Review on Metaverse's Market Development

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Abstract. Metaverse is a new type of Internet application and social form that integrates a variety of new technologies. It provides an immersive experience based on extended reality technology, generates a mirror of the real world based on digital twin technology, and builds an economic system based on blockchain technology. From the perspective of the development of the metaverse industry, this paper first discusses the development background of the metaverse industry, explores the concept and economic connotation of the metaverse, outlines the background and opportunities for the development of the metaverse industry, and comprehensively discusses and analyzes the various aspects of the metaverse industry in theory. The reshaping effect of the metaverse industry development, at the same time, summarizes the three stages of the metaverse industry development and the characteristics of each stage, and discusses with the life cycle theory. Finally, the evolution prospect of the metaverse industry development is described and given. policy suggestion.

Keywords: Metaverse; Market Development.

1. Introduction

The Metaverse is a permanent and persistent multiuser environment that combines physical reality with digital virtuality (Kamenov, 2017). It is the post-reality cosmos. It is built on the convergence of technologies, such as virtual reality (VR) and augmented reality (AR), that allow for multimodal interactions with digital objects, virtual surroundings, and people. As a result, the Metaverse is a networked, social immersive world that exists on persistent multiuser systems. It allows for real-time, seamless user-embodied communication as well as dynamic interactions with digital artifacts. Avatars could teleport between the several virtual worlds in its initial incarnation. The current incarnation of the Metaverse offers collaborative AR spaces, social, immersive VR platforms, and massively multiplayer online video games.

In terms of its literary origin, as early as the year 1984, William Gibson, in his science fiction novel “Neuromancer”, had already envisioned a VR cyberspace known as Matrix, which is widely perceived as the literary precursor to the term Metaverse. But it was not until the year 1992 when the phrase "metaverse" was first coined and used in the science fiction book “Snow Crash” by Neal Stevenson. It represented a second, computer-generated virtual reality world that individuals from all around the world could access and connect to using goggles and headphones. The Metaverse is supported by a protocol called the Street, which connects many virtual communities and places in a manner similar to the information superhighway. In the Metaverse, users manifest as avatars, which

are customizable digital bodies. The experiences one has in Stevenson's synthetic, digital Metaverse can actually affect how one feels about their physical selves.

The Metaverse, or Web 3.0, was conceptualized as the 3D Internet in the context of VR. In its initial design, a web of virtual worlds was imagined, allowing avatars to move fluidly between them. The Hypergrid in Opensim made this concept a reality. The Hypergrid network, which enables the movement of digital agents and their inventory between various platforms using hyperlinks, can be used to access several social and standalone virtual worlds built on the open-source software Opensimulator (Knapp & Driscoll, 2010). Hypergrid, however, has never been and still is not compatible with other well-known, proprietary virtual worlds, like Second Life. The second Metaverse iteration is now being built, and it will integrate social, immersive VR platforms with massively multiplayer online games, open game worlds, and AR collaboration spaces. This vision envisions people being able to meet, converse, and interact freely in both real-world and virtual environments as 3D holograms or avatars (Dionisio et. al., 2013). This is currently feasible, although with a number of restrictions on the same platform. The next step is cross-platform and cross-technology meetings and interactions where some users are in VR environments, and some are in AR environments. Software connectivity and user teleportation between realities are common Metaverse tenets. This demands the portability of accessories, props, and inventory based on common standards as well as the interoperability of avatar personalization. The seven laws of the Metaverse are an overarching credo that offers recommendations for future development based on knowledge gained through the creation of the Internet and the World Wide Web (Parisi, 2021). This proposal states that there should be just one Metaverse (rule #1) and no more than a few Metaverses or Multiverses as the subsequent Internet (rule #7). As a result, the Metaverse ought to be accessible to all, (#2) open (#4), hardware-neutral (#5), networked (#6), and democratically run (#3)

2. Metaverse's Market Development

The foundations of real civilization may already be seen in prototype next generation metaverses like Decentraland and Somnium Space, where people are settling land, socializing socially, exchanging things, and claiming ownership rights. Any community, whether it be real or virtual, needs a healthy and sustainable economy. Therefore, the economy of the metaverse has to depend on the authentication of digital assets like a person's home, car, farm, books, clothes, and furniture. It also needs the freedom to move around and conduct business between realms that might have various laws and regulations if it is to prosper. In order to securely sustain its economy, the economic foundation of the metaverse will be non-fungible tokens (NFTs), which are records of digital ownership kept in the blockchain and allow for the identification of assets, property, and even identity. Each NFT is protected by a cryptographic key that cannot be altered, copied, or destroyed, enabling the reliable, decentralized verification of one's digital assets and virtual identity that is required for metaverse communities to function and communicate with one another. Beyond the hype surrounding multi-million-dollar purchases of digital art, the relevance of NFTs may lay in facilitating the emergence of the first elements of a metaverse-based free market (for commodities, services, and ideas), independent ownership, and social contracts. Adjacency of land is another fundamental economic notion in Decentraland and other metaverses. Within a limited region, all metaverse parcels are adjacent to one another at a fixed place. Because there is a finite supply of real estate, this leads to scarcity. Additionally, according to the global laws of supply and demand, scarcity allows property values to rise and fall. Thus, a framework is established for "a social experience with an economy powered by the current layers of land ownership and content distribution," as stated in the Decentraland manifesto. The property transactions that power the metaverse are made possible by NFTs. These tokens offer unquestionable ownership documentation that is more secure than a land deed.

The metaverse is developing at different rates in different industrial fields. From the current situation, major technology companies still mainly rely on their existing advantages to layout the metaverse field, which can be mainly divided into three modes.

Focus on core components and basic platform areas, accelerate the layout of the metaverse hardware portal and operating system model, dominated by international digital technology giants such as Nvidia, Meta, Microsoft, etc., and domestic companies such as Byte Jump are also accelerating the development of metaverse-related hardware.

Focus on business models and content scenarios, and explore the mode of how to implement the application scenarios related to metaverse, mainly domestic digital technology giants, such as Tencent will accelerate the research and development of metaverse in the fields of games and social.

The government-promoted enterprise entry model, mainly by Korean enterprises. South Korea is one of the most active countries in the world in promoting the development of metaverse industry, and its capital Seoul announced in November 2021 to be the first city government to join the metaverse; meanwhile, the development of metaverse industry in South Korea is mainly led by relevant government departments to guide and promote Samsung, Hyundai Motor, LG and other enterprises to form "metaverse alliance Meanwhile, the development of the metaverse industry in Korea is mainly led by the relevant government departments, which guide and promote the formation of the "Metaverse Alliance" by Samsung, Hyundai Motor, LG and other companies to form a synergy of companies in the field of metaverse development, so as to promote a wider virtual reality connection and establish a national metaverse development platform in Korea.

Recently, the market has also seen the emergence of various innovative applications of the metaverse, including but not limited to virtual humans, military applications (maps & simulations), smart cities (twins), industrial/education/medical/justice and other vertical applications. Combined with the industry landing process, we judge that virtual human is the current expected poor track of metaverse (industry progress exceeds expectations). Definition: Virtual human refers to the anthropomorphic image constructed by CG technology and run in the form of code. Characteristics: 1) have human appearance and personality characteristics; 2) have the ability to express through language, expression or body movement; 3) have the ability to recognize the external environment and interact with people.

Overall, the metaverse has become the "next big thing" in the global technology industry and has attracted many investors to enter the market. The metaverse-related industries are gradually becoming the focus of the market, and it is expected that the metaverse industry will enter a boom period during 2023-2024.

3. Investment Prospect Analysis of Metaverse

In recent years, China's Metaverse industry has been highly valued by governments at all levels and supported by national industrial policies. The state has successively issued a number of policies to encourage the development and innovation of the Metaverse industry. Industrial policies such as the "Notice of Pilot Work" provide a clear and broad market prospect for the development of the Metaverse industry, and provide a good production and operation environment for enterprises. The "14th Five-Year Plan" outlines the "new generation of artificial intelligence" as a key topic, and continuous favorable policies including new infrastructure and digital economy have promoted the upgrading of industrial intelligence. The scale of China's artificial intelligence market continued to grow from 2016 to 2020. The market size increased from 15.4 billion yuan in 2016 to 128 billion yuan in 2020, with a compound annual growth rate of 69.79%. As the new infrastructure industry receives more and more attention from the state, the artificial intelligence industry will continue to grow in the future, and it is expected to reach 272.9 billion yuan in 2022.

The investment direction of Metaverse mainly includes two fields of games and VR. Roblox and Meta are two companies dedicated to building the metaverse, practicing two different lines of metaverse construction - gaming and VR. Robles builds a game platform metaverse, where users can

be players and developers at the same time. Facebook is the world's largest social media platform. Zuckerberg announced that Facebook was renamed Meta. Meta's metaverse includes social networking, VR, virtual office, virtual currency, etc.In the 2022 annual market outlook report, major institutions are also optimistic about the concept of the metaverse. Analysts believe that games, videos, and digital asset platforms, as the industry forms closest to the metaverse, may be expected to benefit first.

With Tencent, ByteDance, Century Huatong, and overseas Meta (former Facebook), Microsoft and other leading companies competing for investment, the Metaverse is no longer on paper. Judging from the actions of these leading companies, they all focus on the dimension of game content as the core, which is mainly based on the game industry's advantages in visual effects, virtual world construction, user independent creation and social networking and other content.

Industry insiders believe that Metaverse is inseparable from hardware terminal entrances and virtual content scenarios. For large manufacturers, the way of investment and acquisition can certainly make up for their deficiencies in the hardware link, but there is still a certain distance from the in-depth layout of the metaverse and the completion of mature commercialization.

4. Conclusion

Metaverse technology integrates a series of emerging technologies including virtual reality technology, augmented reality technology, blockchain technology and artificial intelligence technology. It has the ability to reshape the original industry and can present its own characteristics on the basis of the original industry. It will have an impact on the economy, thereby triggering the coordinated development of the entire industry, bringing about all-round linkage changes, and forming a metaverse industrial ecology of virtual and real symbiosis. The Metaverse industry has a huge market space, which can reshape many employment opportunities. The immersive experience can meet many needs of human beings. It has a huge reshaping effect on various industries, and has broad development scale and prospects. Metaverse will present a new production and lifestyle.

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