Development Of Web Technology And Its Application In The Library And Documentation Centers

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ABSTRACT

Just as air is necessary for the life of all living things on Earth, including humans, information is a necessary component of human progress. Globally, the rate of change brought about by new web technologies has a significant impact on how people work, play, and live. Web technology is becoming more and more important in the development of library services as a proactive response to the communication issues it presents. The rapid advancement of Web technology and its use in libraries and documentation centers are topics covered in this article. Libraries nowadays are capable of performing the newly developed web-based services. Services made possible by web technology meet users' information demands at the appropriate time, location, and to the appropriate individual. This article has explored developing technologies, including blogs, RSS feeds, podcasts, vodcasts, instant messaging, and their applications.

Keywords: CAS, SDI, Web OPAC, Blog, Podcasting, RSS, IM, Tagging, Cloudcomputing, Semantic web.

INTRODUCTION

Conceptualized by Tim Orally at the start of the millennium, the revolution of web-based and web-enabled products and services has created a significant momentum in experiencing and pioneering research in contextualizing web-technologies for social benefits. This has presented a significant problem as well as an opportunity for many businesses to supply a variety of products to end users. Globally, industrial organizations and business research are making decisions based on digital portfolios and web access. Web media is being used by government services and e-governance, including the development of libraries. In the upcoming year, it will accelerate at a faster rate due to the data on internet usage reaching record highs.

The leading industry in utilizing emerging technologies to shape the potential of human resources is higher education. Professionals in libraries and information science now have excellent opportunities to offer novel forms of information in goods and services.

Some of the facets that enabled the significant growth of higher education and where the libraries are having pivotal role are;

- E-Content Generation and Management
- Virtual University, Virtual Classroom, Virtual Laboratories, Virtual Libraries and Virtual Learning
- Wireless networking and remote access
- Students and teachers have more web space
- E-learning, Online discussion
- Higher level computing facility
- Every student/teacher has access to updated knowledge
- Higher rate of Information Consumption

APPLICATION OF WEB TECHNOLOGIES IN LIBRARY SERVICES

The use of web technologies in digital and information communication technology presents a challenge to information professionals working in libraries and other information-related fields about the storage and distribution of information in library services. Libraries nowadays are undoubtedly moving from collection to access. Users are becoming increasingly aware of web technology and expecting libraries to be able to handle all of their information demands as a result of the proliferation of online apps. Before the idea of digital libraries, librarians were thought of as persons who provided resources to help those in need by sharing their knowledge. Professionals in libraries and information have now created a digital library system. It is imperative that library workers acquire computer programming knowledge.

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:-

Library Websites
These days, all libraries have their own websites that showcase their collection of materials. Every library and documentation center provides information on different online libraries, information services, and ongoing updates from time to time. The text provides an overview of the library's history, operating hours, holiday schedule, building layout, policies and procedures for various member types, circulation policies, staff profiles, and duties. With Web OPAC, you can access documents in the specified library in a number of ways, including by author, title, publisher, accession number, and collaborators.

ACCESS TO DATABASE
Numerous publishers provide intranet-based web-based solutions that enable local access to their databases. Similar trends are now being offered by journal publishers as well (Elsevier, Springer, etc.). A significant amount of research and development has gone into creating digital libraries. By utilizing these advancements, desktop access to important databases and electronic publications can be had for their own CD-ROM collection, which can be uploaded to a CD server. Databases are being delivered online by online vendors like Lexis-Nexis and ERIC. Therefore, a library that has a subscription to these databases can now access them online with ease. National programme on Technology Enhanced Learning (NPTEL) is the best example of online database which is developed by the renowned Professors from 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.

E- BIBLIOGRAPHIC AND CATALOGUING SERVICES
An author's list of cited or utilized sources is called a bibliography. Additionally, this service can be developed using various online databases. An ordered digital collection of references to published literature, such as journal and newspaper articles, conference proceedings, reports, government and legal publications, patents, books, and so on, is called a bibliographic database. As opposed to full monographs, a significant portion of the bibliographic records in bibliographic databases describe analytics (articles, conference papers, etc.) and typically include extremely rich subject descriptions in the form of keywords, subject classification terms, or abstracts. This is in contrast to library catalogue entries. For example in physics the Los Alamos e-print archives is the more productive means of communication for Astrophysics and Quantum physics etc.

E- CURRENT AWARENESS SERVICES (CAS)
A current awareness service's objective, according to Encyclopedia Britannica, is to notify users of new materials that have been added to their libraries. A few libraries have started using the Web OPAC to distribute information in a targeted manner. This service can be offered by a library via email, which is the most convenient and standard method. If not, a library may directly link or refer to a location from their website.

LECTRONIC SELECTIVE DISSEMINATION OF INFORMATIONSERVICE (E-SDI)
The term "selective dissemination of information" describes any method that notifies users of the most recent articles in various fields while taking into account their specific needs. It can be prepared by searching journals, authors, themes, publishers, and subjects, among other criteria. Owing to their busy schedules, researchers are unable to keep up with the most recent advancements in their various fields. Various libraries have been providing SDI services to their patrons in accordance with predetermined protocols, which may be implemented on a weekly or monthly basis. The library must create the E-SDI system in order to provide timely and efficient service. 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 .The best example of SDI services to the users is Science Direct.

E-MAIL SERVICE
It is among the most widely used online services. These days, it's the most affordable and widely utilized kind of communication. Users of computers can communicate easily with one another by using electronic mail between various remote computers connected to various network service providers. It uses the principles established by Director S.R. Ranganathan in their book, "Five Fundamental Laws of Library Science," since it is economical and conserves resources, money, time, effort, paper, and other resources. Email gives users the ability to transmit audio and video files, programs, graphics, text messages, and attachments to a pre-defined list of recipients.

E-NEWS CLIPPING SERVICE
One of the current awareness services offered by the majority of libraries is the print/photocopy news clipping service. In the past, this service was provided manually by choosing the most recent news from a variety of newspapers, cutting it out, pasting it onto plain paper, and storing it for user reference. As news is currently available digitally, choose the pertinent section from the newspaper, copy it, and paste it in the text, PDF, GIF, or JPEG formats that are offered on the

webpage (Joint Photographic Experts Groups). To enable users to access the papers as needed, all of the documents should be copied to the news clipping service's webpage and server.

OPAC/WEB OPAC
The web online public access catalog, sometimes referred to as the online public access catalog, is a gateway to library resources that offers browsing, searching, and information location capabilities. Two distinct approaches were taken in the development of Web OPAC to address user needs:- (i) It gives users access to housekeeping functions, particularly circulation. (ii) To provide direct access to machine-readable bibliographic records for library users. In addition to offering access to a library's bibliographic databases, an OPAC also makes them searchable via a range of access points using a standard command language, which can be shared when a user switches libraries. Web OPAC is now more widely used and manageable.

E- REFERENCE SERVICES
The e-Reference service is a crucial resource offered by libraries for information retrieval. It is a personal service that, regardless of the size or collection of the library, provides aid in finding information on a variety of topic areas. Within the library's physical walls, access to information has been prioritized by the majority of traditional libraries. However, as web-based libraries have developed, web-based reference services have become increasingly popular among library and information professionals today. The reference services offered by the library are available 24/7 and can be accessed from any location, including the kitchen table.

ASK A LIBRARIAN
Ask-A-Librarian is an online question and answer service that links consumers with people who are knowledgeable and skilled in performing precise searches. The majority of these services offer email addresses, web-based forms for submitting questions, or both. Users are welcome to contact or use web forms to submit their questions. When a question is prepared by the service, it is given to a certain expert to respond to. The question is answered by an expert who provides real knowledge or a list of information sources. The answer is either sent to the user or is published online for users to view after a predetermined amount of time.

PODCASTING
A podcast is a collection of digital media assets, either audio or video, that are sent to computers and portable media devices via Web feeds and syndicated downloads over the Internet. Podcasts can be differentiated from other digital-media formats by their ability to be syndicated, subscribed to, and downloaded automatically when new content is uploaded, even though the same content can also be made available by direct download or streaming.

Application of Podcasting in Libraries:
• The library that works hard to produce audio content such as recordings of programs or library tours, podcasting can be an effective means of making that content more widely available.
• Podcast highlights about new resources
• Podcasts enable librarians to share information with anyone at any time.
• Podcasting can be a publishing tool for users and librarians' oral presentations.
• Libraries can subscribe podcasts from lead publishers of scholarly communication for interactive learning experience to the users.

VODCASTING
A vodcast is a podcast that contains video content. Vodcasting is a fantastic way to communicate with your newsletter readers. Just like with podcasting, you can submit your RSS feed or blog with vodcast to special video podcasting directories.

Application of Vodcasting in libraries
• To provide demonstrations on how to access electronic resources
• To use the library catalogue and databases more effectively.
• To find materials using library search tools such as the catalogue and electronic database .

BLOGS
Some blogs serve as more intimate online diaries, while others offer news or comments on specific topics. Text, graphics, and connections to other blogs, websites, and other relevant media are often included in blogs. An essential feature of many blogs is the interactive commenting system for readers. In summary, managing blogs is simple for websites.

Application of Blog in libraries:
• Blogs serve as a platform where the users can file their concerns, queries and suggestions regarding the services

and activities of the library.
• Blogs can also be used for the collection development where the users request the resources.
• Blogs can be used as a tool for marketing of the information as well as the library.
• Can be used as tool for posting Minutes of the Meetings for necessary actions.
• Blogs can serve as discussion forum.

WIKIS
A website that each reader can alter. Although wikis allow people to contribute information and expertise, they are not typically regarded as "scholarly" or "authoritative." Wikis are full of dubious material since anyone can fabricate entries or present ideas as truth. Despite the fact that some bigger wikis, such as Wikipedia, try to validate information or credit sources, these websites are still not regarded as trustworthy or dependable. When you locate material on a wiki, you should cross-reference it with data from another source, such an index, dictionary, or encyclopedia, to ensure its accuracy.

Application of Wikis in Libraries:
• Wikis can be used for social interaction and discussions among the librarians & users as well.
• Promotimg professional development with the creation of forums to exchange ideas onspecific areas.
• An internal communication medium for sharing information amongst the library's staff.
• Wikis can also be used by the users to share information and enhance the content, and a record of these transactions is archived for future reference.
• Freely accessible and open content on any given subject or concept for intermittent consultant.
Reference resources wiki can be built.

RSS (REALLY SIMPLE SYNDICATION)
Real Simple Syndication, also known as Rich Site Summary, is a collection of XML-based web content distribution and republication/syndication protocols used to notify website visitors of recent content additions and updates, including the addition of fresh blog posts, articles, news, audio, and video. It permits unrestricted content transfer between websites and apps. Users have the option of aggregating data from multiple websites or receiving timely updates from their preferred website. RSS feed readers browse certain websites, search for new content, and download it straight to the user's desktop. NewsGatorhttp://www.newsgator.com/home.aspx), a web-based RSS aggregator, Feedster (http://www.feedster.com/), and the latest versions of Windows Internet Explorer and Mozilla Firefox can all process RSS.
Application of RSS in Libraries;
• Announcement of the availability of new books and other resources in a given subject area.
• Librarians can subscribe to RSS from the sources for compiling their customized alerts.
• Promote events organized in the library for Library Users.
• Enhance Library Instruction for different Web 2.0, Library 2.0, Blogs, Wikis, RSS, Tagging, Podcasting, IM programs/courses by integrating appropriate resources.
• Announce availability of new research and learning opportunities in various academic/research
• Integrating library services through RSS feeds.

STREAMING MEDIA
Multimedia content is sequentially supplied across a computer network and presented to the end user as it is being delivered by the provider. This is known as streaming multimedia. One significant application that predates Web 1.0 and finds use in Web 2.0 is the streaming of audio and video content. It speaks to the mode of medium delivery.
Interactive tutorials with multimedia elements are replacing static text-based tutorials. Several tutorials combine media presentation with interactive quizzing; users answer questions, and the system replies accordingly. These tutorials make use of Flash programming, screen-cast software, or streaming audio or video. The first library apps to go into Web 2.0's more socially interactive environment were tutorials.

INSTANT MESSAGING (IM) AND VIRTUAL MEETINGS
A type of real-time, nearly instantaneous communication between two or more individuals is known as instant messaging, or IM. Users can exchange other attachments, audio and video files, and photos. Instant messaging has grown in popularity because of its fast response time, user-friendliness, and multitasking capabilities. Millions of people are thought to use instant messaging (IM) for a variety of reasons, such as basic requests and answers, setting up in-person meetings, or simply to see whether friends and coworkers are available. IM client software includes Paltalk, Google Talk, Windows Live Messenger, and Yahoo Messenger.

Instant messaging is a tool that libraries use to give its customers "real-time assistance." Hundreds of people can participate in simultaneous textual conversations and real-time audio and video conferences. Libraries can also offer

interactive social environments for e-learning by utilizing Amrita University's A-View (Amrita Virtual Interactive E-learning World) Classroom. Compared to the basic instant messaging apps, the software utilized in libraries for "live reference services" is typically far more reliable.

TAGGING

A tag is a term that is appended to a digital item (such as a webpage, image, or video) for the purpose of describing it; it is not a component of an official classification scheme. The notion of tagging has expanded significantly beyond website bookmarking, and a wide range of digital artifacts can now be socially tagged through sites like Flickr (photos), YouTube (video), and Audio (podcasts).

Applications of tagging in libraries:

• Tagging can be applied to the Learning Management Systems(LMS) for editing the subject headings from the user point of view and thereby enhancing the indexing and relevancy of the searches, making the collection more dynamic.

• Tagging would greatly facilitate the lateral searching.

SOCIAL BOOKMARKS

Internet users can share, manage, organize, and search via bookmarks of web sites by using social bookmarking. The resources themselves are not shared, only the bookmarks that point to them, in contrast to file sharing.

Application of Social Bookmarks in Libraries:

• Simplifying bibliographic distribution lists, users can describe them by providing specializedknowledge.

• Elaborating link services recommended from specific fields of knowledge.

• Sharing resources with other users who are using them for research.

• Promoting participation and interactive with users.

SOCIAL NETWORKS

Social network usage has significantly increased in the last several years. Various criteria can be used to classify them based on their intended audience and purpose. Because it is challenging to keep an updated profile on every network that currently exists, libraries typically select just one. Libraries can use Myspace and groups can make their own sites and accounts. However, individual librarians are able to make profiles on Facebook. The academic library may employ them for a variety of purposes.

Application of Social Networks in Libraries:

• Libraries can create a page to reach to new users

• Social networking could enable librarians and patrons not only to interact, but to share and change resources dynamically in an electronic medium.

• For building network among the interested group in discussing the common interest.

• User content can be added to the library catalogue, including users book reviews or othercomments.

MASHUPS

A web application known as a "mashup" combines content from several sources to produce a new service that is presented through a single graphical user interface. The term "mashup" initially described the pop music (especially hip-hop) technique of creating a new song by combining two or more previously recorded tracks. Usually, content for mashups is obtained from a third party using an API (web services) or public interface. Additional techniques for obtaining content for mashups are screen scraping and web feeds (such as Atom or RSS). Mashup editors were created as a result of the widespread experimentation with mashups using Amazon, eBay, Flickr, Google, Microsoft, Yahoo, YouTube, and APIs (Wikipedia, 2014).

A mashup is a combination of social networks, blogs, wikis, streaming media, content aggregators, and instant messaging. Applications known as "mashups" combine two or more technologies or services to create a brand-new, innovative service. One example is the website WikiBios, which allows users to construct online biographies of one another by combining social networks and blogs. When a user logs in, Mashup in the Library 2.0 environment remembers them. The user can make all or part of their profile public, edit OPAC data and metadata, save their tags, have instant messaging conversations with librarians, collaborate on wiki entries with other users (and catalog all of these for others to use), and see what other users have, similar items that have been checked out, borrow and lend tags, and create a massive user-driven catalogue that is combined with the traditional catalogue. Mashups can be made using a variety of mashup platforms, such as Yahoo Pipes, Microsoft Popfly, Intel Mash Maker, Google Mashup Editor, LiquidApps, and Serena Mashup Editor.

AJAX (ASYNCHRONOUS JAVASCRIPT AND XML)

A collection of similar web development techniques called AJAX (Asynchronous JavaScript and XML) is used to

create interactive online applications. By sharing little quantities of data "behind the scenes" with the server, the technique makes it easier for web pages to communicate with users by preventing complete pages from needing to be reloaded whenever data needs to be fetched from the server. This is meant to improve the usability, functionality, speed, and interactivity of the webpage. Ajax has evolved to refer to a wide range of Web technologies that can be used to create Web applications that interact with servers in the background without changing the page's current state. Ajax is a cross-platform approach that may be used on a wide range of computer architectures, operating systems, and web browsers because it is built on open standards like the Document Object Model (DOM) and JavaScript. Appropriate frameworks and libraries exist in versions that are free and open source.

APPLICATION PROGRAMMING INTERFACE (API)

An operating system, library, or other service will offer an application programming interface (API) as a source code interface to accommodate requests made by computer applications. APIs that are language-dependent can only be accessed through a certain programming language. They make the API easy to use in this specific situation by utilizing the syntax and building blocks of the programming language. Writing style for language-independent APIs allows them to be called from a variety of computer languages. This is a desirable feature for a remote procedure call-based service style API that isn't restricted to any specific system or process. Examples of APIs are the Windows API and the Scopus API, which lets users choose which Scopus data pieces to include in mashups.

LIBRARY TOOL BARS

A toolbar is a type of graphical user interface that comprises frequently used buttons, menu items, icons, and commands within an application. Toolbars are add-ons for popular web browsers like Internet Explorer and Mozilla Firefox, as well as standard apps like Microsoft Word.

CLOUD COMPUTING

The phrase "cloud computing" refers to the utilization of resources and services for information technology that are offered as a service and is relatively new. "Cloud computing is a paradigm where data is temporarily cached on clients, such as desktops, entertainment centers, table computers, laptops, wall computers, handheld devices, sensors, and monitors, and permanently stored in servers on the internet." (2009, IEEE).

Application of Cloud computing in library

- Visit to libraries, focus groups and over a decade of engagement in the library automationworld.
- Hosting library websites, backing up media collections, or storing and accessing bibliographicdata.
- Understand converged devices are everywhere. (iphone)
- Allow unfettered access to the cloud (Secondary drive)
- Understand that the cloud may also be a valuable information resource (via facebook, blog)
- Understand the importance of personalization. (OPAC)
- Libraries must transfer effort into higher value activity and embrace the web as the primary technology infrastructure.

SEMANTIC WEB

Tim Berners-Lee, the head of the World Wide Web Consortium (W3C), invented the phrase "semantic web." It explains techniques and tools that let computers decipher the meaning, or "semantics," of data found on the Internet. The Semantic Web is the expansion of the World Wide Web that makes it possible for content to be shared outside of websites and applications.

Application of Semantic web in Libraries

- Build tools for discovering and navigating digital resources on the Web
- Data architecture scalable to the entire Web
- Interoperable across systems, institutions, domains

CHALLENGES BEFORE LIBRARY AND INFORMATIONPROFESSIONALS

To supply service-oriented and user-oriented applications, instructions, programs, projects, and services, library and information professionals must collaborate or operate alone in the digital online library services environment. A dedication to providing exceptional, user-friendly services, proficient oral and written communication, and extra abilities, experience, knowledge, and skills are required in addition to the academic and professional requirements for a team leader.

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

documentation 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 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.

CONCLUSIONS

As information technology has advanced, so too have the uses of web technologies in libraries and documentation centers. The term "Mirror of the Library" refers to any library or documentation center that uses a library portal. Professionals working in libraries and information must stay up to date on the latest advancements in order to provide web-based services to their patrons and provide individualized attention during the service period. specific services are offered to specific users by the documentation center. Information professionals in libraries and information centers want to give their users information. They are eager to engage with the members and do everything in their power to deliver the necessary information as quickly as feasible. Web services can facilitate system integration and modification, as well as empower libraries. The standardization of web services is necessary for these benefits to occur. Users should occasionally receive training regarding the applications of web-based library services, in addition to library and information professionals.

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