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Future of Library and Information Centres in Knowledge Society of India: The Expected Role of Knowledge Professionals

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ABSTRACT

The emerging trends in digital technologies and their applicability to information handling activities added new challenges to knowledge professionals in the way of providing qualitative services to its users. The paper analyses the characteristics of contemporary knowledge society and identified the factors affecting next generation libraries. Examined some of the significant issues in the present day Library and Information System (LIS) like its structure, collection strategy, preservation, access to information, technological issues and modes of communication, etc. It has identified the central role of knowledge professional, in the organisation and dissemination of knowledge, striking a balance of physical and virtual realms.

Keywords: Knowledge society, future of libraries, knowledge professional, knowledge dissemination

1. INTRODUCTION

In the changing scenario of information environment the knowledge professionals have to be more interactive, collaborative and dynamic so that information can be made available to all those who seek it regardless of physical boundaries, formats, and time constraints. The emerging trends in digital technologies and their applicability to information handling activities added new challenges to knowledge professionals.

They have to deal with a growing number of contexts for information like e-commerce, competition intelligence as well as the information needs of ordinary citizens. At the same time they, are expected to deal with the needs of the digital divide, the information poor and the illiterate.

Between the rich and the poor, the haves and the have-nots, demanding business related needs and survival needs, wireless access and lack of basic electricity supplies, knowledge professionals must see how well they can meet the requirements.

They have to foresee their continuing role in contributing to the development of informed citizens, incorporating and utilising new technologies that enhance their endeavours. At the same time they should strike a balance between the traditional role and the new roles.

2. KNOWLEDGE SOCIETY

In the 21st century, a new society is coming into existence where knowledge is the primary factor of production compared to capital and labour. Dr APJ Abdul Kalam, former President of India in his talks to students mentioned that[1] "Efficient utilisation of existing knowledge can create comprehensive wealth for the nation and also improve the quality of life including better education, health care, infrastructure and other societal needs. The ability to create and maintain a knowledge society infrastructure, develop the knowledge workers, and enhance their productivity through the creation, growth, and exploitation of new knowledge, will be the key factors in deciding the prosperity of this knowledge society. Whether or not a nation has developed into a knowledge society is judged by the way it creates and deploys knowledge in all the three sectors of the economy, namely, Agriculture, Manufacturing and Services."

In knowledge society, knowledge forms a major component of any human activity as a major creative force and centre of economy. The developments in technologies have facilitated the access and utilisation of knowledge more effectively than before. Knowledge environment facilitates collaborative knowledge building and decision making. According to Wikipedia[2] the important features of knowledge society are:

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- With current technologies, knowledge societies need not be constrained by geographic proximity.
- Current technology offers much more possibilities for sharing, archiving and retrieving knowledge.
- Knowledge has become the most important capital in the present age, and hence the success of any society lies in harnessing it.

National Knowledge Commission (NKC) recognised that access to knowledge is essential and stated, "Access is one of the most fundamental issues in a knowledge society." NKC in its observation about libraries[3] stated that:

- Library and information services are fundamental to the goals of creating, disseminating, optimally utilising and preserving knowledge.
- Libraries are instrumental in transforming an unequal society into an egalitarian, progressive knowledge society.
- Developments in information communication technology (ICT) have enabled libraries to provide access to all, and also bridge the gap between the local, the national and the global knowledge.

Therefore, in the new society the Library and Information Centres (LICs) have to play role of facilitator and aggregator and the information professionals have to be adaptable and multi-skilled in order to survive in an environment of constant and rapid change.

3. FACTORS AFFECTING NEXT GENERATION LIBRARIES:CHANGING PARADIGM

The speed of present day microprocessors, decreasing size of storage media and moving towards nano storage, global access to Internet, increasing speed of search engines in searching and retrieving information, efficient computing devices have influenced the quality and quantity of data which can be accessed from anywhere at any time. Libner[4] in his vision for the 2012 Library has described:

"we move from a single library to a network of libraries; from one collection to distributed collections; from the catalog interface to multiple interfaces; from books and journals to information fields and streams encompassing traditional and non-traditional forms of scholarly communication. These include such diverse forms and genres as preprints, traditional publications, informal commentary, data sets, software applications, maps, video clips, listserv archives, and web pages – all accessible, at least in principle, anytime and anywhere." Some of the factors, which contributed to the growth of next generation libraries are:

- The way people access information – from traditional library visit to network access from place of his convenience.
- With the convergence of computer technology and telecommunication, the digital media has overtaken print media. There is rapid movement of technologies towards nano storage and real-time access.
- The transition of libraries from information storage and retrieval to information facilitators and aggregators. Instead of ownership of information the present generation gives importance to access to information.
- From information precious library environment to vast, readily and to some extent freely available information society.
- Libraries are going for consortia rather than stand-alone which made possible to have access to more number of journals in science and arts.
- Availability of full-text databases through digitalisation helped to have open access to information rather than closed access.
- Collaboration made it possible for global access to information. Now information can be accessed 24x7 instead of fixed hours.
- The changing methods of information search, today it is text or touch, but next generation search technology is ought to include reflectivity, density, tone, speed, and volume.[5]
- In this new information environment the user is considered as consumer of knowledge.

Thus digital revolution and networked environment made the libraries without walls where data and information can now be transmitted to all corners of the world, and also accessed without geographical restrictions. Now information is just like any other commodity, which can be bought and sold in the market place. Libraries have also started applying business techniques such as ISO 9001:2000, re-engineering, Six Sigma, etc. to manage the libraries. Here service motto is takenover by business practices as libraries are looking forward for income generation.

4. LIBRARY AND INFORMATION SYSTEMS IN CONTEMPORARY SOCIETY—KEY ISSUES

Some of the significant issues in the present day Library and Information System (LIS) are mostly concerned with its structure, collection strategy, preservation, access to information, technological issues and modes of communication, etc.

4.1 Buildings

During medieval times the main concern was preservation of information, which required huge monumental structures. Later preservation gave way to dissemination of information and services to the user, which lead to the functional buildings where holdings comprised books, journals, newspapers, magazines, audio- and video-cassettes, and compact disks. In an automated environment further modifications were made in space for computers. In the contemporary digital environment the holdings are accessible to multiple users from multiple workstations 24x7 that made 'libraries without walls'. This emerging 'library without walls' is often described as existing in a space free world in which users can search catalogues and access electronic files at the click of a mouse on his desk top, without having to walk through a library's door in person.

4.2 Collections

In a traditional library the librarians had defined collection development policy about the type of collection to be maintained, but in the digital environment it is not so. From the plethora of information available on the Internet and the World Wide Web, what to be selected and maintained is an important issue. The emergence of e-publishing, self-publishing, open access publishing, etc. further complicated the collection building policies. Some of these new tools are described here:

E-publishing: *Electronic publishing* takes the format of works published online, on a compact disk, e-mailed, or provided in a file format compatible with hand-held electronic readers. E-publishing is an alternate form of publication, especially attractive to new writers, and provides wider dissemination

Self-publishing: According to Wikipedia, "Self-publishing is the publishing of books and other media by the authors of those works, rather than by established, third-party publishers[6]. Although it represents a small percentage of the publishing industry in terms of sales, it has been present in one form or another since the beginning of publishing and has seen an increase in activity with the advancement of publishing technology, including xerography, desktop publishing systems, print on demand, and the World Wide Web. Cultural phenomena such as the punk/DIY movement, the proliferation of media channels, and blogging have contributed to the advancement of self-publishing."

Open access publishing: It is the publication of material to make it available to all potential users without financial or other barriers. Many types of works can be published in this manner. These include scholarly journals, known specifically as open access journals, magazines and newsletters, e-text or other e-books (whether scholarly, literary, or recreational), music, fine arts, or any product of intellectual activity. Those publishing methods have

- Enhanced existing modes of communication, e.g. reduced costs, improved performance etc.
- Provided alternate channels of communication that would substitute the existing channels but would not alter the process, e.g., journal subscription on print and online.
- Provided entirely new communication functions that could achieve direct interactive communication at a distance. e.g., online/e-journals

Other major changes in collection policy of libraries are:

Access vs acquisition: The role played by librarians in the past in providing information has changed to the one of providing access to information. This requires the selection of information (e.g., electronic collection, Intranets and portals), the offering of access services to remote users, as well as new types of tailor-made information services. Access to a potentially informative document depends on identifying, locating, and having affordable physical access to it. This bring to the fore the need for electronic document delivery services.

Licensing vs ownership: In a traditional library, the collection is defined by physical presence and by ownership. In the digital library, it must be defined by access – since the items comprising the collection will not be physically present, and will mostly be licensed rather owned outright.

Management (user vs librarian): So far the library professionals are managing the collections with acquisition and organization. However, in the new environment, the user manages his information requirements without support from or dependence on librarians in collection building. What they expect from the library is to provide license for accessing paid sites.

Services: According to Drotner[7] "The challenge facing the physical libraries is intensified by the fact that many traditional services performed there are taken over by users of the virtual libraries. When the majority of mundane services leave the physical library – and the librarian's desk – then librarians in the physical library can downplay their functions in favour of virtual services; or they can redefine their role from access and individual service provision to users and facilitator of more sustained collective learning processes." Under such circumstance user becomes the focus of attention and individual service provision is a hallmark of professional competence.

Preservation (digital vs manual): Digital library has an open architecture built on a collection of distributed

information repositories where the information is stored in multiple formats which contains both metadata and data. It provides seamless access to the heterogeneous information sources and provides interoperability. It has user-friendly easy-to-use interfaces and query facilities and serves users better. The potential advantages of a digital library over a paper library are - faster addition to the data collection with better quality control, improved search functionality and faster access to information found, but also more freedom for individual users. According to Bakker[8]

"Whatever may be the library environment the primary task has always been - and will remain regardless of changes of technology - to select, stabilise, protect, and provide access to relevant and representative information resources. The collection function, however, is expanding to include a connection function. Selection is moving to an environment in which a multiplicity of media is available. A new facet of resource sharing is the development of joint licensing agreements that permit consortia of libraries to share responsibilities and costs of providing access to electronic resources."

4.3 Technical Issues

The changing forms and formats of knowledge have paved way for new methods of its organisation. Copy cataloguing, and shared cataloguing are the buzz words today to have bibliographical control of the library holdings. However, the technical issues involved are more complex than it appears to be. Indeed many of the bibliographic or full-text organisation techniques are unfamiliar to library and information science professionals.

Online Public Access Catalogues: A significant change is the integration of all activities of the library together as a coherent whole supported by library automation software. OPAC has became a central source for many activities of the library beyond just bibliographical control.

Metadata schemas: Further development is organising digital and web resources using metadata schemas. The librarians are familiar with bibliographic control, but the schemas in HTML or XML made a known subject more alien. In the traditional libraries, the user can consult with the librarian, as an intermediary, to interpret the metadata used for resource description, but in the web it is different. The information is being provided by a wide range of resource description communities, each with his own metadata, and accessed through one portal.

Linking different datasets: 'Linked data' is a term used to describe a recommended best practice for exposing, sharing, and connecting pieces of data on the semantic web. The practice emphasises web access to data using existing web technologies such as URLs and HTTP. It also emphasises links between related web resources. Knowledge professionals not able to catch up the trends.

Institutionalisation/personalisation–portals: Portals are a framework for integrating information, people and processes across organisational boundaries, which provide secure unified access point in the form of a web-based user interface, and are designed to aggregate and personalise information.

4.4 Organisational Issues

Information professionals design and develop knowledge products and services that promote learning and awareness. Their tasks include the representation of the various kinds of organisational knowledge; developing methods and systems of structuring and accessing knowledge; knowledge distribution and delivery; amplifying the usefulness and value of knowledge; and knowledge storage and retrieval.

Under the contemporary information society improved means of communication and delivery have forced libraries to pay more attention to collaboration as an important element. This has led to increasing national and international cooperation between libraries to improve and accelerate inter-library document/information access. However, in spite of the collaborative attempts, most of the information in electronic form relies on licensing for access by libraries. The combined buying power of a consortium provides more collaboration and better relationship among Library and Information Centres. Above all it gives access to more electronic scholarly journals. In India the best examples of the sort are UGC Infonet, INDEST, FORSA, CSIR Consortium, etc. Therefore, the organisational issue here is, to think and work cooperatively with other libraries and system vendors than as an individual.

4.5 Users

Libraries have to evolve measures continuously to keep up with the changing needs of their users. Knowledge professionals can provide better service offerings by adopting new ideas and re-evaluating old ones according to the need of its consumers. In 21st century, the technological changes have influenced users in their behaviour and needs.

Changing behaviour: Now first search for information is not in the library but on the internet. Users are making use of search engines to locate information rather than seeking help from the librarian. Oblinger[9] reported that only 2 per cent of college students used the library website as the starting point for research, and that 67 per cent learn about electronic resources from their friends.

Changing needs: With the advent of knowledge revolution and multiplicity of new knowledge by fusion and

fission the information needs of users are varied and more complicated. Organizations are looking for qualitative information to increase their products and to meet market competitions.

Training and support: The sources of information have extended far beyond books and periodicals to include databases, online access to catalogues and bibliographies, and to online information using Internet and other telecommunications networks. To enable library users to work with such tools, much more intensive training and support is needed. As a result information literacy programmes have become an integral part of library package of services.

4.6 Information Services

The ever growing Iinternet collections provide access to top-quality databases, literature search through subject gateways, downloadable audio books and music, and instant messaging reference services like 'Ask A Librarian', 'Online Reference', 'Digital Reference Services', etc. Owing to these developments library's services underwent change, focusing more on the facilitation of information transfer and information literacy rather than providing controlled access to it.

Marketing services: The essence of marketing involves finding out what the users want and setting out to meet those needs. Indeed it is a promotional activity than mere selling. Therefore, knowledge professionals need to have proper marketing plan and promotional strategies. Library website, blog, e-mail, Internet, newsletters, and leaflets can be used for promoting services and make known to customers about the products and services available from the library. The impact of technology, new methods for information provision and declining budgets have meant that marketing is now an accepted feature of library services instead of depriving the users in access information.

Information literacy: The primary task of knowledge professional is to enhance the information literacy among the users of an organisation. At present user's may have basic knowledge in searching for information, but there is a need for teaching and training them in information and IT skills in the advanced and more advanced searching. Information literacy will provide the user the ability to acquire and interpret information, to manage information, to communicate information, and to apply information for specific task.

Webliography: It is a list of documents available on the World Wide Web. It denotes an enumerative list of hypertext links surrounding a common subject or theme. At the bare minimum, most webliographies collocate all of the online resources pertaining to a particular topic.

Value added, aggregator services: The LIS profession is known for its capabilities of compilation, analysis, compaction, consolidation type of services with the application of indexing and abstracting skills. The emerging environment also bestows a similar responsibility for the e-resources through a single window service.

"The aggregator provides a consolidated view of the content in a single browser display or desktop application. Such applications are also referred to as RSS readers, feed readers, feed aggregators, news readers or search aggregators". Wikipedia[10] There is a variety of software available to gather, format and repackage information on the web suitable to individual needs of the users. A document that needs a mention in this context is Martha L Brogan's[11] A survey of Digital Library Aggregation Services.

Open access strategies: Escalating subscription price of scientific and technical journals hade made it impossible for the researchers to access information and to produce new knowledge. Advances in technology and in particular the Internet and the World Wide Web came as a savior to the researchers as it made possible for them to have open access to information.

Open access publishing: The scholarly communication witnesses a new dimension, i.e., open access publishing. The scientists opt to publish and share their knowledge in open access and that lead to the success story of PLoS, BioMed, etc. and thousands of peer-reviewed and non-reviewed open access journals. The scientists may publish their articles in peer-reviewed open access journals or in print journals; they also place them in the central repository of full-text papers, both pre- and post-prints, making the papers available to anyone with an Internet connection.

Digital repositories: The great advantage of repositories is that they help institutions to develop coherent and coordinated approaches for capturing, identification, storage and retrieval of their intellectual assets. These intellectual assets go beyond normal publishing regimes, and may include audio-visual objects, datasets, presentations, learning materials, and research works. This increases the 'visibility' of institutional research and consequently the impact factor.

5. LIS PROFESSIONALS-NEW ROLES

In addressing the 25th Online Information Meeting in London in December 2001, Richard Harrington[12] the Chief Executive Officer of the Thomson Corporation noted that no profession had changed as much as that of an information profession in the last five years with the development of the range of Internet-based technologies.

He outlined the following added responsibilities that information specialists now have as workers in the "knowledge economy":

- *Information gurus* - guardians of information quality and ensuring that users have access to information from the most trusted sources.
- *Business managers* - knowing how to deliver appropriate information services (either from in-house or by outsourcing) to meet the needs of the users.
- *Teachers/trainers* - to ensure that the users (and colleagues) know how to access relevant sources of information.
- *Information advocates* - serving as the information "champion" for the organisation to influence management and ensuring that everyone in the organisation remains competitive by having the information and tools they need to make decisions faster.
- *System designers* - to develop and design appropriate systems for the delivery of information to their users in an appropriate manner.

Biddiscombe[13] assessed information professionals as being those people who manage the conveyance, organisation and dissemination of information to an identifiable group of users in a professional capacity. These people comprise librarians, computer professionals and web developers. Biddiscombe notes the following tasks for information professionals as:

- Understand the needs of users and endeavour to meet them.
- Manage servers.
- Manage e-mail and print accounts.
- Populate and evaluate websites.
- Select, organise and manage print and electronic collections.
- Offer training and guidance.
- Provide network support – both physical and social.

Therefore, it can be summarised that in the new knowledge environment knowledge professionals have multifaceted role to play. These include:

- Knowledge manager – to deal with tacit and explicit knowledge.
- Multi-media user – comfortable with a wide range of formats.
- Intermediary – with a good knowledge of sources and user requirements.
- Enabler/facilitator– proactively connecting users with information they require.
- Team player – working with colleagues in library, IT services and academics.
- Trainer/educator – taking on a formal role to teach information skills and information literacy.
- Evaluator – sifting free and paid for resources on behalf of users.
- Negotiator – dealing with publishers and suppliers.
- Innovator – not just following the routine but also looking at improved ways to deliver the service.
- Fund-raiser – working for greater income from the institution and beyond.

In the new millennium, the LIS professionals have to embrace new tools, techniques and technologies for reaching out to users. The professional have to handle tacit and explicit knowledge to become knowledge managers; it is the duty of the knowledge professionals to develop and maintain full-text databases and digital repositories. They have to possess skills in managing and indexing digital user profiles and integrating them with other information resources; developing and networking the niche libraries and providing access to any type of information available any where in the world. Kim[14] encapsulated the role of knowledge professional in 21st century as:

Knowledge professionals will have to move from the background to the center of the organisational stage, to jointly hold the reins of knowledge management with users and the technology experts, to help steer and shape the knowledge policies, structures, processes, and systems that will nurture organisational learning. Knowledge professionals should be able to extract, filter and disseminate vital external knowledge.

They also will design and develop workgroup application suites that are effectively platforms for knowledge management. Finally, they will work side by side with users in collecting and analyssing strategic intelligence; and to act as trainers and consultants who transfer knowledge gathering and research skills throughout the organisation." Therefore, the traditional librarian, transformed as documentation officer, information officer/manager needs to metamorphose as knowledge professional to meet the demands of the new millennium. To meet the present and future challenges, knowledge professionals need to have theoretical and analytical knowledge. They have to be creative, innovative and responsive to keep up their presence felt in the knowledge society.

6. CONCLUSION

Today the LIS profession is witnessing the advantage of library 2.0 movement where by inviting user participation in the creation of both the physical and the virtual services they want, supported by consistently evaluating services. Library 2.0 demands libraries to focus less on secured inventory systems and more on collaborative discovery systems.[15] It also attempts to reach regular and potential users through improved customer-driven offerings. In fact this movement is harnessing the era of social networking, open source, knowledge management, online publishing like wiki and moving into library 3.0 arena. In future, libraries will reinvent themselves by perfecting the path that they have now begun. They will become more of a fusion of physical and virtual realms. The precise role of the LICs will depend on the organisation structure and knowledge needs. The emphasis in roles of knowledge professional will likely to change in accordance with needs of the user community and the level of technological sophistication. As the technology changes the role of LICs/knowledge centres and knowledge professionals will continue to evolve.

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