Chapter 16
Exploring Web 3 Benefits and Challenges

Munir Ahmad
https://orcid.org/0000-0003-4836-6151
Survey of Pakistan, Pakistan

Muhammad Awais Ali
Bahria University, Pakistan

Muhammad Arslan
Chenab College of Advance Studies. Faisalabad, Pakistan

ABSTRACT

This chapter delved into the multifaceted benefits and challenges characterizing the Web 3 paradigm. Web 3, operating on decentralized networks, fortifies digital ecosystems against cyber threats and unauthorized access, exemplified by the resilience of Bitcoin's decentralized blockchain. Rooted in blockchain technology, web 3 introduces transparency to transactions, fostering trust and eliminating intermediaries. User empowerment takes center stage as Web 3 enables unprecedented control over digital assets through blockchain-based smart contracts. Tokenization stimulates collaboration, fostering a more inclusive digital economy, while interoperability connects diverse blockchain networks seamlessly. The metaverse's integration into Web 3 faces challenges due to a lack of industry standards, exposing users to potential financial security risks. Scalability, regulatory uncertainty, and environmental impact present hurdles, emphasizing the need for innovative solutions.

INTRODUCTION

Web3 has originated from its ancestor, Web2. It marks a transformative paradigm shift in the expansive empire of the digital landscape. This advancement is not only a linear progression but also a dynamic and multifaceted shift in human interaction with information and technology. Web3 describes the evolution of the Internet through the submission of decentralized apps and blockchain technology. Its objective is to improve upon the centralized Web2 of today by aiming for higher levels of security, openness, and

DOI: 10.4018/979-8-3693-1532-3.ch016

transparency. Extensive research endeavours have been conducted to meticulously explore the emerging narrative of Web3. Both technologists and academics have set out to unravel the complex web of advantages and difficulties that are woven into this new digital frontier. This collective effort aims to shed light on the possible implications and advantages that may surface with the introduction of Web 3.

Ray (2023) underscored the various benefits of Web3 such as scalability, better governance, stronger security, higher transparency, interoperability, user authorization, and enticements, in addition to data protection and privacy. Along with benefits, the study also endorsed several obstacles to the prevalent use of Web3, such as regulatory compliance, environmental sustainability, and scalability. Web3 utilities such as Decentralized Autonomous Organization (DAO) can benefit researchers in implementing and testing research results, as noted by Filipcic (2022) while studying Web3 in the context of research and education. Hanswal et al. (2023) underscored that despite challenges like scalability and interoperability, Web3 envisions creating a more open, decentralized, and equitable Internet. The development of blockchain technology and DAOs in Web3 communities provides new insights for participatory grassroots co-creation (Zhang et al., 2023).

In the business context, Murray et al., (2023) endorsed that Web3 can increase peer-to-peer interactions, reduce large companies' control, and provide cost-effective access to user networks. Whereas potential challenges in building a Web3 e-commerce platform include scalability, user adoption, and interoperability (Bahadure et al., 2023). The complex and evolving tech stack of Web3 makes it hard to showcase its benefits, whereas that decentralized nature presents unique marketing challenges without a central controlling entity as noted by Chicotsky, (2023) in marketing research. Furthermore, Park et al., (2023) underpinned the technical, organizational, and regulatory interoperability for Web3 to deliver on its promises of value.

Nabben (2023) underscored that the fundamental challenge for Web3 lies in negotiating technical and governance experiments to achieve effective self-infrastructure. According to (Sable et al., 2023) Web3 can empower consumers with ownership and authority. It can offer enhanced security and transparency, prioritize user privacy, and provide users with more control over personal data; however, challenges of scalability and regulatory issues are associated with Web3. Even decentralized marketplaces can make construction data more uniform and usable to solve the challenges of data fragmentation and scattered data islands (F. Bucher & M. Hall, 2022). Decentralized science (DeSci) is an emerging topic linked to Web3 and DAOs. However, DeSci faces hurdles like scaling, participant quality balancing, system suboptimal loops, and a lack of accountability mechanisms (Ding et al., 2022).

Stablecoins contain blockchain technology and decentralized finance (DeFi). Stablecoins are essential for real-time, inexpensive, programmable payments, financial inclusion, and decentralized finance (DeFi). However, stablecoins may affect financial stability, market integrity, and consumer protection which can lead to regulatory issues (Momtaz, 2022). Using blockchain technology and smart contracts, non-fungible tokens (NFTs) are also essential components of the Web3 ecosystem because they make it possible to tokenize physical or digital assets. Some of the key qualities of NFTs that ensure unique and secure ownership of assets are scarcity, interoperability, security, traceability, and indivisibility (Guidi & Michienzi, 2023).

Another key component of Web3, the Metaverse, offers the ability to use augmented and virtual reality technology to expand the boundaries of the physical world. Trust, privacy, bias, misinformation, the application of the law, psychological aspects of addiction, and the effects on vulnerable people are some of the challenges associated with the metaverse (Dwivedi et al., 2022). Similarly, the lack of industry standards and regulatory rules are emphasized as the main threats to the Web3-empowered metaverse