



Challenges and Enlightenments of China's Digital Government Governance in the Metaverse Era

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Abstract. The rapid development of digital technology and the acceleration of social change require government departments to take important steps in digital transformation and governance innovation. This paper connects the metaverse with digital government governance, sorts out the related concepts of the metaverse and digital government governance, and gives examples of digital governance practices in the metaverse at home and abroad, and analyzes the challenges faced by China's digital government governance in the metaverse era, including data security and privacy protection, the complexity of technology and the digital divide; data governance and cross-sector collaboration; The relevant laws, regulations and regulatory system are not perfect. It also summarizes the enlightenment of China's digital government governance in the metaverse era, including strengthening privacy protection and ensuring data security; building a new digital governance system; promote public participation and strengthen cross-sectoral cooperation; Formulate laws, regulations and regulatory systems that adapt to the characteristics of the metaverse. So as to provide a basis for better digital government governance in China.

Keywords: metaverse; digital government; Governance

1 Introduction

As digital governance enters a new stage of comprehensive development and system deployment, digital transformation has become an inevitable trend facing the development of departments and industries. The Fourth Plenary Session of the 19th Central Committee of the Communist Party of China (CPC) for the first time clearly proposed to "promote digital government governance". The "14th Five-Year Plan for the Development of the Digital Economy" clarifies the key tasks of accelerating digital development and building a digital China, and encourages and supports the empowerment of new technologies. In October 2022, several national departments jointly issued the Action Plan for the Integrated Development of Virtual Reality and Industry Applications (2022-2026), emphasizing that virtual reality is a major forward-looking field of the digital economy and will profoundly change the production and lifestyle of human beings^[1]. Since 2021, the metaverse has rapidly entered a period of all-field, covering, and explosive development, with domestic and foreign technology giants including

Roblox, Meta, Microsoft, Alibaba, Tencent etc., both incorporate the metaverse into its future development strategy. It has set off a wave of metaverse to boost the development of the industry on a global scale.

2 Challenges to China's Digital Government Governance in the Metaverse Era

2.1 Concepts Related to the Metaverse

The concept of the metaverse was first proposed by American writer Neil Stephenson in his 1992 science fiction novel *Snow Crash*. Stephenson believes that the metaverse is a virtual space that can accommodate all virtual reality spaces, including various virtual reality worlds, online games, social media, etc. At present, the discussion of the concept of the metaverse among scholars at home and abroad is still in the status quo of divergent opinions, Ma Xin (2023) These summarized the four levels and characteristics of the concept of the metaverse, and defined the metaverse as: an immersive virtual multi-dimensional scalable mirror image based on information technology, extremely realistic, free to socialize and interact with reality. Microsoft believes that the metaverse enables shared experiences that span the physical and digital worlds, helps people come together in a digital environment, uses avatars more comfortably, and fosters creative collaboration from around the world.

2.2 Concepts Related to Digital Government Governance

Digital government is a new type of innovative government governance model born with the era of big data^[2]. Shen Feiwei (2021) They believe that digital government governance is a research topic formed by the integration of government governance theory and modern digital technology^[3]. At present, we believe that digital government governance mainly refers to the use of modern information technology means to carry out comprehensive digital transformation and upgrading of the government governance process to improve the efficiency and service level of government governance. At the same time, digital government governance has the characteristics of efficiency, transparency, interactivity and collaboration, which can promote the development of government governance in a more intelligent, precise and humanized direction.

3 Case Study

3.1 Foreign Digital Governance Practices in the Metaverse

In November 2021, the Seoul Metropolitan Government formulated the world's first medium- and long-term metaverse policy document, announcing the establishment of a "metaverse Seoul" platform^[4]. The platform plans to create virtual mayor's offices, virtual tourist areas, etc., to improve municipal management and optimize public gov-

ernance. In December of the same year, a number of related companies in Japan established the "Japan Metaverse Association", an industry group for the metaverse, which promotes the popularization of metaverse technology and related services by organizing various forms of exchange activities, and improves the soundness of the relevant business environment and user protection system^[5].

3.2 Exploration of Digital Governance in the Metaverse in China

Beijing has issued the Action Plan for the Innovation and Development of the Metaverse in Beijing's Sub-center (2022-2024) and other relevant policies, aiming to systematically promote the development of Metaverse-related industries in the sub-center of the city, create an urban highland of scientific and technological innovation with distinctive digital characteristics, and help Beijing build a benchmark city for the digital economy. In 2022, Shanghai issued the Action Plan for Cultivating a New Track of the "Metaverse" in Shanghai (2022-2025), which clearly stated that by 2025, the scale of "Metaverse" related industries should reach 350 billion yuan. The Guangzhou Municipal People's Government issued the "Plan for the High-Quality Development of Guangzhou's Digital Economy", which clearly stipulates that it is necessary to accelerate the forward-looking deployment of the metaverse industry, including the research and development and application of key technologies in the metaverse such as NFT, VR/AR, and brain-computer interfaces, and promote the combination of metaverse technology with manufacturing, education, medical and other scenarios to develop a variety of new digital business formats.

4 Challenges of China's Digital Government Governance in the Era of the Metaverse

4.1 Data Security and Privacy Protection

As digitalization accelerates, governments are faced with the collection, storage, and processing of large amounts of sensitive data. This requires governments to strike a balance between data security and privacy protection. While the development and application of the metaverse brings advanced technology, it will also cause some security risks, such as data leakage and cyber attacks. Virtual reality technology can provide governments with immersive experiences and interactive interfaces for training, simulation, and decision support. However, it can also face security risks such as data privacy breaches, health issues, and the legality and ethics of virtual reality content. Artificial intelligence and other technologies are widely used in digital government governance, with strong governance capabilities and unique advantages, which can control the scale of government, help government decision-making, improve government efficiency, and strengthen government supervision. However, it is prone to privacy and data security risks, vague governance responsibilities, algorithmic bias and algorithmic discrimination and other issues, which can lead to unfair decision-making results.

4.2 Technological Complexity and the Digital Divide

Advanced technologies such as artificial intelligence, blockchain, and virtual reality in the metaverse have important application potential in digital government governance. However, due to the complexity and high barriers to entry of technology, many government agencies may lack the technical capacity and resources to make full use of these technologies to improve governance. At the same time, in digital government governance, the digital divide may also lead to the inability of some groups of people to enjoy the convenience and benefits of digital governance, exacerbating social inequality. For example, some remote areas may lack infrastructure and network connectivity to access digital government services. Some groups lack the ability to use digital technology and digital literacy, and are unable to effectively participate in digital governance. Therefore, governments need to take measures to promote the popularization and application of digital technologies and narrow the digital divide.

4.3 Data Governance and Cross-Departmental Cooperation

In the era of the metaverse, the data resources of digital government governance can only be effective if they are truly interconnected^[3]. However, in reality, there is no unified professional data management organization between the central and local governments, and there are information islands and barriers between different government departments, resulting in the inability to effectively share and collaborate information, which hinders cooperation and collaboration between government departments and affects the overall effect of digital government governance. At the same time, in the cross-departmental cooperation of the government, there may also be the problem of unclear powers and responsibilities, and the division of responsibilities and powers between different departments for specific affairs is not clear. This may lead to problems such as overlapping work and shifting responsibilities, which will affect the efficient operation of digital government governance. Therefore, the government needs to further strengthen cross-departmental cooperation and establish a unified data governance mechanism.

4.4 The Relevant Laws, Regulations and Regulatory System Are Not Perfect

As an emerging virtual space, the legal status of the metaverse has not yet been clearly defined. As a result, it is difficult to obtain effective legal constraints and norms for various behaviors that occur in the metaverse. For example, in the metaverse, human biological information may be collected in an all-round way through technologies such as 3D modeling and 3D display, but the relevant laws and regulations have not yet made clear provisions on the collection, use and protection of such information. At the Taobao Maker Festival in 2021, a virtual "bald garden community" sold 310 digital properties, with a total price of more than 360,000 yuan. However, the existing laws are not clear on how to characterize and protect metaverse assets such as virtual land. At the same time, activities in the metaverse often involve multiple fields and sectors,

such as gaming, social, economic, etc. However, the existing regulatory system often makes it difficult to achieve effective cross-departmental coordination, making it difficult to detect and effectively crack down on illegal acts in the metaverse in a timely manner.

5 Enlightenment of the Metaverse era to China's Digital Government Governance

5.1 Strengthen Privacy Protection and Ensure Data Security

The government should formulate and improve laws and regulations on privacy protection, clarify the rules for the collection, use and sharing of personal data, and protect the privacy rights and interests of citizens. On the one hand, governments should adopt advanced encryption technologies in digital governance to ensure the security of data during transmission and storage. On the other hand, the government should establish a sound security audit mechanism to conduct regular security audits and monitoring of digital governance systems and data. Through security audits, potential security vulnerabilities and risks can be discovered and repaired in a timely manner, ensuring the safety and reliability of the digital governance system, and adopting a strict data access control mechanism to ensure that only authorized personnel can access and use relevant data.

5.2 Build a New Digital Governance System

From the perspective of the powerful driving force of metaverse technology, it is likely to completely change the current pattern and mode of global governance, national governance, and even urban and rural grassroots governance^[6]. The metaverse emphasizes decentralization, autonomy, and collaboration, and governments can learn from these technologies to build a new government governance model and improve the efficiency and convenience of digital governance. For example, virtual reality technology is used to provide a more intuitive and immersive public service experience; Blockchain technology is introduced to achieve more secure and transparent administration and decentralized data management to ensure the transparency and credibility of government actions through smart contracts, so as to explore a more flexible, efficient and inclusive digital government governance model.

5.3 Promote Public Participation and Strengthen Cross-Sectoral Cooperation

As a provider of public services, the government should protect the legitimate rights and interests of citizens at all times, and this is also applicable in the metaverse space. First of all, government departments can build a government affairs metaverse hall: build a virtual government service platform through metaverse technology, so that the public can participate in the government service process immersively, and provide one-stop services such as online handling, consultation and complaints, and information

inquiry. Second, establish a data sharing mechanism: promote data sharing and exchange between government departments, so as to break down information silos and integrate and utilize data resources. Finally, the use of blockchain technology to ensure data security: in the process of cross-departmental data sharing, the decentralization and non-tampering characteristics of blockchain technology are used to ensure the security and credibility of data.

5.4 Formulate Laws, Regulations and Regulatory Systems That Adapt to the Characteristics of the Metaverse

Government departments should clarify the legal status of the metaverse and specify a code of conduct. First, the government can clarify the legal status of the metaverse through special legislation or amend existing laws, defining it as a virtual space that is parallel to the real world but interacts with each other. For example, the code of conduct, legal responsibilities and dispute resolution mechanisms in the metaverse should be clarified in legislation to provide a legal framework for the healthy development of the metaverse. Second, it is necessary to formulate a code of conduct for different entities such as users, developers, and platform operators in the metaverse, clearly prohibiting fraud, infringement, money laundering and other illegal acts, and protecting the rights and interests of users and market order. By improving the industrial policy support system that adapts to the characteristics of the metaverse, including financial support, tax incentives, talent introduction, etc., we will strengthen the supervision and guidance of the metaverse industry and promote the healthy and orderly development of the metaverse industry.

6 Conclusion

The metaverse is rooted in communication and connection between people, and is the product of the interaction of many individuals, groups, and organizations^[7]. The rapid development of digital technology has provided governments with more tools and opportunities to respond to increasingly complex social issues and provide more efficient and convenient public services. As the world's largest Internet market and digital economy, the success of China's digital government governance will bring better governance effects and public services to the society, and provide strong support for the sustainable development of the economy and society.

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