the representation of texts in digital form. Originally sponsored by three scholarly societies, the TEI is now an independent membership consortium, hosted by academic institutions in the US and in Europe. Its major deliverable is a set of Guidelines, which specify encoding methods for machine-readable texts, chiefly in the humanities, social sciences and linguistics. Since 1994, these guidelines are a widely-used standard for text materials for performing online research and teaching, and TEI is now the de facto standard for the encoding of electronic texts in the humanities academic community.

2 Text Encoding Initiatives

TEI is a project working to establish a standard for interchanging electronic text for scholarly research. The TEI has adopted SGML and implemented the TEI standard as an SGML The TEI was incorporated as a not-for-profit consortium in December 2000, with host sites in Bergen, Oxford, Virginia, and Providence RI, USA. The TEI was established in 1987 to develop, maintain, and promulgate hardware- and software-independent methods for encoding humanities data in electronic form. Over nearly three decades the TEI has been extraordinarily successful at achieving its objective and it is now widely used by scholarly projects and libraries around the world.

1987-Establishment of TEI;

1990-First draft of the guideline of TEI known as P1;

1993-Second phase development of TEI guideline known as P2;

1994-First official version of TEI was released;

1999-TEI consortium was established

1988, the date of the Poughkeepsie Conference

Originally, it is a research project within the humanities sponsored by leading professional associations.

Major influences of:

digital libraries and text collections

language corpora

scholarly datasets

International consortium established in June 1999.

3 Objectives of TEI

The mission of the Text Encoding Initiative is to develop and maintain a set of high-quality guidelines for the encoding of humanities texts, and to support their use by a wide community of projects, institutions, and individuals. In support of this mission the TEI pursues a number of important objectives:

- Development of the TEI Guidelines
- Dissemination of the TEI Guidelines
- Training and outreach
- Cultivation of a TEI research community
- Better interchange and integration of scholarly data
- Support for all texts, in all languages, from all periods
- Guidance for the perplexed: what to encode user-driven codification of existing best practice
- Assistance for the specialist: how to encode loose framework into which unpredictable extensions can be fitted

These apparently incompatible goals result in a highly flexible, modular, environment for DTD customization.

4 TEI Deliverables

A set of recommendations for text encoding, covering both generic text structures and some highly specific areas based on (but not limited by) existing practice. A very large collection of element definitions combined into a very loose document type declaration. It is a mechanism for creating multiple views (DTDs) of the foregoing.

5 Legacy of the TEI

Way of looking at what 'text' really is a codification of current scholarly practice
A set of shared assumptions and priorities about the digital agenda:
- focus on content and function (rather than presentation).
- identify generic solutions (rather than application-specific ones).

6 Designing a DTD for the TEI

How can a single mark-up scheme handle a large variety of requirements ?
All texts are alike every text is different learn from the database designers
- one construct. many views.
- each view a selection from the whole.

7 Activities of TEI

Technical development of the TEI Guidelines is organized and overseen by the TEI Council. While the Council undertakes much of this technical work itself, it also convenes workgroups to address specific projects within a fixed time frame.The success of the TEI depends upon the active participation of its community of members and users. Those involved in projects using the TEI Guidelines are strongly encouraged to subscribe to the TEI-L mailing list, and to make others aware of their work by registering it on the TEI projects page. The TEI also supports a number of loosely-organized Special Interest Groups (SIGs), which provide an opportunity for people with similar interests to collaborate and share ideas. The TEI Guidelines require constant maintenance, development, and promotion in order to remain useful. Improvements and additions to the standard are made continuously, in response to evolving technologies and the demands of the user community The activities of TEI is distributed under three hierarchical bodies –

1) The first one is the TEI council which organized and overseen the TEI guidelines.
2) The second one is the Workgroups which addresses the specific projects within a fixed time frame which is provide by TEI council

The third one is the Special Interest Groups (SIG's) which are supported by TEI and which provided an opportunity for people with similar interests to collaborate and share ideas.

8 Tools of TEI

Tools for creating, editing, transforming, and publishing TEI documents and schemas are an essential part of using the TEI Guidelines. Because the TEI is expressed in XML, TEI users can take advantage of the abundance of XML tools now being developed for general use. In addition, the TEI community develops and distributes TEI-specific tools.

Roma

Stylesheets

Authoring and editing tools

Transformation & publishing tools

Internationalization of the TEI

9 1 Encoding

SGML (ISO 8879) and ISO 646 Encodings for different views of text; alternative encodings for the same text features; mechanisms for user-defined extensions to the scheme. The Guidelines make it possible to encode many different views of the text, simultaneously if necessary. TEI Guidelines are not prescriptive: few features are mandatory, but the Guidelines define a core set of tags. Extensible. The focus is on the capture of text that already exists in another medium rather than text creation.*TEI Header* is a set of descriptions prefixed to

a TEI encoded document that specifies four components:

file description (a full bibliographic description),

encoding description (level of detail of the analysis-the aim or purpose for which an electronic file was encoded; editorial principles and practices used during the encoding of the text),

text profile (classificatory and contextual information such as the text's subject matter; the languages and sublanguages used, the situation in which it was produced, the participants and their setting),

revision history (history of changes during the electronic files' development). contains bibliographic information supporting resource discovery, and data management portions supporting use of the resource.

If TEI Header is similar to the information contained in a MARC record, why didn't the scholarly community simply use MARC? Workflow is the primary answer... the TEI drafters envisioned that the individuals who marked up the electronic texts would be creating the metadata for them and shouldn't be expected to know cataloging rules, but the Header was deliberately designed to provide a trained cataloger the information necessary to create a good cataloging record. The difference is that the rules for obtaining and representing the content are not prescribed and, consequently, catalogers find that the data is usable only to the extent that the encoder followed cataloging rules. Over time, the progression of the TEI header has been towards greater consistency and compatibility with traditional library cataloging and greater syntactical congruence with MARC. It is conceivable that the TEI header will evolve such that it would carry detailed encoding, profile and revision information, but would point to a MARC record that would contain the bibliographic description. The TEI Header supports a number of field categories which cannot be captured in MARC, e.g., the *change history section* provides a structure for logging changes made to an electronic text, including date, responsible party and the nature of the change.TEI does not restrict combining objective and subjective information in the encoding. The Guidelines provide a means for encoding for the text representation as well as the text interpretation and analysis.

9 2 Core Elements of TEI

Paragraph

Treatment of Punctuation

Highlighting & quotation

Simple editorial change

Names ,Numbers, Abbreviation ,Address

Simple links & cross references

Lists

Notes, Annotation & Indexing

Graphics & other non textual components

Reference systems

Bibliographic citations & references

Passage of verse or drama.

According to P5 guidelines the elements which are available in all type of documents can be grouped as follow-

1.1 Paragraphs :-

The paragraph is the fundamental organizational unit for all prose texts, being the smallest regular unit into which prose can be divided. Prose can appear in all TEI texts, even those that are primarily of another genre (e.g., verse); thus the paragraph is described here, as an element which can appear in any kind of text.

1.2 Treatment of Punctuation:-

Punctuation marks cause two distinct classes of problem for text markup: the marks may not be available in the character set used, and they may be significantly ambiguous. To some extent, the availability of the Unicode character set addresses the first of these problems, since it provides specific code points for most punctuation marks, and also the second to the extent that it distinguishes glyphs (such as stop, comma, and hyphen) which are used with different functions.

1.3 Highlighting and Quotation:-

This section deals with a variety of textual features, all of which have in common that they are frequently realized in conventional printing practice by the use of such features as underlining, italic fonts, or quotation marks, collectively referred to here as highlighting.

1.4 Names, Numbers, Dates, Abbreviations, and Addresses:-

This section describes a number of textual features which it is often convenient to distinguish from their surrounding text. Names, dates, and numbers are likely to be of particular importance to the scholar treating a text as source for a database; distinguishing such items from the surrounding text is however equally important to the scholar primarily interested in lexis.

1.5 Simple Editorial Changes:-

As in editing a printed text, so in encoding a text in electronic form, it may be necessary to accommodate editorial comment on the text and to render account of any changes made to the text in preparing it. The tags described in this section may be used to record such editorial interventions, whether made by the encoder, by the editor of a printed edition used as a copy text, by earlier editors, or by the copyists of manuscripts.

1.6 Simple Links and Cross References:-

Cross-references or links between one location in a document and one or more other locations, either in the same or different XML documents, may be encoded using the elements ptr and ref, as discussed after this in the below.

1.7 Lists:-

The list element should be used to mark any kind of list: numbered, lettered, bulleted, or unmarked. Lists formatted as such in the copy text should in general be encoded using this element, with an appropriate value for the type attribute. Lists given as run-on text may also be encoded using this element, where this is felt to be appropriate.

1.8 Notes, Annotation, and Indexing:-

A note is any additional comment found in a text, marked in some way as being out of the main textual stream. All notes should be marked using the same tag, note, whether they appear as block notes in the main text area, at the foot of the page, at the end of the chapter or volume, in the margin, or in some other place.

1.9 Reference Systems:-

By reference system we mean the system by which names or references are associated with particular passages of a text (e.g. Ps. 23:3 for the third verse of Psalm 23 or Amores 2.10.7 for Ovid's Amores, book 2, poem 10, line 7). Such names make it possible to mark a place within a text and enable other readers to find it again.

1.10 Bibliographic Citations and References:-

Bibliographic references (that is, full descriptions of bibliographic items such as books, articles, films, broadcasts, songs, etc.) or pointers to them may appear at various places in a TEI text.

1.11 Passages of Verse or Drama:-

There are many elements which are included in the core module for the convenience of those encoding texts which include mixtures of prose, verse and drama. These are described after this.

1.12 Overview of the Core Tag Set:-

All the elements described in this phase are provided by the core module. These are as follow- There are thirty five(35) numbers of core elements are available (according to P5 guidelines) to encode the resources under the above twelve groups. Some of this are given below-

<ab> (anonymous block) contains any arbitrary component-level unit of text, acting as an anonymous container for phrase or inter level elements analogous to, but without the semantic

baggage of, a paragraph

<abbr>(abbreviation) contains an abbreviation of any sort.

Example:-

The address is Southmoor\<abbr expan="Road" resp="lb">Rd\</abbr>.

<activity>(activity) contains a brief informal description of what a participant in a language interaction is doing other than speaking, if anything.

Example:-

<activity>driving\</activity>

<actor>(actor) Name of an actor appearing with in a cast list.

Example:-

<cast Item><role>Mathias\</role> <role Desc>the Burgomaster\</role Desc>

<actor>Mr.HenryIrving\</actor>

</cast Item>

<add>(addition) contains letters, words, or phrases inserted in the text by an author, scribe, annotator,orcorrector.

<add Name>(additional name) contains an additional name component, such as a nickname, epithet, or alias, or any other descriptive phrase used with in a personal name.

Example :-

<pers Name><fore Name>Frederick\</fore Name><add Name type="epithet">the Great\</add Name><role Name>Emperor of Prussia\</role Name></pers Name>

<address>contains a postal or other address, for example of a publisher, an organization,oranindividual

Example:-

<address><street>viaMarsala24\</street>

<addr Line>contains one line of a postal or other address.

Example:-

<address><addrLine>ComputingCenter,MC135\</addr Line>

<add Span>(added span of text) marks the beginning of a longer sequence of text added by an author, scribe, annotator or correct or (see also\<add>

<admin>(administrative information) with in a<term Entry>element, contains administrative information pertaining to data management and documentation of the entry.

<affiliation>(affiliation) contains an informal description of a persons present or past affiliation with some organization, for example an employer or sponsor.

Example:-

<affiliation>Junior project officer for the US

<name type="org">National Endowment for the Humanities\</name>

</affiliation>

<alt>(alternation) identifies an alternation or a set of choices among elements or passages.

Example:-

<alt mode="excl" targ Type="uu" targets="we. Fun we. sun" weights="5050"/>

<alt Grp>(alternation group) groups a collection of<alt>elements and possibly pointers.

Example:-

<alt Grp mode="excl">

<alt targ Type="seg seg" targets="dm lt bb" weights="502525"/><alt targ Type="ll" targets="rl db" weights="5050"/></alt Grp>

<analytic>(analytic level) contains bibliographic elements describing an item (e.g. an article or poem) published with in a monograph or journal and not as an independent publication.

<anchor>(anchor point) attaches an identifier to a point with in a text, whether or not it corresponds with a textual element.

Example:-

<s>The anchor is he\<anchor id="A234"/>re somewhere.\</s><s>Help me find it.\<ptr target="A234"/>\</s>

<any>(Any value) represents boolean true

Value variable.

Example:-

<f name="gender">

<any/>

</f>

<app>(apparatus entry) contains one entry in a critical apparatus, with an optional lemma and at least one reading.

<arc>encodes an arc, the connection from one node to another in a graph.

Example:-

<arc label="OLD"label2="VIEUX" from="t3"to="i3"/>

<argument>A formal list or prose description of the topics addressed by a subdivision of a text.

<att>contains the name of an attribute appearing with in running text.

<attDef>(attribute definition) contains the definition of a single attribute.

Example:-

<attDef usage="rec"> </attDef>

<attList>contains documentation for all the attributes associated with this element, as a series of elements.

Example:-

<attList>

<attDef>\<!—...—>\</attDef>

</attList>

<attName>(attribute name) contains the name of the attribute being defined by an<attDef>element.

Example:-<attName>type\</attName>

<author>in a bibliographic reference, contains the name of the author(s) ,personal or corporate, of a work; the primary statement of responsibility for any bibliographic item.

Example:-

<author>British Broadcasting Corporation\</author>

<authority>(release authority) supplies the name of a person or other agency responsible for making an electronic file available, other than a publisher or distributor.

9 3 Impact of the TEI

The impact of the TEI on digital scholarship has been enormous. Today, the TEI is internationally recognized as a critically important tool, both for the long-term preservation of electronic data, and as a means of supporting effective usage of such data in many subject areas.It is the encoding scheme of choice for the production of critical and scholarly editions of literary texts, for scholarly reference works and large linguistic corpora, and for the management and production of detailed metadata associated with electronic text and cultural heritage collections of many types.The TEI's recommendations have been endorsed by many organizations, including the US National Endowment for the Humanities, the UK's Arts and Humanities Research Board, the Modern Language Association ect. The success of the TEI has also gone a long way to ensuring that our cultural heritage will be brought forward into the emerging new networked world, and made broadly available to the students, scholars, and the wider public.

9 4 Conclusion

The Text Encoding Initiative (TEI) is a text-centric community of practice in the academic field of digital humanities. The community runs a mailing list, meetings and conference series, and maintains a technical standard, a wiki and a toolset. The TEI is now an independent membership consortium, hosted by academic institutions in the US and in Europe. Its major deliverable is a set of Guidelines, which specify encoding methods for machine-readable texts, chiefly in the humanities, social sciences and linguistics. Since 1994, these guidelines are a widely-used standard for text materials for performing online research and teaching, and TEI is now the de facto standard for the encoding of electronic texts in the humanities academic community.TEI does not restrict combining objective and subjective information in the encoding. The Guidelines provide a means for encoding for the text representation as well as the text interpretation and analysis.

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LIS Education and Research in Digital Era – A Proposal

*Dr. Sudip Ranjan Hatua**

Abstract

The Library & Information Science education in India has crossed hundred glorious years. Initially it was the training based program and students received certificate or diploma after completion of short term training program. Though LIS education in University level had been started in the 1915 but today's degree level LIS education has been started in the year 1948. Since then it went lots of transition. Meanwhile during 1990s Information Technology and Internet gives stimulant to rethink and redesign LIS education and its course curricula. UGC CDC Report 1992 and 2002, NKC 2006 has given us a direction to revamp the LIS course curricula in various levels. Professional requirement, nature of information, information seeking behaviour of GenX users have been changing remarkably. We are living in the Information age, Knowledge Society and moving on information superhighway by digital means. We are now able to grab whole world into a single global village. This article is an attempt to show the various changes in this profession and provides a proposal of concise LIS course structure which can fit in today's digital era.

1 Introduction

"Prajnanam Brahma" – Knowledge is God – Knowledge is Power and the driving force of any society. National Knowledge Commission believes that the libraries have a recognized and proven social function in making Knowledge publicly available to all. They serve as Information and learning gateways to the national as well as global Knowledge base. Information and Communication Technology has great impact of every sphere of the society. Today's library need to develop their resource collection, access and sharing strategies from printed to digital format. They should find a new way of techniques to manage digital sources of information. In present digital era the librarian's functions are not just restricted to acquire the selected documents, their processing and provides demand specific services. But they make themselves well trained so that the library can act as Knowledge Hub for working with Gen-X users with new technology, digital resources for teaching and research, and act as aggregator, publishers and community information service provider.

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2 Nothing is Permanent Except CHANGE

This is the law of Nature and LIS Profession is no exception. In the history of library we find the change of physical nature of information sources i.e. from Clay tablets to Paper, from Paper media to Magnetic Tape, from Magnetic Tape to Electronic and now the Digital sources of information. Simultaneously there is tremendous change of users seeking behaviour. Previously they used to educate themselves by read and compiling through pen and paper but now users are very fond of typing or more specifically copy and paste methodology. They used to read the specific and allied areas but now want specific to more specific information. The text based information need now changed to factual information seeking nature. Libraries also change a lot, from manual system to semi-automated to fully automated system. Services become machine dependent rather human touch involved previously. There are changes of document format, media, collection development methods, ownership to access, retrieval and dissemination of information etc.

Early period	Clay Tablet, Parchment	Retrieval mainly based on memory
	Vellum, Palm leaves	
	Papyrus	
16th to 19th Century	Paper & printing books	Catalogue become the main source of retrieval
20th Century	Books, Periodicals, non conventional documents like Microfilm, Microfiche,	Catalogue, Classification, Index, Abstract,
		Creation of Database
	Video/Audio Tapes, Floppy, CD	
21st Century (DIGITAL ERA)	Books, e-book, e-journal, CD, DVD, Hard Disk, Internet	Online, Web based using automatic indexing, Web2, Lib2, Semantic Web

3 Digital Era: Selected Landmark

- 1945 – Vannevar Bush's idea about Memex Machine may be the first step to enter into digital era in our context.
- 1961 – SDI introduced by H P Lune. But without use of computer and network this service is stuck up.
- 1970-80s - OPAC (WorldCat holds over 47 million records from 41,000 libraries – biggest OPAC)

- 1980-early 90s -Full text databases –(ADONIS, IEEE / IEE Electronic Library (IEL), ABI/INFORM, UMI's Business Express and Library & General Periodicals. Espace World, US Patents, etc.)
- 1990s-Subject Gateway – information gateway- (Pinakes → www virtual libraries
  - **ROADS (Resource Organization And Discovery in Subject-based services) project in 1996**
  - **RDN** (Resource Discovery Network)-1999
  - **BUBL -2000 provides 12000 internet resources from 200 journals**
  - **Australian literature gateway – 2006** (provides authoritative information on over 400,000 works of creative and critical Australian literature
  - Open source movement, Open Archive initiatives, Metadata Harvesting
  - Web2.0, Lib2, Semantic Web

4 Information growth in the Internet

- Growing exponentially - 7.3 million unique pages/day
- According to a study produced by the school of Information Management and Systems at the University of California found that print, film, magnetic storage and optical storage media produced about 5 exabytes (=Information contained in 37,000 new libraries the size of the LC book collection) of new information.
- Population research bureau study said Web contains 170 terabytes of information on its surface which is equivalent to 17 times volume of LC print collection.
- The coverage of the largest search engines, have indexed not more than about **16%** of the Web

Rest of the 84% of Information is available in the deep web in the form of database. Among these databases most are priced maintained by the commercial companies and few are free but not given any guarantee of authentication. The priced database may procure by the library on subscription basis based on various licensing strategies for access agreements. With the conventional education and skill how these sources of information be managed is a big question.

5 Profession Requires

To manage the various form of Information in digital age the profession requires conventional library management techniques along with ICT. The present requirement of Library & Information Science profession can be expressed by the following chart.

To enhance the skill of modern librarian for the managing Information in digital era we should 'revamp LIS Education, Training, and Research facilities as recommended by NKC (2006, Annexure II, recommendation 3).

6. LIS Education (in India)

- 1901- In-service training program by John Macfarlane, Librarian of Imperial Library.
- 1911 – W.A. Borden introduced first LIS School at Baroda.
- 1915 – A. Dickinson started University level LIS Education at Punjab University.
- 1929 – Madras Library Association introduced 3 months summer School for LIS Training.
- 1931 – LIS Education started in Madras University.
- 1948 – Delhi Univ. introduced first Degree course in LIS. Initially it was 2 yr. integrated PG Diploma Course (Diploma +BLibSc). Later it diverted into 1 yr. PG Diploma + 1 yr. MLibSc.
- 1951 – Delhi Univ. started PhD Program in LIS.
- 1972 – 36 LIS Schools
- 2006 - Around 150 LIS Schools among which approximately 125 are in University level. Around 30 Library & Information Science Schools are running on Distance Mode.

7 Restructuring of LIS Education in Digital Era

In recent years the library and information professional has gone through a significant changes. People who received their professional degree and training in few years back usually did not have the opportunity to complete intensive courses in computer based information system, networking, Internet, www, educational media, specialized information materials and services. Many professionals have felt that they need additional course work to prepare them for managing information in the digital era. The post graduate course in LIS are expected to gap between education and world of work. Recent course curricula of many LIS Schools are equipped enough to face the challenges. However there is a scope to revamp the Library & Information Science education and research. It has been also considered a statement recently made by the Director, Delnet about the present course curricula of Library & Information Science taught in various LIS Schools in India is *"In the Indian context, the scope of the subject taught varies from university to university ... mostly FAIL to perform in a technical or a research library."*

"... it is only the bright candidates who learn through various other sources move ahead in the profession..."

8 Proposed Curricula

Keeping in mind the above statement following is the proposed curricula may be incorporated in out MLIS course. These may appear in different nomenclature but content must be what it intended to mean.

Paper	Content	Point
Paper-I **LIS Fundamentals**	History & Development, Library Documents (printed, electronics, digital), Maintenance, Preservation, Library Tools.	50
Paper-II **Library Technical Processing**	All House Keeping operations-primary focus on printed materials, reference to other media, special attention given to critical interpretation, reviews, standards, MARC...	50
Paper-III **Collection Development**	Community analysis, Policy, print and non print collection, Special attention to digital collection development	50
Paper-IV **Managing Information Organization**	Theories and Techniques of Management, application to information centre and information enterprise, leadership, communication, organizational structure, planning, control, decision making, licensing, agreement for e-resources ... DRM	100
Paper-V **Database Management**	DBMS, RDBMS, OPEN Source Databases, design, manipulation, security and integrity.	50
Paper-VI **Information Architecture & Retrieval Systems**	Fundamental concepts, method & Theories, Foundation, web design, cognition, search, interaction design, knowledge organizaion, user study, document representation, indexing, storage, retrieval and distribution of digital Information.	100
Paper-VII **Network Information System and Library Automation**	Devices, tools and Techniques, network system planning, concept and application of IT and ICT, Network based communication and retrieval system	100
Paper-VIII **Content Management**	Subject Analysis, Natural vs controlled vocabulary, automatic indexing and classification, web publishing, web implementation and evaluation	100
Paper-IX **Information Resource Service and Customer Care**	Design and structure of online tools for customer feedback, forum, social networking, blogs, FAQ, bulletin board, bibliographic control, user control, community information service, skill development for customer care. IPR	100
Paper-X **Digital Library & Information system**	Planning, Design & Architecture, Resource sharing, OAl, Metadata Harvesting, LMS, Open Source Movement, Knowledge Discovery and representation, metadata and standards, interface and Information visualization	100

9 1 Emerging Research Areas

- Open Source & Open Archives
- Digital Repository
- Metadata Harvesting
- Web ontology & Semantic Web

9 2 Conclusion

A course creates professionals? Or, Profession needs new courses? It is a debatable question. Though it is understood that any new course specially in applied field is designed on the basis of problems arises in practical field. The changing scenario of LIS profession in the name of IT, ICT, Digital sources of information etc. insist to implement new research and education. Simultaneously due to lots of barrier and infrastructural bottleneck LIS professionals can't apply their latest skill and knowledge. Then they either blame the authority or their own fate and with the time their skill lost the sharpness. Very few of them, in-spite of all the barriers and bottlenecks they always work innovative, research and invent new things silently with the motivation that they will not live for ever but their work will sustain for ever that is his reward.

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Genesis of a Subject

*Dr. Udayan Bhattacharya**

Abstract

Shows the integration of concepts to form a subject. Subject formation process is a sequential methodology i.e. it progresses following a distinct route.

1 Introduction

Knowledge is the confident understanding of a subject, potentially with the ability to use it for a specific purpose. The ability to know something is a central part of philosophy and has its own branch, epistemology. On a more practical level, knowledge is commonly shared by groups of people and in this context it can be manipulated and managed in various ways. [1]

Subject, knowledge, idea, concept, percept, – these are some closely related terms – and these are interlinked also. Before going to other discussion we should have a clear understanding about the terms mentioned above.

2 Perception

Perception is the way we receive and interpret the information we are presented with. Understanding of our surroundings is perceived by our sense organs. Light and radiation stimulate our eyes; sound waves and air vibrations stimulate our ears; tastes stimulate our tongues; and smells stimulates our noses. Our skin is also a sense organ, perceiving pressure, pain and temperature.

Through perception, we learn to associate certain things as being known objects, events, or people. However, perception does not tell us about the objects, events, or people themselves. Our brain must organize and interpret what our sense organ perceive, converting environmental stimuli into information about the world.

There are three factors that make up perception:

- Detection: Sensing the stimulus.

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- Recognition: Identifying the stimulus.
- Discrimination: Differentiating between stimuli (such as different musical notes.).

Receptors are important to perception. Sensory systems (such as vision and hearing) each have specialized receptors, which are sensitive to certain types of stimuli. They receive the environmental stimuli and send information to brain via nerve impulses.

We can categorize perception as internal and external.

Internal perception (proprioception) tells us what's going on in our bodies. We can sense where our limbs are, whether we're sitting or standing; we can also sense whether we are hungry, or tired, and so forth.

External or sensory perception (exteroception), tells us about the world outside our bodies. Using our senses of sight, hearing, touch, smell, and taste, we discover colours, sounds, textures, etc. of the world at large.

The philosophy of perception is mainly concerned with exteroception. When philosophers use the word perception they usually mean exteroception, and the word is used in that senses everywhere.[2]

3 Concept and Concept Formation

Our perception of the external world begins with the senses, which leads us to generate empirical concepts representing the world around us, within a mental framework relating new concepts to preexisting ones. Concepts are mental categories for objects, events, or ideas that have a common set of features. Concepts allow us to classify objects and events. In learning a concept, you must focus on the relevant features and ignore those that are irrelevant. Most concepts cannot be identified on the basis of a single critical feature.

Most of the words we use refer to concepts and not to particular things. In learning some of their first concepts, children commonly focus not on names but on the functions of objects. For example, a spoon is something to eat with, and a pan is something to cook in. Other early concepts are based on groupings of objects that are similar in some respect: liquid things, moving things, or soft things.

Several theories have been proposed to explain how we learn concepts. The stimulus-response association theory was proposed by Clark Hull. He argued that we learn to associate a particular response with a variety of stimuli that define the concept. For instance, we associate the concept "dog" with all of the characteristics of dog (four legs, fur, tail and so on) and are able to generalize the concept to unfamiliar dogs.

Eleanor Rosch suggested that the natural concepts in everyday life are learned through examples rather than abstract rules. Her exemplar theory proposes that we learn the concept of "dog" by seeing a wide variety of dogs and developing a prototype of what the typical dog

is like.

The world is full of innumerable entities. Without the ability to generalize one would waste all of his time grasping fundamentals over and over again. Life would be impossible. A concept is a mental abstraction which allows generalization from some known objects to other unknown. It integrates two or more particulars into common mental units.

From the above discuss it is clear that concept is the association of percepts- deposited in the memory[3,4].

Idea

According to Ranganathan idea is product of thinking, reflecting, imagining, etc. got by the intellect by integrating with the aid of logic, a selection from the apperception mass, and/ or what is directly apprehended by the intuition, and deposited in the memory.[5]

Knowledge

Knowledge is a central part of life, the actual definition of knowledge is of great interest to philosophers, social scientists, and historians. Knowledge, according to most thinkers, must be justified, true and believed. Meeting these qualifications may be difficult or impossible. [6]

It is also common to weigh knowledge in how it can be applied or used. In this sense, knowledge consists of information augmented by intentionality (or direction). As defined by Richard L. Ballard, knowledge is the state of knowingness that results from the interaction between theory and information. Theories are the rules, constrains, organization or conditional relationships between concepts, ideas and thought patterns that precisely define their meaning.

It is suggested that knowledge be considered as, firstly, what a person believes and states as his belief (or what people collectively believe and state). Secondly, and in accordance to Karl Popper, that the extent to which statements are to be regarded as knowledge depends on the extent to which those statements are true; the judgment of the truth of a statement being based on the extent to which it is compatible with other statements that are believed to be true.[7]

According to Ranganathan knowledge is the totality of ideas conserved by the human. In this sense, knowledge = universe of ideas. [8]

Subject

An organized or systematized body of ideas, whose extension and intension are likely to fall coherently within the field of interest and comfortably within the intellectual competence and the field of inevitable specialization of a normal person.

So, from the above discussion, we can come to a conclusion that all the terms discussed above are interrelated. And this relation is the origin of any subject. Subject formation process is started from the initial perception about any entity and moved stage by stage through formation of concepts, ideas and knowledge. [9]

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Open Access for Indian Scholarship: A Study

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Abstract

Open access is a means for promoting visibility for the research done all over the world. Open Access (OA) has evolved to encourage equal access to academic research and maintain peer-reviewed standards. This digital movement freely disseminates academic material such as articles, pre-prints, post-prints, dissertations, and conference reports through online journals, or self-archiving methods such as the institutional repository (IR).This article discusses about what open access is all about, its advantages, disadvantages, and makes a study of two major open access repositories in the Indian context i.e. Registry of Open Access Repositories (ROAR) and Directory of Open Access Repositories (OpenDOAR).

1 Introduction

Natural resources belong to the zero sum domain and if it is shared, the stock dwindles. Unlike the natural resources knowledge wants to be shared and when shared it grows. Academic researchers are the actual users and producers of scholarly journal articles. The authors write their articles for the academic readers. Traditionally, researchers produced new knowledge, express it in writing and transfer the copyright to the publishers. The publishers in turn published the article for broad dissemination of knowledge. However with the increase in the digital information, people's way of access to information has transformed the publishing industry. Authors themselves are now the publishers. Technological advances have opened up new avenues for publishing the scholarly work, like depositing the work in an institutional repository. But still researchers prefer to publish in seminal peer- reviewed journals. Publishers also rely on the traditional publication agreements that scarcely factors in the new models of information dissemination. Many want the authors to transfer their full copyright to the publishers. Authors of scholarly research work mostly afford to give the articles as gift because they are well placed in the society with no financial crisis. They do not seek royalties for research articles but recognition for their work from peers. "Serials crisis" leads to the escalation of the costs of serials causing cuts' and restrictions upon libraries collection. In

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response to this, some alternative publishing models have been developed like open access which encourages equal access to academic research and maintain peer review standards.

2 Open Access- Definition

According to the Budapest Open Access Initiative[4], 2002, open access means 'free availability on the public internet, permitting any users to read, download, copy, distribute, print, search, or link to the full texts of these articles, crawl them for indexing, pass them as data to software, or use them for any other lawful purpose, without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself.' (2002).

According to the Bethesda Principles[3] which were endorsed at the Howard Hughes Medical Institute Meeting on Open Access Publishing on April 11, 2003:-

"An Open Access Publication is one that meets the following two conditions:

1.   The author(s) and copyright holder(s) grant(s) to all users a free, irrevocable, worldwide, perpetual right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship, as well as the right to make small numbers of printed copies for their personal use.

2.   A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in a suitable standard electronic format is deposited immediately upon initial publication in at least one online repository that is supported by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, interoperability, and long-term archiving (for the biomedical sciences, PubMed Central is such a repository)."

According to the Berlin declaration' on Open Access to Scientific Knowledge of 22 October 2003:-

"Open access contributions must satisfy two conditions:

1.   The author(s) and right holder(s) of such contributions grant(s) to all users a free, irrevocable, worldwide, right of access to, and a license to copy, use, distribute, transmit and display the work publicly and to make and distribute derivative works, in any digital medium for any responsible purpose, subject to proper attribution of authorship (community standards, will continue to provide the mechanism for enforcement of proper attribution and responsible use of the published work as they do now), as well as the right to make small numbers of printed copies for their personal use.

2.   A complete version of the work and all supplemental materials, including a copy of the permission as stated above, in an appropriate standard electronic format is deposited (and

thus published) in at least one online repository using suitable technical standards (such as the Open Archive definitions) that is supported and maintained by an academic institution, scholarly society, government agency, or other well-established organization that seeks to enable open access, unrestricted distribution, inter operability, and long-term archiving."

The Directory of Open Access Journals (DOAJ) defines 'Open Access' Journals as 'journals that use a funding model that does not charge readers or their institutions for access.' (DOAJ, 2004)

International Council for Scientific and Technical Information (ICSTI), in partnership with INIST, INSERM and the Ministère de la Recherché and in association with CODATA and ICSU — "Meeting on Open Access, state of the art and future developments" Paris, January 23/24 2003 says about open access that:-"The term 'open access' as used in the context of this seminar encompasses all the developments affecting access to STM (Scientific, Technical & Medical) information. It includes technical, organisational, economic, legal and policy aspects. The overall concept therefore involves authors, publishers (primary and secondary), funding bodies, information service providers, technical standards developers, public authorities, policy makers and international agencies concerned with development." (ICSTI, 2003)

According to Peter Suber, Project Director for Open Access, Public Knowledge; Senior Research, SPARC; Editor, Open Access materials must be "free of charges, and free of copyright and licensing restrictions," (2004) and as well it must be made immediately accessible, without publication delays.

According to John Willinsky, the OA movement is effective within developing countries, such as India, which has a long history of intellectual pursuit and yet, even within major research libraries, very few are able to subscribe to ten percent of the high impact journals in their field.

3 Advantages of Open Access Publishing

1) Promotes higher usage and citation for the author.
2) Provides online mechanisms for fair, transparent, and quick peer review.
3) Encourage interdisciplinary research and create a level playing field for all users, removing the barriers of fee, access, and geography.
4) Encourage reuse of work with or without modification, while crediting the original author.
5) Provides equal opportunities for the communication of all research information, eliminating financial barriers.
6) Benefits academic readers of the institutions which cannot afford to purchase the journals or journals are out of scope.

7)   Helps taxpayers to see the results of the research for which they pay.

8)   Helps patients and those caring for them, to keep abreast of medical research.

4 Disadvantages of Open Access Publishing

1)   In the case of print the need to charge for journals, monographs, or other research outputs
     was found logical. Each customer incurred measurable (if small) incremental costs for
     printing and distribution, and there was a clear logic for charging fees (plus a margin to
     cover up-front publication costs) to users. Online, however, the marginal costs of each
     user are close to zero, so the linkage between variable costs and revenues is broken.

2)   The variability of subscription fee structures can be complex for customers to understand
     and difficult to compare.

3)   If a free site provides information good enough for its users, then the users naturally
     become reluctant in accepting any subscription service, even if it claims to provide superior
     content or features.

4)   Subscriptions by definition restrict usage of a resource to those who subscribe to it. This
     is a disadvantage from a mission perspective for not-for-profit projects with a
     commitment to provide as wide access to its resource as possible. It can make it harder
     to build a case for generating other kinds of revenue, such as advertising or grants. It can
     also be a disadvantage to users in developing countries, who sometimes lack both the
     financial resources and means (eg credit cards, bank accounts) to conduct transactions.

5)   It is difficult to determine the demand-side of the marketplace and to judge the impact
     of the resource, measure its success, and gain the feedback of users.

6)   A study conducted by the Center for Studies in Higher Education in 2006 found
     resistance among faculty to the author pays model because of associations with vanity
     publishing, concerns about academic integrity, and concerns that this system might
     discriminate against scholars without access to publishing budgets.

7)   Priorities of institutions may be affected as users can get their required information by
     sitting at their homes.

8)   Sometimes advertisements may disturb the site users and they may dislike the feel of
     hosting ads on the site and gradually get distracted away.

5 Open Access Initiatives in India

Here a study has been conducted of the two major online repositories i.e., Registry of Open
Access Repositories (ROAR)[8] and Directory of Open Access Repositories (OpenDOAR)[6].
As found on 5th March, 2012, ROAR identifies about eighty (80) registered online repositories
in India and OpenDOAR identifies about fifty- three (53) registered online repositories.

ROAR is hosted at the University of Southampton, UK and is made possible by funding from the JISC. ROAR is part of the EPrints.org network. As stated in their website the aim of ROAR is to promote the development of open access by providing timely information about the growth and status of repositories throughout the world.[8] The following list shows the names of the repositories with their subject content and institutions which maintains them. It also designates the type of the repository and the date and time when it was created.

1) Unspecified

subjects: Engineering (General). Civil engineering (General),
Environmental technology. Sanitary engineering, Bridge engineering, Building construction, Mechanical engineering and machinery, Electrical engineering. Electronics Nuclear engineering, Motor vehicles. Aeronautics. Astronautics, Mining engineering. Metallurgy, Chemical technology
publisher: IIT Bombay (http://www.iitb.ac.in)
date: 2012-01-05 10:10:26
type: Research Institutional or Departmental
coverage: Mumbai

2) IIT Bombay Institutional Repository

subjects: Engineering (General). Civil engineering (General), Environmental technology. Sanitary engineering, Building construction Mechanical engineering and machinery, Electrical engineering. Electronics Nuclear engineering, Mining engineering. Metallurgy Chemical technology
publisher: IIT Bombay (http://www.iitb.ac.in)
date: 2011-12-15 09:01:35
type: Research Institutional or Departmental
identifier: http://dspace.library.iitb.ac.in/jspui/
coverage: Mumbai

3) DSpace@IMSC

description: This site provides access to the output of the institution. Users may set up RSS and Atom feeds to be alerted to new content.
publisher: Institute of Mathematical Sciences (https://www.imsc.res.in/)
date: 2012-01-15 16:12:14
type: Research Institutional or Departmental
identifier: http://www.imsc.res.in/xmlui

4) IIT Bombay Institutional Repository

subjects: Technology (General), Engineering (General). Civil Engineering (General)
publisher: IIT Bombay (http://www.iitb.ac.in)
date: 2012-01-05 12:09:37
type: Research Institutional or Departmental

identifier: http://dspace.library.iitb.ac.in/jspui/

coverage: Mumbai

5) Allama Iqbal Library Digital Collection

description: Open Access Repository of Allama Iqbal Library, University of Kashmir provides full access to the institutional output in the form of Journals, Research Articles and other papers

publisher: University of Kashmir (http://www.kashmiruniversity.net/)

date: 2009-03-05 14:32:53

type: Research Institutional or Departmental

identifier: http://www.kashmiruniversity.net/

coverage: Srinagar- J&K

ion

6) Bioinformation

description: Bioinformation publishes original research articles in all aspects of biological knowledge discovery through mathematical and computational analysis of biological data. The journal specifically invites articles describing new biological insights based on primary or derived data.

date: 2006-05-04 10:48:14

type: e-Journal/Publication

identifier: http://www.bioinformation.net/

7) Cusat Digital Library

description: Archives faculty articles, seminar reports, syllabi, question papers, abstract of journal articles

publisher: Cochin University of Science and Technology (http://dspace.cusat.ac.in/jspui/)

date: 2011-07-02 12:09:19

type: Research Institutional or Departmental

identifier: http://dspace.cusat.ac.in/jspui/

coverage: Cochin

8) Delhi College of Engineering

description: repository of faculty publication student thesis projects etc

publisher: Delhi College of Engineering (www.dce.edu/library)

date: 2007-05-09 12:22:01

type: Other

identifier: http://202.141.12.109:8080/dspace

coverage: Delhi

9) Delhi College of Engineering Repository

description: This site is an institutional repository of research and other publications produced

by university faculty and students. Registered users may set up email alerts to notify them of newly added materials. Though the site highlights theses as items within the repository, only a limited number of them are currently present.

publisher: Delhi College of Engineering (http://www.dce.edu/)

date: 2009-06-14 03:49:54

type: Research Institutional or Departmental

identifier: http://202.141.12.109/dspace

10) Dhananjayarao Gadigil Library

description: This site provides access to the digitised collections of the institution. Users may set up RSS feeds to be alerted to new content. The interface is available in English.

publisher: Gokhale Institute of Politics and Economics (http://www.gipe.ac.in/)

date: 2011-09-18 15:12:16

type: Research Institutional or Departmental

identifier: http://library.gipe.ac.in/jspui/

11) Digital Knowledge Repository of Central Drug Research Institute (DKR@CDRI)

publisher: Central Drug Research Institute (http://www.cdriindia.org/home.asp)

date: 2007-11-14 06:54:22

type: Research Institutional or Departmental

identifier: http://dkr.cdri.res.in:8080/dspace

coverage: Lucknow

12) Digital repository of Cochin University of Science & Technology

description: This repository is funded by the Department of scientific and industrial research (DSIR) under the Technology information facilitation programme(TIFP), Ministry of science and technology, Government of India. The interface is in English.

publisher: Cochin University of Science & Technology (http://www.cusat.nic.in/) .

date: 2008-07-08 09:08:07

type: Research Institutional or Departmental

identifier: http://dyuthi.cusat.ac.in/

13) DSpace @ INFLIBNET: Home

description: Content: post prints, preprints, news clippings, conference articles, training materials and other scholarly publications

date: 2006-05-04 10:48:14

type: Research Cross-Institutional

identifier: http://dspace.inflibnet.ac.in/

14) dspace @ sdmcet

description: This site provides access to the research output of the institution. Users may set

up RSS feeds to be alerted to new content. The interface is available in English.

publisher: SDM College Of Engineering and Technology Dharwad
(http://www.sdmcet.ac.in/)

date: 2011-05-08 15:12:12

type: Research Institutional or Departmental

identifier: http://210.212.198.149:8080/jspui

15) DSpace at Bangalore Management Academy: Home

publisher: Bangalore Management Academy (www.bmaindia.com)

date: 2008-09-05 07:56:52

type: Learning and Teaching Objects

identifier: http://bma.ac.in:8080/dspace

coverage: Bangalore

16) DSpace at CUSAT

description: This site provides access to the output of the institution. The interface is in English.

publisher: Cochin University of Science and Technology (http://www.cusat.ac.in/)

date: 2011-07-17 15:12:17

type: Research Institutional or Departmental

identifier: http://dspace.cusat.ac.in/

17) DSpace at Guru Gobind Singh Indraprastha University, Delhi

publisher: Guru Gobind Singh Indraprastha University, Kashmere Gate, Delhi-110006, India
(http://ipu.ac.in)

date: 2007-09-24 11:18:07

type: Research Institutional or Departmental

identifier: http://dspace.ipu.ernet.in:8080/dspace/

coverage: Delhi

18) DSpace at ICFAI BUSINESS SCHOOL (IBS), Ahmedabad

description: Faculty and Research staff Articles, Conference papers, Cases etc

publisher: ICFAI Business School Ahmedabad (http://ibsindia.org)

date: 2006-06-09 11:23:48

type: Other

identifier: http://202.131.96.59:8080/dspace

coverage: Ahmedabad

19) DSpace at NCRA

description: This is an institutional repository providing access to the research output of the NCRA. Some items are only available to registered users.

publisher: Indian Institue of Technology, Bombay (http://www.iitb.ac.in/)

date: 2009-03-19 13:12:51
type: Research Institutional or Departmental
identifier: http://ncralib.ncra.tifr.res.in:8080/dspace/
20) DSpace at University of Hyderabad
description: An Institutional Repository of research publications of faculty and students of
University of Hyderabad, Hyderabad, India
publisher: IGM Library (http://www.library.uohyd.ernet.in:8000)
date: 2008-10-30 13:09:12
type: Research Institutional or Departmental
identifier: http://digilib.uohyd.ernet.in/dspace
coverage: Hyderabad
21)DSpace at Vidya Prasarak Mandal (Thane): Home
description: We have 5 institutions in our campus. We have uploaded the seminar/conference
proceedings of all the colleges. Seminar videos, Research papers.
publisher: Vidya Prasarak Mandal (http://www.vpmthane.org)
publisher: Joshi Bedekar College of Arts and Commerce (http://www.vpmthane.org)
publisher: Dr. V N Bedekar Management Institute (http://www.vpmthane.org)
date: 2011-01-27 10:34:52
type: Learning and Teaching Objects
identifier: http://dspace.vpmthane.org:8080/jspui/index.jsp
coverage: Thane
22) Dspace@IIA: Indian Institute of Astrophysics
date: 2004-11-11 00:00:00
type: Research Institutional or Departmental
identifier: http://prints.iiap.res.in/
23) DSpace@IITB
description: This is an institutional repository for the Indian Institute of Technology Bombay,
providing access to its research output. Registered users can set up RSS feeds in order to
notify them new added materials.
publisher: Indian Institute of Technology, Bombay (http://www.iitb.ac.in/)
date: 2010-04-25 15:12:15
type: Research Institutional or Departmental
identifier: http://dspace.library.iitb.ac.in/jspui/
24) DSpace@INFLIBNET
description: This institutional repository contains proceedings from international and national
Conferences (such as CALIBER and PLANNER) which are organised by INFLIBNET

Center every year. Registered users can set up email alerts to notify them of newly added relevant content. A portion of the site is also given over to hosting dArchive-INDIA with materials intended to be centrally deposited by Indian academics. However, currently there are no materials within this collection.

publisher: Information and Library Network Center http://www.inflibnet.ac.in/

date: 2006-06-15 20:30:29

type: Research Institutional or Departmental

identifier: http://ir.inflibnet.ac.in/

25) DSpace@PDPU

description: This is an institutional repository providing access to the research output of the institution. Registered users may sign up to receive email updates.

publisher: Pandit Deendayal Petroleum University http://www.pdpu.ac.in/

date: 2010-11-21 16:12:24

type: Research Institutional or Departmental

identifier: http://library.pdpu.ac.in:8080/xmlui

26) DU Eprint Archive

date: 2005-10-14 00:00:00

type: Research Institutional or Departmental

identifier: http://eprints.du.ac.in/

coverage: New Delhi

27) Dyuthi at CUSAT

description: Digital repository of Cochin University of Science & Technology This repository is funded by Department of Scientific & Industrial Research (DSIR), Under Technology Information Facilitation Programme (TIFP). Ministry of Science & Technology, Government of India

publisher: Cochin University of Science & Technology http://www.cusat.ac.in

date: 2008-07-08 09:08:07

type: Research Institutional or Departmental

identifier: http://dyuthi.cusat.ac.in/dspace/

coverage: Cochin

28) ePrints@ATREE

publisher: Ashoka Trust for Research in Ecology and the Environment (http://atree.org)

date: 2010-12-17 09:21:10

type: Research Institutional or Departmental

identifier: http://eprints.atree.org/

coverage: Bangalore

29) Eprints@CMFRI

description: Eprints@CMFRI is the Open Access research outputs repository of Central Marine Fisheries Research Institute. Research outputs of CMFRI - journal papers, conference papers, reports, theses, patents etc. - are uploaded/self-archived by CMFRI scientists who do research on fisheries and related areas. Interested users can freely download and use documents as most of them are directly accessible and full-text downloadable. 'Request Copy' forms can be used for documents to which direct full-text download is restricted due to publisher embargo.

publisher: Central Marine Fisheries Research Institute (http://www.cmfri.org.in/)

date: 2010-03-04 12:10:50

type: Research Institutional or Departmental

identifier: http://eprints.cmfri.org.in

coverage: Cochin

30) Eprints@IARI

publisher: Indian Agricultural Research Institute (http://eprints.iari.res.in)

date: 2009-11-09 12:13:02

type: Research Institutional or Departmental

identifier: http://eprints.iari.res.in/

coverage: Delhi

31) EPrints@IICB Welcomes! - EPrints@IICB

subject: Medicine (General)

description: This repository is the official open access institutional repository of IICB. This provides single point access to all research outputs produced locally. Research documents, which include peer-reviewed journal articles, conference papers, theses and reports, produced by IICB researchers are archived here. We try to populate the repository with post-print versions of peer-reviewed journal articles, as many publishers now allow authors to post the same in institutional repositories legitimately. In some cases where the post-print versions are not available, the published version is archived with direct access restricted to IICB researchers. Other can use "Request copy" form to request copies of articles directly to authors.

date: 2011-09-23 09:13:13

type: Research Institutional or Departmental

identifier: http://www.eprints.iicb.res.in

coverage: Kolkata

32) ePrints@IIMK: Indian Institute of Management Kozhikode Scholarship Repository

date: 2006-05-04 10:48:14

type: Research Institutional or Departmental

identifier: http://eprints.iimk.ac.in/

coverage: Mumbai

33) EPrints@IIT Delhi : Home

description: Welcome to our digital repository of Indian Institute of Technology Delhi research and Electronic Submission of Theses and Dissertations.

date: 2005-05-28 11:38:07

type: e-Theses

identifier: http://eprint.iitd.ac.in/dspace

34) eprints@immt

publisher: Institute of Minerals and Materials Technology

(http://www.immt.res.in)

date: 2009-05-30 11:14:18

type: Research Institutional or Departmental

identifier: http://eprints.immt.res.in/

coverage: Bhubaneswar

35) Eprints@MDRF

publisher: Dr. Mohan's Diabetes Specialities Centre,Diabetes

(http://www.drmohansdiabetes.com/)

date: 2009-09-24 09:04:51

type: Research Institutional or Departmental

identifier: http://mdrf-eprints.in/

coverage: Chennai

36) eprints@mku

description: Proposed

publisher: Madurai Kamaraj University (www.mkuniversity.org)

date: 2009-10-29 15:15:48

type: Research Institutional or Departmental

identifier: http://eprints.mkuniversity.in/

coverage: Madurai

37) Eprints@NML

publisher: National Metallurgical Laboratory (www.nmlindia.org)

date: 2009-09-19 15:36:15

type: Research Institutional or Departmental

identifier: http://eprints.nmlindia.org/

coverage: Jamshedpur

38) Eprints@SBT MKU
description: e-journal above
publisher: School of Biotechnology, Madurai Kamaraj University (www.biotechmku.org)
date: 2008-07-02 19:37:11
type: Research Institutional or Departmental
identifier: http://eprints.bicmku.in/
coverage: Madurai
39) ETD@IISc Electronic Theses and Dissertations at Indian Institute of Science
date: 2005-02-08 08:34:15
type: e-Theses
identifier: http://etd.ncsi.iisc.ernet.in/
40) IIT Roorkee Repository
description: This site provides access to the research output of the institution. The interface is in English.
publisher: Indian Institute of Technlogy Roorkee, India (http://www.iitr.ac.in/)
date: 2011-02-20 16:12:13
type: Research Institutional or Departmental
identifier: http://bhagirathi.iitr.ac.in/dspace
41) Indian Academy of Sciences: Publications of Fellows
description: Publications of IAS Fellows is an Open Access Repository of Indian Academy of Sciences. This is their sincere attempt to collect, preserve and disseminate all the intellectual output of the Academy which is published so far by all Fellows in various national and international publications. Interested users can freely download and use documents as most of them are directly accessible and full-text downloadable.
publisher: Indian Academy of Sciences (http://www.ias.ac.in/)
date: 2011-05-18 10:41:49
type: Research Institutional or Departmental
identifier: http://repository.ias.ac.in/
coverage: Bangalore
42) Indian Institute of Information Technology
description: Testing Phase
date: 2006-02-10 03:25:06
type: Research Institutional or Departmental
identifier: http://eprints.iiita.ac.in/
43) Indian Institute of Management Kozhikode
description: Welcome to IIMK's institutional repository, a scholarly archiving facility for the

IIMK community, using the BSD DSpace software, Jointly developed by MIT Libraries and Hewlett-Packard Labs. This service enables the Institute community to archive their preprints, post prints and other scholarly publications. In keeping with the objectives of the Open Access movement, we expect this service to facilitate the Institute researchers in self-archiving and long-term preservation of their scholarly publications, provide easy access to these publications world wide and improve impact of their research. While dspace@iimk can be accessed by anybody, submission of documents to this archive is limited to the IIMK research community.

date: 2005-12-29 10:02:07

type: Research Institutional or Departmental

identifier: http://dspace.iimk.ac.in/

coverage: Mumbai

44) Indian Institute of Petroleum Institutional Repository

description: This site provides access to the research output of the institution. The interface is available in English.

publisher: Indian Institute of Petroleum, Dehradun (http://www.iip.res.in/)

date: 2011-08-14 15:12:15

type: Research Institutional or Departmental

identifier: http://library.iip.res.in:8080/dspace

45) Indian Institute of Science, Bangalore, India

date: 2004-04-05 00:00:00

type: Research Institutional or Departmental

identifier: http://eprints.iisc.ernet.in/

46) Institutional repository at MDI

publisher: Management Development Institute (http://www.mdi.ac.in)

date: 2006-10-06 07:34:47

type: Other

identifier: http://dspace.mdi.ac.in/dspace

coverage: Gurgaon

47) Institutional repository of Intellectual Contributions of DTU

subjects: Statistics, Economic Theory, Economic History and Conditions, Finance, Public Finance, Education (General), Science (General),Mathematics, Electronic computers, Computer science, Computer software, Physics, Chemistry, Geology, Immunology, Virology, Pathology, Technology (General), Patents. Trademarks, Engineering (General), Civil engineering (General), Hydraulic engineering, Ocean engineering, Environmental technology, Sanitary engineering, Highway engineering, Roads and pavements, Railroad engineering and operation, Bridge engineering, Building construction, Mechanical engineering and machinery, Electrical engineering,

Electronics Nuclear engineering, Motor vehicles. Aeronautics, Astronautics, Mining engineering, Metallurgy, Chemical technology, Library Science, Information Science, Electronic information resources, Databases description: Research Publications of faculty ,students Theses and projects ,new pertaining to education ,management and DTU publications etc
publisher: Delhi Technological University (http://www.dce.edu)
date: 2010-11-08 06:01:10
type: Research Cross-Institutional
identifier: http://www.dspace.dce.edu
coverage: Delhi
48) ISI Library, Bangalore
description: Publication database
date: 2006-05-04 10:48:14
type: Research Institutional or Departmental
identifier: http://library.isibang.ac.in:8080/dspace/
coverage: Bangalore
49) Journal Home - The IIOAB Journal
subjects: Science (General), Astronomy, Physics, Chemistry, Geology, Botany, Zoology, Human anatomy, Physiology, Immunology, Virology, Medicine (General), Pathology, Surgery, Ophthalmology Otorhinolaryngology, Gynecology and obstetrics, Dentistry, Dermatology, Therapeutics, Pharmacology, Pharmacy and materia medica, Nursing Botanic, Thomsonian, and eclectic medicine,Homeopathy, ,Other systems of medicine, Agriculture (General), Plant culture, Forestry, Animal culture, Aquaculture. Fisheries. Angling, Hunting sports, Naval Science, (General),Naval architecture. Shipbuilding. Marine engineering
description: Aims and scopes The numbers of specialized journals are increasing along with the newly specialized fields in biology over time. Therefore there is a need to bring together all specialized domains under one umbrella so that the scientific community gets easy access to all recent developments in a single journal. The IIOAB Journal aims to provide such a platform through rapid publication of a wide range of topics under all specialized domains currently available in Integrative Biology/Life Sciences. The Journal is an open access, international, bimonthly, multidisciplinary, peer-reviewed one that publishes original, innovative, translational, and applied research articles, short communications, findings in brief (abstract)/ brief synopsis, reviews and mini-reviews, book reviews, meeting reports, commentaries, historical prospectives, latest advances, letters to the editors, interviews, novel findings, case studies, market reports, industry trends, hottest topics in fast moving areas, news stories, IPR issues and conflicts, and various other upcoming issues in most advanced fields in Life Sciences. Emphasis will be given to innovative novel findings of wide biological significance,

new ideas, multidisciplinary and translational researches, and potential commercialization. Major subject areas include but not restricted to: ■ Omes, Omics, and Integromics ■ Biomarker, molecular basis of diseases, and molecular medicine ■ Pharmacology, pharmacodynamics, and personalized medicine ■ Molecular nutrition, nutraceuticles, and personalized nutrition ■ Molecular pharming ■ Molecular cell biology and gene technology ■ Molecular physiology, psychology, cardiology, and neuroscience ■ Applied microbiology and immunology ■ Biophysics, biochemistry, and structural biology ■ Computational biology, bioinformatics, and systems biology ■ Biotechnology ● Plant and agri-biotechnology ● Animal biotechnology ● Environmental biotechnology ● Industrial biotechnology ● Food biotechnology ■ Nanotechnology, nano-biotechnology, bio-sensors, and bio-electronics ■ Chemical engineering, bio-engineering, and bio-processing ■ Drug discovery and development ■ High throughput screening, imaging, and other cutting-edge technology ■ Translational therapeutics and clinical trials ■ Molecular evolution and speciation ■ Climatology and space biology ■ Renewable energy resources and recycling ■ Innovations and Intellectual property ■ Life science market economics ■ Entrepreneurship and commercialization ■ Technology transfer and licensing ■ Basic and applied Botany, Zoology, Physiology, Physics, and Chemistry

publisher: The Institute of Integrative Omics and Applied Biotechnology (http://www.iioab.webs.com)

date: 2010-07-18 17:36:25

type: e-Journal/Publication

identifier: http://www.iioab-journal.webs.com/

coverage: Purba Medinipur

50) Kautilya

publisher: Indira Gandhi Institute of Development Research, Mumbai (http://www.igidr.ac.in)

date: 2006-02-27 10:48:54

type: Research Institutional or Departmental

identifier: http://oii.igidr.ac.in:8080/dspace

coverage: Mumbai

51) KNooR(KNOWLEDGE REPOSITORY OPEN NETWORK)

Subjects : Psychology, Statistics, Political science (General), Law, (General), Education (General), English, Indo-Iranian, Electronic computers. Computer science, Medicine (General), Agriculture (General) Engineering (General). Civil engineering (General), Library Science. Information Science

description: It is an 'Open Access Repository' of contributions emanating presently from three premier academic and research institutes of the J&K(viz. S.K Institute of Medical

Sciences, S.K University of Agricultural Science & Technology and University of Kashmir) to harvest voluntarily research papers, ETD and conference proceedings of their faculty, scientists and scholars and aggregate them in the Repository for making them visible to interested scholarly community at global level . This is particularly addressed to open access contributions at full text level and other licensed items at the abstract level .This will help to add to transparency, creditability besides archiving electronically the valuable contributions for the posterity. The repository is has been developed, maintained and regulated by Department of Library & Information Science (University of Kashmir) on behalf of all the participating institutions in collaboration with Directorate of IT&SS (University of Kashmir).

publisher: University of Kashmir (http://www.kashmiruniversity.net)

publisher: SKIMS (http://www.skims.ac.in)

publisher: SKUAST(Kashmir)(http::://skuastkashmir.ac.in)

date: 2011-08-25 05:42:39

type: Research Multi-institution Repository

identifier: http://dspaces.uok.edu.in:8080/dspace

coverage: Srinagar(HAZRATBAL)

52) Knowledge Repository of Indian Institute of Horticultural Research

description: This site provides access to the research output of the institution. Many item are not available as full-text. The interface is in English.

publisher: Indian Institute of Horticultural Research (http://www.iihr.res.in/)

date: 2011-01-09 16:12:14

type: Research Institutional or Departmental

identifier: http://www.erepo.iihr.ernet.in/

53) Knowledge Repository Open Network(KNoor)

description: This site provides access to the research output from research institutes of the J&K (viz. S.K Institute of Medical Sciences, S.K University of Agricultural Science; Technology and University of Kashmir). The interface is available in English. Many items are available as abstracts only.

publisher: University of Kashmir (http://www.kashmiruniversity.net/)

date: 2011-08-21 15:12:10

type: Research Multi-institution Repository

identifier: http://dspaces.uok.edu.in:8080/dspace/

54) KR@CIMAP

publisher: Central Institute of Medicinal and Aromatic Plants (www.cimap.res.in)

date: 2008-10-25 08:46:59

type: Research Institutional or Departmental

identifier: kr.cimap.res.in

coverage: Lucknow

55) Librarians' Digital Library

date: 2004-01-17 00:00:00

type: Research Cross-Institutional

identifier: https://drtc.isibang.ac.in/

coverage: Bangalore

56) Madurai Kamaraj University Repository

publisher: MADURAI KAMARAJ UNIVERSITY (http://www.mkuniversity.org/)

date: 2009-11-05 13:02:13

type: Research Institutional or Departmental

identifier: http://eprints.mkuoa.in/

57) Mahatma Gandhi University - Online THESIS Search

description: The First Online Digital Library covering more than 800 theses in Sanskrit, Malayalam, Hindi and English devoted entirely for the Theses collection of a University in India

publisher: Mahatma Gandhi University (http://www.mguniversity.edu/home.htm)

date: 2008-11-29 17:32:47

type: e-Theses

identifier: http://mgutheses.org/

coverage: Dublin

58) NAL-IR

description: NAL's Institutional Repository is the digital archive of the research output of our scientists. This knowledge base covers journal articles, conference papers, technical reports, presentation/iectures, preprints, Thesis, images etc.

date: 2004-11-09 00:00:00

type: Research Institutional or Departmental

identifier: http://nal-ir.nal.res.in/

coverage: Bangalore

59) National Center for Antarctic Research , Goa , India

description: Developed by Dr. R. S. Gad, Goa University, Goa, India.

publisher: National Center for Antarctic Research (http://www.ncaor.gov.in/)

date: 2006-11-13 05:32:08

type: Research Institutional or Departmental

identifier: http://dspace.ncaor.org:8080/dspace/

coverage: Vasco-Da-Gamma

60) National Centre for Catalysis Research (IIT): Catalysis Database

description: The repository of National Center for Catalysis Research, IIT Madras

date: 2007-02-04 14:40:53

type: Research Institutional or Departmental

identifier: http://www.eprints.iitm.ac.in/

coverage: Chennai

61) National Chemical Laboratory - Pune

date: 2005-03-31 06:44:06

type: e-Theses

identifier: http://dspace.ncl.res.in/

62) National Institute of Immunology (NII), India

publisher: National Institute of Immunology (http://eprints.nii.res.in/cgi/oai2?verb=Identify)

date: 2008-11-01 00:02:49

type: Research Institutional or Departmental

identifier: http://eprints.nii.res.in/p

63) National Institute of Oceanography, India

date: 2006-04-06 07:42:50

type: Research Institutional or Departmental

identifier: http://drs.nio.org/

64) National Institute of Technology, Rourkela, India

description: Dspace@nitr collects, preserves and disseminates the intellectual output of NITR to the global audience. Presently, it archives journal articles, pre-prints and conference papers authored by NITR researchers.

date: 2005-05-18 11:19:40

type: Research Institutional or Departmental

identifier: http://dspace.nitrkl.ac.in/dspace/

65) National Science Digital Library at NISCAIR, India: Home

subjects: Anthropology, Physics, Chemistry, Geology, Botany, Zoology, Immunology, Virology, Pharmacy and Materia medica, Agriculture (General), Books. Writing. Paleography, Library Science. Information Science

description: National Science Digital Library (NSDL) aims at providing comprehensive S&T information to students of science, engineering and technology. Begun as a Tenth Five Year Plan Network Project of Council of Scientific and Industrial Research (CSIR), India, NSDL is the only one of its kind that provides curriculum based content to address the information needs of the undergraduate students of science. The content creation and development for NSDL has gone through rigorous procedures to make available quality content for the students. Authored by eminent teachers and validated by renowned faculty in Indian universities and colleges, NSDL envisages to bring finest content to the students. The users can freely Downloads E-books on subject areas like agriculture, anthropology, biochemistry, botany, chemistry, geology, horticulture, industrial chemistry, library science, mathematics, microbiology,

pharmacy, physics, polymer science, statistics and zoology.

publisher: National Institute of Science communication and Information Resources (http://www.niscair.res.in)

date: 2010-02-23 10:29:10

type: Learning and Teaching Objects

identifier: http://nsdl.niscair.res.in

coverage: New Delhi

66) NISCAIR ONLINE PERIODICALS REPOSITORY (NOPR)

publisher: NISCAIR -National Institute of Science Communication and Information Resources (http://www.niscair.res.in/)

date: 2008-02-18 04:30:12

type: Research Institutional or Departmental

identifier: http://nopr.niscair.res.in/

67) title: - Open Access Digital Repository of Ministry of Earth Sciences, Government of India

subject: Geology

description: ePrints@MoES repository collects, preserves and disseminates in digital format the research output created by the MoES research community. It enables the MoES community to deposit their preprints, postprints and other scholarly publications using a web interface, and organizes these publications for easy retrieval. While eprints@MoES can be accessed by anybody, submission of documents to this repository is limited to the MoES research community only. ePrints@MoES repository is running on EPrints open archive software, a freely distributable archive system available from eprints.org. ePrints@MoES complies with the Open Archives Initiative (OAI) framework allowing publications to be easily indexed by web search engines and other indexing services.

publisher: Ministry of Earth Sciences, Government of India (http://dod.nic.in/)

date: 2009-10-06 12:41:52

type: Research Cross-Institutional

identifier: http://moeseprints.incois.gov.in/

coverage: Hyderabad

68) Open Access Repository of Indian Theses

publisher: CSIR Unit for Research and Development of Information Products, Pune (http://urdip.res.in)

date: 2009-07-02 05:34:38

type: e-Theses

identifier: http://eprints.csirexplorations.com/

coverage: Pune

69) Open Access: Agriculture Research Repository

subject: Agriculture (General)

description: This repository is built with the intention of accumulating agriculture related research papers around the globe under one single umbrella. Content here in this repository are semantically cataloged.

publisher: ICRISAT (http://www.icrisat.org/)

date: 2010-02-10 09:42:00

type: Research Cross-Institutional

identifier: http://www.agropedia.net/openaccess

coverage: Kanpur

70) OpenMED@NIC

date: 2005-03-22 00:00:00

type: Research Cross-Institutional

identifier: http://openmed.nic.in/

coverage: New Delhi

71) Physical Research Laboratory Library

description: Total number of documents are about 1400 and consists of Journal articles, Phd theses and Technical Reports

publisher: Library & Information Services

date: 2009-08-13 23:07:01

type: Other

identifier: http://www.prl.res.in/~library

coverage: Ahmedabd

72) Rajiv Ghandi Center For Biotechnology

date: 2006-05-04 10:48:14

type: e-Journal/Publication

identifier: http://www.rgcb.res.in

coverage: Cochin

73) Raman Research Institute Digital Repository

date: 2005-04-19 05:50:47

type: Research Institutional or Departmental

identifier: http://dspace.rri.res.in/

coverage: Bangalore

74) S.V. National Institute of Technology Repository

publisher: S.V. National Institute of Technology (http://www.svnit.ac.in)

date: 2008-04-30 06:25:17

type: Research Institutional or Departmental

identifier: http://eprints.svnit.ac.in/

coverage: Surat

75) Scholarly publications from Indian Institute of Spices Research, Kozhikode (Calicut), INDIA

subjects: Botany, Zoology, Virology, Agriculture (General), Plant culture

description: A collection of research articles, book chapters, project reports, annual reports and other publications from Indian Institute of Spices Research (IISR), a premier research Institute under Indian Council of Agricultural Research (ICAR)

publisher: Indian Institute of Spices Research (http://www.spices.res.in)

date: 2010-06-17 07:23:30

type: Research Institutional or Departmental

identifier: http://220.227.138.214:8080/dspace/index.jsp

coverage: Kozhikode

76) ShodhaGanga: A resevior of Indian Theses

description: This site provides users with access to the student research of several institutions within India. Users may set up RSS feeds to be alerted to new content. The interface is available in English.

publisher: Information and Library Network Center (http://www.inflibnet.ac.in/)

date: 2011-10-23 15:12:17

type: Other

identifier: http://shodhganga.inflibnet.ac.in/

77) Siddha Articles

description: Siddha Papers.com is an Open Access service. It is formed in order to serve as a platform for Siddha Doctors, Experts, Researchers, Students and for all who can contribute to the Scientific development of the Ancient Siddha Science. Here authors / owners can self-archive their scientific and technical documents. These could be peer-reviewed preprints, postprints (refereed journal paper) and accepted theses. In case of non-English documents, descriptive data [Author, Title, Source etc.], abstract and keywords must be in English. Submitted documents will be placed into the submission buffer and would become part of Siddha Papers.com after review/evaluation by Editorial Committee or two assigned members of the committee. Inclusion in Siddha Papers gives no assurance of any kind regarding the correctness or quality of the information. The Copyright of the article lie with the Authors.

publisher: Bethesda CAM Research Center (http://www.freewebs.com/bethesdacam/)

date: 2007-11-09 11:41:46

type: e-Journal/Publication

identifier: http://www.freewebs.com/siddhapapers/

coverage: Tamilnadu

78) Vidya Prasarak Mandal - Thane

description: This site provides access to the research and teaching output of the institution. The interface is available in a mixture of English and Marathi.

publisher: Vidya Prasarak Mandal (http://www.vpmthane.org/)

date: 2011-01-23 16:12:50

type: Research Institutional or Departmental

identifier: http://dspace.vpmthane.org:8080/jspui/index.jsp

79) Welcome to Eprints@CMFRI

publisher: Central Marine Fisheries Research Institute (http://www.cmfri.org.in)

date: 2010-02-25 17:48:26

type: Research Institutional or Departmental

identifier: http://eprints.cmfri.org.in

coverage: Cochin

80) Welcome to ethesis@nitr - ethesis

publisher: National Institute of Technology Rourkela

publisher: http://www.nitrkl.ac.in/

date: 2009-04-17 15:12:55

type: e-Theses

identifier: http://ethesis.nitrkl.ac.in/

coverage: Rourkela

The *Open*DOAR service provides a quality-assured listing of open access repositories around the world. *Open*DOAR is primarily a service to enhance and support the academic and research activities of the global community. *Open*DOAR maintains a comprehensive and authoritative list of institutional and subject-based repositories. It also encompasses archives set up by funding agencies like the National Institutes for Health in the USA or the Welcome Trust in the UK and Europe. *Open*DOAR has opted to collect and provide information solely on sites that wholly embrace the concept of open access to full text resources that are of use to academic researchers. Thus sites where any form of access control prevents immediate access are not included: likewise sites that consist of metadata records only are also declined. There are fifty-three open access repositories under OpenDOAR. Some of them are available both under ROAR and OpenDOAR. The organizations along with their repositories with their URL's under OpenDOAR are listed as under:-

- **Central Drug Research Institute (CDRI)** - http://www.cdriindia.org/home.asp

1.   Digital Knowledge Repository of Central Drug Research Institute (DKR@CDRI)

http://dkr.cdri.res.in:8080/dspace

- **Central Marine Fisheries Research Institute (CMFRI)** - http://www.cmfri.com/

1.   CMFRI Digital Repository (Eprints@CMFRI)

http://eprints.cmfri.org.in/

- **Cochin University of Science & Technology (CUSAT)** - http://www.cusat.nic.in/

1.   Dyuthi (Digital repository of Cochin University of Science & Technology)

http://dyuthi.cusat.ac.in/

- **CUSAT (Cochin University of Science and Technology)** - http://www.cusat.ac.in/

1.   DSpace at CUSAT

http://dspace.cusat.ac.in/

- **Delhi Technological University** - http://www.dce.edu/

1.   Delhi College of Engineering Repository

http://www.dspace.dce.edu/

2.   Institutional Repository of Intectual Contributions of Delhi Technological University

http://www.dspace.dce.edu/

- **Gokhale Institute of Politics and Economics (GIPE)** - http://www.gipe.ac.in/

1.   Dhananjayarao Gadigil Library

http://library.gipe.ac.in/jspui/

- **Guru Gobind Singh Indraprastha University** - http://ggsipu.nic.in/

1.   DSpace @ GGSIPU

http://14.139.60.216:8080/xmlui/

- **ICFAI Business School** - http://www.ibsindia.org/

1.   DSpace at IBS Ahmedabad (DSpace@IBSA)

http://202.131.96.59:8080/dspace

- **Indian Academy of Sciences** - http://www.ias.ac.in/

1.   Indian Academy of Sciences: Publications of Fellows

http://repository.ias.ac.in/

- **Indian Agricultural Research Institute (IARI)** - http://www.iari.res.in/

1.   Eprints@IARI

http://eprints.iari.res.in/

- **Indian Institue of Technology, Bombay (IITB)** - http://www.iitb.ac.in/

1.   Dspace at IIT Bombay (DSpace@IITB)

http://dspace.library.iitb.ac.in/jspui/

2.   DSpace at NCRA

http://ncralib.ncra.tifr.res.in:8080/dspace/

- **Indian Institute of Astrophysics** - http://www.iiap.res.in/

1.   Indian Institute of Astrophysics Repository (DSpace@IIA)

http://prints.iiap.res.in/
- **Indian Institute of Horticultural Research (ICAR)** - http://www.iihr.res.in/

1.   E-Repository@IIHR (Knowledge Repository of Indian Institute of Horticultural Research)

http://www.erepo.iihr.ernet.in/·
- **Indian Institute of Management Kozhikode (IIMK)** - http://www.iimk.ac.in/

1.   DSpace at Indian Institute of Management Kozhikode (DSpace@IIMK)

http://dspace.iimk.ac.in/

2.   Indian Institute of Management Kozhikode Digital Library.

http://www.iimk.ac.in/gsdl/cgi-bin/library
- **Indian Institute of Petroleum, Dehradun** - http://www.iip.res.in/

1.   Indian Institute of Petroleum Institutional Repository

http://library.iip.res.in:8080/dspace
- **Indian Institute of Science, Bangalore (IISc)** - http://www.iisc.ernet.in/

1.   Electronic Theses and Dissertations at Indian Institute of Science (edt@IISc)

http://etd.ncsi.iisc.ernet.in/

2.   Open Access Repository of IISc Research Publications (ePrints@iisc)

http://eprints.iisc.ernet.in/
- **Indian Institute of Technlogy Roorkee, India** - http://www.iitr.ac.in/

1.   Bhagirathi (IIT Roorkee Repository)

http://bhagirathi.iitr.ac.in/dspace
- **IIT Kanpur (Indian Institute of Technology Kanpur)** - http://www.iitk.ac.in/

1.   Open Access Agricultural Research Repository (OpenAgri)

http://www.agropedia.net/openaccess
- **Indian Institute of Technology, Delhi (IITD)** - http://www.iitd.ernet.in/

1.   EPrints@IITD

http://eprint.iitd.ac.in/dspace/
- **Indian Statistical Institute, Bangalore Centre (ISI)** - http://www.isibang.ac.in/

1.   Digital Library at Indian Statistical Institute, Bangalore (ISI Library)

http://library.isibang.ac.in:8080/dspace/

2.   Librarians' Digital Library (LDL)

https://drtc.isibang.ac.in/
- **Indira Gandhi Institute of Development Research (IGIDR)** - http://www.igidr.ac.in/

1.   Kautilya Digital Repository at IGIDR (Kautilya@igidr)

http://oii.igidr.ac.in:8080/dspace

- **Indira Gandhi National Open University (IGNOU)** - http://www.ignou.ac.in/

1.   eGyankosh

http://www.egyankosh.ac.in/

- **Information and Library Network Center (INFLIBNET)** - http://www.inflibnet.ac.in/

1.   DSpace@INFLIBNET

http://ir.inflibnet.ac.in/

2.   ShodhGanga: A resevior of Indian Theses

http://shodhganga.inflibnet.ac.in/

- **Information Centre for Aerospace Science and Technology (ICAST)** - http://www.icast.org.in/

1.   National Aerospace Laboratories Institutional Repository (NAL Repository)

http://nal-ir.nal.res.in/

- **Institute of Mathematical Sciences** - https://www.imsc.res.in/

1.   DSpace@IMSC

http://www.imsc.res.in/xmlui

- **International Crops Research Institute for the Semi Arid Tropics (ICRISAT)** - http://www.icrisat.org/

1.   ICRISAT Open Access Repository

http://openaccess.icrisat.org/

- **Madurai Kamaraj University (MKU)** - http://www.mkuniversity.org/

1.   Eprints@SBT MKU

http://eprints.bicmku.in/

- **Mahatma Gandhi University** - http://www.mguniversity.edu/

1.   Mahatma Gandhi University Theses Online

http://www.mgutheses.org/

- **Management Development Institute (MDI)** - http://www.mdi.ac.in/home/home.asp

1.   Management Development Institute - Open Access Repository (DSpace@MDI)

http://dspace.mdi.ac.in/dspace

- **National Centre for Catalysis Research (NCCR)** - http://www.nccr.iitm.ac.in/

1.   Catalysis Database (ePrints@NCCR)

http://www.eprints.iitm.ac.in/

- **National Informatics Centre (NIC)** - http://home.nic.in/

1.   OpenMED@NIC

http://openmed.nic.in/

- **National Institute of Immunology (NII)** - http://www.nii.res.in/
1. *ePrints@NII*

http://eprints.nii.res.in/

- **National Institute Of Oceanography (NIO)** - http://www.nio.org/
1. *DRS at National Institute Of Oceanography (DRS@nio)*

http://drs.nio.org/

- **NISCAIR (National Institute of Science Communication and Information Resources)** -http://www.niscair.res.in/
1. *National Science Digital Library (NSDL)*

http://nsdl.niscair.res.in/

2. *NOPR (NISCAIR Online Periodical Repository)*

http://nopr.niscair.res.in/

- **National Institute of Technology, Rourkela (NITR)** - http://www.nitrkl.ac.in/
1. *Dspace@NITR*

http://dspace.nitrkl.ac.in/dspace/

- **National Metallurgical Laboratory** - http://www.nmlindia.org/
1. *Eprint@NML*

http://eprints.nmlindia.org/

- **Pandit Deendayal Petroleum Univeristy (PDPU)** - http://www.pdpu.ac.in/
1. *DSpace@PDPU*

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- **Raman Research Institute** - http://www.rri.res.in/
1. *RRI Digital Repository (Raman Research Institute Digital Repository)*

http://dspace.rri.res.in/

- **Sardar Vallabhbai National Institute of Technology (SVNIT)** - http://www.svnit.ac.in/
1. *ePrints@SVNIT (Sardar Vallabhbai National Institute of Technology EPrints)*

http://eprints.svnit.ac.in/

- **Saurashtra University** - http://www.saurashtrauniversity.edu/
1. *Etheses - A Saurashtra University Library Service*

http://etheses.saurashtrauniversity.edu/

- **SDM College Of Engineering and Technology Dharwad** - http://www.sdmcet.ac.in/
1. *dspace @ sdmcet*

http://210.212.198.149:8080/jspui

- **Thapar University (TU)** - http://tiet.ac.in/

1. DSpace@TU

http://dspace.thapar.edu:8080/dspace/

- **University of Delhi** - http://www.du.ac.in/

1. DU Eprint Archive

http://eprints.du.ac.in/

- **University of Kashmir** - http://www.kashmiruniversity.net/

1. Knowledge Repository Open Network (KNoor)

http://dspaces.uok.edu.in:8080/dspace/

- **University of Mysore** - http://www.uni-mysore.ac.in/

1. DSpace at Vidyanidhi

http://dspace.vidyanidhi.org.in:8080/dspace/

- **Vidya Prasarak Mandal** - http://www.vpmthane.org/

1. Vidya Prasarak Mandal - Thane

http://dspace.vpmthane.org:8080/jspui/index.jsp

6 Findings

On analyzing the results of both these open access repositories it has been noticed that while ROAR can provide a graphical representation of the cumulative growth of records in Indian open access archives over the last few years, OpenDOAR has subject and content type classification potentially useful to librarians. A majority of these repositories are devoted to engineering, medicine, science and technology. Some of them are multidisciplinary. Surprisingly it was found that in OpenDOAR only four repositories have library and information science in the subject field and in ROAR only three of them have so. Repositories are broadly classified under E-print archives, ETDs and E-journals. In ROAR the repositories are grouped into six major groups. In India among the eighty registered repositories fifty-four (54) are Departmental or Institutional research repositories, Two (2) are Multi- institution research repository, six (6) cross-institutional research repository, four (4) are e-journal/ publication repository, six (6) are e-theses repository and three (3) learning and teaching objects repository. Apart from this five (5) which cannot be grouped under any of the six above are identified as other repositories. The software used for both ROAR and OpenDOAR is either Eprints or DSpace in maximum of cases. Like ROAR for its eighty repositories uses software as follows:-

1) EPrints- 23

2) DSpace- 46

3) Greenstone- 2

4) Open repository- 1

5) Other software (various)-7

OpenDOAR for its 53 repositories is found to use the software as follows:-
1) DSpace- 37
2) EPrints- 13
3) Nitya- 1
4) Not Specified- 2
The maximum activity and the maximum number of records (32370) is found in the Indian Institute of Science, Bangalore from ROAR. However there was no provision to find out the maximum activity from OpenDOAR repository.

7 Conclusion

Open access to Indian research has progressed over the years but when compared to the western world it can be said to be in its infancy. Due to somewhat conservative nature of the Indian scholarship, they still think their efforts would be useless if their expertise is available as open access. They prefer publishing their articles in print peer-reviewed journals and earn recognition. Also they have the attitude of not sharing their scholarly ideas with the outside world. The institutions sometimes are reluctant in giving a platform for sharing ideas to their academic excellencies. They feel to turn out less important if they share their excellence. But for wide visibility and appropriate recognition of talent it is felt that open access is the need of the hour.

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Television News Librarianship: Importance and Prospect

*Soumen Mallik**

Abstract

Television is the major communication media in India. Television news informs about current events supported with images and videos and disseminates the news information via the medium of television. News is a commodity and the contemporary news providers treat news as a product shaped by forces of supply and demand. The Indian television news business market is envisioning an astonishing growth. Researchers of the news media discuss the 'framing' of events and issues. The 'frame-building' process manifests a core idea into interpretative packages or a 'media package' of an issue. The analysis on Aajtak Hindi news channel reveals that about 42% of news programs are consolidated and repackaged news information telecast during 12 noon to 12 at midnight in a day. The news librarianship is expected to be carrying out the crucial information processing activities in future news telecast business. The expanded domain of news librarianship may be described as: transformation from information provider to the dynamic information analyzer, document description to content manifestation. The sensational qualities of television news programs are described by theorists as a threat to theoretical journalism. The future of television news program emphasizes on information processing activities to design attractive media content without violating the journalistic principles. News librarianship is predicted to be important to overcome this limitation of theoretical journalism.

1 Introduction

Transmission of information is the primary requirement of a civilized society. The evolution of human civilization and development of mankind has been driven by the establishment of information communication system. Information communication facilitates diffusion of information, assimilation of knowledge and encourages innovation. The communication media transfers information from its origin to its actual user. There are several communication media and the kind and nature of such media are identified by the type of information, form of presentation and designing of the content which is again dependent on characteristics of the target user community. Television has been found to be the major communication media in India. According to a study of the Indian National Science Academy (INSA) in 2005, about

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57% of the Indian population has preferred television as the primary source of information. Nevertheless, about 65% of the Indian postgraduate population acquires information primarily from television (1). The news on television called "news bulletin" or "newscast" refers to the updates on world, national, regional or local news events. Television news informs about current events supported with images and videos and disseminates the news information via the medium of television. The news production processes comprises of following activities: collection of information, management of the collected information and dissemination of the information in the form of news to its viewers. Journalists collect primary news information from the field of incidence or press releases in the form of recordings supported with audio, video images, etc. The management activity of collected news information are editing and storing for subsequent retrieval of desired information and finally the information is disseminated to the viewers. The collected information is potential to be used for ever, thus, organizing and storing of every newscast is important for future retrieval. The information activities in news librarianship confined to the systematic organizing, technical description of the resources and efficient retrieval of information. News programs are no longer just sitting in front of camera and reading of days' important events. News readers are transforming into news anchors and contemporary news programs are news shows with essence of entertainment. The Indian television news business market is envisioning an astonishing growth with about 51 Hindi and English news channels along with 65-70 channels in other regional languages. The development has probably triggered by the democratic character of Indian society. However, the most vibrant Indian television news market continues to incorporate new entrants as another 90 licenses have been issued. The immensely competitive Indian news industry has been credited with numerous innovative news programs. New generation news telecasts presents dramatized, analyzed, consolidated and repackaged news programs which are indicative towards increased importance of news librarianship. NT Awards for Indian news channels acknowledges the impact of new generation innovative and consolidated news programs. In purview of this transition in news programming the present study discusses the importance and prospect of news librarianship with its expertise in information activity.

2 Review of Literature

The television news programs were initiated with reading of news events by the news readers often supported by a map or still photo. The television news broadcasts gradually supplemented with film and the evolution is described by Matusow (2). With the advent of film, which was replaced by videotape in the early to mid-1970s, along with the written script the recorded moving visual image was found to be included as an additional source of storytelling material in television news broadcasting. Furthermore, due to public appetite and

its own proven economic viability, news of television has since grown to the point where news channels telecast more news programming than ever before **(3)** The contemporary television news channels broadcast news information round the clock and reaches the audience across the globe. The nature of news program varies from processed news items to real-time broadcasts of news information directly from its place of origin which is called a live telecast. News broadcasts have adopted traits from the entertainment world. The term 'entertainment' used for the purpose of attracting and keeping the viewers hooked to the screen which is of an entertaining in nature. If entertainment can be defined as something that engages and excites people, and even provokes them, then the contemporary news broadcasts represents a blend of both news and entertainment world. Carl Bernstein critically analyzed the contemporary news programming and described the transformation as a shift change from real journalism towards the creation of an infotainment culture. **(4).** The entertaining packaging and content of news is justified by Mendoza and subsequent researches accept that dissemination of news information by television channels is transformed into an effective and economically viable information business **(5).** Researchers define news as a manufactured product of journalists. Gieber, Fishman, Cohen & Young along with other social scientists are also strongly believe that news are 'made' or 'constructed' following methodologies employed by news workers. Tuchman convincingly explains the notion 'story' which is very often substitute the term 'news' with the argument that news also is a constructed reality which posses its own internal validity like all public documents **(6).** In business news journalism, story ideas are frequently drawn from "the routine flow of corporate and economic news releases". Journalists play the role of interpretive agents. News writings are the reproductive descriptions which transforms news discourses such as press agency copy, press releases and interview notes into a single narrative, authoritative account of a news event. Selection of news information primarily dependent to the journalistic activity and target audience. The two essential processes of news selection as explained by Gans are availability of news which relates journalists with sources and the suitability of news which ties journalists to audiences **(7).** The news media is experiencing a robust growth of dynamic viewer community with their diversified information thrust. The media is the cornerstone institution of democracy and immensely influential to the mass population. Researchers of the news media are carrying out studies to shape up public opinion by means of 'framing' the events and issues. The notion of framing has gained momentum in the communication disciplines, providing guidance to both investigations of media content and to studies of the relationship between media and public opinion. Presentation of communication source and defining an issue are the two basic aspects of 'framing'. Framing concept focus on dynamic nature of communication processes which involve two fundamental components: 'frame-building' to describe how frames are emerges and 'frame-setting' to

discuss the interrelation between media frames and audience predispositions. According to Shoemaker & Reese 'frame-building' refers to the factors that influence the structural qualities of news frames. Factors internal to journalism determine how journalists and news organizations frame issues. Gans and Tuchman opines that 'frame-building' process takes place in a continuous interaction between journalists, professionals and social movements(8). The outcomes of the frame building process are the frames manifested in the text. Gamson & Modigliani define 'frames' as interpretative packages containing a central organizing idea that give meaning to an issue. According to them the interpretative packages provide a way to understand the meaning to unfolding strip of events or issue described as the central organizing idea or story line and weaving a connection among them. Thus the frame may be described as the essence of the issue which makes sense of relevant events, explains the issue and suggests what the controversy is about. In short, a frame is an emphasis in salience of different aspects of a topic. (9). Cappella & Jamieson postulated four fundamental characteristics to identify a frame. First, a news frame must have identifiable conceptual and linguistic characteristics. Second, it should be commonly observed in journalistic practice. Third, it must be possible to distinguish the frame reliably from other frames. Fourth, a frame must have representational validity (i.e. be recognized by others) and not be merely a figment of a researcher's imagination (10). Entman and Shah et al. suggest the constituent components of a frame in a news story and these are: the presence or absence of certain keywords, choices about language, stock phrases, quotations and relevant information, stereotyped images, sources of information and sentences that provide thematically reinforcing clusters of facts or judgments. Frames emerge from the material during the course of analysis. Thus, analysis of the news content followed by consolidation of information are two important intellectual activities in frame building (11, 12, 13). The five framing devices namely metaphors, exemplars, catch-phrases, depictions, and visual images are identified by Gamson and Modigliani for consolidation and repackaging of news information. Tankard offered the most comprehensive empirical approach in framing mechanism by suggesting a list of following 11 focal points for identifying and measuring news frames: headlines, subheads, photos, photo captions, leads, source selection, quotes selection, pull quotes, logos, statistics and charts, and concluding statements and paragraphs(14).

Therefore, the frames are specific textual and visual elements or 'framing devices'. These elements are essentially different from the remaining news story which may be considered core news facts. This has been argued by Price et al. that introductory and concluding paragraphs to establish a unique journalistic frame should comprising of information exclusive to the frame while the other paragraphs in the news articles were kept identical (15). The argument emphasizes on information activity on totality of the news story and demands active intervention

of information professionals in the process of frame building. Neuman et al. are also advocate of the same apprehension and their content analysis divided news articles into 'frames' and 'facts' containing sections **(16, 17)**. The studies of framing effects by Cappella & Jamieson, Iyengar, Price et al., Valentino et al. and deVreese has effectively described the distinction between core elements and frame-carrying elements and emphasizes the required information processing skills in repackaging of consolidated news products or news frames **(18)**.

3 Objectives

i.   to analyse the present trends of television news programs
ii. to explore the nature of information activity in news programs
iii. to identify the prospect of television news librarianship

4 Scope

The study explores the information activity on news programs of Aaj Tak Hindi News Channel.

5 Methodology

The study is based on experience in information activity of author. The experience as a television news viewer is supportive in analyzing the different news presentations. Review of literature on production of news contents has been carried out. The NT Awards 2011 for Indian television channels has been considered as the basis for selecting Aaj Tak Hindi News Channel for the present study. The News Television Awards (NT Awards) is instituted by an online information and interactive service the Indiantelevision.com which focus on the Indian television and media business. The NT Awards are supported and attended by all the news TV channels and professionals from the news business. The awards are selected by juries comprising peers of the staffers of various television news channels. The Hindi news channel Aajtak has been found to be awarded by NT Awards 2011 as the most popular Hindi News channel **(19)**. The news programs of Aajtak have been selected for a detailed study. Popular news programs as described on the website of Aajtak has been studied. These news programs are analysed to following aspects in news telecast:

a) The type of news information- Primary, Secondary or Tertiary
b) Information Activity – Direct Telecast or Consolidated and Repackaged information
c) Subject of Programs

A database is prepared to store the collected data and their subsequent analysis.

The news broadcasts scheduled between 12 Noon to 12 at midnight for at least three days in a week are analysed. The air time of these programs are studied in respect of the twelve hours during 12 Noon to 12 at midnight to calculate the Program Share (PS) of each

category of news telecast. All the results are discussed in per cent.

6 Result and Discussion

The analysis of news programs of Aajtak news channel reveals that there are eleven news programs which telecast for at least three days in a week during 12 noon to 12 at midnight in a day. The result also shows that the subjects of the programs are diverse in nature covering economics, politics, health, lifestyle, entertainment etc. The analysis of news telecast shows varied degree of information activity. (Table-1)

Sl No	Program Title	Type of Information	Information Activity	Subject	Time of Telcast
1	About Astro Uncle	Primary information	Direct Telecast	Astrology	2.00 PM
2	Shash Bahu Aur Betiya (Mother-in-law and daughters)	Tertiary Information	Consolidated and Repackaged	Entertainment news on different TV channels.	2.30 PM
3	Dharm (About religion)	Primary information	Direct Telecast	Religious	3.30 PM
4	Movie Masala	Tertiary Information	Consolidated and Repackaged	Entertainment on Indian cinema.	5.30 PM
5	India about -360	Secondary Information	Consolidated and Repackaged	Social, Economic, political, lifestyle etc.	7.00 PM
6	Desh Pradesh (About the state)	Secondary Information	Consolidated and Repackaged	Country - State regional reports	7.00 PM
7	Special Report	Secondary Information	Consolidated and Repackaged	News Analysis	8.00 PM
8	Vishesh (Special About)	Secondary or Tertiary Information	Consolidated and Repackaged	News (along with dramatization of the news event)	9.30 PM
9	Dus Tak (About 10 to)	Secondary Information	Consolidated and Repackaged	News (consolidated news of the day)	10.00 PM
10	Bardaat (About Crime)	Secondary Information	Consolidated and Repackaged	News on criminal events (along with dramatization of the criminal event)	11.00 PM
11	Mumbai Metro	Secondary Information	Consolidated and Repackaged	News on events of Mumbai	11.30 PM

Table-1: Information processing activities on news programs of Aajtak Hindi News Channel

The analysis of the news broadcasts reveals that about half of the studied period is dedicated in telecast of consolidated and repackaged news programs (frames). The PS for consolidated and repackaged news programs accounts for about 42% during twelve hours of study in Aajtak news channel. The followings PS have been revealed:

i)   About 8% of the airtime is devoted to Astrology and Religious programs

ii)   About 25% of the airtime telecasts Consolidated and Repackaged information of previously aired separate news telecast on particular topics.

iii)   About 8% of the airtime is engaged to Consolidated and Repackaged information on entertainment programs of several other channels.

iv)   The program Bardaat (About Crime) has been found to be an investigative news program on criminal events.

6.1 Type of Information - Three types of information have been found to be telecast on news programs:

6.11 Primary Information- The news programs involves the human source of news information. The human sources are actively involved in dissemination of their nascent thought to the viewers. The news telecast on current happenings from the place of origin is also primary information. e.g. About Astro Uncle, Dharm (About religion), newscasts.

6.12 Secondary Information- The news program or 'frame' is represented as an information package of newscasts. Newscasts of previous telecasts pertaining to a particular incidence or subject are consolidated and repackaged into a single news program. The repackaged program thus consists of secondary information. e.g. Desh Pradesh (About the state), India about -360, Special Report, Vishesh (Special About), Dus Tak (About 10 to), Bardaat (About Crime), Mumbai Metro.

6.13 Tertiary Information- News programs discuss about different program broadcasts of several other channels. These programs discuss about happenings on popular entertainment programs of different television channels and Indian cinema. This type of repackaged news telecast represents the consolidated information of different episodes of entertainment programs broadcast in other channels or information on movies. The information of these news telecasts are helpful to guide the viewers to make their choice to view movies, television programs, and also to keep them updated about current episodes of entertainment programs of several channels of their interest. E.g. Shash Bahu Aur Betiya (Mother-in-law and daughters), Movie Masala.

6.2 Importance of News Librarianship

Etymologically the word 'information' derives from the Latin and its origin rooted in the verb in-formo, which means give form to, form, portray, imagine, instruct, offering, in its root,

possibilities of different interpretations and applications **(20)**. The meaning of the word can be extended to "represent, present, create an idea or notion. In daily use, for the common man, this meaning is increased by the knowledge of a fact, a certainty of something". Thus, information is referred to in the fields of study relative to Mathematics, Computer Science, Library Science, Administration, Politics, Education, Psychology, Communication and Natural Sciences, outlining an interdisciplinary and multidisciplinary view. Nevertheless, it is in the area of social communication, specifically in journalistic endeavors, that one finds, as a final product, information presented in the form of news. Traditionally the library professionals of news library manages information resources which are stored in files, tape or microfilm, or in computers for use by news and editorial staff. The responsibility of news librarians comprises of directing the workers engaged in clipping, classifying, cataloging, indexing, storing, editing, and retrieving library information, or performs these activities as needed. The activities includes research, retrieval of information in resource library or commercial data bases in response to requests from news or editorial staff. The resources are organized according to classification system or through the development of computer database for data storage and retrieval to cater the needs of news staff. Management of in-house database of news information, assigning classification terms to news articles, incorporation of news articles into data base, and research on news information in in-house database are the core competencies excerpts by the news library professionals. Managerial duties unique to the news librarianship include management of graphics library, assigning classification terms to graphics, research on graphics, promotion and marketing of library products and services to the public, etc. Besides the above mentioned core competencies the news librarians are also required to carry out other housekeeping activities like coordinating the activities of library with activities of other departments, preparation of library budgets, acquisition of reference books and other documents, maintenance of records, generating usage data of databases, recruitment of staff, human resource development, staffing, scheduling, and performance evaluation of library staff.

Television news broadcasting business create markets for their news products telecasting across the community and cultures. The news programs are information product created as news frames. The news programs are designed with compliance to management decision, technical competencies, technological compatibility and infrastructure support. The constituent activities of news program design includes : strategic planning, innovation, quality management, in-depth analysis of news events and consequences, selection of subjects, efficient consolidation of information, repackaging of information, presentation design, viewers feedback analysis and news framing techniques. The news program analysis of Aajtak are the supportive evidence of in depth information processing. The journalists collect news information, then the information is processed with journalistic expertise, and finally the issue is telecasted as news

bulletin. The additional responsibilities of contemporary news librarianship extended to the packaging and content designing of news. The identical activities of news librarianship confined to consolidation of content whereas designing the form of news information is a journalistic activity. The content analysis of Aajtak news channels reveals a balanced emphasis on both compelling and dramatic stories (crime, accidents, disaster) and serious news content (politics, economics, healthcare, education). The critics of journalism have argument that the form giving features add a sensational quality to contemporary television reports which does not serve the mission of journalism. These critical concerns of journalism overlooked the desire and taste of masses who are the consumers of news information. The dilemma of theoretical journalism should not be supplemented with ignorance to the fact that prevalence of repackaged news content broadcasts effects on viewer memory **(21).** In contrast to the conflict of journalism regarding form of news presentation the theories of information processing concentrates on influence of news on viewers, reliability of news information, comprehensiveness and assimilation of information. The importance of news librarianship with expertise in information analysis and repackaging is emphasized to match the expectation and predisposition of the news consumers because the television news has focused on matters related to content—not form.

6.3 Prospect of News Librarianship

News is a commodity and the contemporary news providers treat news as a product shaped by forces of supply and demand. Therefore, the role of entertainment in news coverage may be supported by market models to predict the content of news and evaluate its impact on society. The media economics explains that news coverage is driven by the consumers' desires. News stories answers five fundamental questions or "five Ws" and these are: who, what, where, when and why. The intrinsic characteristic of a particular piece of information needs to satisfy the different set of five Ws to be qualified as news. Nevertheless, transformation of a piece of information into news is finally relies on the interaction between building blocks of economic models which includes: tastes, endowments, technologies, and institutions. The bits of information are packaged together to form a news story. The 'frame-building' process manifests a core idea into an interpretative packages or a 'media package' of an issue. The news librarianship is expected to be carrying out the crucial information processing activities in future news telecast business. The expanded domain of news librarianship may be described as: transformation from information provider to the dynamic information analyzer, document description to content manifestation. The future news librarianship will be concentrating on the management, retrieval and coordination of relevant 'framing devices'. The transformation in news librarianship is influenced by the extensive

information repackaging activity in news broadcasting business. The professional competencies of news librarianship are presumed to be emphasized in information repackaging services. The challenge to the profession relies in the need to assess the pre and anticipated post service states of the users of repackaged information. The users of news library professionals are of two categories namely – news journalists or news programmers and viewers. The relevant knowledge, journalistic skills and experience of the individual journalist user need to be assessed with reference to the target viewers of the product. Therefore, the services of news librarianship required to be focused on the task and problem situation of clients rather than their query statement. Information repackaging (IR) entails a systematic process of adding value to information services. These value added components would include but are not limited to information analysis, synthesis, editing, translating and transforming its symbolic and media formats. IR also ensures the currency, accuracy, pertinence, comprehensiveness, ease of comprehension (e.g. technical level, presentation style); and convenience of use (e.g. timing, format of coding). An on-going shift in library and information professions from documents to their content and from collections to their users can be envisaged in consonance with information repackaging services of.news business industry. The transformation in news librarianship may be described in purview of extent of information thrust and nature of rendered services. The primitive type of news librarianship provided the first level of information services which involves retrieval of relevant documents or creation of a database or bibliography. The evolution in news librarianship conferred to the next level of information service which entails the analysis and synthesis of information contained in the retrieved sources. The activities may be extended in editing, repurposing and restructuring information through translations, state of the art reports and operational manuals, etc. News librarianship became unique from traditional library services with its emphasis on understanding of task and problem situation of users while traditional librarianship focuses on the query statement of clientele.

7 Conclusion

The television news librarianship is in crossroad. The traditional responsibilities of the profession have remained the same. However, the transition from traditional role as a custodian of library resources to an efficient information analyzer has prevailed. The journalistic conflict has expanded the domain of news librarianship with additional information activities which has been anticipated as an urgent necessity. Contemporary news business industry emphasizes broadcasting of repackaged information and the form of such information packages triggers the conflict of theoretical journalism. News librarianship has been found to be instrumental to overcome the journalistic dilemma.

The 'core' or central organizing idea of a media package is supposed to be a product

of skilled information processing activity by the news library professionals. The central organizing idea of an interpretative package is unfolded as strip of events or issues and the form of presentation is concerned with journalistic activity. The 'story line' or 'core issue' is constructed with several previous newscasts or investigative piece of news information and the information processing activity facilitates a method of weaving to connect them. The representation of the 'story line' or 'core issue' as a sensational media packages are concerned with journalistic activity and theoretical journalism does not approve the contemporary sensational qualities of media packages. The viewers of modern society are extremely occupied although they are equally sincere about current happening under the sun. To expand the horizon of their business the television news providers adopt mechanisms to increase the appeal of their news programs. The resultant contemporary infotainment culture indulges sensational qualities in dramatized representation of news and discipline of journalism contradicts to such representation of news. Attracting viewers is one of the principle objectives of news business, retrieving news information in a more comprehensive format is the viewers' desire, similarly, the choice of news channels is the viewers' freedom, and indulging sensational qualities into media packages are journalistic obligation. The business aspiration of news providers together with the professional responsibilities of journalists is evident at highest possible degree of professional activities. The conflict of theoretical journalism concerns only with form of presentation not the content of journalistic product. The demand of masses for attractive media packages and comprehensive repackaging of serious news is expected to meet by the information professionals with their expertise in information processing activities. The news librarianship requires to be professionally more equipped with technical competencies in - searching of facts that elaborate a story, exploring the history of current events and command in frame building methodologies.

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