

# Research on the Construction of the Online Platform of the Cultural and Creative Metaverse Taking the Development of Dalian Cultural and Creative Industry as an Example

Baiyu Li<sup>1</sup> He Feng<sup>2</sup>

<sup>1,2</sup> Dalian Neusoft Institute of Information, Dalian, Liaoning, China

<sup>1</sup>Corresponding author. Email: libaiyu@neusoft.edu.cn.

## ABSTRACT

This research focuses on constructing the online platform of the cultural and creative metaverse, and explores its role in promoting the digital transformation of Dalian's cultural and creative industry. The research utilizes virtual reality, augmented reality and blockchain technologies, aiming to provide users with immersive cultural experiences and expand the display and trading channels of cultural and creative products. Through multi-dimensional methods including literature review, case analysis, empirical investigation and technical testing, this project aims to establish an online platform to boost the development of Dalian's cultural and creative industry, and promote industrial diversification through the "cultural and creative +" cross-border cooperation model. The innovation point of this research lies in integrating emerging technologies with the cultural and creative industry to promote the intelligent upgrade of the cultural and creative industry. It is expected that this platform will become a key force in the development of the cultural and creative industry, inject vitality into the cultural and creative digital economy in Dalian, and enhance the urban cultural image. At the same time, the research will provide strategies for government regulation to ensure the healthy and orderly development of the platform.

**Keywords:** Metaverse, Cultural and creative industry, Cross-border cooperation.

## 1. INTRODUCTION

In order to promote the development of Dalian's cultural and creative digital economy, establishing an online metaverse cultural and creative industry platform is a key step. This platform will utilize virtual reality, augmented reality and other digital technologies to create an immersive cultural experience space, enabling users to explore and experience a rich variety of cultural and creative products in the virtual world. The platform will be turned into an important window to display the cultural heritage, art works and creative designs in the Dalian area, and at the same time provide digital asset transactions and copyright protection, promoting the innovative development and commercial transformation of cultural products, thereby accelerating the growth of Dalian's cultural and creative digital economy. The online platform of the cultural and creative metaverse is an

emerging model of the cultural and creative industry based on the concept of the metaverse. This concept originates from the progress of virtual reality and augmented reality technologies, enabling creative content not only to be limited to traditional physical forms, but also to expand to a virtual and immersive environment. Providing users with a brand-new experience space is the cultural and creative metaverse, in which culture and creativity can unfold freely in the virtual world, forming a creative ecosystem that spans the boundaries between the physical and digital.

## **2. ESTABLISHING AN ONLINE METAVERSE CULTURAL AND CREATIVE INDUSTRY PLATFORM**

### ***2.1 Dalian's Cultural and Creative Digital Economy***

The online platform of the cultural and creative metaverse is an emerging model of the cultural and creative industry based on the concept of the metaverse. This concept originates from the progress of virtual reality and augmented reality technologies, enabling creative content not only to be limited to the traditional physical form but also to expand to a virtual, immersive environment. The cultural and creative metaverse provides users with a brand-new experience space, where culture and creativity can unfold freely in the virtual world, forming a creative ecosystem that crosses the physical and digital boundaries.

In this virtual ecosystem, users are not only observers or consumers but also co-creators and sharers of content. This characteristic of co-creation and sharing promotes the formation of creative communities, making the cultural and creative metaverse an active and self-sustaining innovative environment. Through virtual reality and augmented reality technologies, users can immerse themselves in an environment closely related to cultural scenes and cultural and creative products, thereby obtaining an immersive experience. This immersive experience deepens users' understanding and perception of cultural content and promotes the spread and innovation of culture.

The role and value of the online platform of the cultural and creative metaverse are reflected at multiple levels. Firstly, it provides extensive display and promotion channels for cultural and creative products, helping creative works gain greater exposure and market coverage. Secondly, the interactivity and experience of the platform enhance the interaction between users and products, improve users' sense of participation and experience quality, and thereby promote the activity of cultural consumption. In addition, the innovation and cooperation mechanisms of the online platform stimulate creative inspiration, promote the innovative development and cross-border cooperation of the industry, and create commercial value for enterprises and creators.

At the technical level, the realization of the online platform of the cultural and creative

metaverse involves the integration and application of multiple cutting-edge technologies. Virtual reality (VR) technology creates a completely immersive environment for users, while augmented reality (AR) technology integrates virtual information into the real world, enhancing the user's experience. Blockchain technology plays an important role in confirming rights, transactions and protecting digital assets in the platform, providing a safe and transparent trading environment for cultural and creative works. Artificial intelligence (AI) technology optimizes the operational efficiency of the platform through content recommendation and user interaction. At the same time, 3D modeling and rendering technology makes the virtual scene and product model more realistic, enhancing the user's visual experience. In addition, the application of network and communication technologies ensures the stability and efficient data transmission of the platform, providing users with a smooth and unobstructed online experience.

In terms of the demand analysis of platform construction, user demand research: In order to deeply understand the needs and expectations of users for the online platform of the cultural and creative metaverse, the researchers can conduct research using various methods such as questionnaires, user interviews, focus groups, etc. In the research process, it is necessary to pay attention to the characteristics of the user group, including age, gender, region, hobbies, etc. Understand the needs of users in different usage scenarios, such as browsing, purchasing, creating, sharing, etc. In addition, it is also necessary to understand the user's preferences for functions, such as virtual display, social interaction, gamified experience, etc., and preferences for different content types, such as art, design, literature, music, etc. Finally, the experience requirements of users for the friendliness of the platform interface, the convenience of operation, stability, etc. are also crucial.

### ***2.2 Function Demand Analysis***

According to the results of user demand research, the researchers can analyze the functional modules that the platform needs to have. This may include the classified display of cultural and creative products, providing detailed information and high-definition pictures, and realizing the virtual trial and immersive scene experience of products using VR/AR technology. Social

interaction functions can allow users to communicate and share, like and comment, forming an active community atmosphere. At the same time, provide creative tools to support users in creating and editing cultural and creative content and encourage users to participate in creation. The realization of the trading system can support the purchase, sale and digital asset transactions of cultural and creative products. The data analysis function can collect user behavior data, conduct analysis and statistics, and provide support for accurate recommendation and operational decision-making.

**Technical demand assessment:** In the process of platform construction, the assessment of technical demands is also a key step. This includes the requirements of infrastructure, such as server performance, storage capacity, network bandwidth, etc., to ensure the stable operation of the platform. Technical selection needs to consider choosing the appropriate development technology framework, database management system, etc. for the platform. Security safeguard measures such as data encryption, user authentication, anti-fraud, etc. are also essential to protect the information security of users. In terms of compatibility and scalability, it is necessary to consider the integration with existing systems and the possibility of future function expansion. At the same time, performance optimization is also an important part, ensuring that the platform can maintain a stable response speed and provide a smooth user experience under high concurrency situations.

### **3. BUILDING THE CROSS-BORDER COOPERATION MODEL OF "CULTURAL AND CREATIVE +"**

Establishing a cross-border cooperation model of "cultural and creative+", it can promote the integrated development of the cultural and creative industry with multiple fields such as science and technology, education, tourism, and intangible cultural heritage protection. This kind of cooperation model helps to develop new cultural products and services and improve the innovation ability and market competitiveness of the cultural and creative industry. For example, virtual exhibitions and online interactive experiences are launched in combination with technological innovation, cultural education products are developed by using educational resources, or cultural tourism projects are promoted in cooperation with the tourism industry. Through this

diversified development model, the cultural and creative industry can better meet the needs of the market and consumers and achieve continuous growth and prosperity. The cross-border cooperation model of "Cultural Creativity Plus" marks a new trend in the development of the cultural and creative industry. Through the integration of multiple fields such as science and technology, education, tourism, and intangible cultural heritage protection, an innovative ecosystem that promotes cultural inheritance and development has been formed. This model not only promotes the diverse display and in-depth dissemination of culture, but also injects innovative vitality into the cultural and creative industry, stimulates the synergy and complementarity among industries, and accelerates the integrated development of culture and economy.

The cooperation model of "Cultural Creativity Plus Science and Technology" brings about "Cultural Creativity Plus Science and Technology": New Driving Force for Integrated Development., science and technology provide new development opportunities and spaces for the cultural and creative industry. For example, through virtual reality (VR) and augmented reality (AR) technologies, users can experience immersive cultural and artistic exhibitions, such as visiting the exhibitions of international museums at home through VR helmets, or exploring virtual art works in the real world through AR applications. Blockchain technology plays a key role in copyright protection and digital asset trading in this model. It not only ensures the uniqueness and traceability of cultural and creative works, but also promotes the transparency and fairness of the art market. For example, digital art platforms such as SuperRare and Foundation enable artists to directly sell encrypted artworks to collectors through blockchain technology, ensuring the originality and ownership of the works.

The cooperation model of "Cultural Creativity Plus Education" leads to "Cultural Creativity Plus Education": Vast Field of Innovative Practice. It is committed to integrating cultural creativity into the education system and developing cultural and creative products and courses that combine education with entertainment. This model not only enhances the interestingness and practicability of education but also stimulates the creativity and cultural quality of students. For example, cooperation is carried out in cultural and creative study tours, allowing students to experience and learn traditional handicrafts, ethnic music, local

operas, etc. firsthand. Such as the "Intangible Cultural Heritage Entering Campus" project in China, bringing intangible cultural heritage into schools and enabling students to feel and learn traditional culture closely. Online education platforms such as Coursera and edX have also launched many cultural and creative related courses, enabling a wider audience to access cultural and creative education.

The "Cultural Creativity Plus Tourism" model, which enriches the cultural connotation and characteristics of tourism by integrating cultural and creative products and services into the tourism experience, is presented as "Cultural Creativity Plus Tourism" tourism experience. Cultural and creative tourism not only increases the attractiveness of tourist destinations, but also brings development opportunities to the local economy. For example, develop local characteristic cultural and creative tourism products, such as handicrafts, local characteristic delicacies, cultural experience activities, etc., so that tourists can experience the local culture more deeply. The application of digital technologies, such as the virtual tourism experience created through VR and AR technologies, provides users with novel exploration methods. For example, the VR experience of the Dunhuang Mogao Grottoes allows users to appreciate the details of murals and sculptures without having to travel long distances, thus protecting these precious cultural heritages while also giving more people the opportunity to experience their unique charm.

The fact that combining intangible cultural heritage with the cultural and creative industry can not only effectively inherit and protect intangible cultural heritage culture, but also open up new vitality of intangible cultural heritage culture. Through cooperation with intangible cultural heritage protection institutions and inheritors, integrating intangible cultural heritage elements into the design and development of cultural and creative products not only retains the essence of traditional techniques, but also endows the vitality of the modern market. For example, intangible cultural heritage techniques such as Su embroidery and cloisonné in China have been successfully integrated into modern fashion and daily necessities and are welcomed in domestic and foreign markets. By holding intangible cultural heritage exhibitions and cultural lectures, the public's awareness and protection consciousness of intangible cultural heritage culture have been improved.

In conclusion, the cross-border cooperation model provides new ideas and opportunities for the development of the cultural and creative industry. Through diversified cooperation such as scientific and technological innovation, educational integration, tourism experience, and intangible cultural heritage inheritance, it not only promotes the prosperity of the cultural and creative industry, but also helps cultural inheritance and innovation, and achieves a win-win situation of social and economic benefits. In the future, this model needs to pay more attention to the depth and effectiveness of cooperation, give full play to the professional advantages of each field, and jointly promote the continuous development and innovation of the cultural and creative industry.

#### **4. PROMOTING THE DEVELOPMENT OF OFFLINE PHYSICAL CULTURAL AND CREATIVE INDUSTRIES WITH THE ONLINE METAVERSE PLATFORM**

The construction of the online metaverse platform plays an important role in promoting the development of the offline physical cultural and creative industries. This new type of platform can provide a virtual display and trading space for the cultural and creative industries, enabling traditional culture and creative products to cross geographical limitations and reach a wider audience group. Through the online metaverse platform, activities such as cultural and art exhibitions, performances, and handicraft displays offline can be digitally transformed to realize online display and interaction, thereby increasing the exposure rate and market penetration of cultural products.

With the support of the online metaverse platform, the offline physical cultural and creative industries can utilize the technical advantages of the platform, such as virtual reality and augmented reality, to create an immersive cultural experience and enhance the participation and satisfaction of consumers. For example, through virtual reality technology, users can visit museum exhibitions far away from home or participate in international art festivals at home. This not only broadens the audience base of cultural activities but also brings new sources of income to the cultural and creative industries.

In addition, the big data analysis function of the online metaverse platform is also crucial for the

development of the offline physical cultural and creative industries. The platform can help the offline industries gain insights into market needs and consumption trends by collecting and analyzing users' online behavior data, such as browsing preferences, purchase histories, and interaction feedback. This data-driven market analysis can guide offline cultural and creative enterprises to conduct more accurate product development, market positioning, and marketing strategy formulation, thereby accelerating the intelligent upgrading and innovative development of the industry.

## 5. CONCLUSION

The online metaverse platform not only provides a brand-new display and trading channel for cultural and creative products but also supports the innovation and transformation of the offline physical industries through technology and data analysis. This online-offline integrated development model will effectively promote the overall prosperity and sustainable development of the cultural and creative industries and accelerate the intelligent upgrading process of the industry.

This research is dedicated to building an online platform for the cultural and creative metaverse, aiming to deepen the understanding of the needs and design of this platform and explore the possibility of its integrated development with the cultural and creative industries in multiple fields such as science and technology, education, tourism, and intangible cultural heritage protection. Through this research, it is aimed to clarify the core goals and functions of the platform, establish a framework for technical implementation, and provide corresponding theoretical and practical guidelines to support the cultural and creative industries on the journey of digital transformation.

In the current era of rapid development of digital technology, the online platform of the cultural and creative metaverse shows its broad development potential and indicates that it may become the core driving force for the development of the entire industry. The design of this platform not only pursues a diverse and personalized user experience but also is committed to promoting the deep integration of the cultural and creative industries with other industries, thereby playing an important role in creating commercial and social value.

To ensure the continuous healthy development of the cultural and creative metaverse platform, the government's role is indispensable. It is necessary to strengthen the supervision of this emerging industry and establish a complete set of industry norms and standard systems. This includes but is not limited to formulating relevant regulatory standards and guiding principles, protecting intellectual property rights, and ensuring the security and fairness of digital asset transactions.

In conclusion, the online platform of the cultural and creative metaverse has opened up a new development path for the cultural and creative industries, with broad potential and application prospects. It is believed that through continuous research and careful improvement, this platform will become a highlight of the cultural and creative industries and bring users a richer and more wonderful experience. As the cooperation with relevant institutions and enterprises continues to deepen, people will jointly explore the development path of the online platform of the cultural and creative metaverse and achieve more innovative breakthroughs for the cultural and creative industries.

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## REFERENCES

- [1] Fang Shufei. Research on the Market Development Strategy of Metaverse Cultural Tourism Products in Project [D]. Donghua University, 2023. DOI: 10.27012/d.cnki.gdhuu.2023.001117.
- [2] Zhang Fan, Zhang Jiabang, Cao Tianyi, et al. A Review of Digital Cultural and Creative Product Design Research [J]. Packaging Engineering, 2023, 44(12): 1-15 + 117. DOI: 10.19554/j.cnki.1001-3563.2023.12.001.
- [3] Tang Yi, Chen Ziyi. The Communication Prospect of Museum Red Cultural and Creative Products Under the Vision of Metaverse [J]. Southeast Culture, 2022, (06): 174-178.

- [4] Ding Yu. "Metaverse + Cultural Tourism" Industry Development and Innovative Application [J]. Shanghai Informatization, 2024, (01): 42-46.
- [5] Lu Wanqi. The Integration Development Path of Scientific and Technological Innovation and Cultural and Creative Industry [J]. News Sentinel, 2023, (24): 76-78.