

The Metaverse Dilemma

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The Metaverse Dilemma: Challenges and Opportunities for Business and Society

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INVESTOR IN PEOPLE

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Foreword

The metaverse is a concept for a future digital economy where a virtual world overlaps with our physical reality. Imagine using AI and XR technology to work, shop, and socialize in immersive virtual spaces. Blockchain and potentially quantum computing will underpin this world, allowing users to trade virtual goods and services using cryptocurrencies. Although there is a huge excitement and hope for the metaverse, there are potential downsides. It is critical to emphasize the need for a human-centered approach to metaverse development, focusing on user well-being and ethical considerations. Responsible regulations will also be crucial to creating a sustainable and positive metaverse experience for everyone.

This book, *The Metaverse Dilemma: Challenges and Opportunities for Business and Society*, is an invaluable compass for navigating this uncharted territory and understanding the diverse facets of the metaverse's potential impact. For businesses, the metaverse represents a paradigm shift. It opens new windows for the opportunity of a future digital economy and alternative opportunities for enhancing learning and training through immersive simulations. This book delves into these possibilities and explores the strategies businesses must adopt to thrive in this new environment.

This book also explores the critical synergy among key technologies such as AI, AR/VR/XR in the context of Metaverse. For example, imagine AI-powered virtual assistants catering to our needs within these digital spaces. Also imagine AI-powered AR (augmented reality) solutions bringing new experiences that blur the lines between reality and virtual, creating a truly “Phygital” experience. Despite the positive prediction of the impact of the metaverse on our society, however, the metaverse is not without its shadows. The book tackles the concept of ESG (Environmental, Social, and Governance) within the metaverse, examining how we can build a sustainable and equitable virtual world. Furthermore, the book addresses the challenges and opportunities around NFTs and blockchain technology, exploring their potential as the foundation of a robust metaverse economy. Crucially, the book deals with the question of governance and explores the need for robust frameworks to ensure responsible development and use of the metaverse. In addition, the book confronts the dark side head-on, exploring potential issues around user protection and addiction. It delves into the ethical considerations necessary to ensure a safe and inclusive virtual environment.

Finally, the book presents exciting, specific use cases of the metaverse such as (1) how wellness tourism can be revolutionized by mixed reality healthcare approaches, (2) the potential of the metaverse as a game-changer, reshaping the

fashion industry, and (3) the dawn of a new era in education, with virtual worlds creating cutting-edge hybrid learning experiences. As one of the academics who has been genuinely interested in XR and Metaverse and conducted academic-industry collaborative research projects for the past decade, I believe that this book will be a useful guide as well as a good resource for researchers, businesses, and governments who want to explore the Metaverse.

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Preface

The Metaverse Dilemma: Challenges and Opportunities for Business and Society is a masterpiece book that desires to provide its reader with a complete scope of understanding on the new type of metaverse that is developing at a faster pace. As the chasms amid the virtual and physical lands continue to get narrow, it is urging that we move through the complex universe with innovation and considerate power.

This book has the following objectives:

1. The book seeks to explore the early conceptualization and realization of the metaverse to the current status and future status of the metaverse.
2. The book offers guidelines for actions to key concerned groups in varied sectors, including policy, business, learning, and technology. The book realization level of analysis provides the action strategy at the macro level, while the learning implications from other contemporary technologies give action at the micro level.
3. The book also calls for responsible innovation within the metaverse so that precautions are taken and one feels safe while in the metaverse.

The Metaverse Dilemma is, therefore, a foundational book on the metaverse issue that offers its readers a guide that will grant them a comprehensive scope and wisdom to navigate and exploit technology. We are excited to take you through the book.

Chapter 1: Introduction of Metaverse in Business. This chapter provides readers with the necessary information to comprehend the origin and development of the metaverse. The chapter provides a detailed explanation of the uses and possibilities of metaverse-based virtual and augmented reality technologies in the future. Brands can now engage with customers at a completely new level of interaction through Metaverse, which can't be achieved within current marketing channels. Immersive XR environments may require decision-makers to re-examine customer journeys, demographic characteristics, and customer personas.

Chapter 2: The Impact of Metaverse on Businesses. This chapter examines the impact of the metaverse on the business environment, providing valuable insights into operations, consumer interaction, and broader industry patterns. This chapter demonstrates the suitability of the metaverse in business by presenting case

studies and examples of how firms and businesses are adopting metaverse solutions to stay up to date with digital transformation trends. Readers currently acquire knowledge through online stores and engaging marketing efforts that provide an immersive experience. This highlights the significant impact of incorporating the metaverse into corporate operations.

Chapter 3: *Augmented Reality: Shaping the Metaverse*. This chapter considers augmented reality and its critical role in actualizing a digital experience within the metaverse. Here, readers understand the practical applications of AR technologies in driving digital engagement and the power it holds across industries such as retail, healthcare, and entertainment. This chapter identifies the new level of interaction and user engagement in virtual spaces using case studies and use case scenarios.

Chapter 4: *Artificial Intelligence and the Metaverse*. This chapter presents the evolution of the metaverse accompanied by artificial intelligence technologies. The presented solutions may assist in creating individual recommendations and dynamic content and enhance the metaverse's immeasurability and responsiveness. This chapter may further be based on the metaverse and touch upon the moral side of AI, like data privacy, the issues of bias, and algorithmic transparency.

Chapter 5: *Metaverse and Internet of Things: A Way to Smart Cities*. The chapter reveals the application of the Internet of Things into the metaverse and its possible application to the Internet of Things to build a sustainable and smart city network in the future. Occupied with sensors and IoT devices, smart cities utilize the technology to monitor and act in real-time on the data on infrastructure, transportation, and other areas. This section can focus on the benefits and downsides of the IoT application to the metaverse that goes further into daily life and can be interpreted differently.

Chapter 6: *Unleashing Digital Frontiers: Bridging Realities of Augmented Reality, Virtual Reality, and the Metaverse*. It combines augmented reality, virtual reality, and the metaverse, constructing an image of how such developments run together to impact modern digital reality. The chapter makes it possible to understand how these concepts can coexist and enhance each other more innovatively and creatively.

Chapter 7: *Non-Fungible Tokens and Blockchain: Foundations for a Sustainable Metaverse Economy*. This part of the book underlines the more in-depth aspects of the non-fungible tokens and blockchain role in the foundation of the metaverse sustainable economy; by employing NFTs developed around a blockchain ledger accounting approach, unique digital assets can safely be sold and traded. The chapter outlines the NFT paradigm and examines how it transforms

digital possession and monetization in digital space, particularly in the metaverse, from digital artwork and collectibles to virtual real estate and game objects.

Chapter 8: Sustainability in the Metaverse: Challenges, Implications, and Potential Solutions. The book identified that the environment of the metaverse might be an immensely significant issue; hence, this chapter directly analyzes that topic. Furthermore, it looks at the environmental, social, and economic perspectives of digital consumption and virtual correspondence. The chapter defines the ecological circumstances of the digital world, including the environmental costs of wind or data center possession and workers' servers, to create a better awareness of what an environmentally sustainable metaverse demands. Solutions and suggestions for using the metaverse and the best usage are given.

Chapter 9: Metaverse and ESG Governance: Addressing Social and Environmental Challenges in the Virtual World. In the following analysis, we will explore the relationship between the concept of metaverse and ESG (Environmental, Social and Governance). This examination will also clarify how virtual interaction can affect the social responsibility and conservation efforts of businesses and service providers. We will also discuss how the principles of metaverse can be utilized to encourage socially responsible behavior and conservationism. Furthermore, the analysis will elaborate on how rational and market principles, as well as regulatory mechanisms, can influence ethics and accountability.

Chapter 10: Metaverse: Transformative Pathways for Skilling, Reskilling, and Upskilling in the Digital Age. This chapter covers the metaverse's transformative possibilities in meeting the digital age's various skilling demands and needs. Hence, learning and training in virtuous environments, readers can explore the various virtual exposure and learning experiences that can be employed to gather the necessary skills. It requires creativity, collaborative spirit, and continuous learning exposure linked to individual distinctive learning needs.

Chapter 11: Metaverse and Wellness Tourism: An Investigation on Mixed Reality (MR) Health Care Approaches in the Tourism Industry. The chapter introduces the metaverse concept and how it is closely linked to wellness tourism in the hospitality sector. Hotels and healthcare providers can also use mixed reality for healthcare. Doing so would enable the delivery of personalized experiences and provide health services to individuals while being miles in the sky in an aircraft. The chapter gives insight into the possible advantages and disadvantages of the use of MR in the wellness tourism and hospitality industry.

Chapter 12: Metaverse: A Game Changer for Reshaping Fashion Industry. It analyses the disruptive nature of the metaverse in the fashion sector. Virtual reality has dramatically changed how fashion brands interact with their customers. It has allowed the audience to try out –outfits to determine what suits them.

Additionally, people can now attend fashion events in digital rooms. The paper highlights the potential pros and cons if the fashion industry integrates the SR into its operations.

Chapter 13: *Metaverse in Education: Pioneering Virtual World for Cutting Edge Hybrid Learning Experiences*. This chapter evaluates how the metaverse as a partial learning platform has been tested and found helpful in cutting-edge learning. The chapter explains that people are no longer compelled to arrive in class physically. Furthermore, students would play classroom games and “result in field trips” without having to be physically present in the classroom. The chapter elaborates on the pros and cons of Metaverse integration into the hospitality industry.

Chapter 14. *Creative Synergy: Unleashing the Potential of Artificial Intelligence and the Metaverse*. This chapter highlights the “creative synergy” between the metaverse and artificial intelligence. In other words, the authors focus on how AI-powered tools and algorithms can assist with content creation, curation, and collaboration within virtual reality. Most notably, AI-generated content and virtual assistants are instrumental in helping creators and developers work faster and push the boundaries of creative liberty. Automated concierges and personalized experiences, as well as automated content moderation and generation and recommendation systems, are among the examples described by the authors regarding the applications of AI in the metaverse.

Chapter 15: *Good Governance and Implementation*. This chapter provides an approach to good governance and implementation arrangements for adequately developing and using the metaverse. Through different examples and relevant regulatory frameworks, you will learn the approaches governments, agencies, or groups can take to enforce ethical integrity conduct, responsiveness, and reporting on the virtual setup. The chapter also describes the relevance of industry norms and self-regulated systems at the beginning of the metaverse and future aspects, especially content regulation, individual protection, data protection, and information security.

Chapter 16: *The Dark Side of the Metaverse and User Protection*. The final chapter considers the dark side of the metaverse, which includes various potential risks and threats for a person spending time in this virtual space. Cyberbullying, digital identity theft, and the severe spread of digital dependencies give a complete picture of why user-focused policy and cybersecurity, in general, are so important. At the same time, the part includes several likely actions and steps that can help people and organizations protect themselves from threats and adversaries presented in the metaverse. They include encryption, multi-factor authentication, digital hygiene and self-care, safety rules, and education.

The Metaverse Dilemma is a book that provides a comprehensive definition and editorial analysis of the metaverse era, including its historical beginnings, profound influence on our lives, and innovative approaches that have shaped it.

The concept of the metaverse encompasses the utilization of augmented reality and virtual reality, allowing individuals to navigate digital spaces instead of physically traversing conventional rivers and engaging in face-to-face meetings. This book provides comprehensive information on blockchain technology, including blockchain-based non-fungible coins, globalization, and the ethical challenges associated with online work. The company also recognizes the potential of the metaverse to have a good impact on inclusivity, particularly in the domains of education, health, tourism, and fashion, where they excel. It is necessary to establish a governance framework and implement user protection measures in virtual spaces. This book is well-suited for individuals who aspire to behave responsibly and exhibit inventive thinking in the realm of digital technology in the future.

Chitra Krishnan
Abhishek Behl
Snigdha Dash
Prashant Dev Yadav

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Part A

Introduction to Metaverse

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Chapter 1

Introduction of Metaverse in Business

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Abstract

It has become obvious to companies that the metaverse may help maximize profits. The purpose of this chapter is to describe the uses and possibilities of metaverse-based virtual and augmented reality technologies in the future. Brands can now engage with customers at a completely new level of interaction through Metaverse, which cannot be achieved within current marketing channels. Immersive XR environments may require decision makers to reexamine customer journeys, demographic characteristics, and customer personas. The main purpose of this chapter is to present an overview of metaverse applications. Further this section reveals the ways in which the business and education industry can benefit through metaverse applications. Additionally, this section reveals the real-world applications of technology in metaverse for avatar, gaming, and prospects. Finally, this chapter sheds light on the academics and practitioners by showing how metaverse elements can contribute for business processes.

Keywords: Metaverse; luxury; business; advertising; education; avatar; gaming elements

1. Introduction

The first section of this chapter presents the overview of metaverse applications. The second section of this book chapter reveals the ways in which the business and education industry can benefit through metaverse applications. The third section reveals the real-world applications of technology in metaverse for avatar, gaming, and prospects. Finally, this chapter sheds light on the academics and

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practitioners by showing the summary findings of the recent research studies on how metaverse elements can contribute for business following the conclusion of the chapter. “Metaverse” refers to a collaborative, decentralized digital, three-dimensional (3D) environment that offers more immersive experiences. Put it, it can be considered a cosmos existing outside the real world (Carrión, 2024). The acronym “Metaverse” combines Meta, meaning beyond, with the universe, meaning a theoretical environment connected to the physical world, and is considered the next technological big bang after the internet (Turjya et al., 2024). Soon, the metaverse will become an integral part of people’s daily lives, surpassing the limitations of existing communication networks (Besson & Gauttier, 2024). Metaverse is unique because users interact virtually through a digitalized, cognitive being called an avatar. It represents the user’s digital self and is interconnected as they would in the real world, but with fewer physical limitations (Park & Kim, 2024). Today, we can catch many giant business houses using Metaverse, and a few: Baidu launched the Metaverse app “XiRang” (Dwivedi et al., 2022), while Gucci Beauty introduced Drest’s beauty mode (Gao et al., 2024).

The metaverse is an emerging area in virtual reality (VR) where people can engage in a shared virtual environment, such as VR, augmented reality (AR), and the Internet (Carrión, 2024). According to Dwivedi et al. (2022), the concept of metaverse can be classified into two distinct categories: metaverse as a functional tool, which encompasses applications in office work, social interactions, education, and healthcare; and metaverse as a target, which finds utility in domains such as gaming, business, role-playing, and real estate and the integration of metaverse into various aspects of our lives continues to grow, increasing businesses are adopting metaverse offices to facilitate telework and remote work (Dwivedi et al., 2022).

In this chapter, we examine the potential for Metaverse in business and other fields, examine its potential advantages, and examine contemporary trends and future prospects. The metaverse will revolutionize business by providing customers and companies with the ability to interact with digital avatars and extend their real-life experiences. It is important to note, however, that despite the possible drawbacks, the advantages of the Metaverse are substantial and warrant further investigation.

2. Metaverse: Uses and Possibilities for Future

This section will demonstrate the uses and possibilities for future using metaverse-based VR and AR technologies.

2.1. Metaverse and Business

The scholarly discourse about the advancement of metaverses primarily centers on fundamental ideas, which is fascinating. For example, it is worth noting that the gaming industry has made significant financial commitments toward developing and implementing the metaverse (Behl, Jayawardena, Pereira, et al., 2023a; Behl, Jayawardena, Bhardwaj, et al., 2024a). However, it is essential to highlight that

users cannot transition seamlessly and swiftly between different virtual worlds within the metaverse (Jacobson, 2011). With each instance of movement, users begin their experience afresh, establishing a distinct realm with its unique currency (Guan et al., 2024). In addition to the potential for metaverse governance, businesses also analyze the prospect of improving their existing business models.

Several multinational corporations, such as Sony, Nissan, Amazon, Toyota, Adidas, American Apparel, Disney, and IBM, were attracted to Metaverse due to its increasing popularity (Soni et al., 2022). Nissan created its Metaverse dealership to provide residents complimentary copies of the Sentra (Jacobson, 2011). In addition, American Apparel, Disney, and Amazon established virtual stores within the Metaverse platform (Chung, 2022). Reuters established a virtual news bureau in Metaverse almost two decades ago, intending to report and write financial and cultural stories. This initiative was part of the London-based company's effort to engage new audiences via cutting-edge digital technology. Given that this tendency has already manifested, it is not surprising that corporations such as Gucci, Warner Music, JP Morgan, Atari, and Ubisoft are involved. The idea of the metaverse has become very popular in many parts of the retail industry due to the rapid development of technology. There is much potential that the metaverse, with a significantly higher market value by 2024, would drastically alter the retail scene (Yoo et al., 2023). Engagement between consumers and vendors and among consumers can be achieved within the metaverse. It enables virtual product presentations, facilitates collaborative shopping experiences, and allows for the generation of user-generated content, among other creative features (Soni et al., 2022; Yoo et al., 2023).

2.2. Metaverse and Education Sector

It is necessary to note that, metaverse is one of the most implying areas in the field of internet technology which has the potential to revolutionize the education sector (Allam et al., 2022). For example, the most important technological advancements provided and used through Metaverse are adequate to change the future of education sector (Behl, Jayawardena, Bhardwaj, et al., 2024; Behl, Jayawardena, Pereira, et al., 2023). In universities and in secondary schools even, teaching materials can be improved by adding interactive information using VR diagrams, charts and AR based in-classroom tours (Zhang, 2023). This also provides a solution to the previously described problem in education sector as metaverse can enhance the levels of student engagement. In order to expand the scope of physical education, virtual and augmented technologies may be used to seamlessly integrate physical education with virtual learning (Behl, Jayawardena, Bhardwaj, et al., 2024; Behl, Jayawardena, Pereira, et al., 2023). The adoption of the metaverse in education raises important issues regarding privacy, security, digital citizenship, and the ethical use of the metaverse. To be able to navigate the metaverse responsibly and ethically, educators and policymakers need to equip learners with digital literacy skills and the ability to think critically in order to do so (Cui et al., 2023). There are many opportunities for experiential learning within the metaverse, where students can apply theoretical knowledge to practical

scenarios and solve problems with the help of immersive simulations and virtual experiences. Through the use of avatars and virtual classrooms, educational institutions will be able to create virtual classrooms within the metaverse, where students and instructors will be able to interact in real time (Jayawardena et al., 2023; Luik & Taimalu, 2021). Virtual classrooms can be set up to mimic a physical classroom environment, with whiteboards, presentation screens, and seating arrangements that are similar to those of a physical classroom. As an example, students are able to simulate chemical reactions, physics experiments, and biological processes in virtual labs, for example (Jayawardena et al., 2023).

3. The Real-World Applications of Technology in Metaverse for Avatar, Gaming, and Prospects

This section demonstrates real world applications of technology in metaverse for avatar, gaming, and prospects.

3.1. Metaverse and Avatar

When considering the metaverse avatars, it demonstrates users based on their physical appearance and have symbolic meanings with regard to the business aspects. Avatars are most of the times the digital representations of users, allowing users to represent themselves in artistic, optimistic, or particularly focused ways (Onu et al., 2023). One such example is “Second Life” which is a virtual environment created by Linden Lab in 2003 is widely regarded as an accurate representation of the Metaverse, allowing users to create avatars, build luxurious homes, and attend conferences. In Second Life (SL), users can create an alternative persona that can be a faithful representation of their real-life self, an improved version, or an entirely new identity. SL users had no limitations when creating their self-representation, unlike other virtual worlds (Richter & Richter, 2023). People perceive and interact with each other in virtual worlds through avatars, which are essential for facilitating the virtual experience (Kim et al., 2023; Turjya et al., 2024). Avatars are depictable digital representations of people or objects that facilitate communication and interaction in the metaverse environment. If VR and the metaverse progress as predicted by the developers, our digital identities will be avatars. For example, it is necessary to understand that, through well-designed avatars, users can express their identities, preferences, and sometimes their life goals, which facilitates self-representation (Behl, Jayawardena, Shankar, et al., 2024; Behl, Pereira, Jayawardena, et al., 2023). When considering virtual events, where forming social bonds and interacting with others are crucial, the high level of user interaction makes metaverse based applications a unique feature.

3.2. Metaverse and Gaming

A metaverse is also known as a shared online community where customers from all over the world gather to socialize and interact with one another (Behl, Jayawardena, Shankar, et al., 2024). It is anticipated that companies who wish to

invest in the Metaverse for gaming will be able to develop cutting-edge Metaverse gaming applications, such as those utilizing blockchain technology, 3D reconstruction, AR, the Internet of Things, and artificial intelligence (Behl, Pereira, Jayawardena, et al., 2023). Metaverse games differ from traditional video games by providing extensive player interaction inside an ever-evolving universe, where the distinction between the real and virtual worlds becomes indistinct (Carrión, 2024). The Metaverse game market is projected to experience a compound annual growth rate (CAGR) of 42.33% between 2023 and 2030. The market is projected to reach approximately US\$168.4 billion by 2030. The significant expansion of these platforms indicates a shift in how individuals engage with digital entertainment and establish connections with one another. Studying user engagement, particularly continuation intention, becomes highly significant (Jo et al., 2024). Games like the Sandbox, Axie Infinity, Horizon World, SL, Decentraland, and My Neighbour Alice incorporate elements of Metaverse gaming (Bau & Power, 2024).

Metaverse is also known as a shared online community where customers worldwide congregate to interact and socialize (Barta et al., 2024). Companies looking to invest in the Metaverse for gaming can create cutting-edge Metaverse gaming applications, such as those utilizing blockchain, 3D reconstruction, AR, the Internet of Things, and artificial intelligence (Bau & Power, 2024). Individuals can be charmed by the Metaverse because it gives them the impression that they are actually in the world they have visited. They can interact intricately with their surroundings in a 3D environment or setting. Furthermore, the Metaverse offers a lively and extraordinary environment where users can learn, interact socially, work, make money, and increasingly virtually attend meetings and events (Barta et al., 2024).

3.3. Metaverse and Prospect

The Metaverse will ultimately construct a realm encompassing physical and digital domains with a fully operational economy. The Metaverse can accommodate digital assets, virtual content, intellectual property (IP), and digital currencies (Barta et al., 2024). Additionally, it can be completely self-sustaining and capable of continuous improvement. The rapid evolution of technology, including advancements like 5G, AR, VR, MR, and other technologies and devices, has the potential to transform the concept of the internet. This transformation, known as the Metaverse, could create a new form of internet that offers multi-interface capabilities and fully immersive human-computer interaction. The Metaverse can potentially exceed people's expectations and become a reality (Barta et al., 2024).

Various industries, such as healthcare, medicine, education, agriculture, electronics, and other engineering and scientific fields, necessitate innovative automation to handle substantial volumes of data while upholding sustainability. The metaverse is a futuristic technology that surpasses the boundaries of our current environment (Kim, 2021). Leading IT businesses have already acted to capitalize on the Metaverse trend, and consumer brands are also creating plans for Metaverse platforms. Recently, Nvidia CEO Jensen Huang suggested that the Metaverse will be far more significant than the physical world (Kim, 2021). A

community-based experience will be created in the Metaverse through platforms that allow users to connect with live virtual events, concerts, and even real-life avatars. Soon, the Metaverse may employ AR, allowing us to view “holograms” of the Metaverse and see the real world’s background through AR glasses. The Metaverse will eventually be connected, allowing four avatars to move from one platform to another. Companies may pay developers to create “physical” outlets within the Metaverse, and in some high-traffic regions, “real estate” deals will be costly. The Metaverse is a distinct virtual realm that operates independently from the physical world. However, actions within this virtual domain can have tangible consequences in reality (Behl, Pereira, Jayawardena, et al., 2023b). Additionally, the Metaverse has its self-sustaining economic system that upholds the regulations of the virtual world. Nevertheless, several important questions arise regarding the governance of the Metaverse, including the establishment of rules and the design of its underlying code (Behl, Pereira, Jayawardena, et al., 2023b).

Expanding the Metaverse will result in a substantial increase in investment across various sectors. First and foremost, it will result in an additional surge in the virtual goods market. The present magnitude of virtual goods stands at approximately US\$50 billion and is projected to expand to US\$190 billion by 2025. Furthermore, it can accelerate the advancement of AR/VR. The worldwide AR/VR market is projected to reach a spending of US\$12 billion in 2020 and is anticipated to grow at a CAGR of 54% from 2020 to 2024. In 2020, the total number of AR/VR devices shipped was 5.12 million, and it is expected to reach 43.2 million units by 2025 (De Felice et al., 2023). Additionally, the realization of the Metaverse will necessitate a significant increase in data storage and computing requirements, thereby fostering the accelerated growth of cloud computing. Furthermore, the content or platform builders can construct a captivating virtual environment that seamlessly combines social, entertainment, advertising, e-commerce, and other features. As the user value chain expands, their business value experiences exponential growth.

The year 2021 is recognized as the inaugural year of the Metaverse. Currently, in the emerging era of expansive navigation, humans are endeavoring to enter the realm of digital technology (Jayawardena et al., 2023). The Metaverse is a complex amalgamation of various technologies, currently in its embryonic stage (Jayawardena et al., 2023). However, it is still far from being fully accessible to humans. The realization of the Metaverse necessitates utilizing multiple techniques, including 5G, VR/AR, and cloud computing. Notably, the core technologies of AR/VR have yet to establish a definitive business model (Huang et al., 2023). These technologies have recently gained access to the doorway and pathway of the Metaverse, but the true Metaverse necessitates additional elements (Jayawardena et al., 2023). If the Internet allows for online office work, shopping, and teaching, the advancement into the Metaverse era should involve complete permeation and integration. This entails achieving full interconnection of all aspects of the Internet, technological compatibility, and even the realization of a genuine 3D world (Jayawardena et al., 2023). The immersion experience aims to establish a connection between the physical and virtual worlds, both linked to the Internet. China’s top mobile development service provider has recently emerged.