Library Hi Tech News

Third Generation of the Web: Libraries, Librarians and Web 3.0
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THIRD GENERATION OF THE WEB: LIBRARIES, LIBRARIANS AND WEB 3.0

INTRODUCTION

The history of World Wide Web started with the invention of Web 1.0. Web 1.0 was designed so that customers and users could just see web pages and were not able to change or comment on the content material of the particular webpages. Technically, Web 1.0 webpage's information has been actually shut to external editing. "Next generation of the Web is Web 2.0. The expression "Web 2.0" had been initially described in Jan 1999 simply by Darcy DiNucci, the consultant on digital information style in her article, "Fragmented Future" (Wikipedia encyclopedia). Web 2.0 is about the two way communication between World Wide Web and humans through computers and the Internet.

Conversations about Web 3.0 are presently infiltrating the worlds of business and finance (e.g. Debruyne et al. 2010; Maad & Coghlan, 2010), education (Poore, 2013), medicine and health (e.g. Ciccarese et al. 2011; Manica, et al. Rocha, 2010; Ruttenberg, et al. 2009), and, not surprisingly, libraries (e.g. Pal, J. K. 2010; Tempelman-Kluit, 2010). Web 3.0 is basically the use of robotics and artificial intelligence in two way communication, first between humans and computers and secondly between humans and humans through computers. When Web 1.0 came into existence, web developers a way for two way interaction. As a result, Web 2.0 was created. The main examples of Web 2.0 are blogs, networking sites, wikis, social networks, etc.

Any Web 2.0 website may allow users to communicate as well as work together with each other. These webs are designed in a way that their content is not limited to just watching, instead users can add and comment on the contents and can communicate with other users. All the social networking websites are considered to be Web 2.0 sites e.g. www.facebook.com, all blogs, video sharing websites including www.youtube.com and mashups etc. Berners-Lee, (2006) explained Web; 2.0 as open to write and read for everyone. Web 2.0 gives each individual a space to write his or her thoughts and upload images or videos via their own browser. "The characteristics of Web 2.0 are: rich user experience, user participation, dynamic content, metadata, Web standards, and scalability. Further characteristics, such as openness, freedom and collective intelligence by way of user participation, can also be viewed as essential attributes of Web 2.0." (Best, 2006) \

WEB 3.0 CHARACTERISTICS and LIBRARIES

Markoff (2006) explained Web 3.0 as: third generation technology by the Internet companies, which consist of exactly what may be called the actual smart Net. This is a kind of

vocabulary search, data-mining, equipment understanding, and synthetic cleverness systems which usually highlight machine-facilitated comprehending of details in purchase to be able to offer a much more effective and user-friendly consumer experience." The maturing and developments regarding Web 3.0 tendencies will be strengthening and adding new technologies and functionalities to the Web.

Source located at http://lifeboat.com/ex/web.3.0
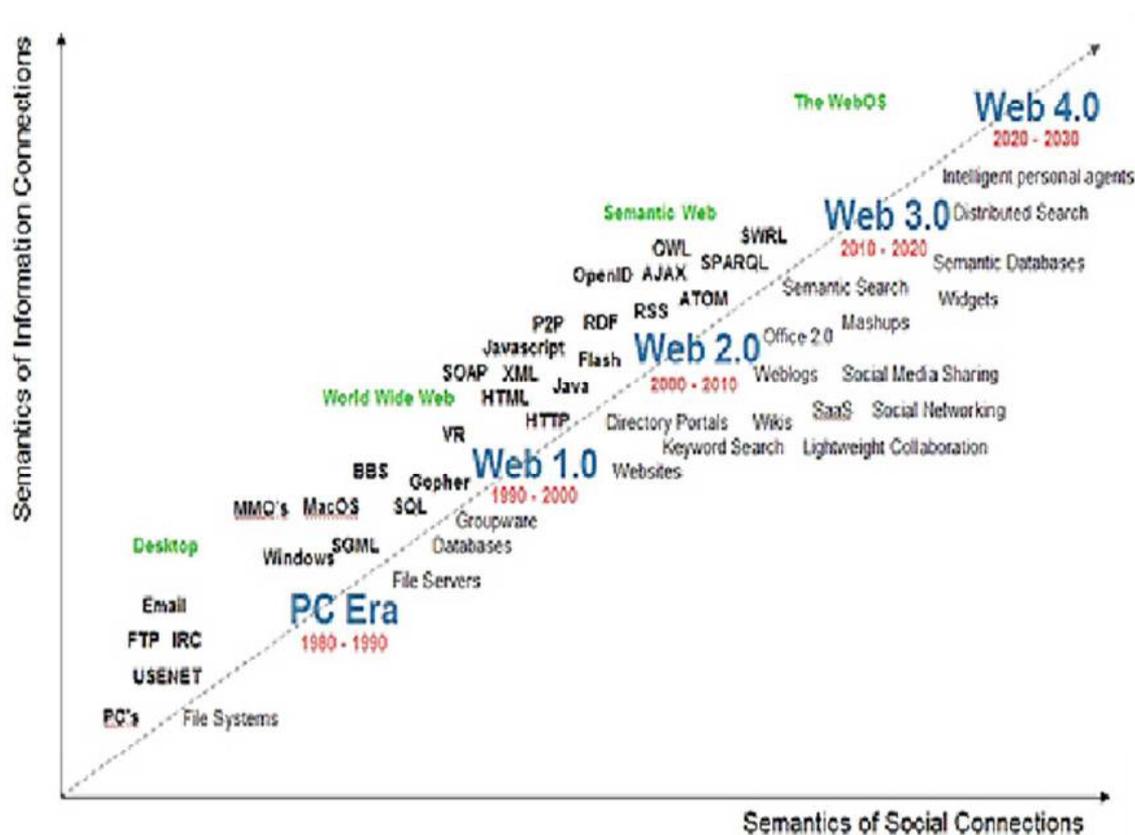
This diagram shows the development from a filing system to Web 3.0 The predictions for Web 4.0 is there in the graph, to be started in 2020. Some of the researchers have emphasized on cloud computing in Web 3.0. If not all, to a great extent, Web 3.0 features will be in the cloud. Web 4.0 may result in laptops without hard drives and satellite   internet system swith built in devices to connect with every computer and saving the work in the skies on the clouds as described by (Zeng, et al. 2009; Baliga, et al. 2011)

Web 3.0 has many implications in the library and information science profession. We never had so much information available at the same time in history. This information is very easy to access through the Internet. But it is hard to get relevant and required information out of the bulk of information available. Web mash-ups not only make the complete information available but make the web-based data useful as well. Mash-ups gather information from

different sources and provide it in a short and convenient interface. For example, if a tourist searches for Bus Terminal, the web applies the mash-up information and the results are generated accompanied by Google maps and distance measurement. The main kinds of mash ups are mapping mash-ups, video mash-ups, photo mash-ups, search and shopping mash-ups and news-mash ups. The Semantic Web gives machines tools to locate, exchange, and interpret information. Using the Semantic Web, a computer starts searching from one Web, or database and moves forward to other Webs and databases, searching for required contents, by bestowed tools of searching and retrieval to the machines. Widgets are the short applications in the form of smart icons on the desktop of mobiles and computers. The other name for a widget is a gadget that is being placed on the computer screen. For example, weather, clock, calendar, or bookmarks are the major types of widgets.

A Semantic database is a knowledge-based database. At the root, each database are connections with other database based on the meaning of the query. "At a high level, semantic databases offer five main benefits: They work with your existing relational databases and they align with Web technologies. Their underlying technology speeds integration of multiple databases. They're based on data structures that are flexible by design. And thus they can help enterprises tackle big data challenges.(http://www.informationweek.com/database/semantic-databases-destiny-or-distraction/d/d-id/1107587)

In the distributed search, many systems, computers and networks are connected and searched through indexed data, web crawling and query processing. Distributed search is being used by many search engines and their standards

"Personal Digital Assistants (PDAs) that can automatically arrange your meetings and timetable in collaboration with your site's databases, to yield the most productive combination of meetings, on-site tours, travel and accommodation". (Georgallides et al. 1997)

Interactive books are the next generation of electronic books. Librarians will tell the publishers about the design and features of these books. For example, if the book is about the wheat crops, it will show the whole procedure from soil preparation to the growth wheat grain crops. (Ramzan, 2014) In short, interactive books are a lot helpful in the learning procedure and will develop the conceptual study instead of just reading.

"Many librarians will remember being told that computers would soon take over the librarians' role and that libraries would simply close due to lack of use and need. The threat of technology and what it could do to the field of librarianship has always been present; however, it is the response that the profession takes that can make the ultimate difference in the survival of the profession" (Kenefic & Werner 2008) The notion of interactive books has already taken place. In the era of Web 3.0, computers will be able to answer most queries using artificial

intelligence or fuzzy logic. Students will read, while the applications will speak the words and interactive books will teach. At the next level, the artificial intelligence will answer the queries of researchers, using books, journal articles, dissertations and encyclopedias.

All the professionals and librarians, struggle to be able to understand, modify, respond, and transform themselves according to existing circumstances and trends. Librarians adopted Web 1.0, and later they have been using Web 2.0 for organizational purposes and providing services to users. In the future, a new challenge is to adopt and use Web 3.0 technologies in libraries. One option is training where the library role can be enhanced and developed by adapting new technologies, creating hyperlinked blogs, upgrading skills, supporting collaborative learning and providing quality service to library patrons as just a few examples. As Web 3.0 supports user integration and accessibility to upload their intellectual content, users must be conscious about the privacy and intellectual property rights of their work. Guidelines for user communities regarding creation, evaluation, organization and sharing of information should be continuously revised and should be flexible in adapting change.

Web 3.0 and its applications exist only in the main Global Language, at the top of which is English while other minor languages are being ignored. The learning of Web 3.0 tools and adopting their technologies will not only improve the overall impression of libraries but the overall image of the profession as well. Librarians are the information managers, and the information is getting reshaped in the form of digitized and electronic content. Librarians as information managers will need to be fully aware of artificial intelligence management tools and the Semantic Web to get even more expertise in the evolving digital environment.

References

Baliga, J., Ayre, R. W., Hinton, K., & Tucker, R. (2011). Green cloud computing: Balancing energy in processing, storage, and transport. Proceedings of the IEEE 99(1), 149-167.

Best, D., (2006). Web 2.0 Next Big Thing or Next Big Internet Bubble? Lecture Web Information Systems. Technische Universiteit Eindhoven

Ciccarese, P., Ocana, M., Garcia-Castro,l. J., Das, S., & Clark, T. (2011). Open annotation ontology for science on web 3.0. *Journal of Biomedical Semantics, 2*(S-2), S4.

Darcy DiNucci (1999). Design and New Media. *Fragmented Future. New York Times, 12,*2006.

De Leenheera, P., Christiaensa, S., & Meersmana, R. (2010). Business semantics management: A case study for competency-centric HRM. *Computers in Industry*, 61, 760–775

Debruyne, C., De Leenheer, P., & Meersman, R. (2010). Business Semantics Glossary: Community Driven Data Governance with DOGMA and SBVR

Georgallides G., Michaelides A., & Moraiakis N. (1997). Intelligent agent technology in travel reservation systems. *SURPRISE 97.*

Kenefick, C., & Werner, S. E. (2008). Moving Towards Library 3.0: Taking Management Basics into the Future. *Journal of Hospital Librarianship*, 8(4), 464-468

Maad, S., & Coghlan, B. (2010). The next generation grid: An infrastructure for global business systems. *International Journal of Business Information Systems*, 6, 95–110.

Manica, H., Rocha, C. C., Todesco, J. L., & Dantas, M. A. R. (2010). Developing knowledge representation in emergency medical assistance by using Semantic Web techniques. In W. Du & F. Ensan (Eds.), *Canadian semantic web. Technologies and applications* (pp. 159–174).

Pal, J. K. (2010). Metadata initiatives and emerging technologies to improve resource discovery. *Annals of Library and Information Studies*, 57, 44–53.

Poore, M. (2013). The Next G Web. Discernment, meaning-making, and the implications of Web 3.0 for education. *Technology, Pedagogy and Education*, 1-14. doi: 10.1080/1475939x.2013.802992

Ramzan, D. M. (Performer). (2014). Speech to PULISAA oath taking cerimony. Lahore, Punjab, Pakistan.

Ruttenberg, A., Rees, J. A., Samwald, M., & Marshall, M. S. (2009). Life sciences on the Semantic Web: The Neurocommons and beyond. *Briefings in Bioinformatics*, 10, 193–204

Tempelman-Kluit, N. (2010). Building Library 3.0. *Journal of Academic Librarianship*, 36, 179–180

Tim, Berners-Lee (2006). Linked Data – Design Issues, http://www.w3.org/DesignIssues/LinkedData.html/.

Zeng, W., Zhao, Y., Ou, K., & Song, W. (2009). Research on cloud storage architecture and key technologies. *In Proceedings of the 2nd International Conference on Interaction Sciences: Information Technology, Culture and Human* (pp.1044-1048). ACM