Abstract:
Quite understandably, it is felt that in the vortex of the changing scenario of modern Library & Information Science the phrase ‘exponential information’ and its ilk are per se seemingly clichéd. Erstwhile conventionalism, be empirical or ex voto, is passé. In both actuality and exactitude, the nub of the genre is shifted to the apt and appropriate use of the latest supportive tools and technologies in different spheres of library’s functioning. This issue stands more relevant than emotive. Raison d’ etre is unlacing user friendliness. Librarians can hardly create technological experience; they must undergo it. Successful coupling of selective techno-scientific facilitative capabilities with engine of well-oiled functioning library is necessitated. It must run cheek by jowl. Artificial Intelligence is rearing its head at regal regularity. Of late, there has been perceptible interest on Library 3.0. With the advent of Information and Communication Technology (ICT), Library services have undergone sea-change. Today a new era of Web 3.0 has come up. The transformation from Library 2.0 to Library 3.0 is being observed with the application of Web 3.0. The original Web was about browsing contents, 2.0 is about uploading contents and 3.0 is about developing services that have the capability to merge separated uploads into more elaborated pieces of contents. In Library 3.0, library professionals need to adopt themselves according to latest innovations provided by Web 3.0.

Keywords: Evolution of Web 3.0, Web 3.0 features, Differences between Web 1.0, Web 2.0 and Web 3.0, Library 3.0 features and applications, Responsibilities of Librarian 3.0.

Definition:
Web 3.0 is a phrase penned by John Markoff of the New York Times in 2006. It refers to a supposed third generation of Internet based services that collectively comprise what might be called “the intelligent web”, for instance, those using semantic web, micro formats, natural language search, data mining, machine learning, cloud computing and artificial technologies which put stress on machine-facilitated
understanding of information with a view to providing a more productive and intuitive user experience. It is no wonder that Nova Spivack defines Web 3.0 as the third decade of the Web (2010-2020).

**Evolution of Web 3.0:**

**Web 1.0 features:**

- The web as an information portal
- Information exclusively be the first to own the content
- Dividing the world wide web into usable directories
- Everyone has personal own little corner in the cyberspace

**Lacks**

- Context
- Interaction
- Scalability

**Web 2.0 features:**

- The web as a platform
- Focus on the power of the community to create and validate
- The power of a seemingly freer form of organization (tags)
- Setting up hooks for future integration (RSS, API)

**Lacks**

- Personalization
- True probability
- Interoperability
Web 3.0 features:

- Convergence of the virtual and physical world- Metaverse
- Access to information anywhere, anytime
- It is mainly driven by the heavy use of smart phones and cloud applications
- It is a web development layer that includes T.V quality open video, 3D simulations, augmented reality, human constructed semantic standards and pervasive broad-band, wireless and sensors.

Differences among Web 1.0, Web 2.0 and Web 3.0:

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<th>WEB 1.0</th>
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<th>WEB 3.0</th>
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<tr>
<td>The mostly read only web</td>
<td>The widely read-write web</td>
<td>The portable personal web</td>
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<td>Focused on companies</td>
<td>Focused on communities</td>
<td>Focused on the individuals</td>
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<td>Home pages</td>
<td>Blogs</td>
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<td>Owning content</td>
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<td>HTML, Portals</td>
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<td>Web forms</td>
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<td>Widgets, drag and drop mashups</td>
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<td>Directories( taxonomy)</td>
<td>Tagging( folksonomy)</td>
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<td>Page views</td>
<td>Cost per click</td>
<td>User engagement</td>
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<td>Netscape</td>
<td>Google</td>
<td>iGoogle, Net Vibes</td>
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Library 3.0

Definition: It is a model for a modernized form of library services that reflects a transition within the library world in the way services are delivered to users. It refers to libraries using technologies such as the semantic web, cloud computing, mobile devices and re-envisioning our use of established technologies such as federated search to facilitate user-generated content and collaboration to promote and make library collections accessible. With Library 3.0, library services are frequently updated and evaluated to meet the emerging needs of library users.

The end result of Library 3.0 is the expansion of the “borderless library” where collections can be made readily available to library users regardless of their physical location. Library 3.0 is a virtual complement...
to physical library spaces and ideally will work seamlessly within established library services and collections.

Features and Applications

(a) Web OPAC:

One of the key aspects of Library 3.0 is Web OPAC. A Web OPAC is a library catalogue on the Web or Intranet. Users can search the required information by connecting to Uniform Resource Locator (URL) of Web OPAC anytime during the day and from anywhere in the world. It is programmed to facilitate the library’s members to access the OPAC through their own search for the ease of borrowing instead of searching through the card catalogue. In addition, members would also be able to request for the information about borrowing, reservation etc related to their own library profile, as well as to make automatic reservations.

In Library 3.0, Web OPACs of various libraries which are forming a part of visible or invisible web would be brought together. Metadata of contents (contents in any format) would be seamlessly accessible and searchable from single user interface.

Advantages:

- Scientists can immediately notice the missing reprints by author search.
- Updating can be done quickly as scientists take keen interest to submit the reprints.
- It is accessible all the time, worldwide.
- Increases awareness of ‘Scientific Research Contributions’ made by the Institute.
- It is possible for users to send reprint request immediately by e-mail.
- Compilation of various lists of reprints becomes very easy.

(b) Ontologies:

Ontologies are used for annotating information to the web content and expressing its semantics in a machine-readable manner. These are the techniques to give richer semantic relationships
between terms and thoughts of knowledge. These give more standardization in managing web contents instead of merely indexing the terms. Ontology aims at how the information is organized rather than organizing the information. These will be able to give more flexibility in providing semantic description to the content in learning object repositories and at the same time these facilitate automated functions and task delegation to intelligent agents. Ontology deals with questions concerning what entities exist or can be said to exist and how such entities can be grouped, related within a hierarchy and subdivided according to similarities and differences.

(c) **Ubiquitous Contents:**

The ubiquitous computing offers various contents which can be used or reused frequently. The contents of this generation need to be created in various formats and can also be easily shared, transferred and accessible through all modes of communication. Ubiquitous contents are the personal contents of the people persistently stored on the web in the form of movies, blog spots, RSS feeds, wikis, stories, articles, music, games etc. These are always there on the web and accessible from everywhere over the internet through all mobile and internet accessible devices.

(d) **Geo Tagging:**

This helps users to find specific information located at specific location. It is simply a marking of various media or digital contents like images, photographs, videos, websites or RSS feeds etc. Most of the cellphones and mobile devices have GPS (Global Positioning System) facilities.

(e) **Virtual Reference Service:**

Since technology is developing very fast in all domains, librarians are more determined to serve the users who are away from the libraries. Linda Berube (2003) defines that Digital reference or Virtual reference primarily refers to a network of expertise, intermediation and resources placed at the disposal of someone seeking answers in an online environment. In virtual reference service, apart from helping the users in personal or telephonic way, libraries are now developing the contents which can easily be transferable and readable in cellphones and other mobile devices to help users at any point of time.
Objectives:

 To provide individual assistance and instruction.
 To provide and maintain an appropriate collection of reference resources, both print and electronic.
 To assist users with locating the best sources of information.
 To help in marketing reference and resources.
 To help in referral process, forward the enquiry or provide the users with live links to authoritative websites.
 To educate users concerning resources and research techniques in order to help them to become information literate.

(f) Semantic Web:

The Semantic web provides a common framework that allows data to be shared and reused across applications, enterprise and community boundaries. It is a collaborative effort led by W3C with participation from a large number of researchers and industrial partners. Its objective is to convert all the unstructured documents on the Web into a web data. It is based on the Resource Description Framework (RDF). It will provide us with the option to share, unite, search and organize the web information in easy manner. Sharing and organizing information available in every corner of the web which is the main aim of this generation and expected to be achieved with the help of semantic web technologies.

Components:

 Resource Description Framework (RDF)
 RDF Schema (RDFS)
 Simple Knowledge Organization System (SKOS)
 SPARQL which is a RDF query language
LIBRARY 3.0 AND ITS IMPACT ON MODERN LIBRARY SERVICES

- Notation 3 (N3)
- N-Triples is a format for storing and transmitting data
- Turtle (Terse RDF Triple Language)
- Web Ontology Language (OWL)

Application in Libraries:

The Semantic Web has been proved very useful for the Librarians in providing effective Library services. As the Librarians are information providers, they should bring people and information together. Semantic Web is a remarkable tool for libraries where it protects proprietary information and helps in sharing the wealth of knowledge. The vision, goals and mission of both the libraries and the Semantic Web are similar. Both of these have been developed for accessing information available in abundance and discovering the knowledge through cooperation and collaboration for the advancement of society. The use of Semantic Web technologies in developing Library Portals facilitates users’ search, access and retrieval of learning resources. The portal should aim to provide access to a coalition of learning repositories with learning resources available in different formats. The implication of Library Portals with Semantic Web services will fulfill the vision of Libraries. The large collections of learning resources are semantically annotated adopting various technologies that facilitate user’s access to the content in one or more learning repositories.

(g) Cloud Computing:

‘Cloud Computing’ means using the Internet and central remote servers to maintain data and applications instead of maintaining data on individual mainframe computers or PCs. In short, cloud computing refers to the technologies that provide software, data access, storage devices that do not require physical location of the system. It is one of the most important Library 3.0 applications that is gaining popularity day by day.
Applications in Libraries:

Cloud based digital library provider ‘Duraspace’ is having two softwares namely ‘DSpace’ and ‘Fedora Commons’ but DSpace is widely used for building repositories for preserving scholarly contents, research output.

- OCLC is one of the best instances for making use of cloud computing for sharing libraries’ data. Its world cat is the most popular online union catalogue for searching library data.

- To access any files on the internet, cloud computing presents number of services such as Flicker, Drop box, Jungle Disk, Google Doc, Sky Drive and so on. These services virtually share the files on the web and provide access to anywhere and anytime without any special software and hardware.

- Cloud computing technology offers great opportunities for libraries to build networks among the library and information science professionals as well as other interested people including information seekers by using social networking tools like ‘Twitter’, ‘Facebook’ which play a key role in building community power.

- For library automation purpose, ‘Polaris’, ‘Ex-Libris’ provide variant cloud based services such as acquisitions, cataloguing, process system, digital contents and also support various standards such as MARC 21, XML, Z39.50.

Advantages:

- Cost saving
- Flexibility and innovation
- User centric
- Openness
- Transparency
- Interoperability
Connect and converse

Create and collaborate

Examples of Cloud Service Providers:

- OCLC
- Library of Congress (LC)
- Ex-Libris
- Polaris
- Scribd
- Discovery Service
- Google Docs / Google Scholar

(h) Federated Search:

Modern day searching is synonymous with Federated Searching which is one of the aspects of Library 3.0. It can help users to take greater advantage of online resources offered by libraries. Many online databases need different logins, look vastly different and search and display results in different ways. It would be easier for users to have all the search results displayed in one place and in one way, much as a Google Search does.

At present, federated searching is not widespread amongst modern day libraries. This is partly due to this functionality not being enabled in older LMS software, but also because for some external applications, the cost is prohibitive. It is anticipated that as demand for Federated Search functionality increases, these costs will come down. Another solution to this problem may be found in Open Source Software, such as ‘Library Find’ which is federated search software developed by librarians. As the cost comes down and the technology improves more libraries want to move towards federated search.
Recommendations:

- Modern day libraries need to be aware that the nature of searching for information is changing and they need to investigate and implement federated searching options to the best of their abilities.

- Consortia collaboration for e-resources purchasing such as e-books and e-journals.

(i) **Mobile Library Catalogues:**

The use of mobile phones and mobile applications has increased dramatically over the past 10 years. At present not many libraries in India offer mobile friendly versions of their websites and LMS.

This technology is only fairly recent so there will be some debate as to the best way to proceed.

All libraries should cater to users who access their library through their phones or other mobile devices. Developing an app is not necessary in most cases rather making the website / catalogue clear and easy to move around should suffice. There is great potential for expansion of this technology in modern day libraries in India. More people are using mobile phones and devices as tools for tasks for which they previously may have used a laptop or desktop computer.

**Recommendation:**

- Websites and OPACs need to be mobile device compliant and embracing user-generated contents/capabilities.

(j) **Quick Response Code (QR Code):**

A QR Code is a matrix barcode readable by smart phones and mobile phones with cameras. They are sometimes referred to as 2d codes, 2d barcodes or mobile codes. It is one of the important aspects of Library 3.0.

The number of smart phones and internet enabled cell phones in this country is increasing rapidly. Essentially, QR codes are a low-threshold technology, low-cost, easy to implement and easy to
use. Essentially, QR codes are a convenient way to add the virtual to the physical- to provide useful content often at the time of need.

**How QR codes can be used in Libraries:**

- Library exhibits that include a QR code link to songs, videos, web sites, surveys, contests etc or other information that augments the exhibits.
- Codes in the library stacks/ end caps or magazine/journal areas that point to online electronic holdings of print materials or related subject guides.
- Linking to library audio tours for orientations.
- Code added to print handouts for additional information on mobile friendly sites.
- In catalogue records to offer patrons basic information about an item, including the location and call number. Users can scan the code and head to the stacks rather than writing or painting.
- Code placed on staff directory pages and research guides that go to mobile friendly sites for later reference.
- Code placed on audio book cases for author interviews or books for reviews.
- Library video tutorials- individual videos or create a QR code to a You Tube playlists of videos , which create a great mobile home screen app that can be saved for easy access as needed.

**Responsibilities of Librarian 3.0**

In today’s times the role of the LIS professional is that of a bridge between an information specialist- the subject matter experts and the users.

Web 3.0 technologies and ontology have enabled Library 3.0 and have brought about fundamental changes in the way the information is collected and disseminated. With the role of the information professional becoming more and more prominent, the library professional will have to additionally learn about the related subjects along with the existing knowledge base. The library personnel will have to be
professional in their approach and deal with various matters intelligently keeping in mind the target audience.

In the context of Web 3.0, Crawford and Gorman have re-interpreted Ranganathan’s Laws of Library Science. The role of the information professional in the present scenario goes hand in hand with the third law which states that “Use technology intelligently to enhance the service”. Accordingly, by using various Web 3.0 technologies the library professional will be able to necessarily provide the information as per the requirements of the target users.

Conclusion:

In its entirety, the present age stayswedded to the unprecedented invasion and resultant supportive tools and technologies to embrace and be in use and utilization in different aspects of the libraries. User friendliness is the sine qua non. Adaptability breeds salutary result. The future world will be guided by the ubiquitous web 3.0 systems. As a result, Library 3.0 paves the way for libraries to offer access to relevant and engaging services and collections that will meet and hopefully exceed the expectations and needs of the users in the coming years. Library 3.0’s definition is shaped by individual or organizational needs. It will continue to unfold ineluctable impact on storing and delivering information. It is increasingly felt that we start preparing to become librarian 3.0 now.

Bibliography:


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Modern libraries (and the futuristic building is not a must to make a library modern) are shaping the way we learn things and enjoy books in the digital age. They offer access to books in every possible form and format. The purpose of this post is to encourage you to visit the library near you. You won’t probably have a chance to go to Singapore and visit Bishan Public Library. On the other side, that library on your street will also welcome you with a magic of books and the charm of the librarian. Some of the libraries on the list are obvious, naming only Thomas Fisher Rare Book Library or The Modern Library is an American book publishing imprint and formerly the parent company of Random House. Founded in 1917 by Albert Boni and Horace Liveright as an imprint of their publishing company Boni & Liveright, Modern Library became an independent publishing company in 1925 when Boni & Liveright sold it to Bennett Cerf and Donald Klopfer. Random House began in 1927 as a subsidiary of the Modern Library and eventually overtook its parent company, with Modern Library becoming an imprint of