

# *Problems Analysis and Improvement Strategies of Domestic Digital Museums under the Background of All Media*

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**Abstract:** “All Media” is a revolutionary media communication mode, which combines various media technologies and media forms, and adopts unified standards to transmit information, providing more possibilities for all social classes. In this all-media era, museums should constantly explore new ways of communication to better meet people's cognitive and emotional needs.

## 1. Introduction

With the rapid development of social informatization and digitalization, the network has penetrated into all fields of human society. As an important part of scientific and cultural undertakings, museums should become a platform for mass education, providing more knowledge and services for society and promoting social development and progress by using the most advanced technologies such as network technology, multimedia technology, virtual technology and automatic control technology. The implementation of digital construction has become an indispensable part of today's social development. Famous museums in China, such as the Palace Museum, the Capital Museum and the Nanjing Museum, have taken the lead in digital construction, providing strong support for the development of local museums.

## 2. Definition of Digital Museum in the Context of All Media

(A) An overview of the museum

According to the revision of the 20th General Assembly of the International Association of Museums, it is recognized that museums are a kind of free and continuous operation institutions, which are committed to making contributions to society and future development, and are also open to the public. It devotes itself to collecting, preserving, researching, disseminating and displaying physical objects about the relationship between human beings and nature, and also provides valuable educational resources and sightseeing experiences. According to this definition, museums should have three important characteristics: first, they should devote themselves to exploring, inheriting, excavating and sharing knowledge so that people can experience more fun; Secondly, as a non-profit organization, museums should strive to collect, display and maintain resources closely related to human beings and their living environment, so as to have a deeper understanding of history, culture and the real world. There are many types of museums, including history museums and art museums,

all of which have their own unique characteristics and exhibition objectives, aiming to meet people's needs for various cultures and knowledge.

#### (B) Overview of Digital Museum

With the development of digital media technology, digital museums have become an important tool for traditional physical museums to expand new fields. It uses digital media platforms such as “three-dimensional laser scanning”, “720-degree panoramic shooting” and “virtual reality” to present cultural heritage in various forms, so that more people can understand and spread these valuable cultural wealth, thus promoting the development and progress of social culture. In this article, we will discuss how to build a digital museum through digital technology. These museums usually include the official website home page, virtual exhibition hall, video materials and graphic introduction. In recent years, with the progress of science and technology, digital museum has become an emerging and irresistible trend. It makes the museum collection lively and interesting by using various media, and provides the audience with a sense of participation through digital display. This new museum can not only protect cultural relics, but also enhance its research, culture and aesthetic value. Since China put forward the concept of digital museum for the first time in the late 20th century, the digital museum in China has made great progress in the past 30 years. From theoretical framework to practical operation, museums applying digital technology such as “multimedia museum” and “digital museum” have made remarkable achievements from the initial connection between the network and the museum to the use of network platform to continuously expand their functions, with the joint efforts of the whole society. With the development of technology, the number and quality of digital museums have been significantly improved. Using digital technology, we have established a brand-new platform, which can not only cross the boundaries of region and time, but also effectively show the essence of Chinese culture to the public, so that people can obtain various public cultural resources more easily and quickly. With the progress of science and technology, the traditional mode of “one production, one use and one release” is being replaced by a new, multi-level and multimedia production mode, which can better meet people's needs for museums. However, today's social development trend makes digital and multimedia museums unable to meet, so realizing all-media has become the key to the transformation and development of museums. [1]

### **3. Advantages of Establishing a Digital Museum under the Background of All Media**

Using digital technology to manage and operate museums can not only help museums operate more efficiently, but also analyze and predict future development trends more accurately. The advantages of this method are as follows: on the one hand, it makes the management of museums more intelligent; On the other hand, it can also help the museum to carry out daily maintenance more safely and efficiently. By improving information exchange, the operational efficiency of the museum has been significantly improved, which is fully reflected in the automation of office system, the establishment of cultural relics collection database and the professionalism of cultural relics restoration work. In addition, the collection of cultural relics has also been standardized, including the perfection and accuracy of the classification, naming, terminology, operation mode, marking, environment, identification and language processing of cultural relics. In recent years, with the rapid development of science and technology, digital management has become a common phenomenon, and many qualified museums have launched professional collection management systems to meet different needs. This emerging technology can not only be used for exhibitions, archaeological excavations, cultural relics protection and restoration, academic research and administrative management, but also better serve the society. With the rapid development of science and technology, a large amount of data information is stored on disk, which can greatly reduce the occupation of physical space and greatly improve work efficiency. In addition, with the use of digital technology,

people can carry out cultural exchange, social investigation, scheme collection and discussion more conveniently, thus broadening the scope of communication and promoting the participation of all sectors of society, thus greatly reducing the consumption of material, spiritual, time and resources, greatly improving the management level of museums and providing a solid foundation for the development of museums.

#### **4. Analysis of Problems in Digital Museums in China**

In recent ten years, China has made great progress in the protection of cultural heritage, forming a number of perfect digital museums. These museums not only have rich historical and cultural connotations, but also have many world-renowned physical museums, which provide important support for the protection of cultural heritage in China. With the rapid development of digital technology, China National Museum, Beijing Palace Museum, Shanghai Museum, Taipei Palace Museum and other digital museums enjoy high reputation at home and abroad. They not only play an important role in traditional culture, but also play a more active role in the digital age, thus promoting the development of China culture. With the development of all-media technology, foreign digital museums have made remarkable achievements in content, form, brand building and customer stickiness, while domestic digital museums have some problems that need to be further improved. Although there are a large number of netizens in China, the number of visitors to the museum is still less than expected. The reason for this situation is that tourists do not make full use of various channels and media, nor do they give full play to the advantages of all media. Although there is a lack of service awareness in domestic digital museums, through continuous improvement and perfection, users can be effectively attracted and retained, and long-term emotional ties can be established. Therefore, we should strive to improve the user experience of digital museums.

#### **5. Improvement Strategies of Digital Museums in China**

With the advent of the all-media era, digital museums are particularly important, and their development prospects are infinite. With the emergence of digital technology, museums can use three-dimensional laser scanning, virtual reality and other new display means, thus greatly promoting the integration and transformation of museums. The appearance of digital museum has brought unprecedented convenience to people. It can not only communicate with the public, but also communicate with all walks of life in depth. This brand-new way of communication has greatly improved the communication effect of the museum. With the deepening of globalization, digital museums have become an important cultural communication channel, which can effectively integrate local and foreign cultures into today's society, thus bringing more value and opportunities to the local society. With the continuous evolution of museums, their audiences are becoming wider and wider, which makes them better able to inherit and promote culture. In today's diversified social environment, the emergence of digital museums has brought more convenience to people. Therefore, we should take three measures to enhance their communication value:

##### **(A) Broaden the channels of communication**

With the progress of science and technology, new modes of communication are taking shape, and the creation and delivery of content and the needs of consumers are becoming more and more diverse. This change has brought about a substantial increase in the production efficiency of content, but also brought higher requirements to the production relations. Therefore, we must adjust our mode of production in time to meet this changing market. The all-media communication mode has brought unprecedented opportunities to the digital museum, which covers a variety of communication means from newspapers to the Internet, from e-books to social media, and can accurately customize the most favorable communication scheme according to the specific needs of the audience, thus achieving

better publicity results. The communication channel of digital museum is no longer limited to web pages, but through various emerging media, such as mobile clients, movies, television, games and so on, to achieve diversified publicity. The realization of all this is inseparable from the progress of digital technology and the change of cultural concepts. With the development of all-media, it not only greatly changes the way of cultural communication, but also makes the communication between users more convenient, thus shortening the cultural distance. Through this new form, the museum can arrange resources more stereoscopically, thus making a major change in the traditional content production. For example, using advanced big data analysis technology, digital museums can more accurately track visitors' browsing preferences and provide them with corresponding exhibitions and exhibits information according to these preferences. With the development of science and technology, museums are facing more and more challenges, and its special regionality and limited exhibition space make it more difficult to share information. Therefore, it is necessary to establish a resource sharing platform based on all-media technology in order to spread information in a three-dimensional and comprehensive way. [2]

#### (B) Improve the user experience design

In recent years, the digital museum has made great progress in China, and people pay more and more attention to its value, and the number of people visiting and browsing is also increasing. In order to attract more new users, in addition to using the latest technology and channels, it is also necessary to maintain user loyalty and enhance user experience, thus enhancing the effectiveness of communication. Through in-depth understanding of users' cultural background, education level, behavior habits and cognitive preferences, we can gain a more accurate insight into their needs and better understand their attitudes and emotions. With the development of technology, more and more exhibition halls of digital museums have been provided by outsourcing production companies, and they have more uniform standards, so that users can easily master various display methods without spending a lot of time studying. If the browsing operation of the digital museum is too complicated for users to understand quickly, then they may choose to give up visiting and using it. In order to improve the user experience, we should adopt a simple and unified operation process, which will not only prolong the service life of users, but also increase their chances of repeated visits.

In addition to the interface design, visitors' perception of the digital museum is also crucial, and its color matching and layout design can profoundly affect visitors' psychological experience. Because of its unique social and cultural environment, museums are usually regarded as rigorous and solemn places, which has a far-reaching impact on their interface design. However, the core function of digital museum is to interact effectively with users, so its interface design must pay more attention to user experience. In the digital museum with advanced virtual roaming technology, visitors can enjoy it greatly both visually and audibly. Moreover, due to the limitation of network transmission, the speed of virtual walking is also faster, so that people can see every point more clearly. Using advanced technology, such as rotation and fast movement, can help users locate more accurately. Therefore, we suggest adding thumbnail images of venues in the digital display interface, and providing obvious guidance, so that visitors can locate them more easily and accurately. The sound of digital museum can take many forms, including text introduction, picture display, video demonstration and so on. In particular, national-level brand digital museums should adopt bilingual or multilingual voice explanations, so that visitors can get a more comprehensive and detailed experience during their visits and further enhance the publicity effect of digital museums. In order to make the background music more harmonious with the exhibition theme, it is best to set some buttons that can be easily operated. [3]

#### (C) Establish a national brand image

Digital Museum is a window to spread history and culture around the world. It can not only spread culture, but also subtly change people's understanding of the Chinese nation. Digital Museum should

undertake the important task of bringing China culture to the world and effectively guide international public opinion to correctly understand Chinese culture. With the development of globalization, people's mode of thinking and behavior has changed greatly. All-media not only provides more channels for cultural communication, but also greatly improves the communication efficiency of museums. Under the background of all-media, digital museums can better reveal the relationship between cultural products and national images, and make important contributions to shaping and spreading the positive image of the Chinese nation. On the other hand, traditional museums are limited by geographical location and time, and cannot meet the needs of the audience. Therefore, we should develop more flexible communication channels to better show the national culture to the public. Professor Chen Chuanxi, for example, pointed out that the artistic value of the stone carvings of tombs in the Southern Dynasties can be compared with that of the Buddha statues in ancient India, the pharaoh statues in ancient Egypt and the sculptures in ancient Greece and Rome, and they are regarded as one of the four largest sculptures in the world. Although the stone carvings of tombs in the Southern Dynasties are numerous and sparsely distributed, most of them are concentrated in places with inconvenient transportation, which makes it more difficult to spread the stone carvings of tombs in the Southern Dynasties. In order to better protect and inherit these precious large-scale stone carvings, we can take a series of measures, including establishing the protection mechanism of cultural relics, visualizing their information by digital technology, and opening special websites on the Internet, so as to better collect and manage these national-level cultural heritages and spread them around the world.

## 6. Conclusion

By establishing digital museums, we can bring the Chinese culture to the world, awaken people's traditions and memories, and pave the way for future development. Digital Museum is not only a media to show history, but also exhibits in various forms, including themes, elements, story background, contents and expressions. In order to give full play to the value of Chinese elements, we must actively build, publicize, spread and accurately locate digital museums, so as to achieve the best win-win effect and make efforts for the development of museums and the inheritance of Chinese culture.

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