Chapter 7
The Emergence of Web3 and Metaverse Technologies:
Implications for Library and Information Services

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ABSTRACT

This chapter seeks to examine the concepts Web 3.0 and Metaverse, where and how it is being applied to enhance library services, and the potential application by libraries to improve their resources and enhance their services. The concept of the Web 3.0 encompasses nonfungible tokens (NFT), decentralised finance (DeFi), decentralised autonomous organisations (DAO), decentralised applications (DApps), decentralised exchanges (DEX), game finance (GameFi), finance (GameFi). The concept of Metaverse (which comprises connectivity technologies, human interface, experience) is broadly based on distributed ledger technology (DLT). The types and features of the technologies shall be discussed in detail. This shall be followed by an exploration of evidence that libraries are applying these technologies to improve their resources and enhance their services consequently.

INTRODUCTION

Timely access to reliable and relevant information on the Internet as envisaged by Tim Berne Lee and other early developers of the Internet and the World Wide Web appears not to be fully realised. However, the emergence of cutting-edge technologies like Web3 and Metaverse is pointing to a certainty that it won't be long before this is realised. The introduction of Web3 (also known as web 3.0) and Metaverse are causing a lot of excitement throughout the world signalling a major shift from the information age to the age of imagination (Marr, 2022). These developments aim to build a more democratic Internet, where no one organization will be able to limit the flow of information simply because they own the

technology it is running on. The users themselves own the servers, systems, and networks that power the applications, and they also control the rules and restrictions that govern how the data can be utilized through their voting rights.

Web3 is essentially the decentralized Internet, being built on distributed technologies such as blockchain and decentralised autonomous organisations (DAO) instead of centralised servers controlled by people or businesses. The term "Metaverse" on the other hand was coined by Neal Stephenson in his 1992 science fiction novel "Snow Crash," in which he envisaged a virtual reality-based successor to the Internet which enables people to use digital avatars of themselves to explore the online world, time and again as a way of avoiding reality (Ejeke, 2022 and van Rijmenam, 2022).

Second Life (SL), an online multimedia platform that allows individuals to create avatars and live a second life in an online virtual environment, debuted in 2003 and marked the birth of the Metaverse. It was created by the San Francisco-based corporation Linden Lab and launched on June 23, 2003. It saw tremendous growth for several years, but the excitement around SL did not continue. It failed to become a mass-market product due to an extremely high learning curve, frequent platform meltdowns, copyright infringements, and unrealistic expectations by customers. Even though interest in the SL virtual world waned over time, there have been a lot of activities by libraries and librarians on SL over the years. Librarian volunteers have and are still working in over 120 SL libraries and library organisations project shifts to provide virtual reference services and other various services for their users and the general public in the various Info Islands fielding (Stimpson, 2009). However, with the re-emergence of the Metaverse and Web3 applications and the innovation that is powering them, there appears to be little involvement by Libraries and information professionals.

However, Metaverse re-emerged in form of virtual reality massive multilayer games (VRMMO) like Roblox, Minecraft, and Sandbox, Metaverse where players earn crypto tokens for playing, is going mainstream with applications in manufacturing, entertainment, healthcare, education, real estate, and electronic commerce. For instance, Adidas is launching Non-Fungible Tokens (NFTs) of the products and buying land on Sandbox; Gucci is selling Goods on Roblox; Nike selling virtual footwear as well as Facebook, Microsoft, Apple, Amazon, and Google investing billions of dollars in the Metaverse. Web3 and the Metaverse technologies and innovations are recording significant growth rise in the past three years. According to a 2020 study performed by Ericsson, seven out of ten respondents anticipate that by 2030, humans will be able to join virtual worlds that appear to be originally.

Similar to how a mouse cursor s moved to traverse the Internet, Lim et al., (2022) expect that people would employ Virtual Reality (VR) or Augmented Reality (AR) technology to explore the Metaverse. The Metaverse is also intended to support unique, decentralized ecosystems of service offerings that will blur the boundaries between the real and virtual worlds, driven by artificial intelligence (AI), blockchain technology, and 5G and Beyond (B5G). Advances in in Blockchain and AI supported by enabling technologies like the Internet of Things (IoT), Edge Computing, Augmented Reality (AR), Mirror World (MW), Virtual Reality (VR),all key technologies underlying Web3 and Metaverse are paving the way for major innovations like Smart cities, smart homes, smart offices, smart cars, smart roads. This is in addition to applications in the area of healthcare, education, industry and manufacturing automation, e-commerce, logistics, supply chain, entertainment, fashion, art and culture. Apart from the high level of interest shown by libraries and librarians in SL, there is little evidence to indicate widespread application of the two innovations to provide or promote library and information services.

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