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Prospects and Challenges of Web 3.0 Technologies Application in the Provision of Library Services

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Abstract

The chapter examines the prospects and challenges of the application of Web 3.0 technologies as they relate to semantic web, federated search, mobile application, and their impact on library services. The principles, features, application, potentiality, and challenges of the technologies vis-à-vis library services form the broad objectives that guided the chapter. Following a brief retrospective review of the developments of web technologies, the chapter discusses Web 3.0 from the context of semantic web, cloud computing, federated search and virtual reference services. It broadens the prospects of Web 3.0 as it affects the provision of web-based services like its flexibility as solution to digital content volatility and ability to widen cloud-based services using open source electronic library software among others. Having expatiated the challenges Web 3.0 portends for web-based library services, the chapter concludes with the need for librarians and users to co-create value for participatory librarianship.

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Background

The sophistication and rapid dynamism that characterize the ICT have necessitated the need to leverage on latest discoveries in searching, tracking, accessing, disseminating and sharing from the global information network as well as connecting with people and communities for mutual benefits. The World Wide Web has made possible the instant linkage of information resources and people on the cyberspace. It began with the advent of web 1.0. This is a system of interlinked, hypertext documents through the internet. It was a read only platform having focus on one way

communication. Users were allowed to search for information and read same with little interactivity and contribution to content. It was aimed at providing online presence for requisite information through websites (Kadyan & Singroha, 2014).

The improvement over this phase resulted in the emergence of web 2.0 in 2004. This version foisted a truly virtual global community where users could share, interact, and collaborate with others on the social media platform. This gave birth to networking sites such as Facebook, YouTube, Blogs, Wikis, Flickr, Twitter and WhatsApp. As a result, the technology has been described as a veritable tool for internet marketing of product and services (Ekwueme & Ilo, 2019). Following in the rapidity of the heightened developments in the programming world, John Markoff mooted on the idea of Web 3.0 in 2006 (Morris, 2011). A web 3.0 is a centric delivery pattern in which relevant data are provided to end users on different platforms and devices in a most usable manner. It has the ability to aggregate information from multiple sources and establishing semantic relationship between all available contents to ensure seamless accessibility, searchability, availability, and usability. It allows interoperability with other devices such as tablets, smartphones, and desktop computers, iPads. It also supports offline use or consumption of downloaded data, therefore making it possible for the exploitation of information in a low bandwidth conditions.

Key Terms in this Chapter

Library Services: Information-based services offered by the library to a defined group of patrons for personal self-development, educational, business, political and other purposes with the aid of man and or technology infrastructures.

Mobile Technologies: Hand-held internet-compliant devices that foster wireless communication and computing applications using the Global System for Mobile (GSM) network which include android phones, iPhones, iPads, and tablets.

Library 3.0: A computer-mediated library that promotes access to a wider array of information resources and services beyond its physical location.

Semantic Web: A simplified world wide web that fosters human and computer interaction for effective management of data/information.

Cloud Computing: A model for information network, storage, and access, facilitated by a remote server hosted over the internet instead of a local server or computer.

Virtual Reference Services: Electronic means of communicating and conducting referrals and other reference-based services.

Web Technologies: Mode of communication between or among interconnected computers using hypertext markup languages and other multimedia applications.

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