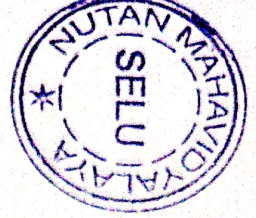


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**Application of WEB Technologies in Library and Information Science**

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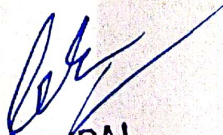
**Abstract:**

*In this technological era form and format of the resources get changed. Similarly the way of seeking information by the reader as well as the way of providing library services also gets changed. To provide quick and pinpointed information to the end users, WEB technology is becoming an important tool for library professionals. This paper introduces Web 1.0, Web 2.0 and Web 3.0. It describes impact of Web 3.0 on Library 3.0. The paper points out different benefits of Library 3.0. It describes different tools to practice of librarianship, especially addressing how Web technologies such as instant messaging, blogs, wikis, social networks, podcasting, cloud computing, semantic web can implemented in library profession.*

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**Keywords:** Web 3.0, Library 3.0, blogs, wikis, social networks, podcasting, RSS, IM, and Semantic Web.

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**Introduction:-**

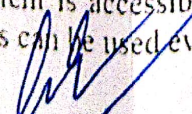
Libraries were involved in identifying, acquiring, organizing and disseminating conventional resources since decades. But as Information Communication Technology and Web Technology have changed the entire world, libraries also get affected by this technology. Now libraries are at challenging phase, probably because of the dramatic change in availability of various forms and formats of information in the recent past. These changes offer great opportunities as well as create challenge for libraries to reach out far beyond the boundaries of their buildings and premises. It is the libraries who need to accept and adopt the changing technologies and to cope up with the user needs and demands. Now libraries need to take initiative to feed the customized information to the end user as using technology like Library 3.0.

To understand the Library 3.0 we first know the WEB 1.0 and WEB 2.0 and WEB 3.0 technologies. When the Web was created originally, it did not have features and facilities for users to interact. In other words, Web 1.0 began as a platform for businesses and organizations to broadcast information to the people. With evolution in Internet and communication technology, Web 2.0 evolved into a dynamic, interactive and collaborative platform that facilitates exchange of information and knowledge amongst users. These features facilitate integration of people and the Web, and thus is the backbone of the Web 2.0. In Web 1.0 environment, users read what others wrote. However, Web 2.0 facilitates users to express their views and publish them online through services like BLOGS and WIKIS and etc. In other words, migration from Web 1.0 to Web 2.0 is essentially characterized by movement from "read-only" web to "read-and-write" web. Web 3.0 is third generation of the web technology which includes specific innovations and practices. Web 3.0 may also called the web of everything and everywhere, as most of the things are connected online. It has found that applications of web technology in several spheres of activities, which, in turn, led to evolution of concepts like Business 3.0, Travel 3.0, Library 3.0, Librarian 3.0, etc. As such, the concept of Library 3.0 is borrowed from that of Web 3.0 and follows some of the same underlying philosophies.

**WEB 3.0:**

Web 3.0 is the third generation technology. Main features of 3.0 are as follows. (1)

1. Semantic web – The semantic web improves web technologies in order to generate, share and connect content through search and analysis based on the ability to understand the meaning of word.
2. Artificial Intelligence – Combining this capability with natural language processing in web 3.0, computers can understand information like humans in order to provide faster and more relevant results.
3. 3 D graphics – The 3 dimensional design is being used extensively in websites and services. Museum guides, computer games ecommerce are examples of 3 d graphics.
4. Connectivity – Information is more connected and online.
5. Ubiquity – Content is accessible by applications. Any device is connected the web, the services can be used everywhere.

  
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**WEB 1.0, Web 2.0 and Web 3.0 Differences**

Bhattacharya shows difference between the web technologies as follows. (2)

Web 1.0	Web 2.0	Web 3.0
Read only Web	Read-Write Web	Portable web
Focused on Companies	Focused on communities	Focused on individuals
Homepage	Blogging	Life streaming
HTML	XML, RSS	Semantic web
Web forms	Web applications	Widgets drag and drop mashups
Netscape	Google	iGoogle

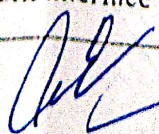
**LIBRARY 3.0:**

Library 3.0 refers to the use of emerging technologies such as semantic web, cloud computing, mobile devices / services and federated search systems to facilitate the development, organization and sharing user generated content.


Library 3.0 is the result of web 3.0. The purpose of Library 3.0 is to transform library services by making them more personalize, more interactive, collaborative, more web-based, driven by community needs using web 3.0 technologies. The heart of Library 3.0 is portability as well as sharing of data. It is a model for library service that encourages constant and purposeful change, inviting user participation in the creation of both the physical and the virtual services they want, supported by consistently evaluating services. It also attempts to reach new users and better serve current ones through improved customer-driven offerings. Web 3.0 technologies can help libraries to deliver user-centric library services and to create new resources and build-up on existing ones using collective intelligence of users.

**LIBRARY 1.0, 2.0 and 3.0 Difference**

Library 1.0	Library 2.0.	Library 3.0
<ul style="list-style-type: none"> <li>■ Email reference</li> <li>■ Text-based tutorials</li> <li>■ Email mailing lists, webmasters</li> <li>■ Controlled classification schemes</li> <li>■ OPAC (Online Public Access Catalogue)</li> </ul>	<ul style="list-style-type: none"> <li>■ Chat reference</li> <li>■ Streaming media tutorials with interactive databases</li> <li>■ Blogs, wikis, RSS (Really Simple Syndication) feeds</li> <li>■ Tagging coupled with controlled schemes</li> <li>■ Personalized social network interface</li> </ul>	<ul style="list-style-type: none"> <li>■ Interactive chat</li> <li>■ Webinars</li> <li>■ Semantic web</li> <li>■ Federated Search</li> <li>■ Cloud Computing</li> <li>■ Geo tagging</li> <li>■ Web Portals</li> <li>■ WebOPAC</li> <li>■ Ask a Librarian</li> <li>■ Mobile Catalogue</li> </ul>

  
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Tools and Techniques: Tools evolved in the Web Technologies are as follows.



1) RSS means "Read Simple Syndication" or "Rich Site Summary" an XML format for easily sharing content among different web sites such as news headlines. RSS feeds are replacement tools of email alerts. It offers patrons library RSS feeds that gather alerts from databases and free websites to one platform that is accessible and available anytime, anywhere. RSS aggregators also support sharing and collaboration. One can share feeds with subscribe community and allow others to add their feeds. In this manner one can create a dynamic and participatory knowledge base rather than a "push" technology. RSS feeds can be used to highlights new arrivals. Libraries can have library news feed.

2) Wikis: 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 collaborative websites, to power community websites and for note making <http://en.wikipedia.org/wiki/Wiki>. Wikis are also used in business to provide affordable and effective Intranets and for knowledge management. Librarians can use Wikis to built reference sources and create subject guides. 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. Transcripts of such question-answer sessions would serve as resources for the library to provide as reference. A Wiki like platform created for the librarians to work collaboratively and concurrently on providing answers to the user enquiries. This allows any staff to tap on the collective wisdom of the communities of subject librarians and provide quality answers to their queries.

3) Blogs: A blog (an abridged form of term web log) is a website, usually maintained by an individual, with regular entries of commentary, descriptions of events, or other material such as graphics or video. ([http:// en.wikipedia.org/wiki/Blog](http://en.wikipedia.org/wiki/Blog)). 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, databases, news and services rendered can be flashed for wider effects. There are many freely available blogging platforms today. ([www.blogspot.com](http://www.blogspot.com)). To create a blog visit the site and follow the simple steps to have your own blog.

4) Podcasting: The word "podcasting" is derived from two words, namely "broadcasting" and "iPod" (popular MP3 player from Apple Computer). Podcasting is defined as process of capturing audio digital-media files that can be distributed over the Internet using RSS feeds for playing-back on portable media players as well as computers. Users can subscribe to such feeds and automatically download these files directly into an audio management programme on their PCs. When a user synchronizes their portable audio device with their personal computer the podcasts are automatically transferred to that device to be listened to at the time and location most convenient for

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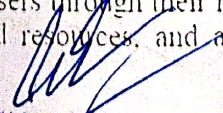


the user. A podcast is distinguished from other digital media formats by its ability to be syndicated, subscribed to, and downloaded automatically when new content is added, using an aggregator or feed reader capable of reading feed formats such as RSS or Atom. Several libraries use podcasts to support library orientations programs, promotional recordings about the libraries, speeches by visiting personalities. Taking advantage of podcasting and other consumer technologies (e.g., PDAs, iPods and other MP3 players) as a deliver media of Library's content and services is a great leap forward for library profession.

5) **Vodcasting:** The "VOD" in Vodcasting stands for "video-on-demand". It is identical to podcasting. While podcasting is used for delivering audio files, vodcasting is used for delivering video content. Like podcast content, vodcasts content can be played either on a laptop or on personal media assistant (PMA).

6) **Instant Messaging (IM):** Instant messaging or IM, is a form of real-time, virtually instantaneous communication between two or more people using textual format. Libraries are already deploying IM for providing "real-time reference" services, where patrons can synchronously communicate with librarians much as they would in a face-to-face reference context. Software used in libraries for "live reference services" are usually much more robust than the simplistic IM applications. This software often allows co-browsing, file-sharing, screen-capturing, and data sharing and mining of previous transcripts. Libraries are already offering live reference service using IMs 24x7x365 in a collaborative fashion. Libraries can benefit greatly by adopting this technology as it evolves since it facilitates reference services in an online mode quite similar to traditional reference services of the physical library. Libraries can provide instant messages about library related news.

6) **Social Networks:** A social network service is web-based software that facilitates creation of virtual social networks for communities of people who share interests and activities or who are interested in exploring the interests and activities of others. Most social network services are web-based interfaces that facilitate community of users to interact with each other deploying tools such as chat, messaging, email, video, voice chat, file sharing, blogging, discussion groups, etc. MySpace, Face Book, Del.icio.us, Frappr, and Flickr are some of the social networking services that are very popular. While MySpace and Facebook enable users to share themselves with one another (detailed profiles of users' lives and personalities), Del.icio.us enables users to share Web resources and Flickr enables sharing of pictures. Libraries can create a page to reach to new patrons and also built network among interested group to circulate the information. Social networking services could enable librarians and patrons not only to interact, but to share and exchange resources dynamically in electronic environment. Users can create accounts with the library network service; see what other users have in common to their information needs, recommend resources to one another. Besides, libraries can also recommend resources to users through their network, based on similar profiles, demographics, previously-accessed resources, and a host of data that users provide.

  
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7) Flickr: Flickr is social network for sharing photos. Flickr combines a social network with user generated content. Users can work together to collaborate on photo projects and use each others' tags to find new photos. Flickr enables users to contribute, organize, share and discuss photos. Libraries can add photos of the library events to share on the net.

8) Semantic Web: The semantic web provides a common framework that allows data to be shared and used across applications, enterprises and community boundaries. It is web of data. It provides format for integration and combination of data drawn from different sources. The use of semantic web technology in developing library portals facilitates user search, access and retrieval of learning resources. The use of this technology for portals fulfills the vision of libraries.

9) Cloud Computing: according to Oxford dictionary the practice of using a network of remote servers hosted on the internet to store, manage and process data, rather than a local host or a personal computer. Cloud computing technology now used by libraries to manage automation as well as building of repositories. It offers an opportunity to build networks among the professionals using social networking.

10) Federated Search: Federated search is an information retrieval technology that allows simultaneous search of multiple searchable resources. A user makes a single query request which is distributed for search engines, databases or other query engines participating in the federation. This search technique is used by Google Scholar, Scopus and others for searching the necessary information.

11) Mobile Catalogue: Recently use mobile phones and technology has increased drastically. This mobile technology can be used by the library professionals to provide library catalogue on the tip of the finger. Databases, repositories can also made available on the mobiles.

12) Geo tagging: Geo tagging is the process of adding geographical identification metadata to various media such as photos, videos etc. It helps to find specific information located at specific locations.

### BENEFITS of LIBRARY 3.0

1) Promotion of Library Services- Blogs, and social sites like Flickr or Facebook have been widely used by libraries to promote functional services (like access to catalogues) or for outreach activities like information or photographs (of library events, speakers, etc).

2) Engaging Users- Libraries make their presence on social sites primarily to engage users in many ways.

Eg. Libraries can share the information about events at libraries like library week, other program etc and interact with user about new ideas, service innovation and planning.

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3) **More Delivery Options-** Podcast, Videocast, Rss feeds are various alternatives which library can use to reach their users. All these approaches not only complement the library OPAC but extend beyond the catalogue to provide access to many non catalogued items. They also incorporate audio video data.

4) **Improvement In Services-** Use of Library 3.0 tools enhance the library services. Library can provide number of web based services to satisfy the user.

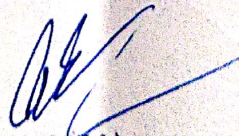
5) **Expanded Social Interaction-** The best role of the social networking is that it enforce to people to communicate each other. Social sites provide a common gathering place online. Information and experiences are shared by the persons from same area and experts of the same area. Library connection with such site draws users to discuss library centric issues, beneficial to library and users alike.

6) **Tracking User Behavior-** Library can keep track of the user behavior that who is using the services, which tool is popular, what is popular?. Libraries can do the modifications and provide better service as per the traces left for the libraries.

**Conclusion:**

Library 3.0 is based on third generation web technologies. It provides more techniques and facilities to handle information in this digital age. These tools and techniques are becoming useful for many libraries in providing new services and making existing services available in new and interesting ways. But internet technology that is web technology is changing very rapidly. Number of new tools is arriving with new applications. It is challenge for the library professionals to cope up with new technologies. To fulfill the law of library Science and to satisfy end users there is need to provide continuous training to the library professionals as well as users to adopt the new technologies.

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