

# *A Study of Human Resource Management in the Metaverse Era*

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**Abstract:** The duality of the metaverse expands people's living space and changes their lifestyles, thinking habits, etc. Meta-universe technology presents features such as the integration of reality and virtual, and the collection of number and intelligence. The advent of metaverse era brings management field, management subject and management cognition challenges to HRM work, and the two-way integration of metaverse and HRM should be explored from the paths of enhancing organizational change ability, innovating research methods and focusing on the integration of theory and practice.

## **1. Introduction**

In March 2021, Roblox, the first stock of the metaverse concept, was officially listed on the New York Stock Exchange. In May of the same year, Facebook's management said it would follow the trend of the times and change. In May of the same year, the management of Facebook stated that it would follow the trend of the times, change its business philosophy, and strive to successfully transform the company into a metaverse company in the next five years. .... Like all technological revolutions, metaverse is influencing and even changing people's production and lifestyle with unprecedented power, and people are gradually entering the metaverse era without realizing it.

The arrival of a new era will inevitably cause a series of changes. In the metaverse era, people's life style, thinking style and working style will change, and the job responsibilities, job content and management philosophy of managers and the managed in the metaverse era will also change. How HRM can better adapt to the development of the times, promote the better development of the organization and realize the base business will become a question that people need to think about.

The year 2021 is called the year of "metaverse". With the development of AI (artificial intelligence), AR (augmented reality), VR (virtual reality) and other technologies, the development of metaverse provides the necessary technical support. The metaverse has created a new space for people's life - the virtual world, and people's living space has expanded from the real world to the

virtual world, and the metaverse has gradually entered people's life from the "buzzword". Virtual simulation, immersive experience, digital DNA, decentralization, etc. have become the key words of metaverse technology.<sup>[1]</sup>

With the advent of the metaverse era, people's activity space has expanded from the real world to the virtual world. The integration of the real world and the virtual world will produce a new life scenario. With the arrival of the metaverse era and the change of life situations, new ways of thinking, management, and life styles will also come into being. In the meta-universe era, the management content, management style, and management tools of human resource management will appear to be in line with the changes in the meta-universe era. Therefore, while the metaverse brings changes in people's living space, it will also trigger a major change in human resource management.

Searching the relevant literature, we found that most scholars focus on the research hotspots of HRM at this stage in the context of big data and digital economy, and relatively few scholars carry out HRM research around the metaverse era.<sup>[2]</sup> "The future is here", and the trend of the arrival of the meta-universe is inevitable. As the most decisive force in productivity, the key factor for the future development of the meta-universe depends on people. Human resource management work needs to follow the trend of the times, study the latest and most cutting-edge issues, and develop human resources to the greatest extent, so as to give full play to the subjective initiative of people to transform the world. Based on this, this paper focuses on the following four aspects: First, it compares the existing research on the meta-universe. Secondly, it discusses the challenges of human resource management in the metaverse era. Third, the implementation path of human resource management in the metaverse era. Fourth, reflections and conclusion.

## 2. Concept of Metaverse

### 2.1. Literature Review of Metaverse

Meta-universe is a hot issue of research in academia and business circles. What is metaverse? At present, there is no authoritative definition in the academic community. In his novel "The Real Name", he conceived a virtual world that can be accessed and experienced through brain-computer interface. The term metaverse was born in the 1992 science fiction novel "Snow Crash", where the author tells us about a virtual world that realizes its own development with a digital body. With the continuous development of new technologies such as blockchain, AI, VR, and Internet algorithms, the virtual world depicted in the novel is gradually coming from the ideal to reality.

In terms of theoretical prediction, Anling Xiang et al.<sup>[3]</sup> take the perspective of information resource management field, and take knowledge reorganization and scene reconfiguration as the entry point to make a preliminary analysis of theoretical prediction related to information resource management in the metaverse era. Jiang Wu et al.<sup>[4]</sup> conducted a comparative analysis and research on user information behavior from two different perspectives: traditional environment and meta-universe environment, and concluded that research in the meta-universe environment should be based on existing theoretical research, thus enabling further iterative optimization of prediction. Based on the existing knowledge sharing theories, Yajun Guo et al.<sup>[5]</sup> focus on the specific characteristics of knowledge sharing in the metaverse context, thus proposing a metaverse virtual community knowledge sharing model.

In terms of social applications, Xinya Yang et al.<sup>[6]</sup> studied library management in the metaverse era, analyzed the possibility of combining the metaverse with libraries, and put forward opinions and suggestions on the implementation path of library management in the metaverse era. Guochao Peng et al.<sup>[7]</sup> combine the construction of smart cities, introduce the concept of metaverse into the future smart city development, and propose a new path for smart city governance in the

metaverse era, which provides a reference for the future smart city development. From the perspective of communication behavior, Guoming Yu<sup>[8]</sup> argues that the meta-universe is to redefine social relationships and social interactions between people through the integration of various digital technologies and to re-establish a new digital society. Jing Zhao et al.<sup>[9]</sup>, using time as a clue, discussed the concept of metaverse into metaverse at the application level, metaverse at the vision level, and metaverse at the civilization level, and analyzed the media industry. Xinrong Huang et al.<sup>[10]</sup> elaborated the meta-universe from four aspects, including connotation and extension, technical essence, philosophical significance and social influence, and applied it to the educational work of college students. Based on the demand-behavior analysis from the user's perspective, Lan Peng<sup>[11]</sup> argued that the metaverse is an open collection concept that will keep adding and subtracting connotations according to the technological development. Kouyan Dong et al.<sup>[12]</sup>, with the study of ideology and politics in colleges and universities as the main object, believe that information technology such as Internet artificial intelligence is an important feature of the metaverse, and applying these new technologies to the ideological and political education of college students is an inevitable trend for good ideological and political education work in the future.

In terms of theoretical research, Jichun Zhang et al. explain the meta-universe in terms of three fusions, arguing that the virtual world is deeply integrated with the real world, digital technology is deeply integrated with the real industry, artificial intelligence is deeply integrated with human wisdom, and it is a digital living space with a new social system. Based on existing academic research and practice. Hui Zhang et al.<sup>[13]</sup> argue that the metaverse is a digital-like state in which the digital virtual world and the real world can achieve mutual integration, coexistence and symbiosis under a certain degree on the basis of digital technology support. Xing Zhao et al.<sup>[14]</sup> attempted to review and discuss the metaverse from four aspects: theoretical concepts, key technologies, application scenarios and policy governance, and explore the future development of human digital space. Huizi Wang, Chen, et al.<sup>[15]</sup> talk about the development of Web 3.0 communities, group creation communities, and all-true Internet communities from the perspective of metaverse technology concepts. Yingtong Peng, et al.<sup>[16]</sup> analyzes from the perspective of human-computer interaction, and believes that the metaverse is a three-dimensional Internet, which is realized through the technologies of reality and digital twin, and the metaverse society is dominated by three types of "human": natural human, virtual digital human, and high humanoid robot. Aijun Zhang<sup>[17]</sup> argues that the metaverse is developed with the support of the Internet and information technology, providing humans with the freedom to create a virtual digital space beyond the natural universe with a sense of connection, virtualization, sharing, and immersion. The metaverse has dualistic properties. Hailong Wang<sup>[18]</sup> argues that metaverse refers to the ecological world with economic and social attributes and virtual reality intermingling, which is built by digital information technology-driven construction. Chaoyang Cen<sup>[19]</sup> argues that metaverse is a kind of non-centralized holographic virtual world constructed on the basis of blockchain, virtual reality, reality augmentation, artificial intelligence and other technologies.

This paper argues that the metaverse is a virtual world created by relying on digital technologies such as the Internet, artificial intelligence, and cloud computing, which exists simultaneously with the real world.

## 2.2. Characteristics of Metaverse

Integration of reality and imagination. Meta-universe is a deep fusion space of immersion experience and interaction between reality and reality, supported by digital technology and using digital technology to provide people with a deep fusion space. In this space, there are both virtualized mapping objects of the real world and self-created objects of the virtual world.

Digital intelligence collection. In terms of science and technology, the metaverse relies on digital technologies such as Data Mining, communication technology, cloud computing, artificial intelligence and the Internet of Things. In terms of realization, through AR, VR and other interactive technologies, human senses such as vision, hearing and touch are realized to enter the virtual world, thus allowing users to have immersive experience and interaction. In terms of technical operation, cloud computing and artificial intelligence provide technical support for user interaction. For example, the flow chart of Data Mining is shown in figure 1.

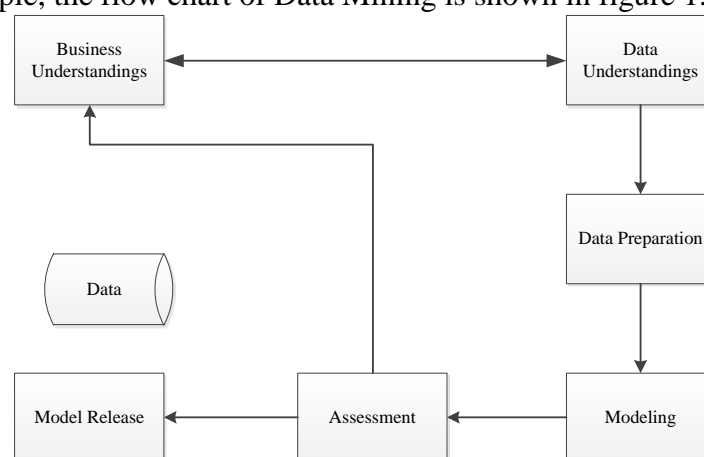


Figure1. The flow chart of Data Mining

### 3. Challenges of Human Resource Management in the Era of Metaverse

#### 3.1. Challenges in the Management Field

The emergence of the Internet has realized the integration of the real world and the virtual world, expanding people's activity space from the original real world and leading them into the virtual world, thus opening a new Internet era. The metaverse era, on the other hand, maps the material real world into the virtual data world. With the advent of the metaverse era, the real world people live in no longer exists alone, but expands to a two-dimensional world where the real world and the virtual world coexist. People's production life is not limited to the real world, but can freely switch between the real world and the virtual world.

The traditional human resource management is the management of the real world, but in the metaverse era people start to live in the virtual and real space, which brings the expansion of the human resource management field, which is a challenge for the human resource management in the metaverse era.

#### 3.2. Challenge of Management Subject

The objects of traditional HRM are social groups or organizations in the real society, and the objects of HRM are real, clear and specific. Whether it is a manager or a managed person, whether it is an individual or an organization, it is a real person who exists. However, the subject of human resource management will change in the meta-universe era.

The first category is the natural person. No matter how far science and technology develop, how far virtual or digitalized, natural people will always be the subject of society. Without the natural person, the meta-universe loses the basis of existence, so the traditional subject of human resource management still exists.

The second category is the virtual person. In the era of metaverse, each independent natural

person can be projected through data technology, thus becoming an independent virtual person. With the support of big data technology, the real world things are virtualized and dataized through technical means, thus forming a new meta-universe world composed of various kinds of data. The real person is mapped to the metaverse world with the characteristics of virtualness, but the virtual person in the metaverse is a concrete mapping of the real world, so it may also become the management subject of the metaverse era and influence the real world. Therefore, in the metaverse era, virtual people become an important part of the human resource management subject.

The third category is intelligent people. In the meta-universe, intelligent people have some manifest behaviors of natural people to a certain extent, and can reflect some behavioral characteristics, thinking styles, etc. of natural people. Sometimes, we are not able to recognize very clearly whether he is a virtual person or an intelligent person. Intelligent people are constructed entirely with data, algorithms and other software technologies, and can provide perfect services for people. For example, intelligent customer service, intelligent robots, etc.

In the meta-universe era, the subject of management is extending from the traditional human resource management of natural person to virtual person and intelligent person. For natural people, the goal of management is to improve efficiency, while for virtual and intelligent people, the management goal may have to be redesigned.

### 3.3. Challenge of Management Cognition

In the meta-universe era, HRM systems are equipped with functions such as data collection, data processing, and data output, and use data to make predictions about future behavior. Therefore, HRM requires technologies such as artificial intelligence and computing technology to handle massive amounts of data.

From the aspect of data acquisition, traditional HRM data collection basically relies on manual methods to collect, such as interviews, on-site surveys, questionnaires, etc. In the metaverse era, the manual data acquisition methods will be replaced by crawler technology, intelligent perception, data mining and other methods. In the metaverse, the elements and processes of HRM appear in the form of data, and the way of data acquisition will be further intelligent.

From the viewpoint of data processing, in the face of the traditional small amount of data of HRM, largely manual processing can realize the processing of data. However, in the era of meta-universe, in front of the huge amount of data, the method of manual data processing can no longer meet the needs. Using artificial intelligence technology, a series of data analysis such as pre-processing, then correlation, classification and clustering are needed for massive data, which can better find the laws of human resource management. The Data processing structure is shown in Figure 2.

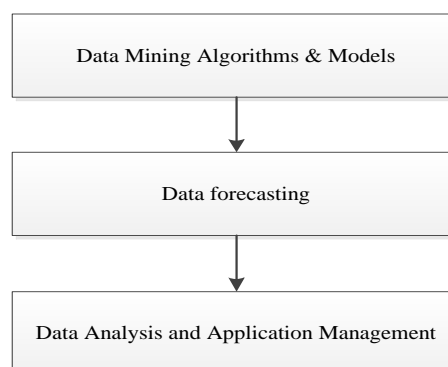


Figure 2. The Data processing structure

In terms of testing methods, traditional HRM mainly relies on the rich personal theoretical and practical experience of managers. However, in the face of different management scenarios, there is a certain lag in its management testing. Due to the influence of environment, manager's research field, and knowledge level, it will produce bias among different managers and the robustness of the test is poor. In the meta-universe era, the laws of HRM can be predicted by scientific algorithms, and the interference of personal experience on the prediction results can be removed by building data models, such as artificial neural networks, decision trees, support vector machines, etc. for testing. For example, the structure of BP neural network is shown in figure 3.

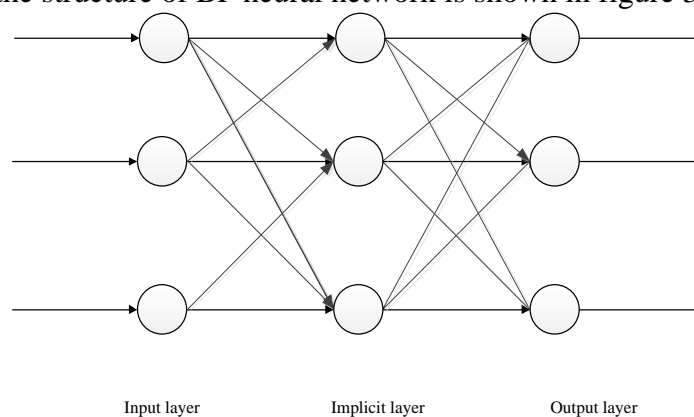


Figure 3. The structure of BP neural network

The human resource management in the meta-universe era presents complex and diverse characteristics of management scenarios and management subjects, which requires managers to have the competence to deal with uncertainties, and this is extremely challenging for human resource managers.

## 4. Metaverse Era Human Resource Management Implementation Path

### 4.1. Enhance Organizational Change Capability

In recent years, factors such as the rise of international trade protectionism, industry competition, and the new crown pneumonia epidemic have not only hindered the survival and development of enterprises, but also had a negative impact on people's production life. In the meta-universe era, facing the dual dimensional factors of the real and virtual world, there will be more uncertainties affecting the development of organizations. At present, traditional human resource management concentrates on the management of the real world, and to a certain extent people have accumulated rich management experience and are able to deal with the damage of various risks to the organization in time to minimize the loss of the organization. But for the virtual world, people are trying to understand and study it. Failure to promptly solve unexpected problems, situations, etc. that arise in the virtual world may, in serious cases, lead the organization from high growth to extinction. Improving the organization's ability to change is not only the scope of consideration for traditional human resource management, but also a survival ability that organizations have in the metaverse era, which is the key to their survival and growth. Human resource management in the meta-universe era must not only face the environmental changes in the real world, but also deal with the situational changes in the virtual world, so as to ensure that when the situational factors change significantly, the organization quickly realizes changes and thus adapts to the environmental changes. Human resource management in the meta-universe era should focus on improving the crisis management ability in the face of the virtual world while doing a good job in the management

of the real world.

#### 4.2. Innovative Research Methods

With the rise of a series of new technologies and concepts such as big data, artificial intelligence, and digital economy, HRM should also continuously innovate management methods and approaches in the face of the changing scenarios in order to maximize the advantages of human resources. At present, the traditional research methods of HRM have changed from qualitative to quantitative, and gradually become a research trend. From the perspective of development, there is no end to the innovation of basic theories and the methods of theoretical research, and the arrival of the virtual world requires further innovation of research methods to reach new research heights.

Traditional HRM tends to conceptualize organizational phenomena, and there is a tendency of "fetishism" in management. In traditional HRM, employees communicate not only through words, but also through body language. It is difficult to achieve the purpose of the study with a single measurement tool or research method to measure the attitude, work effort and job satisfaction of employees, and it is necessary to adopt various research methods such as key event method, rooted theory, literature analysis and in-depth interview, etc. Meanwhile, we can use cross-disciplinary knowledge to study the same phenomenon from different perspectives and different professional knowledge, reflect on the deficiencies of different disciplines, adopt the advantages of different disciplines, and construct a new study. the advantages of different disciplines to construct new research models and innovate HRM theories.

In the era of metaverse, data acquisition methods such as crawler technology and intelligent perception will bring convenience to HRM, and the support of technology will improve the ability to obtain data. However, the difference between the data attributes of the real world and the virtual world, the compatibility problem may exist when the existing research methods and research models are used to carry out research on the data of the two worlds, which is a problem that needs to be considered in the meta-universe era and also in human resource management. This requires innovation on the existing basis to find research methods, data processing tools, and analysis models applicable to the virtual world, so as to ensure the scientific and effective analysis of data from the virtual world and provide reference for HRM in the virtual world.

In the meta-universe era, HRM needs not only to study the problems existing in the real world, but also the problems of incompatibility between the real world and the virtual world, and the behavior of people in the virtual world and the real world will be different. In the meta-universe era, it is necessary to combine HRM research in the virtual world with HRM in the real world, and innovative research methods are the key to achieve the integration of both.

#### 4.3. Focus on the Integration of Theory and Practice

"It is not easy to learn on paper, but it is necessary to do it by oneself". The coming of the metaverse era will further promote the innovation of technology, and the innovation of technology will in turn promote the expansion of the fields covered by the future virtual world. Theoretical research on the real world and the virtual world in the meta-universe era will promote theoretical and practical innovations in HRM work, but theoretical research results cannot be separated from the real practice. Some studies have shown that when managers provide valuable information, organizations implement changes based on the information provided to move the organization in a favorable direction. Organizational change produces favorable results, which in turn will promote managers to invest more time and energy, etc., to carry out related work, thus forming a virtuous cycle. In the face of the dualistic properties of the meta-universe, in the real and virtual worlds, human resource managers should give full play to the role of "theoretical researcher - practical

operator" and put theoretical research into practice. Only the fusion of theory and practice, which complement each other, can promote the innovation and development of HRM activities in the metaverse era.

## 5. Summary and Reflection

"Meta-universe + HRM" is not only a reflection on its impact on future HRM based on the new concept of "Meta-universe", but also a prediction and imagination of future HRM from the perspective of improving the effectiveness of HRM in the present. It is also a prediction and imagination of future HRM from the perspective of improving HRM effectiveness.

Faced with the actual situation where virtual and reality intermingle and innovation and tradition coexist, managers should learn to think about the actual problems in HRM from a philosophical perspective, face the new situation of HRM in the context of metaverse from a critical perspective, explore the ways of mutual promotion and integration between metaverse and HRM, and realize the development of HRM in the era of metaverse.

### 5.1. Rational Approach to New Technologies

In the traditional concept, the reform of technology will change the way people work and promote the improvement of work efficiency. The emergence of emerging technologies often leads some people to be overzealous about them. In practical management, will the development of new technologies bring about efficiency gains? Human resource management in the meta-universe era should be to be an effective supplement to traditional human resource management.

Although metaverse expands the boundaries of HRM space, the blind pursuit of technology will create new problems, and should adhere to the reality-oriented approach to make the virtual world serve the real world. For example, excessive intelligence will bring inconvenience to the life of the elderly. In the era of metaverse, life in virtual space will create more problems such as these. In human resource management, treating new technologies rationally and adopting differentiated management measures for different groups of people are issues that need to be taken seriously and considered in the metaverse era.

### 5.2. Adhering to People-Oriented Development of Human Resources

Human resource management is the practical activity of managing people in order to achieve the maximum development of human resources and stimulate their potential. Human resource management in the meta-universe era needs to maintain the concept of people-oriented, take the needs of people in the new context as the starting point, and create a human resource management that integrates reality and virtual. In the virtual world, communication between people can transcend the limitations of time and space, but there is a lack of emotional communication between people, and the interpersonal relationships have become virtualized. We need to think and practice how to maintain the interpersonal relationship in the virtual world. The management of the virtual world also needs to have a temperature of human resource management, which means that the virtual world still needs to provide face-to-face dialogue, eye contact, emotional communication, etc. The mutual integration of the real world and the virtual world, not overly dependent on a certain party, so that the two achieve a dynamic balance, so as to effectively eliminate the emotional, social and psychological problems brought about by excessive indulgence in the virtual world.



### 5.3. Adherence to Real-World Values

Human resource management in the meta-universe era shows the mutual integration of management theory and technology, which requires us to correctly view the relationship between management theory and modern technology. Management in the meta-universe era cannot be separated from the real world, and changes in management concepts and innovations in management theories are still subject to the constraints of the real world. The real world has ethical order and moral norms, and people's production life and behavioral activities are governed by laws and regulations, public order and customs, moral conventions and other norms. Therefore, we should focus on cultivating people's outlook on life, worldview and values in the new era, leading the development of the times with a noble social ethos, and avoiding potential risks that technology may bring to HRM. For example, data privacy issues in the metaverse, the risk of information leakage, data security, and monitoring of data application fields are all issues that need to be considered in human resource management in the metaverse era to ensure the correct value orientation of human resource management under technology empowerment in order to better promote the development of the organization.

From a philosophical point of view, we need to think about three questions, who am I? Where do I come from? Where am I going? The arrival of the meta-universe era will undoubtedly change the future HRM model. The focus of human resource management cannot be limited to the virtual world created by technological innovation. While managing the virtual world well, we are also required to pay attention to the real world, to think about the relationship between people and themselves, between people and others, between people and society, and to reflect on the future of the whole society and human civilization.

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### Conflict of Interest

The author states that this article has no conflict of interest.

### References

- [1]Nan Fang. *Research on innovation of online ideological and political education in colleges and universities in the era of metaverse* . *Journal of Chongqing University of Posts and Telecommunications (Social Science Edition)*,2022,34(06):97-104
- [2]Qinghua Yang. *Changes and changes of public sector human resource management in the era of big data* . *Journal of Liaoning University of Technology (Social Science Edition)*,2020,22(06):52-55

- [3]An-Ling Xiang, Shuang Gao, Yingtong Peng, et al. Knowledge reorganization and scene reconfiguration: a meta-universe for digital resource management . *Library Intelligence Knowledge*, 2022,39(01):30-38.
- [4]Jiang Wu, Haodong Chen, Chaocheng He. Meta-universe: a digital-real fusion space for intelligent libraries. *Chinese Journal of Library Science*,2022,48(06):16-26.
- [5]Yajun Guo, Shuai Li, Xindi Zhang, Jie Li. Meta-universe-enabled virtual libraries: concept, technology, scenarios and development strategies. *Library construction*,2022(06):112-122
- [6] Xinya Yang, Guofu Qian, Tingting Chang, Jiaqi Tu. Is metaverse the future of libraries? . *Library Forum*,2021,41(12):35-44.
- [7]Guochao Peng, Siyuan Wu. Meta-universe:A new way to explore urban smart governance scenarios. *Library Forum*,2023,43(03):86-92.
- [8]Guoming Yu. A worldview of the metaverse: our fundamental view of the future of media and society. *Southern Media Studies*,2023(01):11-18
- [9]Jing Zhao, Bing Pan. The concept, composition and impact of metaverse on media . *Audiovisual World*,2022(02):44-49.
- [10]Xinrong Huang, Xianping Cao. The challenges and opportunities of metaverse on ideological and political education. *Journal of Jiangxi Normal University (Philosophy and Social Science Edition)*,2022,55(02):46-55.
- [11]Lan Peng. The near and far worries of metaverse road--a demand-behavior analysis based on user perspective. *Exploration and Controversy*,2022(07):78-85
- [12]Kouyan Dong. The application of metaverse in ideological and political education: prospect detection, ethical risks and their avoidance . *Ideological Theory Education*,2022(04):90-95.
- [13]Hui Zhang, Xiong Zeng, Zheng Liang. Exploring the "metaverse": conceptual connotation, morphological development and evolutionary mechanism. *Science*, 2023, 41(05):769-776
- [14]Xing Zhao, Lili Qiao, Ying Ye. A review of metaverse research and applications. *Journal of Information Resource Management*,2022,12(04):12-23
- [15] Huizi Wang Chen, Wei Cai. Meta-universe digital economy: current situation, characteristics and development suggestions. *Big Data*,2022,8(03):140-150
- [16]Yingtong Peng, Shuang Gao, Keke You, Die Ma, Yang Shen. Analysis of metaverse human-computer integration morphology and interaction model. *Journal of Xi'an Jiaotong University (Social Science Edition)*,2023,43(02):176-184.
- [17]Aijun Zhang, Jingjing He. Meta-universe empowering digital political subjects: performance, risk and regulation . *Journal of Guangxi Normal University (Philosophy and Social Science Edition)*,2022,58(05):62-71
- [18]Hailong Wang, Yangchun Li, Yuxiao Li. Research on the evolution of metaverse development and security risks. *Journal of Network and Information Security*,2022,8(02):132-138.
- [19]Chaoyang Cen. The spatial dialectic of the metaverse: characteristic properties, inner tension and evolutionary logic. *Journal of Southeast University (Philosophy and Social Science Edition)*,2022,24(S1):12-15.