

# A Study of Block chain and Metaverse Technology

Mr. Naveen Kumar Kedia<sup>1</sup>, Dr. Sarita Garg<sup>2</sup>, Keshika Jain<sup>3</sup>, Anisha Jain<sup>4</sup>

<sup>1</sup>Assistant Professor Department of Information Technology, Jaipur Engineering College & Research Centre, Jaipur

<sup>2</sup>Professor Department of Information Technology, Jaipur Engineering College & Research Centre, Jaipur

<sup>3</sup>Student Department of Information Technology, Jaipur Engineering College and Research Centre, Jaipur

Email: keshikajain.ece25@jecrc.ac.in

<sup>4</sup>Student Department of Information Technology, JECRC Foundation, India

Email : anishajain.it25@gmail.com

**Abstract**— Since the birth of the internet, its fast development and the introduction of a new technological era with Metaverse recently, transferred many things done by the individuals, to digital world from the real one. All necessities of humans, in this digital world, as shopping to education are done in a 3D virtual setting where payments are done with crypto money instead of real money. Even the artwork is now available to buyers in the digital environment. With Metaverse, new professions have emerged and various money-making means shifted the economy to different dimensions. Metaverse brings conveniences to human lives but there are also some difficulties appearing on the way presented as disadvantages and uncertainties. As a new thing for human life, its positive sides catch more attention. Through the augmented reality and virtual reality technologies, real-life objects can be carried into virtual environments where its users experience a real life feeling. In this study, the historical development of the internet and its current version are discussed

**Keywords**— About five key words in alphabetical order, separated by comma.

## I. INTRODUCTION

The technological developments in recent years and the importance of these developments in human lives are indisputable. Nowadays, most routine work can be completed on the internet by saving considerable time. While the internet is so important in human lives, it is also important to study its history of it by analyzing the processes throughout history. The history of the internet started with WEB 1.0 and advanced as WEB 3.0 to the present day. In addition, blockchain technology has emerged as an economically and financially important factor. Cryptocurrencies as a part of the blockchain, have started to be valued as much as real money. The content of Metaverse, which has become a fancy word recently, aims to transfer our real world to the digital world and it is seen as a technology in an extraordinary and rapid revolution. The Facebook Company also changed its name to Meta; thus, the importance of Metaverse is revealed. Even present-day technology affects human lives in positive and negative ways; the effect of the Metaverse has become a concerning issue for the whole world. This study focuses on the development process of the Internet and discusses the concept of Metaverse, which has been frequently mentioned recently, its areas of use and its impact on users. It has been demonstrated which paths it has taken from the past to the present and from today to the future.

## II. HISTORICAL DEVELOPMENT OF INTERNET

### II.1. Web 1.0

Web 1.0, which started in 1989, lasted until 2005 as the first Web application. Web 1.0 was also defined as a network of information links. There was little interaction for users to exchange information and it was impossible to interact with a website. Web 1.0 pages were static and content provider only. Therefore, users could only search and read the information on it. Features: - They had read-only content. - Information was shared at any time and publicly. - HTML (Hypertext Markup Language) language was used and it contained static web pages (Choudhury, 2014). In the Web 1.0 era, businesses could only share brochures and catalogs related to their products, and users were only allowed to read them and communicate with the businesses (Aghaei, Nematbakhsh & Farsani, 2012).

## II.2. Web 2.0

Websites such as Orkut, YouTube, Blogs, Google and Wikipedia are examples of Web 2.0. In addition, social media applications that allow members to upload photos are also examples of Web 2.0. Berners-Lee's definition of Web 2.0 is the read-write web (Özden, 2022). Thanks to Web 2.0, instead of being web readers, users have become web literate and started to produce and share information and benefit from features such as feedback and collaboration. It is seen that the learning of students who learn with Web 2.0 technological tools becomes more fun and permanent learning is realized (Yazıcı, Ocak, & Bozkurt, 2021). Web 2.0, one of today's technologies, is important in terms of having a say in data management as it enables being active and interactive on the internet (Kırımlı & Demirezen, 2022).

## III. BLOCKCHAIN TECHNOLOGY

Blockchain technology has great financial importance that entered the world agenda through Bitcoin. The key feature of Bitcoin currency is decentralization. It is not controlled by any institution, state, or person. Thus, the trust issues have been eliminated, transfer fees are reduced, the delivery time is minimized and efficiency is increased. As the working principle of Bitcoin, an address called "public key" and a password named "private key" is given for each wallet (Kıyak, Coşkun & Budakoğlu, 2019). Password security is high and almost impossible to break. Being the basis of Bitcoin, Blockchain technology has been receiving great interest recently (Zheng, Xie, Dai, Chen & Wang, 2017). Blockchain technology is a technology that will have a significant impact on businesses in the coming years. It may provide transformation of the economy and change the way of perception on business processes (Kitsantas, Vazakidis & Chytis, 2019). Blockchain systems may be grouped into 2 main categories: access to the blockchain system (permissionless and permitted blockchains) and access to blockchain data (public and private blockchains). Permissionless blockchains: All participants may be involved in the transaction verification process. No prior authorization or restrictions are required for users to create blocks. Permitted blockchains: Only a range of pre-selected and known users may verify/create transaction blocks. Public blockchains: In these blockchains, everyone may join the network, read data and send transactions (Baiod, Light & Mahanti, 2021). Providing a platform for many potential applications that can also be used in healthcare, Blockchain technology has proposed solutions that have the potential to increase the operating efficiency and transparency of healthcare data (Angraal, Krumholz & Schulz, 2017).

### **Blockchain development may be described in three phases:**

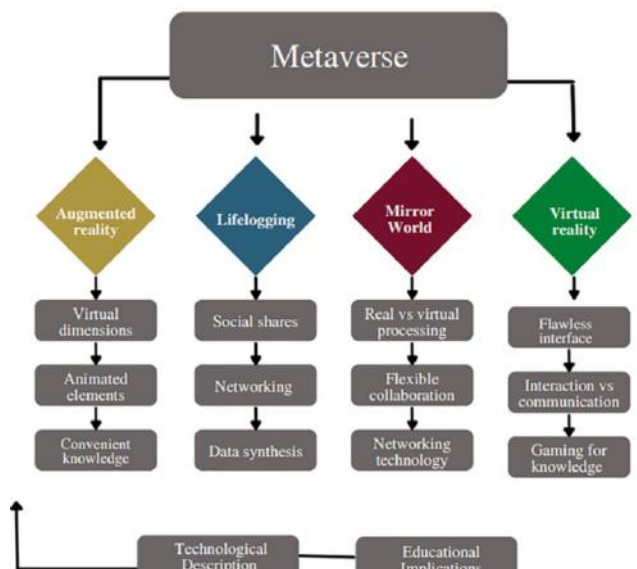
**Blockchain 1.0:** refers to cryptocurrencies with applications such as digital payment and money transfer. Electronic shopping and money transfer may be made with a small transaction fee compared to traditional methods, thanks to Bitcoin, the first cryptocurrency. Using pseudonyms in Bitcoin accounts provides better security compared to credit cards. While traditional currencies, printing money and financial regulations are controlled by a central bank, Bitcoin and other digital currencies use cryptography (Tanrıverdi, Uysal & Üstündağ, 2019).

**Blockchain 2.0:** including various financial and economic applications, the Blockchain 2.0 phase is also called the digital economy. It is included in the applications such as mortgages, loans, contracts and bonds. Smart contracts that have become widespread recently have certain rules and they are used for complex transactions (Tanrıverdi, Uysal & Üstündağ, 2019).

**Blockchain 3.0:** including the fields of education, health, art, science, audit and management, Blockchain 3.0 is also referred to as the digital society. Including concepts such as smart transportation, smart life, smart economy and Smart cities is an important and future application of blockchain technology. Blockchain 3.0 also includes blockchain technologies such as cybersecurity, banking and digital identity (Tanrıverdi, Uysal & Üstündağ, 2019).

#### IV. METAVERSE TECHNOLOGY AND ECOSYSTEM

The content of Metaverse which is thought to affect human lives to a great extent has become one of the most topics discussed recently. The word Metaverse consists of the roots of meta 'beyond' and universe in Ancient Greek (Kuş, 2021). Indeed, the word Metaverse was first used in the Snow Crash science fiction novel that was published in 1992. Afterward, it has been the subject of many movies and books (Demirbağ, 2020). While teleportation was once a fantasy used only in movies, perhaps it does not seem impossible in the new digital world. If Metaverse is put into use as planned; it will inevitably bring important changes to human lives. Metaverse includes the idea of transportation of commerce, entertainment and other activities in real-life to the three-dimensional virtual world. We will be able to interact and meet with the avatar of a friend we want at any time and place by thanking the avatars we have created in the virtual world of Metaverse (Kuş, 2021). On Metaverse, users can buy, produce, and sell by also allowing new professions to be created by them. New job profiles such as NFT designers, stylists, investment consultants, Metaverse advertising and marketing consultants and meta journalists appear on the way (Türk & Darı, 2022). The increase in popularity of Metaverse started to increase nowadays (Kuş, 2021). Metaverse is facing many challenges related to augmented and virtual reality technologies. Both virtual and augmented reality technology can affect the emotions, thoughts and behaviors of the users. The high costs of technological equipment constitute an obstacle to mass adoption. Risks such as health and safety, physical well-being, morality, psychology, and data privacy are risks related to augmented reality technology (Doğan, Erol & Mendi, 2021).



#### V. CONCLUSION

The birth of the internet and its great change and development until the present day have revolutionized human lives. It made human lives function easier; formerly inconvenient jobs are now at the tips of fingers since many activities such as business, social life and education have started to be performed online. Previously, all of them were performed in 2D formats on the internet, nowadays, thanks to the Metaverse, they can be performed in 3D virtual settings. Even the Metaverses is still a new thing, more can be done on it as planned and then the new era for humans will start. The transfer of real life to digital will make human lives physically easier, but it will still be a topic of debate that may create some psychological issues by forcing its users to anti-social behavior as it suspends people from reality. With the Metaverse, users will be able to have an identity in the virtual world as well as their real-world identities through the avatars created by themselves. Users will be able to achieve social statuses in the virtual world that they could not imagine in the real world and will wear different clothes they dream of wearing. This technological revolution has led to some changes in the world economy. With technological developments, new professions are arising from the needs of it that will play an important role in the economy. With the Covid-19 pandemic around the world, a few restrictions, as a precautionary measure, were imposed on people that stopped their face-to-face communication with each other. During this period, people moved their social life, work, and education to the internet, and as a result, the concept of Metaverse started to be expressed more. After a while, with the decrease in the

virus worldwide, work, education and social life returned to normal and face-to-face meetings continue to be organized. However, during this process, it was easier and more comfortable for some people to work online; therefore, their interest in Metaverse has increased considerably. It is a matter of curiosity whether people will accustom themselves to such a virtual environment that offers positive and negative results. In addition to psychological issues followed by the Metaverse, it is also discussed that some physical problems may occur on the way. According to Kuş (2021), users may use some virtual reality head-suits to move in the Metaverse virtual world, resulting in some actions that can harm themselves in the physical world. This raises the possibility that Metaverse could be a physical disadvantage, too. Until a few years ago, the advertising industry differed from the current one. Brands used to promote their products through television and radio, now they can promote them on the internet and reach their users easily and at lower costs. Since people spend most of their time online, it makes more sense to advertise and promote products online. As Bilgici and Şisman (2022) mentioned in their study, social media advertising will now shift from social media channels such as Twitter, Instagram, etc. to the Metaverse world with the emergence of the concept of 'metafluencer' and brand strategies will now start to be built on 'metafluencer' people. The concept of the Metaverse, both with its positive and negative aspects, is slowly entering human lives and significantly affecting their traditional lifestyle

### REFERENCES

1. Aghaei, S., Nematbakhsh, M. A., & Farsani, H. K. (2012). Evolution of the World Wide Web: From Web 1.0 to Web 4.0, International Journal of Web & Semantic Technology, 3(1). <https://doi.org/10.5121/ijwest.2012.3101>
2. Angraal, S., Krumholz, H., & Schulz, W. (2017). Blockchain Technology: Applications in Health Care, Circulation: Cardiovascular Quality and Outcomes, 10(9). <https://doi.org/10.1161/CIRCOUTCOMES.117.003800>
3. Aytaç, Z. (2022). Metaverse Uygulama Alanlarının Kelime İlişkilendirme ve Tematik Analizi: Twitter Örneği, 24,1.
4. Baiod, W., Light, J., & Mahanti, A. (2021). Blockchain Technology and its Applications Across Multiple Domains: A Survey, Journal of international Technology and Information Management, 29(4).
5. Bayrak, T. & Yengin, D. (2020). KARMA Gerçeklik Teknolojisinde Göz İzleme Tekniği: Göz İzleme Metrikleri Ve Navigasyon Verilerinin İncelemesi. Turkish Online Journal of Design Art and Communication, 10 (4), 587-596.