

APPLICATION OF WEB TECHNOLOGY IN SPECIAL LIBRARIES: A CHALLENGE BEFORE LIBRARY AND INFORMATION PROFESSIONALS IN DIGITAL ERA

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Abstract

Invention of internet gives options before the common man. The World Wide Web is the most popular system on internet. The web is a collection of websites. It is unique characterized through hyperlinks. Hyperlink provides link from page to page. A website is a collection of web pages (HTML) (Hyper Text Markup Language) that are linked together and exists on a server (host computer). Generally web technology is used for application of various technologies that are used not only to put contents on the web but also make it accessible on the web. But today library and information professionals are moving from traditional manually operated system developing into digitized collection in their own users within the organization. Modern library and information centers web site includes information on the inception, working hours, holidays, library building layout, rules and regulation of membership for various categories, rules for periodical, circulation, processing and acquisition etc.

Keywords: Web Portal, Web Based Library services

1. INTRODUCTION

The term world wide web and internet are synonymous in nature, although they are different. Www is the most popular largest system on internet. It contains hypertext and multimedia, capabilities i.e. graphics, sound video, etc. The web is a huge collection of websites. The size of the websites doubles every year due to grows very fast. A website is a collection of web pages (HTML) that are linked together and exist on a server (host computers). Generally website begins with the Home Pages. This contains the content link to different part of the website. Web technology is generally used for the various technologies that are not only to put content on the web, but also organize structure and make it accessible on the web. For successful function of the web technologies different other technologies are also functioning in an integrated manner. Web is an ideal media for providing information. These technologies includes Client-Server Technologies, Web Browser document markup languages like HTML

(Hyper Text Markup Language), XML (extensible Markup Language), RDF (Resource Description Framework).....etc. Web interfaces to provide user access to the different resources of the library.

Web -0 is read only and the origins of this came in three phases. Web-1 results the World Wide Web along with first search engine to solve index, titles & headers only. Web-2 is a term applies to ongoing transition of www from a collection of websites to a full-fledged computing platform serving web applications to end users along with birth of twitter, you tube, Flickr and face book. According to Berners –Lee web-3 functions as read write and execute web later two things came out i.e. semantic mark-up and web- services. Web-4 is in developing which provides communication with each other and called “Symbiotic web”. Web portal may be defined as library portal to library services like e- journals, online databases and OPAC etc. Client server architecture increases usability through user friendly form-based interfaces. Two tier architectures consist of three components: user system interfaces, processing and database management has three tier client server architecture is also known as multi-tier architecture. Web browser is a software application for retrieving, presenting information on World Wide Web. It is capable with number of functions like view web pages, create web pages and link from one document to the other along with access to databases etc. There are three portals like www (World Wide Web), http (hyper-text-transfer-protocol), html (hyper-text-markup language) and URL (uniform-resource-locators). Semantic web technology is an extension of current web to give well defined meaning. Ontology is used in context of knowledge sharing. It is a specification of a representational vocabulary for a shared domain of discourse-definitions of classes, relations, functions and other objects. It can be said to be the definition of entities and their relationship with each other. It is based on semantic nets used in artificial intelligence. It defines the data models in terms of classes, sub classes and properties. Ontology is of two types like general ontologies’ and specific ontologies. RDF (resource description frameworks) It is used for representing web resources, data is expressed in set of triples i.e. Subject, predicate, objects and triples are written using XML syntax. It also has features that facilitate data merging even if the underlying schemes differ and it specifically supports the evolution of schemes over time

without requiring all the data consumers to be changed RDF is the lowest common denominator for exchanging between systems. It also extends the linking structure of the web to use URLs to name the relationship between things as well as the two ends of the link. Using this simple model, it allows structured and semi-structured data to be mixed exposed and shared across different applications. Web resources can be published on the web in RDF, as such it is accessible to everybody and anybody can define a new resource or retrieve an existing resources.

A web service is a method of communications between two electronic devices over the World Wide Web. It is a software function provided at a network address over the web with the service always on as in the concept of utility computing (Wikipedia encyclopedia). Utility computing is the packaging of computer resources, such as commuter, storage and services. The repackaging of computing services become the foundation of the shift to “on demand” computing, software as a service and cloud computing models that further propagated the idea of computing, the idea of computing, application and network as a service. IBM, HP and Microsoft were early leaders in the new field of utility computing with their business units and researchers working on the architecture, payment and development challenges of the new computing model. Google, Amazon and others started to take the lead in 2008, as they established their own utility services for computing, storage and applications.

Web services are the latest application in technology for computing. Web service provides an opportunity to allow a user to establish a client application to access their desired functionality. A web service is nothing but a software system designed to support from computer to computer interaction over the internet.

Web services are important resource in many aspects of life such as government, commerce and education. With the result web services may apply to library services to assist its users.

According to OASIS (2000), web services are registered in a way that potential users can find them easily. This is done with Universal Discovery Description and Integration.

2. APPLICATION OF WEB TECHNOLOGIES IN LIBRARY SERVICES

In the digital and information communication technology the application of web technologies give a challenge before the library and information professionals for storing and dissemination of information in the library services.

No doubt present situation libraries are shifting from collection to access. With the increasing online applications the users are more aware about web technology and demanding libraries to be able to meet all the information library services. Before the concept of digital libraries the librarians are treated as resource supply people to share the knowledge to the needy users. Now the library and information professionals have developed their digital special libraries in Delhi university library system. It is necessary to develop computer programming knowledge among the user community. The library and information professionals have to attend computer literacy programs organized from time to time. The UGC provides financial

assistance to the web-based library services in the tenth five year plan to develop e-contents in higher education subjects. Its' not only provide financial assistance but also technical support to teachers and other experts based in universities and its affiliated colleges. The application of web technologies in libraries are given below:-

2.1 LIBRARY WEBSITES

In the present age every library has their own websites to represent their resources. Every library and information Centre describing about various web library and information services and continuous process of updating from time to time. It describe various information about inception of library, working hours, holidays, layout plan of the building, rules and regulation of the library for different categories of members, rules of circulation, details about different staffs, and responsibilities. Web OPAC gives various approaches of document access in the given library including by author, title, publisher, accession number and collaborators etc.

2.2 WEB TECHNOLOGY AND INFORMATION COMMUNICATION TECHNOLOGY

World Wide Web (WWW) is a common tool for the library. Electronic mail (e-mail) has becomes a source of communication to contact their vendors, book suppliers, publishers, higher authorities' even to the users about return of document urgently required either by other students or the faculty members including overdue, display about the latest arrivals in the library and also about special events taking place in the library from time to time. It can be used for Current Awareness Services (CAS) and Selective Dissemination of Information (SDI) Services.

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2.3 ROLE OF PROFESSIONAL ORGANIZATIONS

Most of the professional organizations like DRTC Bangalore.(www.drtc.isibang.ac.in), DELNET, New Delhi (www.delnet.nic.in), IASLIC (Indian Association for Special Libraries and Information Centers)(www.iaslic1955.org.in), INFLIBNET (<http://www.inflibnet.ac.in>) etc. have developed their own websites and placed information about the Organization, membership, activities, upcoming seminars, conferences and latest developments about the library research, publications etc.

3. ACCESS TO DATABASE

Several publishers offer web-based, intranet solutions for providing local access to their databases. Journal publishers have also begun to offer similar trends e.g. Elsevier, Springer etc. Large number of R&D have been taken place to develop the digital libraries and take the advantage of these developments and provide desktop access to key database and electronic publications to their own collection of CD-ROM upload on their CD server. Online database

venders such as Lexis-Nexis and ERIC are delivering their databases over internet. So a library which subscribes to these databases can now easily access them over web.

National programme on Technology Enhanced Learning (NPTEL) is the best example of online database which is developed by the renowned Professors from different seven IITs and Indian Institute of Science, Bangalore(IISC) have developed the curriculum based video and audio courses. It is a collaborative project with Ministry of Human Resource Development, India. Each course contains the different databases of the different subjects.

4. E- BIBLIOGRAPHIC AND CATALOGUING SERVICES

A bibliography is a list of resources used or referred to by an author. This service can also be prepared from different databases available on the web. A bibliographic database is a database of bibliographic records, an organized digital collection of references to published literature, including journal and newspaper articles, conference proceedings, reports, government and legal publications, patents, books, etc. In contrast to library catalogue entries, a large proportion of the bibliographic records in bibliographic databases describe analytics (articles, conference papers etc.) rather than complete monographs and they generally contain very rich subject descriptions in the form of keywords, subject classification terms, or abstracts. For example in physics the Los Alamos e-print archives is the more productive means of communication for Astrophysics and Quantum physics etc.

5. E- CURRENT AWARENESS SERVICES (CAS)

According to Encyclopedia Britannica the purpose of a current awareness service is to inform the users about new acquisitions in their libraries. Some libraries have adopted a practice of selective dissemination of information through the Web OPAC. A library can provide this service through e-mail, which is the easiest and common procedure. Otherwise a library can refer or link directly to some location to their web pages.

6. ELECTRONIC SELECTIVE DISSEMINATION OF INFORMATION SERVICE (E-SDI)

Selective Dissemination of Information refers to any system that alerts to the users about the latest publications in the different areas keeping in view the users requirements. It can be prepared search from journals, authors, subjects, and topics, publishers' wise...etc. Due to tight schedule of research activities, the researchers have no time to know the latest developments in the different activities. Different libraries have been developing SDI facilities to the users as per pre-decided procedure which may be on weekly or monthly basis. For prompt and quick service, E-SDI system has to be developed by the library itself. This provides the information to the researchers and users relating to the journals, books, articles etc. For promoting E-SDI services on the web, library should create a link from the existing library environment (i.e. E-SDI page is accessible by simply clicking the SDI link from the information service link of the library main page). A general definition about E-SDI can be given on the basis of H.P. Luhn's original definition of SDI developed in 1958 which

involves the matching of user profile with the new materials, the notification to the user's feedback from the users and modification of users' profile. The best example of SDI services to the users is Science Direct.

7. E-MAIL SERVICE

It is one of the most popular services of the internet. Today it is the most economical and highly used modes of communications. Electronic mail is a simple way for computer users to exchange messages among different distant computers linked with different networks service providers. It applies the laws developed by Dir. S.R.Ranganathan in their book "Five fundamental laws of Library Science" as it is cost effective, saves time, effort, money, paper and resources. E-mail provides facilities to send text messages, programs, graphics and attachments etc. in the form of audio/video to pre-defined list of users.

8. E-NEWS CLIPPING SERVICE

News clipping service is one of the Current Awareness Service provided in most of the libraries in print/photocopy form. Previously this service provides manually by selecting current news from various newspapers cut and paste on the plain paper and kept for reference to users. Presently news are available in the digital form so select the relevant portion from the newspaper and copy and paste on the web page in text, PDF (Portable Document Format), GIF (Graphic Interchange Format) or JPEG (Joint Photographic Experts Groups) provided for the purpose. All the documents should be copied to the server and homepage for news clipping service and allow access to users as and when required.

9. OPAC/WEB OPAC

The Online Public Access Catalog is also known as web online public access catalog which are the gateways to information in libraries and provide facilities to browse search and locate information. Web OPAC were developed to meet the needs of the users in two different ways:-

- (i) It provides access to library housekeeping operations especially Circulation.
- (ii) To give the library users direct Access to the machine-readable Bibliographic records.

An OPAC not only provides access to a library's bibliographic databases but also make it searchable through variety of access points with a common command language, which may be transferred when the users moves from one library to another. Web OPAC has become more popular and easy to handle.

10. E- REFERENCE SERVICES

E-Reference service is one of the most important services which are provided by the library to find information. It is the personal service which includes personal assistance given to

search the information on various subject areas, irrespective of size and collection of the library. Most of the traditional libraries have given much emphasized on information access within the physical boundaries of the library. But today web based reference services have got the much popularity among the library and information professionals due to the development of the web based library.

It is possible to access the library's reference services round the clock and it can be accessed from any place at any time even from the kitchen table.

Example of reference Britannica online <http://www.members.eb.com> Online Dictionary-<http://www.dictionary.com>

The site [dictionary.com](http://www.dictionary.com) incorporates Webster's dictionary for providing answers. This site serves as an effective and efficient reference tool for library and information professionals. It includes a number of facilities like-

Ask Dictionary:-this particular link helps in finding out the meaning, adjectives, adverbs etc.by consulting Webster's Dictionary.

Community Service:-serves the community of readers on the www, e.g. delivering online periodicals, newspapers, classics texts etc.

Online maps and Atlases-<http://www.atlapedia.com/index.html>. Matapedia Online contains full color physical and political and political maps as well as key facts and statistics on countries of world.

Encyclopedia-<http://www.encyclopedia.com>. It was created by Informatics Corporation to give internet users a simple one stop site to begin their research and answer basic questions.

11. ASK A LIBRARIAN

Ask-A-Librarian services are internet based question and answer service that connects users with individuals who possess specialized knowledge and skill in conducting precision searches. Most of these services have web based question submission form or e-mail addresses or both. Users are invited to submit their queries by using web forms or through e-mail. Once a query is ready by service, it is assigned to an individual expert for answering. An expert responds to the query with actual information or a list of information services. The response is either sent to the user's e-mail account or is posted on the web so that users can access it after a certain period of time.

12. TAGGING

Tagging is describe as the process by which the resources in a collection are assigned tags in the form of words, phrases, codes or other strings of characters. This allows users to add and

change the data and metadata and at times give a local flavor to the data and metadata. The advantage of user tax is that it helps the data to be more easily searchable.

The examples are Flickr, Del.icio.us (Arora, 2009).

13. INSTANT MESSAGING REFERENCE SERVICE

It is one of the real-time electronic consulting and reference offered by academic libraries via specific software running on the Internet platform. It is virtually instantaneous communication between two or more people using textual format, providing “real time reference” services, where patrons can synchronously communicate with librarians much as they would in a face to face reference context. The software often allow co-browsing, file sharing, screen capturing and data sharing mining of previous transcripts. Libraries are already offering live reference service using 24x7x265 in a collaborative fashion.

14. WIKI'S

According to Wikipedia a Wiki is a website that uses wiki software, allowing the easy creation and editing of any number of interlinked web pages, using a simplified markup language. Wikis are often used to create collaborate websites, to power community websites and for note making.

For example, the collaborative encyclopedia, Wikipedia is one of the best known wikis that has broken down the golden rules of library science, i.e. content validation and authentication of information. Wikis are also used in business to provide affordable and effective Intranets and for knowledge management. Libraries can use wikis as a communication tool to enable social interaction among librarians and patrons. Users can share information, ask and answer questions, and librarians can do the same within a Wiki. Moreover, a record of these transactions can be achieved for perpetuity. Transcripts of such question-answer sessions would serve as resources for the library to provide as reference. A wiki like platform created for the library and information professionals to work collaboratively and concurrently on providing answers to the users' enquiries. This allows any staff to tap on the collective wisdom of the communities of Subject Librarians and provide quality answers to their queries.

15. BLOG

A Blog is a website, usually maintained by an individual, with regular entries of commentary, descriptions of events, or other material such as graphics or video (Wikipedia, 2009). Blogs provide control to an individual or group of individuals for publishing contents or making commentary on it. Technologically, blogs are easier to use platform-independent and accessible online over the internet. Blogs are increasingly used by libraries as promotional alerting and marketing tools, providing a useful method of promoting new services, alerting users to changes and offering advice and support. In library blogs typical

posting include information about fresh arrivals, e-databases, news and services rendered can be flashed for wider effects.

16. WEB BASED CHAT SYSTEMS TO INTERACT WITH LIBRARY USERS

Presently web based chat systems have been set up in the library to interact with its users. In web based chat system user enquire on line with reference librarian to seek desired immediate response of their question.

17. APPLICATION OF WEB TECHNOLOGY IN INDIAN PROSPECT

Most of the special libraries are providing web based library services in India but regret to mention that few of them are still lacking behind due to lack of basic infrastructure and skilled manpower. Due to this most of the library services are badly effective includes e-mail, e-reference-resources, inter-library loan etc. Most of the libraries are facing either insufficient funds or heavy budget cuts which bound the libraries to provide services to users as and when required. Even working hours are supposed to be curtailed to smooth functioning in routine. One of the most important factors which the librarian has to face is the non-recruitment of library staff by the management. Most of the posts in various categories are lying vacant since a long time. Most of the libraries are functioning on the contractual employees and they are re-appoint after every six months through an affidavit signing that the appointment is totally temporary and the agreement can be terminated without assigning any reason. So the claim for regularization does not arise. Most of the contractual workers are more than ten years to serve in the libraries. Ultimately when the employment is totally in danger how it is supposed to perform the duties with proper satisfaction of employment. Their salaries are also very low as compare to the salaries of those against whom they have been appointed.

18. CHALLENGES BEFORE LIBRARY AND INFORMATION PROFESSIONALS

In the digital web library services environment, library and information professionals are required to work independently or as a team to deliver service-oriented and user-oriented applications, instructions, programs, projects and services. In addition to the academic and professional qualifications require a commitment to excellent user-friendly services, effective oral and written communications, as well as team leader must also possess additional capabilities, experience, knowledge and skills.

The specific commitment towards service demands for fresh arrival users.

19. CONCLUSION

Application of web technologies in library and information services in special library has changed with the advancement of information technology. Every library and information center's works on library portal is being called as the "Mirror of the Library". It is the duty of library and information professionals to remain update with the latest developments to render

web-based services to their users and pay personal attention during the service tenure. Special libraries provide services to special users.

Library and information professionals want to provide information to their users. They have curiosity to interact with the members and try utmost desire to fulfill required information at the least possible time. Web services can empower libraries, simpler system customization and integration. These advantages are dependent on web services being standardized. Not only Library and information professionals but users should also be provided training about the applications of web based library services from time to time.

20. SUGGESTIONS

1. Proper budget provisions should be made available for upliftment and uninterrupted web services including tear-wear/replacement/maintenance etc.
2. Proper budget provisions for training of staff should be done for smooth functions of Library and information centers.
3. Libraries should be allowed to recruit library and information professionals with computer science background on priority basis.
4. Library orientation programs should be carried out for users at least once in a year to understand the entire web services available in the special library and information Centers.
5. Higher authorities should co-operate and kept positive attitude for smooth functioning of the organization.
6. All library and information professionals should maintain co-ordination among various categories for the welfare of organization and staff.
7. Authorities should provide better opportunities for the working force in terms of promotion, incentives for the laborious staff, preference to internal staff dependents against the vacant posts, perquisites like provision for houses within the organization, medical facilities for the workers as well as their dependents especially cashless facilities.

REFERENCES

- Aitken W. (2007). Use of web in tertiary research and education. *Webology*, 4 4(2) article42retrievedFebruary16,2009,from<http://www.webology.org/2007/v4n2/a42.html>
- Danielle, Borasky Analysis of Library Websites, a paper submitted by faculty of library information science University of North Carolina at Chapel Hill
- Dutta, Bidyarthi & Anup Kumar Das, Web based student support service for the Undergraduate College students, UGC-sponsored 'Seminar on Automation & Networking of the College Libraries of West Bengal', Organized by Maulana Azad College, Kolkata. March 2004.

- Hariharan, A, Chitra M Hariharan ... Customized Web-based Services at SERC Library with Special Reference to Alert Services DESIDOC Bulletin of Information Technology, Vol. 27, No. 3, May 2007, pp.31-38
- Hatua, Sudip Ranjan Web Based Library and Information Services
- Spink, A., & Jansen, B.J. (2004). "A study of Web search trends". Webology, 1(2), Article 4. Available at:<http://www.webology.org/2004/v1n2/a4.html>
- Malik, Amara, & Mahmood, Khalid (2009). "Web search behavior of university students: a case study at University of the Punjab." Webology, 6(2), Article 70. Available at:<http://www.webology.org/2009/v6n2/a70.html>
- Mriza, Muhammad Sajid, (2009) Web based Services in University Libraries: Pakistan Perspective, Library Philosophy & Practice, 2009
- Noruzi, A. (2005). "Web Impact Factors for Iranian Universities." Webology, 2(1), Article 11. Available at: <http://www.webology.org/2005/v2n1/a11.html>
- Patrick, Kenekayoro, Semantic Web-The future of the Web, African Journal of Mathematics and computer Science Research, Vol4 (3), pp113-116, March 2011.
- Balas, Janet L. A Librarian's Work will never be done. Computer in libraries 19; 10, 1999.46-50p.
- Das, Suchitra. Information Resources on Internet and Information Services in Library and Information Centers. SRELS Journals of Information Management. 37; 1, 2000. 49p.
- Green, Elisabeth and Head, Allison J. Web-based cataloguing. Online.22; 4, 1998. 98p.
- Hartzer, Sandra. Paterson, Brian. Snyman, Dorette. Web Information Services at the University of South Africa Library. Library Trends. 47; 1, 1998. 91-116p.
- <http://bulldog.unca.edu/greene/webservices.html>
- <http://www.oclc.org>
- <http://www.ulh.ac.uk/ls/staff/jeb/bjlweb.htm>
- Jagajeevan, V.K. Developing and electronic SDI Service at the IIT Kharagpur. Program.33; 2, 1999.157-161p.
- KAMATH, V.A. Computer Application in Library and Information Services. Current Problem and Trends in Library and Information Services. Ed by H.A.KHAN & S.R. IJARI. Varanasi. Indian Bibliographical Center.1990. 199-211p.
- Place, Emma. International collaboration on Internet Subject. IFLA Journal. 26; 1, 2000.52-56p.
- Trends in Library and Information Science. K.M. Shukla, K.J. Majmudar ed., Jaipur. RBSA.1995. 14-15p.