

# Construction of a New Ecology of Digital Economy from the Perspective of "Metaverse"

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**Abstract:** The rise of the metaverse concept has brought new opportunities for changes in the fields of human production and entertainment. At present, the concept of meta universe is rampant, the industrial heat is rising, and there is a trend to form a new huge information consumption ecology. At that time, the consumption ecology brought by the meta universe will become an important part of the digital economy, and the block chain, artificial intelligence, cloud computing and other basic computing fields contained in the meta universe will also produce unprecedented innovation and changes. Combined with the concept of the Internet of things, the fields it can cover will include many industries such as industrial manufacturing, social entertainment, digital finance, cultural tourism, and many scene services such as payment transaction, asset management, content management, etc.

**Keywords:** Metaverse; Digital Economy; New Ecology

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## Introduction

At present, there are different opinions on the definition of the concept of meta universe, and the definitions of technology, application, assets, services, industry, ecology, philosophy and other different levels are mixed. Although the meta universe is not a technical vocabulary, it needs the support of complex underlying technical logic. The evolution of the new generation of data oriented information technologies, such as blockchain, artificial intelligence, digital twins, human-computer interaction and the Internet of things, is a technical preparation for the evolution from Web2.0 to Web3.0. Although there is still room for technology development, the construction of a single technology system has been basically completed. In the past, the independent development of various technologies did not form a closed-loop business ecosystem, because the technical characteristics of various digital technologies only cover part of the digital economy. For example, Internet of things data collection, 5g transmission, big data processing, artificial intelligence utilization and blockchain guarantee, each technology has only completed part of the life cycle of data elements. This requires larger and more focused concepts, scenarios and business models to drive the further integration of the new generation of information technology, so as to build an infrastructure oriented to the digital ecology to support the complex application logic, business innovation and business models of the meta universe. Therefore, from a technical point of view, metauniverse is a trusted digital value interaction network based on the blockchain technology system and operation mechanism, as well as a Web3.0 digital new ecology with blockchain as the core, which can promote digital industrialization and industrial digitalization.

## 1. Development status of metauniverse

The concept of meta universe comes from the book *Snow Crash* by science fiction writer Neal Stephenson published in 1992. In 2021, it will rapidly heat up and be deployed by major foreign companies in the application fields such as games, entertainment and culture. In March, roblox, an American sandbox game platform, wrote the concept of metaverse into the prospectus, with a daily value of more than \$40billion on the first day after listing. In July, Facebook CEO Mark Zuckerberg established the Metaverse product team and changed the parent company's name to "Meta". In the domestic metaverse market: Baidu released the first domestic metaverse product "Xiyang"; ByteDance acquired Pico, a leading domestic VR headset company, and deployed the metaverse based on its huge product matrix. The rise of the metaverse concept in the capital

market and technology fields has gained a high degree of social attention. Some people believe that the metaverse represents a new direction of future development, that is, virtual avatars live, work and interact in the virtual world. Another group believes that the current Metaverse is just a gimmick based on VR/AR technology that still has flaws in the current experience, and technology companies are vying to be hot spots. The concept of metaverse originated from science fiction, developed in cultural and entertainment application scenarios, and now has the characteristics of an economic closed-loop system. The current metaverse is not a final state, but can be regarded as a dynamic evolutionary state in which application exploration, underlying technological foundations, and new economic models have emerged. With the iterative update of technology and more capital injection, the virtual and real binary world represented by the metaverse is very likely to become a reality, which also provides new ideas for the new ecological construction of digital assets.

## **2. The new ecology of digital economy under the metaverse**

### **2.1 The shape of the digital economy**

The digital economy is an economic form with data resources as the key element and digital technology as the support. Digital industrialization and industrial digitization are the key contents in the digital economy. Digital industrialization mainly promotes digital technology to form a large-scale industry, and industrial digitization mainly uses digital technology to support and promote the transformation and upgrading of traditional industries. Promoting information technology services through digital technologies such as blockchain can accelerate digital industrialization, and relying on new scenarios of the Metaverse to stimulate information consumption can promote industrial digitization. The emergence of the Metaverse will bring together more industrial resources such as social networking, entertainment, finance, and education, bringing new consumption scenarios and models to industrial digitalization. The core elements of the metaverse include organization, identity, assets, and activities, and from a technical analysis perspective, these four elements all require the support of blockchain technology.

The first is organization. In the traditional Internet Web1.0 and Web2.0 environments, the platform controls both content dissemination and content-based revenue, which has an absolute advantage. The core idea of Web 3.0 is that users and builders jointly own the network. In the metaverse, an autonomous organizational form of users and builders may be formed, and its organizational rules are executed by program codes under the premise of compliance with supervision. This requires the use of blockchain technology to achieve the largest range of consensus, and cooperate with supervision to form a healthy ecological order of the Metaverse. In the digital environment, the social roles of the physical world will exist in digital form in the digital environment, and its transformation will have far-reaching effects.

The second is identity. People are prone to security risks and privacy abuse in the traditional authentication process. And the metaverse not only needs to be able to bind with the real identity, but also needs to switch between different application scenarios, dimensional universes, and metaverses. This requires the use of blockchain technology to establish a new distributed identity authentication system that can protect privacy and data security in a cross-ecological network. For example, virtual digital humans have unique application scenarios in each metaverse, but if there are different virtual digital humans in each metaverse, it will bring great trouble to users and increase the complexity of supervision. It establishes a distributed identity system through blockchain technology, supports virtual digital people to switch in different application scenarios, and completes the rights distribution and responsibility restriction of virtual digital people through distributed ledgers and smart contracts.

The third is assets. In the digital world, assets can be data assets such as text, video, and audio, or digital assets such as game equipment, film and television works, digital collections, and digital buildings, or financial assets such as stocks and securities. The props, equipment, and UGC content in the metaverse all need the blockchain-centric metasystem to provide functions such as registration, exchange, and transaction. The technical attributes of the blockchain will provide support for assets such as depository and right confirmation, and the financial attributes will provide the carrier and form of representation for assets, and at the same time provide guarantees for asset-based value exchange; The fourth is activities. After individuals enter the metaverse, they will participate in a lot of activities, and all activities in the metaverse can be

converged into data. The data interaction process between multiverses (metaverse and metaverse), between dimensional universes (different applications within the metaverse), and between metaverses and external devices. And the process of collecting, storing, processing, distributing, utilizing and disposing of personal behavior data by external devices requires the support of blockchain technology. The biggest problem of Web2.0 is the platform's monopoly and consumption of user data. While gathering user data through the eyeball economy, the platform exclusively enjoys the value generated by user data and content through business models such as advertising and matchmaking, while users can only gain their own sense of identity and meager benefits. The goal of Web 3.0 is the return of data sovereignty and the value it generates. Blockchain technology can establish a distributed identity authentication system, allowing users' data, content and assets to be attached to an independent and controllable identity chain. Commercial organizations can obtain corresponding data and content under the authorization of users, and pay equivalent value, thus fundamentally solving the monopoly economic system in the Web2.0 environment.

## **2.2 A new field of capital appreciation**

The strong liquidity of capital, they will not stagnate for a long time in the fields they have conquered, but will wait for an opportunity to flow into any profitable industry at any time. The concept of the metaverse has attracted the attention of many investors because of its under-researched and seemingly broad prospects. From the nature of capital, although it is blessed by the concept of the metaverse, its ultimate purpose still cannot escape the basic attribute of profit-seeking. Moreover, in the absence of external intervention, it is the nature of capital to pursue monopoly. Therefore, in the early stage of building the metaverse, in order to attract more people to enter, capital is likely to do what it wants. After attracting a large amount of consumption power in the real world to the virtual world and forming a habit, the capital will reveal its original face and carry out a large number of charging services.

## **2.3 A new way to make profits**

For the metaverse, which is still in the conceptual stage, all orders, including laws and operating laws, are blank, giving many relevant companies with capital and technology huge operating space. And building a unified field to integrate or lead the current Internet and related industries, the benefits it brings are quite huge. Just as after the end of World War II, the United States built a financial system with the dollar as the world currency through the Bretton Woods Conference, which played a decisive role in the formation of its international status afterward. Therefore, as soon as the concept of the metaverse came out, it received a positive response from many Internet companies. At the beginning of the establishment of the metaverse, we try to get a certain right of discourse, participate in the formulation of the world view and order of the virtual world, and finally realize the absolute rule of this virtual space that separates the people of the world from the real world. Although it is said that every real person can create "splendor and immortality" in the metaverse, the metaverse itself is just a glass ball in the hands of capital.

## **3. Challenges facing the digital economy ecology under the metaverse**

Metaverse is a new digital scene, new industry and new ecology supported by the Web3.0 technology system and operation mechanism. It will spawn a large number of innovative business models in the digital environment and form a new paradigm of digital space. But at the moment, the metaverse is also facing challenges in five aspects: technology, content, economy, collaboration, and governance.

Technically, the metaverse, as the integration of a new generation of information technology, currently has insufficient iterations of a single technology, and the new generation of information technology such as blockchain artificial intelligence, big data, and the Internet of Things has a lot of room for improvement. In terms of content, although the content copyright boundary in the metaverse has been greatly expanded, the content is relatively single, the life cycle is imperfect, and the awareness of copyright protection is also very weak; Economically, at present, the phenomenon of using the metaverse for hype and even illegal fundraising and financial crimes has repeatedly appeared, and a new economic system and resource allocation method have not been established; In terms of collaboration, the current collaboration cost is high, the

collaboration efficiency is low, and the organizational form is immature. It is urgent to explore a self-organizing collaboration model in digital space; In terms of governance, values, technology ethics, social governance, organizational governance, financial supervision, content protection, online rights, and digital identities are all things that need to be considered simultaneously with regulatory authorities in the physical world.

## **4. The future development of the digital economy ecology under the metaverse**

In the future, the first is to unify the industry consensus, strengthen the research on the metaverse technology system, service system, economic system and governance system with blockchain as the core, clarify the development path of metaverse technology, and explore the business model of the metaverse to accelerate information consumption; The second is to explore technology integration methods to solve key issues such as distributed identity authentication, cross-ecological interconnection, digital asset circulation, and digital content governance. It encourages the research and development of digital technology operating systems that integrate multiple technologies such as blockchain, artificial intelligence, human-computer interaction, and the Internet of Things; The third is to innovate application scenarios and business models, and promote application innovation in areas such as intelligent manufacturing, information consumption, smart cities, and cultural tourism in the digital environment. It uses new technologies to upgrade traditional industrial infrastructure and establish innovative business ecosystems such as industrial metaverse, urban metaverse, and financial metaverse; The fourth is to strengthen research on scientific and technological ethics governance, study to avoid risks related to privacy protection, technological discrimination, algorithm kidnapping, and illegal fundraising, and formulate strategies for financial service management, content and asset compliance supervision, digital copyright protection, and user online rights protection. It promotes the formation of an efficient governance mechanism that can be monitored, dynamic, and improve.

## **Conclusion**

Metaverse will promote technological exploration, application innovation and industrial construction in the digital environment, and promote information consumption to form a new ecology of the digital economy. The infrastructure of the metaverse, the identity value network, the digital governance structure, and the economic and financial system are important areas for future technological development. The improvement of these technologies will continue to make it clear that the blockchain is the core infrastructure of the metaverse.

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