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Impact of Digital Technology on the Art Museum Industry's Business Model

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Abstract

Digital technology has now pervaded and become an inseparable part of our daily life. The art museum sector is evolving into a business model that adapts to the new digital format due to the requirement for survival and development. This study examines the development state of China's art museum industry and investigates the current business model innovation trend in the art museum industry from three perspectives: reorganization and development of the art museum industry's business model theory; reconstruction of the art museum industry's display and marketing logic; and innovation of the art museum industry's operation mechanism, based on a systematic assessment of domestic and international research.

This research can provide reference value for digital technology to drive the innovation of business model in art museum industry. Moreover, the study has important reference significance for the development strategy of art museum industry.

Keywords: *Digital Technology, Art Museum Industry, Business Model, Innovation Drive*

1. INTRODUCTION

Art museums play an important role in the national cultural industry and in raising cultural awareness among the general public. Therefore, many countries focus on the management of art museums, and privately managed art museums are partially subsidized by the state. China proposed in the '14th Five-Year Plan' for cultural and tourism development that the number of various cultural facilities (public libraries, cultural centers, art museums, museums, art performance venues) will be steadily increased, and the annual service person-time will exceed 4 billion.

In order to ensure the common and healthy development of digital technology and art museum industry, the planning proposes to develop new formats such as digital creativity, digital art display and immersive experience. The supply of digital cultural products also plays an increasingly important role in the development of art museum industry.

However, as a result of digital technology, how to drive the innovation and development of the art museum industry's business model, improve the exhibition of digital art in art museums, create a new immersive

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experience format, and enrich the format of digital cultural products has become an urgent problem to be considered in the integration and innovation of digital technology and the art museum industry.

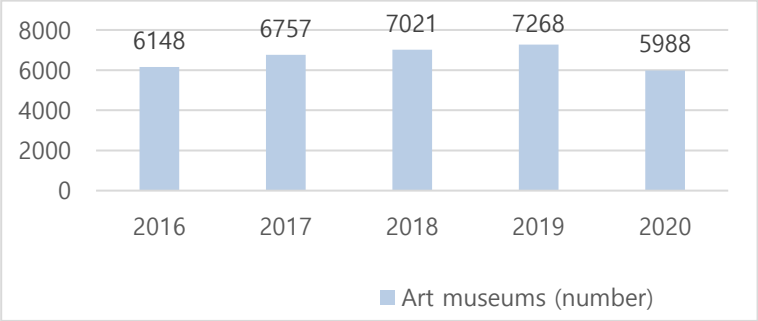
Many art museums throughout the world were shuttered during the epidemic, and roughly one-third of the institutions will be shrunk. As a result of the effect of 'Black Swan' in COVID-19, the art museum have to innovate their business models if they want to survive in modern times. Art museums and visitors have become more connected to digital technology, which has had a profound impact on the art museum industry's business model, because there has been little research on the economic model of the art museum industry, and this essay covers three areas: science and technology, art, and. It is necessary to sort out the reorganization and construction of the art museum industry's business model theory, to systematically analyze how the art museum industry employs interdisciplinary subjects to reconstruct and improve in the face of major environmental changes, and to look ahead to the future of digital technology driving the art museum industry's business model innovation.

This paper deconstructs the theoretical reorganization and construction of the art museum industry from theory to practice, examines the reconstruction of online and offline exhibition and marketing in two art museums at home and abroad, and summarizes the impact of digital technology on the art museum industry's operation mechanism. Moreover, the study provides significant reference value for the growth of the art museum industry and can give reference value for digital technology to drive the creation of business models in the art museum industry. Through this research, the art museum industry may have a better grasp of digital technology in order to support the sector's innovation drive, swiftly adjust to changes in the external environment, and advance the art museum industry's ecological growth.

2. THE PRESENT SITUATION OF CHINA'S ART MUSEUM

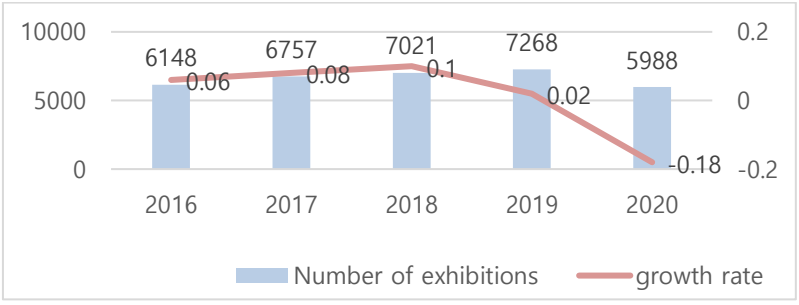
There are two types of art museums: public and private. The public art museum is more similar to the function of a museum, showing works of art to the public. Private art museums, also known as 'private art galleries', are primarily locations where art works are sold to businesses or collectors. There are many outstanding artists' works in the art museum, and people's spiritual and cultural accomplishments can be improved by appreciating the exhibition.

The Art Museum is a national public cultural facility, a repository for national artistic achievements, and a primary means of communicating spiritual civilization. More people will understand the rich connotation of art works and feel the artistic value of art works as a result of the exhibition in the art museum. Through the exhibition in the art museum, more people can understand the rich connotation of art works, feel the artistic value of art works, and then arouse people's emotional resonance. In 2020, China will have 618 art museums, 59 more than in 2019, representing a 10.55 percent rise year over year.



Source: Ministry of Culture and Tourism, author's reorganization.

Figure 1. The number of art museum in China from 2016 to 2020



Source: Ministry of Culture and Tourism, author's reorganization.

Figure 2. The number of exhibitions held by art museum from 2016 to 2020

The figures show that despite the steady increase in the number of Chinese art museums in 2020, the number of exhibitions and visitors to art museums has fallen sharply, in contrast to the increase in the number of art museums. According to the questionnaire survey of art museum workers, COVID-19 has a great influence on the art industry, accounting for 79% of the workers, indicating that the COVID-19 epidemic has had a significant impact on the art museum industry. The industry's response measures are to use modern science and technology to enhance the exhibition effect of art museums, alternate online and offline exhibitions to make up for the sudden drop in the number of exhibitions and the number of visitors, and to innovate business models through digital technology to adapt to the changes of the market environment.

3. THE REORGANIZATION AND CONSTRUCTION OF ART MUSEUM UNDER DIGITAL TECHNOLOGY

'Art Museum' is translated from Japanese. The term's original meaning was 'art museum'. It is in the same vein as the museum, and it is named after how the museum's idea progressively evolved to include the fine arts department. Museums are responsible for receiving, preserving, disseminating, and analyzing exhibits. From being a kind of museum, art museums are gradually subdivided into their own professional roles, which are used to preserve and display works of art, mainly by visual presentation. Art museum exhibitions are increasingly being offered through all senses, including touch, sound, and even scent.

Virtual reality (VR) technology uses computer technology to replicate the presence of a human body in a virtual world that is comparable to the real world. With the help of users' special equipment, they can observe things in the space without restriction, and the computer can send the video of users' movement back to the manufacturing telepresence through calculation, which gives the user an immersive experience. Virtual reality technology integrates many kinds of computer processing technologies, and it is the collection carrier of many digital technologies.

Most art galleries use this technology to simulate the virtual scene of the theme so as to deepen and strengthen the exhibition experience. Multimedia projection technology mainly includes edge fusion projection, in teractive projection, holographic projection, and so on. Edge fusion technology is to overlap and fuse the images of multiple projectors to produce new images with higher imaging effects and brightness effects. Art museums use edge fusion projection technology to display works to present larger and clearer images. The interactive projection system is an interactive system that interacts with the exhibition scene. Simply put, visitors can interact with the exhibition scene or exhibits through the interactive projection system. The art museum uses the interactive projection system to complete the simulation of the virtual scene or the fantasy world of the exhibits. Holographic projection technology is a three-dimensional technology that can remember

items and present virtual three-dimensional pictures of them.

Business model innovation is a process driven by external factors and internal factors (McGrath, 2010). Changes in external environment force business model innovation, and external driving has played a significant role in the business model of art museums. As the development of science and technology promotes the progress of related technologies in art museums, the key technologies of art museums have changed from the mass media stage to the digital stage. The new technology under digital technology has given birth to new art forms such as NFT, and brought about the digital transformation of the business model of art museums. The art museums have changed from trading agent for short-term exhibitions to a financial platform for artistic works with indefinite exhibitions.

4. THE RECONSTRUCTION OF EXHIBITION UNDER DIGITAL TECHNOLOGY

4.1 Multimedia Projection Technology Experiment in an Italian Art Museum

The Uffizi Gallery is a well-known Italian painting art museum with a worldwide renown. Against the backdrop of the scientific and technological revolution, the Uffizi Gallery initiated a series of digital technology projects. In Shenzhen, China, the Uffizi Gallery hosted the World Tour Digital Exhibition in 2018. The exhibition integrated paintings, sculptures and interactive digital equipment and used high-resolution edge fusion projection technology, holographic projection technology, sound technology, virtual animation and interactive projection technology to enlarge the details of all works through virtual animation. Custom music was presented through sound technology to match the artwork. The show included a hearing and touch art presentation, which went beyond the usual art museum exhibition, and the uffizi gallery used digital technology.

4.2 The Practice of virtual reality technology in Chinese art museum

ARTXB was founded in Beijing in 2016, using virtual reality technology as a media platform to conduct online exhibitions of art exhibits. The art museum's internal area is restored using platform virtual reality technology, which allows for the projection of all features of artwork during the exhibition duration. The audience can "tour" the venues online and choose their favorite venues to enter and leave freely. The texts and videos on the exhibition wall can be clicked to enlarge and watch, so that the audience can not only avoid the crowding of offline viewing but also enjoy the immersive exhibition experience.

All online exhibitions on the ARTEXB platform may be saved indefinitely, and viewers can watch art exhibitions from all across the nation online at any time, which is convenient for both art institutions and tourists. The majority of visitors to this website are artists from all over the world, with the majority of visitors hailing from North America, Europe, Japan, and other parts of the world. The ARTEXB platform has substantially increased the reach and influence of art exhibits at national art museums.

4.3 Digital technology and art museum

Space and time are no longer the limiting factors in art museum exhibitions. Painting, sculpture, photography, illustration, installation art, and arts and crafts are the main exhibits in the art museum industry, occupying a large amount of space for exhibition and storage in the art museum. Among these, the display space for large-sized exhibits necessitates a significant amount of manpower, material resources, and transportation time. Each exhibition's layout and withdrawal is a massive project that necessitates the use of special transport vehicles and devices, as well as the collaboration of several people to load and unload Large-scale exhibitions require several weeks to set up and several days to remove.

Art displays are exceedingly valuable and must be properly preserved; nevertheless, exhibits are frequently destroyed during transit, and as a result, artists are more hesitant to participate in shows for fear of harm to their works. Art works can be shown at the art museum in a plane or 3D/4D fashion utilizing digital technologies such as virtual reality technology and multimedia projection technology, which saves space for installing works, time for hauling works, and damage to works, and considerably enhances the art museum's operational efficiency. Under the digital technology, the art museum industry will no longer have to worry about the problems that restrict the operation and development of art museum, such as insufficient exhibition area in exhibition halls, insufficient space in operation warehouses, long period of exhibition and withdrawal, and transportation and damage of art works.

5. CONCLUSION

Many countries' cultural industries rely heavily on art museums. David Jeffer, deputy curator at the National Art Museum in London, UK, discusses how sponsors and their collections have influenced the historical positioning of art museums. Using his own National Art Museum in London, England as an example, this paper explores the complicated relationship between money and art by telling stories about specific collections and the fate of their collectors.

This relationship exists to this day, and it is more visible in the current market economy environment. Several curators from the Netherlands and Japan proposed different management methods for art museums based on their own experiences, demonstrating the diversity of current art museum business models. At the same time, they emphasized that in the face of the global economic crisis, art museums must strengthen their mission and purpose.

An art museum's growth must not only focus on the past, but also, more crucially, foresee the future. The aesthetic and educational purposes of art are better diffused as online art museums become more popular, and the significance of flow and social interaction becomes more apparent. Simultaneously, digital technology has played a crucial role in pushing the evolution of the art museum industry's economic model. The constant growth of digital technology has had a revolutionary impact on the business model of the art museum industry, promoting the reconstruction and innovation of art museum industry theory, marketing, and operations, directly or indirectly.

Digital technology and business models are not static, and the art museum industry's evolution requires ongoing research and experimentation. We should seek out the best path for the growth of the art museum sector in the face of constant change in the external environment via persistent study and excavation. Through this research, the art museum industry can have a better grasp of digital technology in order to support the sector's innovation drive, swiftly adjust to changes in the external environment, and advance the art museum industry's ecological growth.

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