Analysis of the Current Situation and Development Trend of Digitalization in China's Cultural Industry

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Yongrui Han, Xin Xiao*
Guilin University of Technology, Guilin, China
*Corresponding author, e-mail: 171518056@qq.com

Abstract
This paper compares the development status of China's cultural industry digitalization, and introduces the industrial structure adjustment of China's cultural industry based on digital technology, the new business model of digital cultural industry, and the empowerment of cutting-edge digital technology to the development of cultural industry from the original driving force of the development of digital cultural industry. Taking the current development status of China's digital cultural industry as the research object, we discuss the multidimensional factors affecting the digitalization of cultural industry, analyze the problems in the process of digital development of cultural industry, and finally explore the development trend of digitalization of cultural industry in China.

Keywords
Digital cultural industry; Cultural industry; Digitalization

Introduction

In recent years, the significantly growing digital economy has become an important factor in advancing social development and has profoundly affected the global economic landscape. In 2019, the global digital economy grew at an average nominal rate of 5.4%, 3.1 percentage points higher than the nominal growth rate of global GDP during the same period (China Academy of Information, 2020). In comparison, China's digital economy growth rate is more outstanding, with a year-on-year growth of 15.6%, ranking first in the world. Today, the framework of China's digital economy system is upgraded in four directions: digital industrialization, industrial digitization, digital governance, and data valorization. The integration of China's cultural industry with digital technology and digital consumption has also generated new industries and new models, giving rise to a

new round of industrial changes. In this context, the digital development of China's cultural industry has ushered in a new opportunity. In September 2020, General Secretary Xi proposed "implementing the digital strategy of cultural industry" in the 14th Five-Year Plan. In November 2020, the Ministry of Culture and Tourism issued the "Opinions of the Ministry of Culture and Tourism on Promoting the High-Quality Development of Digital Cultural Industry", which laid out the development goals for the digital cultural industry. In November 2020, the Ministry of Culture and Tourism issued the "Opinions of the Ministry of Culture and Tourism on Promoting the High-Quality Development of Digital Culture Industry" to plan the development goals of digital culture industry in order to promote the high-quality development of digital culture industry.

The Digital Economy Drives Digital Development of the Cultural Industry

The digital economy, as a new economic form with digital technology as the core driver, occupies an important position in China's national economy. The White Paper on the Development of China's Digital Economy released in 2020 shows that the scale of China's digital economy value added reached 35.8 trillion yuan in 2019, accounting for 36.2% of GDP (China Academy of Information, 2020), which shows that the proportion of the digital economy in the national economy is constantly increasing and becoming a new driving force of China's economic development in the future. Meanwhile, China's cultural industry is in the stage of shifting from high-speed growth to high-quality growth, and the penetration of digital economy in the cultural field has a significant impact on the structural upgrade of traditional cultural industry, the transformation of cultural consumption mode and the structural adjustment of cultural industry chain, which promotes the transformation of old and new dynamics of cultural industry development.

The Development of Traditional Cultural Industries was Hampered by the Impact of the COVID-19

The outbreak of the COVID-2019 had a serious impact on China's cultural industry, with a large number of traditional cultural industries in a state of shutdown and offline cultural activities cancelled and banned, leaving the offline cultural consumer market in a depressed state and enterprises unable to recover their costs in the short term. At the same time, a large number of traditional cultural industries are facing business pressure of bankruptcy due to layoffs and salary cuts as they face a broken capital chain, making it difficult to reinvest in cultural products and cultural services. For example, in China's small and medium-sized tourism enterprises, property rent and labor costs account for more than 50% of the overall operating costs of the enterprise. According to a report, China's domestic tourism arrivals are expected to decrease by 15.45% year-on-year in 2020, and total tourism revenue by 37.56% to 4.14 trillion yuan (Iimedia, 2020). Although the state has pro-

vided support in terms of policies and funds, and large property developers such as Wanda, China Resources, and PowerLong have taken the lead in implementing rent reductions to help, enterprises related to traditional tourism elements were all hit hard in an environment where the tourism industry as a whole stagnated in the first quarter. In the film industry, the Spring Festival season, the largest time period in terms of box office revenue, was also affected by the epidemic, with film production coming to a standstill, the cost of film promotion depleted, and all of the New Year's Eve movies such as "Detective Chinatown 3", "Leap", "Lost in Russia" and "Legend of Deification" were withdrawn, and cinemas were shut down and laid off, triggering a series of cascading negative impacts. According to statistics, the national movie box office in the first quarter of 2020 was only 2.238 billion yuan, down 88% year-on-year. In this context, the traditional cultural industry began to find a new market position, and the integration of new technologies has given rise to a new cultural consumer market, which has become an effective way to "bleed" the traditional cultural industry.

Digital Consumption Boosts the Digitization of Cultural Industries

Digital consumption during the epidemic has reconstructed the consumption pattern of the cultural industry, and the expansion of the scale of digital consumption has promoted the digitalization process of the cultural industry. According to the report, as of June 2020, the scale of cell phone Internet users in China reached 932 million, and the scale of cell phone online shopping users reached 747 million, accounting for 80.1% of cell phone Internet users (China Internet Network Information Center, 2020). The convenient mobile terminal has reshaped the consumption habits of users, and the online and offline consumption are integrated, and innovative modes of network consumption are emerging, and the demand at the consumption end is the guide, pushing back the supply side of the cultural industry to adjust and upgrade to meet the diversified and personalized consumption needs of consumers.

Driven by digital consumption, the revenue of China's digital publishing industry has increased significantly, with the revenue scale increasing from 440.385 billion in 2015 to 955.143 billion in 2019 (China Publishing Network, 2020). In the project revenue classification, Internet advertising, mobile publishing, and online education ranked in the top three, of which the development of online education is particularly prominent, with great market incremental space; in China's music industry, the total market size of 395.096 billion yuan in 2019, an increase of 5.42% year-on-year, the growth rate has decreased, however, the core layer of the music industry system—digital music, maintained a high growth rate of 8%. It can be seen that digital consumption for the digital growth rate of the supply side of the cultural industry, whether it is a new digital cultural industry formed entirely based on the Internet architecture and digital technology, or the traditional cultural industry transformed using digital technology, its business model must be in line with the consumption hab-

its of users thereby opening up the upstream and downstream industry chain of the digital cultural industry, and the original impetus of the digital development of enterprises is highly matched.

Restructuring of the Cultural Industry Chain

The development of digital technology and digital consumption has changed the linear structure of the cultural industry chain, making the supply side and demand side of cultural products no longer independent of each other in a binary structure, and the cultural industry chain has begun to change to a net-like structure. First, the production relations of the cultural industry have changed, and producers, distributors and consumers no longer maintain a fixed single role. For example, at the level of content production, the UGC and PUGC models have elevated the status of users, and the content production of cultural products is done jointly by producers and users, giving users a different experience of cultural services, a feature that is particularly prominent in China's online short video industry. The change of production relations is of great significance for the supply-side structural reform in the cultural field. In addition, on the consumption side, users' consumption content has begun to change towards a combination of reality and reality, consumption patterns have transformed towards personalization and diversification, consumption habits have evolved towards fragmentation, and information from the consumption side is fed back to the production front-end in time to improve the accuracy of cultural product positioning. The reconstruction of the cultural industry chain has realized different degrees of value-added for each link of the industry chain, and realized the evolution of enterprise cultural products and cultural services in the direction of diversification and personalization, which has become one of the important factors for the creation of new modes and new business models in the digital cultural industry.

The New Industry of China's Digital Culture Industry

Cultural Product Market Dominated by Digital Platforms

"In the era of digital economy, platforms connect multiple types of economic agents by building multi-party governance mechanisms, use the network effect to achieve low-cost aggregation of capital, information and knowledge, become the basic organization for coordinating and allocating resources, and become an important carrier for value creation and value aggregation" (Huang, 2020). The Chinese government has promoted the development of "Internet+" and supported Chinese Internet enterprises to create a platform for the creation of digital fine content and the consumption of cultural products. China's leading digital enterprises have entered the cultural industry by virtue of their technological advantages and the accumulation of raw data, and have improved the efficiency of the utilization of cultural capital and the production of cultural products through the integration of various production factors. Large digital platforms have entered the cultural industry through

direct mergers and acquisitions or by building their own platforms, with the development concept of "software and hardware + applications + services", and have relied on their platform advantages to lay out the segments of the cultural market. For example, Tencent Group has built several digital platforms such as Tencent Video, Tencent Music, Tencent Film, Tencent Animation and Tencent Game Arena (TGA) to enter the corresponding cultural industry segments and promote the transformation and upgrading of cultural products and services as well as business processes. For small and medium-sized digital culture enterprises, they usually integrate into large digital platforms to become part of their cultural industry ecosystem, taking advantage of the large platforms' resource integration, technological innovation and user accumulation to realize cultural production and business promotion. The collaborative creation among enterprises can organically integrate content, creativity and technology, significantly improving the core competitiveness of the digital culture industry.

Generalization of Cultural Industry under the Enterprise Integration Development Model

In the past, the cultural industry had clear boundaries and a clear division of labor, and high technical barriers hindered the cross-border production and collaborative creation of cultural enterprises, making the development of the cultural industry tend to be fixed in a single direction and the homogenization of cultural products serious. Nowadays, with the development of digital technology, the production subjects of the cultural industry show the trend of collaborative creation and integrated development, and the production boundaries of various fields of the cultural industry gradually generalize, presenting a variety of integrated new industries in the fields of e-commerce, education, tourism, exhibition, sports and entertainment. For example, in the field of online education, the revenue scale in 2019 was as high as RMB 201 billion, and the integration and development of cultural and educational enterprises and digital technology platforms realized the integration of online and offline educational resources, changed the learning behavior and learning habits of users, and had a positive effect on the reform and promotion of education. During the epidemic, Alibaba's office platform DingTalk was promoted significantly, and the platform collaborated with government websites and enterprises to integrate online meetings, cloud classes, intelligent office, and data management into people's work and learning, significantly improving users' office efficiency and opening up a new blue ocean in the field. It is thus clear that future advances in digital technology will continue to break down barriers between cultural enterprises, open up new cultural markets, and provide more possibilities for the emergence of new forms in the cultural industry.

Gradual Enrichment of Cultural Resources Revitalization Exploration

In recent years, the digitization of China's intangible cultural heritage has effectively made progress in the protection, recording, dissemination, creative design, content value transformation and

derivatives development of intangible cultural heritage, creating good social value, awakening and enhancing the emotional resonance and cultural self-confidence of the masses; at the same time, it has shown the profound heritage of China's culture in the international arena through rich creative forms, and carried out The revitalization of cultural resources is explored by "turning from static". For example, "Master in Forbidden City", "Handcraft of CHINA", "Along the River During the Qingming Festival" digital project, Li Ziqi short video and other digital cultural creations have received a lot of attention overseas, becoming a card for the dissemination of China's excellent culture. However, compared with other countries, China's digital culture business continues to advance, and there is still much room to improve the economic value generated by digital culture projects. China's digital culture industry is based on the development concepts of "culture+" and "Internet+", and through multiple channels, the symbols, aesthetic connotations and value connotations of traditional culture are recreated, realizing the interaction and homogeneity of cultural value content and digital technology. For example, at the level of development of digital culture economy in ethnic minority regions, each region relies on local characteristic cultural resources, develops culture and art, living practice and living environment through multiple channels, precisely locates the application scenes and user experience of excellent culture, develops innovative modes such as cloud tourism, creative short video, virtual derivatives of ethnic elements, digital experience of cultural tourism projects, Internet video + e-commerce, etc., and continuously increase the social value and commercial value of culture and expand the ecosystem of digital culture industry.

The Upgrade of Cutting-Edge Digital Technology to Empower the Cultural Industry

In recent years, emerging digital technologies are gradually penetrating into the development of the cultural industry, influencing the transformation and upgrading of the traditional cultural industry and the restructuring of the digital cultural industry, especially the application and development of technologies such as 5G communication, virtual reality, artificial intelligence and blockchain, providing new ideas and methods for digital industrialization and industrial digitization.

5G Communication Technology

The advantages of fifth-generation mobile communication technology with high speed, large capacity and low latency have a disruptive impact on the digitization of the cultural industry, mainly in the following aspects: firstly, the advantages of 5G technology can promote the development of artificial intelligence, virtual reality, cloud computing and other technologies, and realize the deep integration of frontier technologies and the cultural industry; secondly, 5G technology can advance the technical complexity of cultural products and cultural services and improve the added value of Chinese cultural products through technological empowerment (Chen & Shi, 2020); finally, through technological en-

richment acting in various fields of the cultural industry, it can advance the diversification of cultural products and cultural services, innovate the production mode and business model of the cultural industry, and promote the emergence of new industries and new forms of cultural products in the digital cultural industry. For example, in the game field, the low latency and large capacity of 5G technology reduces the hardware requirements of user terminal devices and places the complex operations of graphics processing, data operation and screen rendering in the game process on the cloud platform, making it possible for users to participate in games on low-end hardware devices or "streaming media platforms", solving the current problem of In the field of short video, the empowerment of 5G technology catalyzes the expansion of mobile short video application scenarios, presenting the development mode of "short video+" and accelerating the development process of economic values such as online shopping, payment, sharing and rewarding. According to the data, the market size of Chinese short video reached 24.58 billion yuan in 2019. Along with the rapid development of short videos and webcasting platforms, a number of "net celebrities" have emerged on the new Internet media. This promotes the culture of "net popularity" and also contributes to the emergence of new models of Internet marketing (Huang, 2020). At the same time, the integration of 5G technology and artificial intelligence indirectly boosts the content reform of the short video industry, and under the current situation of pan-entertainment, the content of short video is reformed in the direction of vulgarization and fine content. In the future, the short video content production mode of UGC+PGC will provide users with better quality video content, and the improvement of content value will evolve more business models and bring new development opportunities to the short video industry.

Virtual Reality

VR technology is a three-dimensional virtual world created by computer systems, where people can interact with virtual information according to certain rules, giving users a sense of immersion and multi-sensory experience, thus achieving an immersive feeling.

In recent years, virtual reality technology has become the core technology for the digital presentation and interactive experience of traditional culture, and has made important breakthroughs in the field of digital cultural exhibitions. The "Tianji Horse Racing" developed by the Chinese Museum is a VR shadow puppet interactive experience project, which deconstructs, refines and redesigns the elements of shadow puppets, preserving the essence of shadow puppets while creating a visual effect that meets modern aesthetics. The creative team transforms people's perception of shadow from a two-dimensional plane to a three-dimensional sensory experience, from watching a performance to participating in a game, expanding people's perceptual mode and perceptual experience of shadow through the form of a game (Zhang, 2020). In the interactive process, it enriches visitors' visual choices and visual feelings, and enhances users' immersion through high-precision virtual space scenes, thus promoting users' learning of shadow art-related knowledge. The "Tianji horse-

race" VR shadow interactive experience project presents the concept of a serious game, using the technical advantages of virtual reality multi-dimensional space as an entry point to design from user learning participation, information reception initiative, experience fun, etc., to promote the user's understanding of relevant cultural learning, and ultimately achieve educational purposes. At the same time, the manufacturing of VR devices can also promote the innovation of related cultural devices, thus bringing a corresponding new market value (Zhang, Wei & Chen, 2017). With the upgrading of technology, virtual reality will have a broader application prospect in the digital culture industry, integrating cultural resources with technology to realize the contemporary transformation of traditional Chinese culture, and becoming a necessary technological choice for the protection of cultural resources and the development of cultural values.

Artificial Intelligence

In recent years, artificial intelligence has been widely used in the cultural industry in the fields of intelligent writing, creative design, image processing, game development and production, and throughout all aspects of the digital cultural industry chain. With powerful data resources, many Internet giants have introduced AI technology into their platform business to achieve efficient use of data resources, and the form of their AI layout is gradually developing in the direction of "point, line, plane, body, system".

Artificial intelligence technology has been widely used in the digital creative industry, in 2017 Alibaba launched an artificial intelligence design software "Luban", through the analysis of a large number of poster materials, and then based on the poster design principles and image characteristics of the poster output, the number of posters output per second up to 8,000, and can ensure that the output image does not repeat. It can output up to 8,000 posters per second and ensure that the output images are not duplicated. Dreamwriter, a writing robot from Tencent, uses artificial intelligence writing technology to present articles to users through systematic engineering of data collection and analysis, database creation, intelligent judgment, intelligent verification, and intelligent distribution. Artificial intelligence technology can be applied not only to the content production of cultural products, but also has a lot of involvement in the field of cultural services. Artificial intelligence technology can accurately analyze users' preferences and needs, and provide users with services such as product recommendation, interactive experience, content distribution, and personalized customization to improve the consumption experience at the demand side. Using core technologies such as artificial intelligence and big data, Yang Yi and other creators have built a cloud-integrated calligraphy big data platform that enables intelligent calligraphy services such as digital calligraphy creation and communication, intelligent competition of calligraphy works, and data analysis of calligraphy creation (Yang, Li, Wang, Wang, Zhai & Huang, 2020), which comprehensively enhances the fun and convenience of cultural experiences.

The continuous innovation of digital technologies provides more options for digital transformation and development of cultural resources and enhances the speed of high-quality development of cultural industries. Emerging technologies are integrated with important equipment, processes, systems, and technical platforms in the field of digital creativity to achieve an optimal combination of cultural production factors, which enriches the forms of cultural creation and means of meaningful expression (Huang, 2020). Digital technology has become a necessary condition to support the optimization of the content of cultural products, and will gradually penetrate into all areas of the cultural industry. China's cultural industry should grasp the development trend of digital technology, improve the core competitiveness of culture, and tell the "Chinese story", which is a strategic choice in the new era.

China's Cultural Industry Digital Development Trend

At present, the cultural industry into the crucial stage of transformation and upgrading, however in the process of our development is faced with many problems and challenges, mainly reflected in the following aspects: one is on the supply level, extensive entertainment phenomenon still exists, the shortage of supply high-quality cultural products to deepen the development of the cultural resources with Chinese characteristics is not enough, cultural services is not comprehensive;Second, at the level of enterprise development environment, the initiative of large enterprises to produce high-quality content and accelerate technological innovation needs to be improved, while the anti-risk ability of small, medium and micro enterprises is poor. Third, at the level of consumption, the digital cultural divide between urban and rural areas has led to stratification of consumption, and there is a large gap in resource allocation, consumption habits, consumption concepts and consumption patterns between urban and rural residents; Fourth, at the level of regulation, piracy and infringement of cultural products are still serious, and the laws and regulations of the digital cultural industry are not sound enough; Fifth, at the level of overseas market level, China's digital trade rules system is not perfect, and is not recognized by developed countries such as Europe and the United States, and our cultural enterprises fail to grasp the dominant power and have a weak voice.

Big Data System Construction to Empower Digital Cultural Products and Services

In the information era, data has become a strategic resource for Internet technology companies to compete, and Internet companies, with the development and application of cutting-edge technologies, help to transform the collection, storage, analysis, and potential value of the use of big data to achieve the value-added of data. "The higher the degree of digitization, the more industrial organizations and individuals rely on making decisions through data analysis" (Zuo, 2020). Nowadays, data resources of digital platforms have become a production factor, and the future improvement of the big data system will promote data penetration into all aspects of the cultural industry chain,

empowering the upgrade of content production, distribution, and consumption links of the industry chain and promoting the intelligent development of the cultural industry. In terms of cultural product content production and cultural services, digital platforms can analyze users' behavioral traces data to pinpoint consumers' needs, extrapolate creative solutions according to users' needs, and improve production efficiency. In addition, data itself can be integrated into cultural products, and data can establish a correlation with cultural resources, and creators generate works through data transformation, which may cause changes in the way of creation in the future. In the marketing segment, data analysis can be used to determine users' consumption trends and conduct targeted advertising campaigns to improve the accuracy of publicity and information effectiveness. In the consumption link, the systematic and comprehensive, multidimensional big data analysis of market demand leads to the creation of cultural products to better meet the diversified, personalized, mobile, and fragmented consumption needs of different types of consumers (Xu, 2020).

Improve the Digital Culture Industry System and the Development Environment

As an emerging field, digital culture industry has not yet formed a perfect industrial system, and the overall development environment needs to be improved. In the future, the country should strengthen the top-level design of relevant systems in the field of cultural industry, implement standardization strategies, develop standard applications at the technical level, and guide the development of digital cultural industry with standards. Through policy implementation, it will reasonably endow cultural factor resources and maximize the utilization rate of cultural production factors. At the same time, at the regulatory level, strengthen the legislative work, establish a mechanism for content copyright protection, and timely adjust and improve the corresponding laws and regulations according to the extension and expansion of the field of digital culture industry, and improve the management system of the default list to provide a good creative environment for the original creators. A sound digital culture industry development system is not only an inherent need for the digital culture industry to optimize its own structure, but also an important guarantee for the country to cultivate cultural creativity, spread mainstream social values, and occupy the international high ground of cultural influence. A gradually improved industry system will help Chinese cultural products take an advantage in cultural trade, spread Chinese culture through overseas consumption of cultural products, and enhance Chinese culture's international The industry system will help China's cultural products take the lead in cultural trade, spread Chinese culture through overseas consumption of cultural products and enhance the international influence of Chinese culture.

Deepen International Cooperation, Create Original IP, and Enhance International Influence

China's rich cultural resources have become a seedbed for original IP shaping, and the promotion of cultural IP products abroad has begun to bear fruit. How to strengthen IP development and trans-

formation, fully use online games, online music, animation, online literature, online video, creative design, digital art and other forms of overseas market promotion, and enhance the international influence of China's culture has become a key point for cultural enterprises to break through in the future . At present, benefiting from the development of digital technology, the technical barriers between various links of the cultural industry chain are no longer obstacles to the construction of a complete industrial structure by digital platforms, creating conditions for the diversified development and continuous production of IP ecology in the future. In the process of cultural dissemination, once a brand with its own characteristics and advantages has been established, it does not matter whether culture "goes out" or not; its brand will naturally "go out" (Hu, 2020). While opening up the cultural industry to the outside world, we should also attract foreign capital to the domestic market, deepen exchanges and cooperation in the cultural industry, learn from the advantages of production and operation of foreign enterprises, improve the competitiveness of our digital cultural products, and expand overseas markets.

Overall, research in various segments and fields of China's digital culture industry is deepening, and each segment presents its own distinctive development status. As a cross-cutting discipline field, digital culture industry is being innovated in the process of the growth of digital economy and the development of digital technology. As a cultural power, China can only grasp the opportunities of the times and integrate technology, culture and creativity to a high degree in order to help our country move toward the development of a cultural power and make the digital cultural industry an important driving force for the high-quality development of our economy.

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