

Analysis of the integration and development of digital economy and cultural industry

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Abstract. With the global digital transformation, the digital economy has become a new dynamic engine to promote high-quality development. This paper grasps the new trend of economic development through the research method of comprehensive literature review and case analysis, and provides some references for policy making and industrial development. The research demonstrates that the cultural industry experiences an improvement in both production efficiency and quality at the micro level due to the digital economy. However, there are challenges such as digital security and privacy, limited digitization of traditional culture and lack of talents in the process of integration. It is concluded that data security protection should be strengthened, the digitization of traditional culture should be promoted, and specialized talents should be cultivated to facilitate the deep merging and healthy development of the two.

Keywords: digital economy, cultural industry, digital security and privacy, specialized talents, traditional culture.

1. Introduction

The inevitable result of the global digital transformation wave is the growth of the digital economy, which is vast and continuously expanding. Constant technological innovation gives the cultural industry unlimited possibilities. With the increasing convergence of big data resources and the accelerated formation of new quality productivity promoted by artificial intelligence, the market scale of digital culture industry is constantly expanding, and China's digital culture industry has experienced rapid innovation and change, and the market scale is climbing. Meanwhile, with the increasingly diversified needs of users, the application of digital technology in work and entertainment scenarios, including the cultural industry, is gradually deepening. China has fully stepped into the era of digital economy, and the digital economy as a high-level strategic planning and design framework needed to build China's new development pattern since the 20th National Congress, and a new engine for China's economy to achieve high-level quality strategic development goals. Currently, China is committed to promoting the process of digital industrialization and digital transformation of industries, and accelerating the deep merger of the digital economy with the real economy. The scale of China's digital economy has become a major driver for stabilising China's economic growth. Simultaneous the rise of the digital economy is a major historical opportunity for the high-quality development of the cultural industry, and a series of policies in China have demonstrated the need to integrate the two. Examining the convergence of the digital economy and cultural industry aids in understanding the novel trends and features of contemporary economic development, and further offers valuable insights and guidance for future policymaking and industrial advancement. Research on the integration of digital economy and cultural industry not only helps to promote the high-standard development of cultural industry, but also provides a strong support for the sustained and healthy development of digital economy. The research in this field has significant theoretical significance and practical value, and has an important guiding part in promoting the synergistic progress of cultural industry and digital economy, and realizing the digital transformation and upgrading of cultural industry.

2. Literature review

In the study about the promotion of digital economy to the cultural industry. Hao Jing and Wang Jing (2022) proposed that the research on the path of how to promote the superior quality evolution

of the cultural industry in the new era with the digital economy is an important topic in the current research on the development of the cultural industry. Huang Xiaoyan (2023) explored the impact of digital economy on the excellent quality growth of cultural industry. She first puts forward research hypotheses and then measures and evaluates the developing level of cultural industry and digital economy. In her research, she not only studied the working mechanism of the impact of the digital economy on the progress of the cultural industry, but also deeply explored the non-linear effect and spatial spillover effect of the impact of the digital economy. Li Bingxin (2023) found the level of high qualitative development in both has been on the rise, but there is a regional imbalance, and there is an obvious promotion of the two, mainly because technological innovation plays a role in it. And it is found that there is a significant positive correlation in spatial characteristics. Liu Yuan's (2024) study focuses on the interaction between the digital economy and the development of the culture and tourism industries, and his findings suggest that while both are generally showing positive growth trends, the process also highlights regional imbalances and significant “digital divide” challenges. The former has a prominent positive correlation with the development of the latter, and the impact is non-linear. At the same time, the concentration of talents and the continuous expansion and development of the market play a part in the mediating effect of the former on the latter.

In the research on the convergence of the digital economy and the cultural industry Li Sihan (2022) points out the direction of the sustainable development of China's cultural and creative industries by combining the development potential of the cultural and creative industries in the context of the digital economy. Peukert (2019) finds that digitization and Internet-enabled platforms, as well as automated licensing of user-generated content, have significantly reduced the cost of cultural participation at the individual level. Zhang Liang (2023) found that the cultural industry increasingly presents new features, trends, and directions of “culture+” integration and development in the digital economy. He analyzes in detail the “culture+” integration development model based on data as the internal driving force, flexibility as the characteristic, platform mode as the dominant one, and respect for creativity, focusing on the integration development trend of “culture+data” and “culture+market” integration development model. This crucial discovery lays a solid theoretical foundation for exploring new areas of cultural industry development and promoting a more efficient and sustainable development of cultural industries. Shen Ci-Diem (2024) points out that the digital economy at the micro level enables the cultural industry to increase its productivity and match supply with demand, promotes the innovation and reconstruction of the industrial chain at the industrial level, and enhances the soft power and regulatory effectiveness of the state at the national level. Huining and Yang Jinxuan (2024) clearly point out that technological progress, as the core endogenous growth engine for the growth of the cultural industry, is leading the field to a new stage of development. They observe that under the strong impetus of the digital economy, the cultural industry has shown a series of remarkable trends: on the one hand, emerging digital cultural businesses are emerging, injecting infinite vitality into the market; on the other hand, the digital cultural governance system is being rapidly constructed to adapt to the needs of the rapid development of this emerging field; in addition, digital technology is comprehensively empowering the development of the entire chain of the cultural industry. Chen Fajuan (2024) explored the internal mechanism of digital economy driving the high-quality development of cultural industry from three dimensions, including industrial ecology and content production.

Although Zhang Liang's paper points out the vital effects of the digital economy on culture industry as well as the development path of the integration of dualization. There are deficiencies in the construction of the theoretical framework, and the operational and targeted recommendations for policies need to be deepened. Huining and Yang Jinxuan detailed the evolution of policies related to the digital economy and cultural development and the characteristics of each stage but their empirical analysis is relatively limited, and they failed to explore the specific impact mechanism of policies on the development of the digital economy and the cultural industry, and how to promote industrial upgrading and competitiveness enhancement. Li Sihan shows the great potential of digital economy in enhancing the visibility and attractiveness of cultural heritage, and points out that technological

innovation and application provide a new way to modernize the display of cultural heritage, but her empirical research is limited to a few successful cases, and her policy recommendations lack pertinence. To sum up, currently, we should optimize the environment for the development of the digital economy, accelerate the digital transformation of cultural industries, and tap the potential of innovation. Although many scholars have deeply analyzed the current situation of the integration of the two, there is a general lack of pertinence and depth in the formulation of policy recommendations. Therefore, this paper will examine the relationship between the two and provide insights with depth and relevance from three perspectives.

3. Integration of Digital Economy and Cultural Industry

3.1. The promoting role of digital economy on cultural industry

According to Wang Kunpeng (2024), the promoting role of the former on the latter can indeed be divided into micro-level and macro-level aspects. From the micro level, first of all, productivity and quality of cultural industries improved as a result of the facilitating role of the digital economy, for example, the National Museum of Nature uses artificial intelligence and augmented reality technology to create a digital human and AR guide system, which provides visitors with an immersive guide service, and this innovative guide can effectively improve the quality of the museum's services. Secondly, the digital economy enables the production of cultural industries to be more responsive to people's individual needs and to improve distribution efficiency. people's demand for high-quality and personalized products is increasing, the increasing need for high quality and individualization of products and the digital economy is able to use large amounts of data to conduct personalized analysis of users and more accurately satisfy the demands of the different consumer groups, enhance the market adaptation and improve the product market, and enhance the quality of service. For example, the platform can use audio processing technology and big data analysis technology to support the optimization of users' singing works and create a new type of music community. Meanwhile, the former has accelerated the circulation speed of the latter and ensured the quality of merchandise of cultural significance in the transport process.

From the macro level, people's quality of life has improved as a result of the digital economy era, with the improvement of people's quality of life and income level, people's demand for cultural products and the level of consumption is also increasing, and the increase in demand drives the market for cultural products, forming a virtuous circle in which consumption and demand promote each other. The cultural industry has shown vigorous development under the impetus of digital economy, which has enriched people's spiritual and cultural life.

3.2. The development of the digital culture industry

The development of the digital culture industry is an important engine for driving the high-quality development of the economy and the market demand continues to rise, covering a wide range of fields such as online entertainment, digital content creation, virtual reality experience, etc. China has introduced policies to address this large and dynamic market. For example, Beijing has issued the Beijing Science and Technology Enabling Innovation and Development Activity Plan for the Cultural Sector and provided economic policy support to provide a favorable development environment for the digital culture industry. At the same time, it supports the integration and application of big data, artificial intelligence and other cutting-edge technologies in this area of the cultural industry. For example, the function of AI big model to integrate and process a large amount of information also brings broader communication space for the cultural industry. Finally, China focuses on the cultivation of market players and the construction of an industrial standard system, supports the growth of small, medium and micro enterprises, and plays a leading role in leading enterprises, with the aim of fostering a number of large digital cultural enterprises with strong competitiveness, and reinforcing the application of technical standards for digital culture, so as to drive the prosperity of the entire industry.

4. Integration Challenges

4.1. Digital security and privacy

For the aspect of digital security and privacy, as the two continue to merge, a significant amount of personal and corporate data is collected and stored, but due to the insufficiency of data security measures and the increase of hacker attacks, the risk of data leakage is increasing, and personal privacy leakage incidents are frequent, which not only poses a threat to the rights and interests of individuals, but also may result in a crisis of social trust, thereby affecting the sustainable progress of the cultural industries. Therefore, strengthening data security and privacy protection has become an urgent problem to be solved in the process of integration of digital economy and culture, industry.

4.2. The digitisation of some traditional cultures

Some ancient handicrafts and traditional performing arts are difficult to be effectively transformed into digital forms due to technical difficulties, copyright protection, cultural inheritance and other factors, resulting in their limited dissemination and influence. For instance, the digitization of handicrafts presents significant challenges. The unique craftsmanship and intricate details of certain traditional handicrafts, like embroidery and ceramic production, are difficult to fully capture and present using simple digital methods. Simple digitisation means to fully present. Even if they are digitised, it may be difficult to attract consumers due to the lack of authenticity and interactivity. Difficulties in copyright protection for traditional performing arts Traditional performing arts, such as opera and dance, face problems of copyright protection in their digitisation process. These art forms often involve multiple performers and creators, with complex copyright attribution, and the dissemination and use after digitisation is prone to disputes.

4.3. Lack of supporting specialised talents

For example, in the process of development, operation and promotion of digital cultural products, it is necessary to have professionals who are proficient in digital technology as well as creative talents who are well versed in the laws of the cultural industry. However, at present, there is a shortage of this kind of composite talents in the market, which leads to bottlenecks in the planning, execution and implementation of some digital cultural projects, making it difficult for them to achieve the expected market effect and cultural value.

5. Policy recommendations

A series of comprehensive policy measures should be adopted. First, strengthening the protection of data safety and privacy to ensure the security of personal and corporate data by improving laws and regulations, upgrading technology and strengthening regulation. In today's digital era, data security and privacy are crucial to citizens, enterprises and the healthy development of the digital economy, so strengthening data security and privacy protection is based on a variety of considerations, which can help safeguard citizens' rights, protect corporate reputation, avoid legal risks, and promote the digital economy. Secondly, in order to promote the digitalization of traditional culture, the government needs to increase technological investment, improve the copyright protection mechanism, and strengthen the cultivation of relevant talents, which not only protects the financial resources of cultural creators, thus incentivizing them to invest more resources and energy to create more innovative works, but also creating a fair playing field, and facilitate the healthy progression of the cultural industry's digitalization. From an international perspective, copyright protection can make China's cultural industry more internationally competitive. Thirdly, the government should also be committed to cultivating supporting professional talents, by optimizing the structure of talents, strengthening university-enterprise co-operation and improving the incentive mechanism, which can adapt to the new requirements of economic and social development, enhance competitiveness,

promoting the deep convergence of industry, academia and research promote, as well as energizing the vitality of innovation and creativity.

6. Conclusion

The integrated development of digital economy and cultural industry is a new trend of current economic development, which is of great significance to the high-quality and healthy development of both. The article reveals the internal logic and positive effects of the integrated development of the two by analyzing the promotion effect of the former on the latter, the feeding effect of the former on the latter, and the development of digital culture industry. It is found that the former can improve the productivity and quality of the latter at the micro level, making the production more personalized and the distribution more efficient; at the macro level, people's requirements have increased as a result of the digital economy, creating a virtuous circle of consumption and demand. At the same time, the cultural industry's pursuit of high content quality and exploration of new technologies and new presentation methods have driven the continuous innovation and application of digital technologies, giving rise to a series of new cultural business forms and business models.

The integration and development of the digital economy and cultural industry indeed encounters challenges, including issues related to digital security, privacy protection, and limitations in digitizing certain traditional cultures, and the lack of supporting specialised talents. These issues require the joint efforts of the government, enterprises and all sectors of society, and the adoption of comprehensive policy measures to address them. Data security and privacy protection should be strengthened, and laws, regulations and technical means should be improved; technological investment should be increased to promote the digitisation of traditional culture, and the copyright protection mechanism should be improved; at the same time, supporting professional talents should be cultivated to optimise the talent structure, and stimulate the vitality of innovation and creativity.

The emergence of this study contributes to advancing the digitization of the cultural industry, fostering innovation and upgrading within the sector, and broadening its developmental scope. By enabling digital products to transcend geographical constraints in dissemination and consumption, and by promoting personalized cultural consumption, this study exerts a significant influence on three key aspects: the economy, society, and technology. Economically, the cultural industry is expected to become a new economic growth point through this study, and drive related industries to form industrial synergy. On the social side, digital technology can promote cultural inheritance and innovation, and enhance cultural confidence and cultural soft power. On the technical side, digital economy can promote the cultural industry, communication and change.

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