

Research on the Path of Financial Management of State-owned Enterprises in the Perspective of Meta-universe

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Abstract

With the rise of the meta-universe concept, state-owned enterprises are facing new digital transformation opportunities. Meta-universe is a virtual world constructed by using digital technology, which has a high degree of immersion and interactivity, and can provide state-owned enterprises with new business models and competitive advantages. This preliminary discussion of the impact of the meta-universe on state-owned enterprises and the financial meta-universe management dilemma, puts forward the research on the path of meta-universe of financial management of state-owned enterprises, both from the financial management methods, objects and risks as an entry point, transforming the traditional financial management mode, constructing a meta-universe of financial system, and assisting state-owned enterprises in the development of value innovation and digital transformation.

Keywords

Meta-universe; State-owned Enterprises; Financial Management.

1. Introduction

Meta-universe is known as one of the six major fields of the future. On 9 November 2022, the Ministry of Industry and Information Technology (MIIT) took the lead in setting up an industrial meta-universe co-development organization and published the Three-Year Action Plan for the Innovative Development of Industrial Meta-universe (2022-2025). As of July 2023, eight provinces, cities and municipalities with separate plans have introduced meta-universe-related policies to encourage the development of meta-universe-related industries and the construction of application platforms. Meta-universe is gradually penetrating into various industries and will become a new opportunity for value innovation of state-owned enterprises.

2. The Concept of Meta-universe

The meta-universe, proposed by American science fiction writer Neal Stephenson in his book *Snow Crash* in 1992, refers to a digital virtual world that is parallel to the real world, interacts with each other, and is always online. In March 2021, Roblox, a US-based company, put the meta-universe into its prospectus for the first time, sparking a wave of interest from all sectors of the community. In October 2021, Facebook changed its name to Meta and confirmed that it would transform into a meta-universe company in the next few years, triggering the second wave of the meta-universe concept. As an integrated innovation and fusion application combining internet, big data, cloud computing, artificial intelligence, block-chain, and technologies such as virtual reality (VR) and augmented reality (AR), Meta Universe has been valued by the government and has become the focus of industrial development layout.

The meta-universe, as a virtual space parallel to and independent of the real world, is an online virtual world that maps the real world, and a digital virtual world that is becoming more and

more real. People can use brain-computer interface, VR and other science and technology to enter the data world of immersive experience, switch another identity and experience a second life. Matthew Ball describes the meta-universe as not just a virtual world or a space, but "an inherited state after the mobile Internet".

meta-universe technologies and applications include eight areas. Hardware, Networking, Computing, Virtual Platforms, Exchange Tools and Standards, Payments, meta-universe Content, Services and Assets, and User Behaviour.

3. Current Status of Meta-universalism Development in State-owned Enterprises

3.1. Systematization of Digital Assets

At this stage, state-owned enterprises have joined the meta-universe wave, and state-owned enterprises have realized digital transformation through meta-universe innovative applications. As an emerging field of digital economy, meta-universe digital assets provide new opportunities and modes for the innovation and development of digital economy. Oriented towards the digital transformation of the meta-universe, the meta-universe of state-owned enterprises is not limited to the traditional convergence of IT, process, data and other aspects of the application, the meta-universe will allow state-owned enterprises to achieve the digitization of the production and operation assets in the twin world, thus helping enterprises to achieve a comprehensive value breakthrough of intelligence, holography and synergy through the convergence of business, data, technology and other elements of the whole process of product research, development and production. For example, China National Petroleum Corporation has realized important scenarios such as remote expert support, IoT data collaboration, and virtual-reality equipment overhaul at the site of an oil drilling platform. Through the combination of block-chain technology and virtual reality technology, meta-universe digital assets have realized the transaction mode of combining real-virtual and disintermediated trading model, promoting the innovation and development of digital economy of state-owned enterprises. Based on the digital governance system, state-owned enterprises set up special management organizations for meta-universe innovative applications, and jointly with relevant business departments, gradually form specifications on meta-universe digital assets such as real rights, use and disposal on the basis of clear scenarios, so as to ensure that meta-universe digital assets of state-owned enterprises can be uniformly regulated and systematically managed in the future.

3.2. Integration of the Industrial Chain

The report of the Twentieth Party Congress points out that it is necessary to promote the integrated cluster development of strategic emerging industries and build a number of new growth engines. Meta-universe is the integrated application of new-generation information technology such as artificial intelligence, block-chain, 5G, Internet of Things, virtual reality, etc., and it is a future industry with broad space and great potential. In order to promote the development of meta-universe industry and ecological construction, and to cultivate new momentum for the development of digital economy, many provinces and cities in China have introduced a number of meta-universe support policies, including the Action Plan for the Development of Meta-universe Industry in Zhejiang Province (2023-2025), and the Chengdu Action Plan for Cultivating Meta-universe Industry (2022-2025). Shanghai is the earliest and largest city in China to publish meta-universe policies, taking the lead in including meta-universe in the 14th Five-Year Plan. Driven by the policy, China's meta-universe industry is hot in investment and financing, and state-owned enterprises have seized the new track to make investment and layout in the field of meta-universe. State-owned enterprises are becoming an

important carrier for the integration and development of industrial chain and innovation chain, and actively drive the development of small, medium and micro enterprises by strengthening upstream and downstream industrial synergy. From the perspective of industry enterprise ranking, in the list of "2023 Hurun China Meta-universe Potential Enterprise List", state-owned enterprises accounted for the majority of the enterprises listed in the underlying technology category, such as the representative enterprises of the network technology category, China Telecom, China Mobile, China Unicom and so on, of which China Mobile and China Telecom entered the "Most Potential Top 10".

3.3. Digitalisation of the Operating Model

From the enterprise level, the meta-universe practice application oriented digital vision will certainly become the mainstream trend in the future. Digital transformation oriented towards meta-universe is no longer limited to the traditional integration application of IT, process and data, but will inevitably integrate meta-universe objects and precipitate meta-universe digital assets based on the technological pedestal and data environment during the transformation process, thus realizing subversive changes in terms of the enterprise's operation mode and efficiency. Therefore, state-owned enterprises are realizing digital transformation through meta-universe innovative applications, transforming their operational activities, business processes and decision-making processes into digital forms, and applying information technology and data analytics for management and optimization. At present, the operation mode of state-owned enterprises is gradually forming a systematic evolution of "direction, standards and governance". As of October 2023, China has formed more than 20 state-owned enterprise-based data group companies. Among them, Hubei, Henan, Shanghai, Fujian and other provinces have set up provincial data group companies, Chengdu, Nanjing, Suzhou and other places have also set up corresponding municipal data group companies.

4. Impact of the Meta-universe on the Financial Management of State-owned Enterprises

4.1. Impact of Financial Management Practices

Managed finance, which is deeply integrated with cloud computing, big data, mobile Internet and other technologies, is gradually replacing traditional accounting finance, providing services for process change, functional transformation and specialized division of labour of state-owned enterprises. At the same time, with the deepening of AI and PRA into the daily work of finance, the core of finance of state-owned enterprises has completely moved towards management services. In the future, the boundaries between finance and business departments will disappear, and the finance department will evolve into the enterprise's data processing centre. In contrast, the traditional finance staff focusing on basic work processing will be replaced by digital technology, which can provide forward-looking decision-making support for decision-makers, identify and control potential risks in business and operations, and become the CEO's "partner" in the future of finance will be more and more.

4.2. Transformation of the Object of Financial Management

The meta-universalism of state-owned enterprises has led to a huge change in the object of financial management. In the context of the era when the digital economy is in full swing and state-owned enterprises are increasing their layout to the field of digital industrialization, it can be said that data resources are becoming one of the most central drivers of enterprise value creation, and this is especially true for parts of the economy that are centred on the virtual economy. Unfortunately, however, the existing accounting standards followed by state-owned enterprises are more based on the rules of business language formed in the industrial economic era, which can no longer adapt to the era of intelligent development with explosive growth of

data resources, accounting standards must consider how to reflect the rich data resources correctly in the enterprise accounting statements, which has become a great concern for the financial management of the current state-owned enterprises. Accounting issues related to the recognition and measurement of data assets are becoming an urgent research topic for both accounting theory and financial management of state-owned enterprises.

4.3. Challenges of Financial Management Risks

The financial risks of state-owned enterprises have also shifted after meta-universalism, and since property in the meta-universe era is based on network data, which means that the carrier of property is data, the impact of data security on property rights is particularly important. Decentralized technology-driven hacking technology, network fraud technology can create a huge property security risk for state-owned enterprises, and it is due to the nature of decentralized technology that directly leads to the current block-chain tokens cannot be retrieved by any means after they are lost. At the same time, the transaction and circulation of virtual assets have certain risks, including money laundering risk, fraud risk, hacking risk, etc. Before the financial management concept and the skills of financial management personnel are better improved, virtual assets are a double-edged sword. The wave of meta-universe has come, and the risks of meta-universe related virtual assets and virtual digital people are also being manifested, have the state-owned enterprises been prepared to deal with it? It remains to be seen where financial management will go from here.

5. The Options Path of the Meta-universalism to Financial Management

Under the background of industrial meta-universalism innovation, the financial management method, financial management object and financial management risk of state-owned enterprises will be affected by the revolution, and state-owned enterprises need to change the financial management method, clarify the financial management object and reassess the financial management risk.

5.1. Innovative Management

Under the wave of meta-universe, informationisation, digitization and intelligence of financial management will be the general trend, which is the core tool and remarkable feature of meta-universe financial management of state-owned enterprises. Meta-universe financial management will make full use of meta-universe technology and methods, use data space resources, realize immersive management, so that the changes of each node can be mapped out in time, present the dynamics of capital and business data in time, and panoramically show the operation dynamics of each node and each business process. At the same time, through intelligent management, timely grasp of the business process and scale of each node, control the risk, scientific deployment of funds to maximize the utility of funds. The ultimate goal of the future financial management of state-owned enterprises is based on the business-driven spontaneous conduction and deduction of the economic system data chain, in order to achieve the depth of insight into the business risks of state-owned enterprises and economic and financial autonomous decision-making.

5.2. Deeper into the Digital Space

meta-universalism makes a huge change in the object of financial management, and the object of financial management has to be shifted from traditional money to the management of digital money in the real sense. At the same time financial management of some fixed assets will also turn to digital quantification after the virtual assets. Whether it is digital currency or virtual assets, these digital assets are special forms of assets, both with the characteristics of the general assets, but also with the individuality of the digital assets, which exists in the infinite

virtual space, not only the number is very huge, the value of its existence is also timeless, and with the development of the digital economy, its role and energy are still constantly enlarged. State-owned enterprises must strengthen the meta-universe digital assets of financial theory research and application, to build a more secure and reliable financial management system, in order to protect the stability and sustainability of digital asset transactions. At the same time, closely combined with the industrial layout of state-owned enterprises, to promote the deep integration of digital assets and business, for state-owned enterprises innovation and value-added injection of new momentum.

5.3. Reconstructing the Risk Model

Risk management is the core requirement of financial management in the metaverse. Meta-universe intertwines virtual economy and real economy, he is built based on a variety of cutting-edge technologies, such as virtual reality, blockchain, etc., the stability and security of these technologies are facing challenges. Currently the laws and regulations in the meta-universe have not been perfected. In the meta-universe, the transaction and management of virtual currencies, digital assets, etc. need to have clear legal protection. For example, if the property rights of digital assets in the meta-universe cannot be protected, it may lead to the loss of users' investment. All financial management of state-owned enterprises should strengthen the supervision and management of the meta-universe, emphasize risk awareness, track, identify and analyse each distribution node and the formation and transformation of data, ensure the authenticity and safety of the data chain, and create a good management environment for the healthy development of the meta-universe.

6. Conclusion

Meta-universe integrates a variety of emerging technologies such as 5G, AR/VR, AI, block-chain, NFT, etc., which is a new generation of internet technology revolution. Financial meta-universalism has unlimited business and potential, and is an opportunity and challenge for innovation and development of state-owned enterprises. The meta-universalism of SOEs will inevitably lead to new types of organizational structures, production, transaction and service models, and their traditional financial management paradigms must be innovated to adapt to the structural and economic characteristics of the meta-universe and to achieve more effective development and competition.

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