Research on Brand Building and Technological Integration Development in the Cultural and Creative Industry

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Abstract. The cultural and creative industry is an emerging industry with innovation and creativity as its core in the context of economic globalization. It is an important driving force for economic transformation and upgrading and an important means of national soft power competition. The policy support for China's cultural and creative industry is constantly increasing, and the industry scale is constantly growing. The trend of integration between cultural and creative industries and digital technology is obvious. This article studies the current situation of the cultural and creative industry, analyzes the integration trend of cultural and creative industries and digital technology, and explores the upgrading experience of the cultural and creative industry in analyzing typical brand shaping, providing a reference for enhancing the core competitiveness of the cultural industry.

1. Introduction

The world has entered an unprecedented era of innovation intensity and industrial transformation, and technological development has nurtured breakthroughs. Technological innovation will fundamentally change the global competitive landscape and the way national wealth is obtained. At the same time, culture is not only becoming an important source of national cohesion and creativity but also an important factor in the competition for comprehensive national strength. The integration of culture, technology, and economy is constantly advancing towards deeper and wider fields. The cultural and creative industry is an emerging technological industry that, in the context of economic globalization, focuses on cultural knowledge as the main body, combines innovation and creativity, and relies on individuals or enterprises to develop creative industries, copyrights, intellectual property, etc. through the integration of high-tech and innovation.

2. Analysis of the development status of China's cultural and creative industries

2.1. Policy support for cultural and creative industries is consistently on the rise

The cultural and creative industry plays a vital role in driving economic transformation and upgrading, as well as enhancing a nation's soft power. China has been increasingly prioritizing the development of its cultural and creative industries, as evidenced by various policies such as the "Opinions on Promoting the Implementation of the National Cultural Digitalization Strategy" and the "14th Five Year Plan" for the Development of the Cultural and Creative Industry. Upon reviewing the relevant national policies, it can be concluded that the country is actively promoting the digitization of cultural and creative industries. Therefore, the development of cultural and creative brands should consider the background of informatization.

2.2. The cultural and creative industries are continuously expanding in scale

The cultural and related industries in China have been experiencing continuous growth in revenue, which, in turn, has driven the growth of revenue in cultural and creative design. Based on the statistics, between 2016 and 2021, China's cultural and related industries' revenue increased from 8031.4 billion yuan to 11906.4 billion yuan. Additionally, the operating revenue of cultural and creative design above the designated size has increased from 985.4 billion yuan to 1956.5 billion yuan, with the proportion increasing from 12.9% to 16.4%. As shown in Fig. 1.

Figure 1. Revenue and growth rate of cultural and creative enterprises above designated size in China from 2016 to 2021. (All figures in this article have been drawn by the author)
The cultural and creative industry in China is flourishing, and there has been a significant rise in innovative enterprises. According to recent data, from 2016 to 2021, the number of registered cultural and creative industry-related enterprises in China increased from 2015 to 10955. Currently, the total number of cultural and creative industry-related enterprises in China exceeds 36000. As shown in Fig. 2.

Figure. 2. Number and growth rate of registered cultural and creative enterprises in China from 2016 to 2021.

From the perspective of regional distribution of enterprises, Shaanxi, Jiangsu, and Guangdong ranked among the top three in terms of the number of cultural and creative enterprises in operation or existing, with 5801, 3476, and 3348 respectively, accounting for 15.94%, 9.55%, and 9.20%. As shown in Fig. 3.

Figure. 3. Distribution of the Number of Cultural and Creative Related Enterprises in China in 2021

In addition, new forms of cultural and creative industries are increasingly resilient and becoming a key force supporting industry development. According to data released by the National Bureau of Statistics, in 2022, cultural and related industry enterprises above the designated size in China achieved a revenue of 12180.5 billion yuan, an increase of 0.9% compared to the previous year. Among them, 16 industry subcategories with more obvious characteristics of new cultural formats achieved revenue of 4386 billion yuan, an increase of 5.3% compared to the previous year, which is faster than all cultural enterprises above the designated size by 4.4%.

3. Analysis of the integration trend between cultural and creative industries and digital technology

The emergence of new-generation communication technologies such as 5G, big data, cloud computing, and artificial intelligence has led to the advancement of digital technology. This advancement has not only enhanced the traditional cultural industries but has also transformed the methods of cultural production, dissemination, circulation, and consumption. This has triggered a chain reaction of cultural market and industry structure, leading to the activation of content and structural upgrading of traditional cultural industries. The digital economy derived from digital technology is also transforming the internal structure and external environment of ethnic and cultural industries. Digital technology is rebuilding a new digital ecosystem for contemporary Chinese cultural industry by stimulating traditional cultural industries, creating emerging cultural industries, and constructing digital scenes for cultural industries.

3.1. The increasing importance of technology in the cultural and creative industries

Human creativity lies at the core of cultural creativity. However, presenting cultural and creative works requires a complete process solution that involves multiple fields of technology. This includes early planning, scheme design, mid-term production, and later maintenance. Such a solution requires comprehensive control technology of equipment, virtual reality and augmented reality technology, artificial intelligence technology, and many more. For instance, the opening ceremony of the 2022 Beijing Winter Olympics utilized various technologies, such as artificial intelligence, industrial internet, numerical control technology, machine vision, and more. It resulted in the creation of the world's largest LED three-dimensional stage, the giant "ink and ice cube," which presented a technological visual feast for the world. Further, technology has given rise to new forms of cultural and creative industries. For example, blockchain technology-based concepts like NFT and digital collectibles have become hot topics after the metaverse. Digital collectibles have also emerged as one of the most popular tracks in the capital market. As a result, the future development of the cultural and creative industry will increasingly rely on emerging technologies dominated by the new generation of information technology[1]. The deep integration of these technologies has become an important trend in the future development of the cultural and creative industry.

3.2. Collaborative development characterized by clustering

The cultural and creative design industry requires a complete industrial chain that is divided into different categories such as news and information services, content creation and production, creative design services,
and cultural communication channels. It is also classified by industry type, which includes cultural manufacturing, cultural wholesale and retail, and cultural service industry. Currently, China's cultural and creative industry has formed a pattern of 34 national-level cultural industry demonstration parks as leaders, provincial and municipal level cultural and creative industry parks as the backbone, and local characteristic cultural industry clusters as the fulcrum, to promote the high-quality development of the cultural and creative industry. Although various cultural and creative industry parks and clusters have begun to take shape, except for the developed cultural and creative industries such as the Pearl River Delta, Bohai Rim, and Yangtze River Delta, the characteristics of most other regions are not yet obvious, and local characteristics need to be highlighted in the cultivation of cultural and creative industry development clusters.

3.3. Accelerate integration of "Internet Plus" and cultural and creative industries

The cultural and creative industries thrive on innovation. To keep up with the ever-changing trends of the times, they must constantly update their content and form. The rapid development and widespread use of new-generation information technologies such as big data, cloud computing, and artificial intelligence provide low-cost and diversified technology platforms for the innovative development of cultural and creative industries. The Internet has become a major platform for cultural creation, production, dissemination, and consumption — an essential component of modern life. Therefore, practitioners in the cultural and creative field need to analyze public needs with Internet thinking to create products that are suitable for the production and dissemination needs of the Internet.

4. Brand building of cultural and creative industries integrated with technology

At present, China's cultural and creative industry as a whole is showing a spatial evolution trend of "orderly distribution and multi-polar development". Traditional cultural formats such as folk performances, handicrafts, and folk tourism in small and medium-sized cities and rural areas are prominent[2]. Some cultural and creative industries have achieved outstanding results in brand building, and we hope to learn from them and gain inspiration[3].

4.1. Suzhou "Jiangnan Culture" brand

Suzhou combines its profound historical and cultural heritage with superior modern urban elements, becoming one of the top historical and cultural cities in China. Its cultural and creative industries are also showing a thriving trend. In 2021, Suzhou proposed to fully promote the "Jiangnan Culture" brand and launched a three-year action plan for the "Jiangnan Culture" brand, focusing on the excavation, presentation, transformation, dissemination, and promotion of Jiangnan culture, aiming to comprehensively enhance Suzhou's primacy and radiation in the discourse system of "Jiangnan Culture".

The Classical Gardens of Suzhou in Jiangsu Province have a long history, distinctive features and unique techniques. They are important material carriers of historical and cultural information in ancient society. In recent years, Suzhou has accelerated digital construction. In terms of garden heritage, high-precision surveying and 3D modeling of classical gardens have been carried out to record the constituent elements of buildings, rockeries, plants, etc., restore the overall color size, spatial orientation, material texture, etc. of the gardens, and collect and store three-dimensional data of garden heritage information. At the same time, digital garden construction is carried out through the network and mobile devices, thereby expanding the influence of gardens. The digital protection of Suzhou garden heritage has achieved initial results.

On this year's Dragon Boat Festival, Suzhou Intangible Cultural Heritage Protection and Management Office, Suzhou Landscape Investment and Development Group Co., Ltd., Zhongheng Design Group Co., Ltd., and the National "the Belt and Road" Joint Laboratory of Suzhou University signed a contract for the demonstration project of "intangible cultural heritage empowerment", aiming to promote the contemporary value of intangible cultural heritage, adhere to creative transformation and innovative development, and promote the integration of intangible cultural heritage into modern life. At the activity site of the day, the Dragon Boat Festival folk market was specially arranged, which gathered booths of intangible cultural heritage such as Leiyunshang sachet, zongzi, Paper Cuttings, sugar blower, etc., attracting many citizens to "punch in". At the same time, the "extraordinary exhibition hall" Suzhou Intangible Cultural Heritage into the hotel series has also ushered in its second season. In the Jinji Lake Intangible Cultural Heritage Extension Space, 35 pieces (sets) of intangible cultural heritage masterpieces from 35 intangible cultural heritage protection units or inheritors are gathered[4]. At the same time, high-precision 360° panoramic scanning modeling technology is used to create an online "cloud exhibition hall" for intangible cultural heritage special exhibitions, and online and offline efforts are made to create a cultural atmosphere in Jiangnan.

4.2. Red Culture Brand

Against the backdrop of continuous technological upgrades, the application speed of technologies such as artificial intelligence, 3D imaging, and virtual reality has greatly accelerated, playing a significant role in the collection, storage, processing, display, and dissemination of red cultural resources. The digitalization process of red cultural resources has also shifted from simple digital replication to dynamic and
interactive "travel through", with each exhibition and work leaving traces online. Even achieving a permanent collection of digital exhibits. Jiangsu Province has implemented a digital protection project for movable revolutionary cultural relics, and Shanghai has built a red cultural resource information application platform called "Hongtu". Digital infrastructure projects such as these are constantly increasing, providing tourists with a comprehensive and three-dimensional rich experience.

At the same time, various regions focus on exploring the connotation of red cultural resources, innovating exhibition methods, developing new cultural and tourism scenes, creating distinctive digital creative products, and improving the utilization rate of the digital resource library of red culture. For example, the Guizhou Long March National Cultural Park has launched a digital display, using multimedia methods such as projection sand tables, multi-touch, holographic imaging, and virtual guides to make the Long March story and hero characters three-dimensional and vivid, mobilize audience initiative, achieve good participation and interaction, and comprehensively and profoundly understand red culture and revolutionary history. As early as 2016, the "Four Crossing of Chishui VR War Experience Center" in Guizhou launched a new Long March spirit experience project for young people. Through virtual reality technology, it reproduced the famous "Four Crossing of Chishui" campaign, leaving a deep impression on the audience.

In recent years, the number of literary and creative works and products derived from the creation of red cultural resources has also continued to increase. By integrating online and offline resources and integrating culture and technology, breakthroughs have been made in red cultural and artistic performances, themed cultural and creative products, and anime works in various regions[5]. For example, the South Guangdong Ancient Post Road connects heritage sites with post roads strengthens the attractiveness of heritage sites, and establishes the brand of "South Guangdong Ancient Post Road". This not only upgrades the value of cultural resources but also promotes the development of related red research tours.

4.3. Cultural and Creative Brands of the Forbidden City

The Palace Museum has been working hard to develop its intellectual property (IP) by using the rich culture of the museum. The museum has implemented various reform measures centered around its functions and products. Additionally, the museum has conducted numerous promotional activities to build a multi-dimensional image of the Palace Museum's brand. In 2018, the Palace Museum collaborated with Beijing Television Station to launch the "New Palace Museum" program. In addition, the museum collaborated with top cross-border designers and university design students to launch a series of cultural and creative derivatives. This program effectively brought the Forbidden City closer to the public, expanded the consumer group of cultural and creative products, and enhanced the awareness and reputation of the Forbidden City's cultural and creative brand. According to statistics, in 2019, the Forbidden City developed over 11000 pieces of cultural and creative products, generating product revenue exceeding 1.5 billion yuan.

The Palace Museum actively uses digital technology to break through limitations of time and space and to combine online and offline dissemination. In 2002, the Palace Museum Cultural Digital Asset Application Research Institute was established to protect, research, and showcase the Palace Museum's rich cultural heritage through digital means. In 2015, the "Panoramic Palace Museum" was launched, which used panoramic photography technology to create 720-degree 4K high-definition panoramic photos of the exterior and interior of the ancient buildings in the Forbidden City. This creation of panoramic scenes of the Palace Museum gained widespread public attention and attracted a large number of visitors within three days of its launch, exceeding 100000. The Forbidden City in 2017 launched China's first fully digital exhibition hall called the "Duannen Digital Experience Hall". This virtual world can be accessed by visitors through large high-definition projection screens and motion capture devices. In addition, the Palace Museum has launched a "Digital Palace Museum" mini program to provide the public with a one-stop online tour service. Through accessibility features, visually impaired individuals and the elderly can not only travel to the Palace Museum at their fingertips but also enjoy more offline travel convenience through the mini program, reflecting the warmth of cultural creativity.

4.4. Dunhuang Cultural and Creative Brand

The Dunhuang Grottoes contain rich historical, cultural, and artistic values. For more than 30 years, the professional team at Dunhuang Research Institute has actively collaborated with scientific research institutions both domestically and abroad. They have gradually established an accurate, authentic, and high-definition "Digital Dunhuang" resource library, which has become a precious resource for achieving creative transformation and innovative development of excellent traditional culture in the digital era. Digital Dunhuang is now an important global platform for the dissemination of Dunhuang culture and is a well-known brand. In 2022, the first-ever open-sharing platform for digital cultural heritage based on blockchain technology, named "Digital Dunhuang Open Material Library," was launched. We identified and gathered mural elements through artificial intelligence technology, and about 6500 high-definition digital resource archives of 19 types of topics from the Mogao Grottoes of Dunhuang and other cave sites and Dunhuang Sutra Cave documents were opened to the world. In 2023, the participatory museum "Digital Scripture Cave" will be launched, allowing people to embark on an immersive online cultural and museum journey anytime, anywhere.
The Dunhuang Museum has launched diverse and diverse cultural and creative products through three modes: independent development, authorized development, and cooperative development. The independent development model is primarily managed by the cultural relics store of Dunhuang Museum. This model is a typical cultural and creative product development approach, which mainly focuses on creating traditional cultural and creative items such as postcards, bags, learning tools, jewelry, bookmarks, and more. Under the authorized development model, Dunhuang Museum authorizes cultural and creative product companies to develop and operate cultural and creative products and conducts cross-border cooperation with multiple brands in different fields such as Supor, Luxi River, KEEP, and Shengxiang. Based on Dunhuang IP, a series of highly acclaimed products have been launched, significantly improving product design efficiency and diversity while reducing the cost of cultural and creative product design. Under the cooperation model, Dunhuang Museum collaborated with Fan Yanyan Art Center to establish the "Dunhuang Museum · Fan Yanyan Silk Art Center". Based on Dunhuang IP, a series of cultural and creative products represented by the "Dream Dunhuang" art scarf were developed. Through the integration of cultural IP and well-known designers, the market competitiveness and brand influence of cultural and creative products were significantly improved.

5. Conclusion

As an emerging industry with great vitality, rapid development, and great potential, the added value of the cultural and creative industry is increasing year by year, and the contribution rate of GDP is gradually increasing. Moreover, multiple cultural industry sectors have gradually formed, becoming a new pillar of economic development. The importance of technology to cultural and creative industries has become increasingly prominent. The cultural and creative industries are developing in a coordinated way characterized by clustering, and the integration of "Internet plus" and cultural and creative industries has been accelerated. Some cultural and creative industries have achieved outstanding results in brand shaping, such as the "Jiangnan Culture" brand, the Dabie Mountain Red Culture brand, the Palace Museum cultural and creative brand, and the Dunhuang cultural and creative brand. To better establish and cultivate a cultural market, the development of the cultural and creative industry must enhance its competitiveness by considering how to adapt to the trend of technological integration and how to shape competitive brands.

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