"ROLE OF INTERNET IN CHANGING SCENARIO OF LIBRARIES"

Abda Khanum	**Dr. Avaneesh Kumar Singh**
Research Scholar	Research Guide
Department of Library science	Department of Library science
C.M.J University, Meghalaya	C.M.J University, Meghalaya

1.1 INTRODUCTION

Libraries, like the world around us, have evolved as a result of the growth of Information and Communication Technologies (ICTs), and they are now facing an era of unparalleled change and challenge. We have arrived at a point where developments in ICTs are critical to our planet as a whole and to the people who live in it. Recent technological advancements are providing new sources of information in a variety of formats to information seekers, as well as making knowledge available in novel and convenient methods that circumvent established institutions such as libraries. Not only has the rate of information generation increased exponentially, but the number of venues where this information may be found has multiplied. Libraries are under increasing pressure to deploy their resources and close the gap between what they offer and what their users are aware of. The current generation of library customers is technologically sophisticated, and their bond with 1CTs is unbreakable. ICTs are used with ease by today's'Google Generation,' and it appears natural and easy. Their expectations of libraries are varied, changing, and increasing. Traditional jobs such as librarian, author, journalist, researcher, and teacher have begun to disintegrate as everyone can now quickly obtain information on any subject or topic, generate new material, and share it with others. The fundamental challenge for libraries now is not just to manage their collections, personnel, and information and communication technologies (ICTs), but also to transform them into resources and services. From library-centric to user-centric, from in-house to remote access, from basic to value-added, from assisted-service to self-service, and from reactive to proactive, the concept of services has evolved.

1.2 WEB TECHNOLOGIES AND LIBRARIES

The Internet has become widely used all around the world. Web technologies have transformed traditional library services into web-based library and information services. Additionally, the internet allows libraries and information centres to make more advanced improvements. The most essential point of access and delivery to

web-based library and information services is through library websites. As a result, "a library website is a virtual public face, the quasi-equivalent of the front entrance, signage, pathfinders, surrogates to the collections, services, and it is used as a portal to the world wide web (WWW)," according to one definition (Diaz, 1998). "It also serves as an integrated interface for users over a network to a wide variety of digital materials and web-based library services" (Letha, 2006).

Libraries and information centres are increasingly converting themselves to provide information services over the internet, with improved access to remote library resources, facilities, and services. In the networked era of information, Indian higher education institutions have recognised the paradigm shift in library and information services and are providing improved web-based library and information services to their current techno-savvy consumers. In the creation, marketing, diffusion, and storage of information, the growth of web technology has brought new opportunities and problems for libraries and information centres. They are improving as a result of technical advancements. This, in turn, leads to the creation of new services, as well as the modification and spread of current library and information services.

At the turn of the millennium, Tim-Orally (2004) proposed an innovation of web-based and web-enabled services, which has created a tremendous momentum in experiencing and leading research, as well as contextualising web-based technologies for societal benefits. It has presented a significant problem and potential in the distribution of a variety of products to end-users in a variety of areas. Internet connectivity, virtual portfolios on the web, and web presence have become important factors for commercial research and industrial enterprises around the world, as well as government services and e-governance, including the development of libraries and information centres. By utilising new technologies, the higher education industry has been at the forefront of developing human resource potential. By supplying new types of information and facilities, it has created an excellent opportunity for library and information science workers.

As library users become more reliant on the Internet and the idea that libraries are no longer the "only" source of information, it has become more difficult for librarians to promote not only the library's products and services, but also to raise awareness among users about the library's unique ability to provide customised services.

1.3 THE INTERNET

"The term internet refers to any collection of interconnected networks in a broad sense. In this text, however, Internet refers to a global network of computer networks that use packet switching and the Transmission Control Protocol/Internet Protocol (TCP/IP) standard, as well as a family of supporting services and protocols that are discussed in length in subsequent chapters" (Millar, 2014). "The popularity of the Internet was the

most important single development in the world of computing since the debut of the PC," Microsoft's Bill Gates said 23 years ago (Gates, 1995). "The Internet is widely considered as one of the most revolutionary technological inventions of the twentieth century, not only reshaping our information world, but also shaping who we are in terms of our common values and beliefs," according to a recent survey (Rosen, 2012).

1.4 BRIEF HISTORY OF THE INTERNET

The ARPANET was established in 1969 by the Advanced Research Project Agency of the Department of Defense, and it was the beginning of the current Internet. Despite the fact that earlier network and computer technologies were critical to the Internet's growth, most people see the ARPANET as a watershed moment in its history. The ARPANET program resulted in the first packet switching computer network, which connected a UCLA computer with a Stanford University computer to form a two-node network. The Internet as we know it today arose from this humble beginning. ARPANET was created in part in response to national security concerns and a need to create a decentralized communication network capable of surviving the loss of a major hub as well as the electromagnetic disturbance caused by a nuclear attack. Interface Message Processors were dedicated processors used in ARPANET connectivity (Leiner et al., 1997).

Zakon (2011) used Hobbes Internet Chronology to create a complete timeline; here is a truncated summary of major events since TCP/IP was defined:

- **1980** -TCP/IP specifications are defined
- **1983**-TCP/IP protocols are implemented by ARPANET . MILNET is distinct from ARPANET.
- **1986** – The National Science Foundation (NSF) creates the NSFNET, a network that connects five new supercomputer centers.
- **1989** – At CERN, Tim Berners Lee proposes a new information management system (an acronym derived from Conseil Europeen pour la Recherche Nucleaire). His idea will eventually turn into the World Wide Web.
- **1990** - Due to the NSFNET and ARPANET's overlapping infrastructure and uses, the ARPANET ceases to exist as a separate entity and is replaced by the NSFNET.
- **1991**-Congress passes the High Performance Computing Act . Senator Al Gore of Tennessee presented this bill, which establishes the National Research and Education Network (NREN).
- **1991** – Tim Berners-World Lee's Wide Web (WWW, sometimes known as the Web) goes live at CERN.
- **1993** - A group of programmers from the University of Illinois, Urbana-National Champaign's Centre

for Supercomputing Applications (NCSA) creates and releases the MOSAIC browser. Marc Andreesen, who would later found and run Netscape Corporation, was a member of the team. The creation of this user-friendly, graphical browser makes the Internet and the growing Web more accessible to the general public.

- ➢ **1995** - Because the original NSFNET has evolved into a more commercialized Internet, NSFNET returns to its research beginnings and transforms into an extremely high-speed network dedicated to education and research. The Internet2 initiative will be born as a result of it.

- ➢ **1997:** Internet2 is founded as a non-profit partnership of over 170 universities and institutes in the United States. Its goal is to aid research and serve as a testing ground for future networking technologies.

- ➢ **1998:** Google is founded and its search engine is launched.

- ➢ **2000:** IPv6 is deployed on the Internet2 backbone network in the year 2000. New Top-Level Domains (TLDs) are available from ICANN, including.aero,.biz,.coop,.info,.musuem,.name, and.pro. The size of the internet is estimated to be 1 billion pages that can be found.

- ➢ **2003** - Tim O'Reilly and John Battelle coin the term "Web 2.0" to characterize the interactive, next generation Web, which was first used in a book title by Dermot A. McCormack in the context of ecommerce. Blogs and social networking sites are getting increasingly popular.

- ➢ **2004** - ICANN approves the.asia,.cat,.jobs,.mobi,.tel, and.travel generic Top-Level Domains (gTLDs) . With social networking and Web mashups, Web 2.0 is gaining traction.

- ➢ **2008-** IPv6 addresses were added to six root zone servers . The crawler of Google has reached 1 trillion pages.

- ➢ **2010 -** Apple releases the first iPad, and smartphone shipments surpass PC shipments. "The Web Is Dead," declares the cover of Wired magazine.

- ➢ **2013 -** Global device shipments (PCs, tablets, and mobile phones) are expected to reach 2.4 billion units, up 9% from 2012; PC shipments are expected to fall 7.6%, although this will be offset by substantial gains in the mobile sector (Gartner says, 2013).

Many users consider the Web to be synonymous with the Internet, however the two phrases are not interchangeable. The Web is a portion of the Internet, but it is not everything on the Internet. The Web uses URLs and TCP/Hypertext IP's Transfer Protocols (HTTP and HTTPs) to direct client-server communication; these interactions, when combined with hypertext links, form a hypertext database.

1.5 KEY WEB TECHNOLOGIES: URLS, HTTP, AND HTML

An Internet protocol to specify client–server interaction, a mechanism to identify the location of a resource, and a way to create content that was not dependent on a proprietary format, which was the HTML format, were all crucial aspects in the development of the Web. Berners-Lee (1999) proposed a URI, or Uniform Resource Identifier (URI), as a method of identifying a resource, but the IETF altered it to the now-famous URL, or Uniform Resource Locator.

1.5.1 Tim Burners-Lee introduced the World Wide Web in late 1989. Three innovations, often associated with three phases, expressed his perspective of the World Wide Web's capabilities: the Web of documents (WWW or Web 1.0), the Web of people (Web 2.0), and the Web of data (Web 3.0). (Web 3.0). The World Wide Web has gone through several stages of development during the course of its existence. In the context of Web version 3.0, the Web is slowly but steadily transitioning to a more data-centric phase, following the trend of ongoing evolution.

1.5.2 WEB 1.0

Web 1.0 was the initial version of the internet, which ran from 1989 to 2005. It was defined as a web of interconnected information. Tim Berners-Lee, the inventor of the World Wide Web, referred to the Internet as a "read-only" medium. It allowed for relatively little engagement, with the consumer being able to share information but not interacting with the website. There was very little interaction between sites and web users in Web 1.0. Web 1.0 was merely an information portal where users were given the option to passively consume information without the ability to offer reviews, comments, or feedback. The web's role was largely passive in nature. Core web protocols such as HTML, HTTP, and URI were included in Web 1.0 technologies.

1.5.3 WEB 2.0

The second generation of the internet is known as Web 2.0. (2004-2016). It's the World Wide Web's "readable and writable" slogan for interactive data. Web 2.0 is a term coined by Tim OReilly of OReilly Publishing to describe a transition from the initial Web (i.e., Web 1.0), which consisted primarily of content housed in static HTML pages residing on isolated servers, to a more dynamic and interactive computing platform supported by a number of new technologies and protocols. Web 2.0 technologies enable massive worldwide populations with common interests in social interactions to be assembled and managed.

The collaborative, social, interactive, blogging, twittering, flickring, widget-using, mashup-driven Web, as

defined by most definitions, is referred to as Web 2.0. The core idea of Web 2.0, in this opinion, is to deliver Web apps.

"Web 2.0 is the network as platform, spanning all connected devices," according to **Tim O'Reilly** (2005), who is credited with popularizing the term in 2003. "Web 2.0 applications are those that make the most of the intrinsic advantages of that platform: delivering software as a constantly-updated service that gets better the more people use it, consuming and remixing data from multiple sources, including individual users, while providing their own data and services in a form.

Geocities, Facebook, MySpace, Foursquare, LinkedIn, Google Hangouts, Tumblr, Pinterest, Instagram, and Twitter are all well-known examples of social media and common social networking sites, where they were described as the heirs of earlier virtual communities (Top 15 most popular SNS, 2013). Any website that relies on large communities of active participants, such as Wikipedia, is a form of social media. Libraries must have a clear plan in place that incorporates a comprehensive approach to social media in order to serve the sometimes disparate groups that each site attracts. With over a billion active Facebook users, Facebook is the dominating participant, although MySpace, which was previously the largest such site, reopened with a new site, mobile app, and music streaming service (Hampton, 2011; Tam, 2013).

Millions of people have been drawn to SNSs since their creation, and they use these platforms for a variety of day-to-day activities. SNSs are Internet- or mobile-device-based services that allow users to connect with one another, allowing for conversation, collaboration, and information exchange across networks of contacts.

SNSs allow users the ability to manage, enhance, and represent themselves online. It not only allows strangers to interact, but it also allows them to articulate and make their own stories apparent. Typically, the sites bring together individuals who have common interests, hobbies, and causes, and their relationship grows deeper over time as they communicate with one another.

1.6 CONCLUSION

In the last ten years or so, there has been a lot of research into web-based technology in libraries. Every university, institution, and research and development sector has a library. Institutes of National Importance (INI) libraries have also begun to use web applications and have made tremendous success in providing excellent services to their users. Web 2.0 and 3.0 technologies, which put individual users in the forefront, have largely supplanted the impersonal realm of the World Wide Web (WWW). The use of online tools allows for easy, collaborative, and immediate access to its resources. It has provided libraries with numerous

options to expand their services, including as user interfaces with librarians and methods of distributing information to intended users in a timely manner. Every institution has its own webpage or website. Almost all sorts of organisations have implemented library websites, web-based library and information services, and Web 2.0 and 3.0 technologies in the previous ten to fifteen years, as expected. It supports constant and deliberate change and invites user interaction. As a result, there is a need to investigate library websites, web-based library and information services, and the use of Web 2.0 and 3.0 tools in Indian libraries, such as Blogs, Bookmarks, RSS, Podcasts, Mashups, YouTube, Wiki, Social networks (Facebook, Twitter, etc.), Mobile web, QR, WebOPAC, and other tools.

Web-based information services have had an impact on the provision of library and information services since the internet's inception. Many people now have access to formal education thanks to the booming technical education sector, but the quality of education, which is aided by enriching information services, requires more attention and strategic directions to ensure that all learners have access to information infrastructure and resources.

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