Chapter 13
Management Cases Studies and Technical Use Cases on Web 3

Anuradha Yadav
Dayananda Sagar College of Engineering, India

Srikantalahari Sagi
Avinash College of Commerce, India

ABSTRACT

This chapter involves numerous examples, using management cases and technology use cases, to understand the practical uses of Web 3 technologies. A discussion is had on Web 3 foundational concepts such as smart contracts, decentralized applications, decentralized identity and authentication, data privacy and control, and supply chain traceability. Then, cases related to DeFi, content monetization, decentralized exchanges, P2P lending, anonymized payments, lending platforms, stablecoins, financial inclusion and democratization, and autonomous funding are discussed. Tokenization led to the evolution of a new digital economy, and along with NFTs, the way digital art, real estate, and memorabilia are managed has changed. DAO is changing the way organizations work and are governed. Web 3 has several social applications and privacy-preserving technologies. Finally, interoperability options of Web 3 are discussed.

INTRODUCTION

Web 3.0 supports developing and deploying distributed applications (DApps) that run on decentralized networks, ensuring transparency, security, and user autonomy. A Decentralized Voting System, for example, allows the votes to be registered on a decentralized ledger, bringing about transparency (Huang et al., 2022). Cryptographic encryption allows the registration and storage of votes in a secure and hack-proof system. Web3 systems give autonomy to their users, allowing voters to cast their vote from anywhere without physical or geographical restrictions, thereby giving users autonomy.

Web3 is a technological revolution, giving several use cases in itself. However, they offer many possibilities when combined with potential applications from the management domains such as marketing,

DOI: 10.4018/979-8-3693-1532-3.ch013

finance, supply chain, and human resources as a global transition is happening towards a decentralized economy (Mathilde, 2022).

The online experience has evolved rapidly since the origins of the World Wide Web. What started as a decentralized system allowing for the free flow of information (the Web 1.0 era) has increasingly turned into a centralized under a handful of powerful corporations. Web 2.0 saw the rise of social media platforms and app ecosystems that amassed control over our data and online interactions. While this enabled new levels of connection and convenience, it has come at the cost of privacy and autonomy for users. Many technologists argue that the next generation of the internet, Web 3.0, promises a return to decentralization through technologies like Blockchain (Korpal & Scott, 2022). Decentralization is not just with technology but with how businesses are run (such as in decentralized governance) and how they are governed (such as in decentralized governance), amongst others.

Web 3 aims to put the user back in control by distributing data, infrastructure, and governance across disparate nodes rather than centralized servers. Decentralizing the online experience in this way could help address data ownership, digital surveillance, censorship, and single points of failure that have emerged under Big Tech oligopolies. This book will explore emerging Web 3 use cases that showcase the potential of decentralization to revolutionize how we connect, transact, and engage online more openly and equitably. Further, Web3 is perceived as 'self-infrastructure,' though how that happens is to be worked out (Nabben, 2023). It is to be noted that efforts are happening in intelligent and symbiotic (human-machine interaction) networks with massive interfaces and linkages as part of Web 4, the modalities of which are still to be worked out (Khaleel Ibrahim, 2021).

CASES ON THE FOUNDATIONAL CONCEPTS OF WEB 3

Blockchain technology is the foundational infrastructure supporting the decentralized vision of web3. A blockchain is a distributed digital ledger that can record transactions and track the exchange of assets across a peer-to-peer network. In web3, blockchains facilitate the transfer of cryptocurrencies, smart contracts, and self-executing programs stored on blockchain nodes. Decentralized applications are built on blockchains to remove the need for centralized institutions as intermediaries. Blockchain brings more transparency to processes since the records stored are immutable and auditable. This enhances security and trust in web3 as no single entity controls the network or can alter its transaction history.

Smart Contracts

Smart contracts are self-executing contracts that automate the execution of agreements and transactions on the blockchain. Applications include:

a. **Automated payments**: Cryptocurrencies and blockchain technology have made it possible to facilitate near-instant automated payments without intermediaries. Coinbase, for example, has built a crypto exchange and wallet platform. The platform allows users to send cryptocurrencies like Bitcoin directly to others with an address or a QR code. The transaction removes the need and dependence on traditional banking and saves both time and money on transaction fees compared to alternatives.