



Research on the Digitization of Chinese Cultural Industries in the Era of Digitalization and Intellectualization

Yuan Zhuang*

Department of Student Affairs, North China Institute of Aerospace Engineering,
Langfang 065000, China

*Corresponding author: mlygdZY@163.com

Abstract. In the contemporary era characterized by global integration and rapidly evolving information technology, society is advancing into a phase of digital intelligence at an unprecedented pace, primarily propelled by cutting-edge technologies such as big data, cloud computing, artificial intelligence, and blockchain. These advancements have profoundly influenced both the economy and society while infusing new vitality and limitless possibilities into the cultural industry. Based on this context, this paper serves as a literature review that thoroughly examines the trends in the digital transformation of the cultural industry and systematically organizes recent scholarly works on the integration of digital technologies within cultural industry from perspectives of both Western and Chinese scholars. Firstly, I explore the origins and definitions of the cultural industry before analyzing the effects or opportunities provided for cultural industries by digital technologies through various lenses: national strategy, technological foundations and applications, regional development dynamics in China's cultural sector, as well as transformations along the cultural industry chain—including creation innovation, communication mode revolution, and enhancements to consumer experience. Concurrently, this paper addresses challenges posed by digital technologies such as intellectual property protection issues, digital divides, national governance over culture, etc. Finally, I propose expectations for future research endeavors that offer theoretical guidance and practical insights aimed at understanding and facilitating the digital transformation of China's cultural industry while providing reference pathways for its high-quality development amid ongoing digitization and intellectualization efforts.

Keywords: Digital Intelligence Era, Chinese Cultural industries, Digitalization

1 Introduction

The concept of "cultural industry" can be traced back to the 1930s, when Adorno and Horkheimer from the Frankfurt School introduced it as a tool for the Western bourgeoisie to exert ideological control. Following the 1990s, with the advent of globali

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zation and advancements in information technology, research focus transitioned towards "creative industries," leading various nations to define cultural industries diversely based on their unique cultural contexts and economic conditions. In the 21st century characterized by digitalization and intellectualization, the swift advancement and extensive application of information technology have significantly influenced our society. The cultural industry, emerging from the convergence of economy and culture, is currently experiencing an unprecedented digital transformation that presents new requirements and challenges for its definition and practice. Researchers are increasingly emphasizing the integration of cultural industries with digital technologies, proposing various concepts such as 'digital cultural industry' or 'the digitalization of the cultural industry.' According to the Digital Economy Report published by the US Bureau of Economic Analysis, the digital economy encompasses economic activities related to the Internet and information communication technologies, with 'digital media'—which utilizes Internet-based information technologies for content production—at its core [1]. The Guiding Opinions on Promoting Innovation and Development in China's Digital Cultural Industry issued by the Ministry of Culture in 2017 highlight that “digital cultural industry” centers around culturally creative content while leveraging digital technology for creation, production, dissemination, and service delivery. This evolution is marked by rapid technological change, digitized production processes, networked communication channels, and personalized consumption patterns—all conducive to fostering new supply chains and stimulating novel consumer behaviors [2]. Numerous Chinese scholars have conducted extensive research on these concepts both domestically and internationally. From diverse perspectives, several scholars have articulated varying connotations and extensions regarding 'the digitalization of cultural industry' (see Table 1)."

Table 1. Definitions of 'Digitalization of the Cultural Industry' from Chinese Scholars with Diverse Research Perspectives.

Perspectives	Arguments	Representative Scholars
TOE Theory	‘Digitalization of the Cultural Industry’ refers to both the process and outcome of reconstructing the organizational system of the cultural industry, underpinned by digital technology.	Zhang (2022) [3]: The key to the digitalization of cultural industry lies in how digital technology promotes the fundamental restructuring of industrial organization system.
Industrial Ecological Theory	It is the result of the interaction among each subsystem, each link and the environment of cultural industry ecosystem.	Yang, et al (2021) [4]: According to the ecological chain of ‘production - communication - consumption’, the digital cultural industry ecosystem is subjected to deconstruction and analysis. Liu, Wang (2022) [5]: It is defined according to the behaviors of the participants and the constituent elements.

		Zhou (2023) [6]: The digital ecosystem of the cultural industry is categorized into three levels based on the internal and external driving forces influencing industrial development.
Others:	Cui, Liu (2020) [7]: Drawing from an in-depth study of the digital economy, it is proposed that 'the digital media industry, which emphasizes content production, and the information and communication technology (ICT) industry, dedicated to developing network media, collectively form the infrastructure of the digital economy.' Luo (2022) [8]: The digitization of the cultural industry in the era of the metaverse represents a process of transcending the limitations of physical time and space to create 'virtual reality' within actual physical contexts.	

The literature reveals that the digitalization of the cultural industry is a complex and multi-dimensional process, which not only facilitates the transformation and upgrading of the cultural industry but also injects new impetus into the overall cultural prosperity and development of society. This paper aims to systematically review relevant research findings regarding the current status, challenges, and opportunities related to the digitalization of China's cultural industry, providing both theoretical and practical guidance for its future development by drawing on experiences from European and American countries.

2 The Current State of Digitization in the Chinese Cultural Industry

2.1 The Strategic Landscape for the Digitalization of the Cultural Industry

The national digital strategy directly mirrors the political circumstances concerning the digital development of the cultural industry and plays a vital role in offering directional guidance, policy support, regulation, and constraints. Through a comparative analysis of the digital strategies adopted by different countries (see Table 2), it is conspicuous that nations formulate customized digital development strategies in light of their specific conditions and industrial traits.

Table 2. Digital Strategies of Major Global Nations.

Nations	Strategies	Contents
The United States	Digital Strategy: 2020-2024; A Global Digital Strategy For America; etc.	The strategies reveal the importance of strategic foresight in top-level design, prioritization of technological research and development alongside innovation, facilitation of the digital transformation of the real economy, establishment of a global digital policy office, and advancement of the global digital governance agenda.
The United Kingdom	UK Digital Strategy; etc.	Technological innovation is recognized as a pivotal driving force behind the digital economy. Through the optimization of the innovation ecosystem, stimulation of the

		dynamism among innovative entities, enhancement of the supply chain for innovative talent, and increased investment in research and development, the UK seeks to bolster its position and competitive advantage in global technological advancement while fostering a conducive digital environment for the creative industry [9].
France	The French National Plan for Digital Inclusion, etc.	The strategy emphasizes the enhancement of European autonomy by bolstering infrastructure and equipment manufacturing capabilities in critical sectors of the digital economy and network infrastructure, relaxing policy constraints on domestic large technology firms, and reinforcing France's leadership role alongside European sovereignty.
Germany	A German Digital Grand Strategy, etc.	Germany prioritizes the development of digital infrastructure, facilitates the digital transformation of small and medium-sized enterprises, promotes education in digital talent, and underscores the principle of digital sovereignty while implementing measures to limit carbon emissions to ensure technological sustainability.
Japan	National Data Strategy; Cool Japan, etc.	Japan has implemented various measures to support the development of its domestic digital content industry, fostering international collaboration, strengthening intellectual property protection, prioritizing talent cultivation and attraction, and implementing the "Cool Japan" strategy to enhance the attractiveness of Japanese culture and style and promote it abroad.
Korea	Digital ROK, etc.	South Korea's strategy encompasses several key dimensions: digital technology, digital economy, the digital cultural industry—including virtual museums and libraries, metaverse digital culture, AI commentary, digital society, digital government, and digital culture.
China	Plan for the Overall Layout of Digital China; Opinions on Promoting the Implementation of the National Cultural Digitalization Strategy; etc.	Strengthen the foundation of digital infrastructure and data resource systems, facilitate the profound integration of digital technology with economy, politics, culture, society, and ecological civilization development, enhance the capabilities of the digital technology innovation ecosystem and strengthen digital security measures, while optimizing both domestic and international environments for digital advancement to establish a national cultural big data system by 2035.

Source: Contents organized from national official websites and documents.

In the process of the development of the digital economy, China has put forward the "digital China" strategy. Keane and Chen (2019) [10] interpret this strategy as a digital strategy driven by cloud computing, AI, Internet of Things and other technologies, which is restructuring the real economy such as industry and logistics industry.

The digitalization of cultural industries is an important part of its strategy. Gu (2022) [11] used SWOT model to analyze the strategy of China's digital culture industry and proposed that concepts and practices such as NFT, digital collections and meta-universe have gradually become the core to promote the development of China's cultural industry.

2.2 Technological Foundations and Applications of Digitization of Cultural Industry

The rapid advancement of digital technology has established a conducive technical environment for the digitization of the cultural industry. Technological transformations have influenced every facet of the industrial value chain, rendering production resources more affordable and accessible, reallocating scarce resources from production to communication, and positioning the media industry as a dominant force in future markets through innovative digital information products. The economic value inherent in the cultural industry is poised to be amplified under the auspices of digital development. Furthermore, advancements in digital technology are creating new channels for product distribution while significantly reducing costs associated with recording, storage, reproduction, and dissemination of media products [12]. In this era of digital economy, the marginal cost associated with promoting cultural products approaches zero. Concurrently, digitization enhances industrial agglomeration and linkage functions; it gradually dissolves traditional industrial boundaries while fostering integration that transforms developmental impetus, levels, and models within the cultural sector—thereby facilitating new business forms and innovative economic paradigms. However, the ramifications of this digital revolution extend beyond mere economic implications; they catalyze societal transformation as well. Digital content fosters global connectivity among individuals while generating novel employment opportunities and enterprises across nations. Moreover, digital technologies exhibit significant applicability in storing, disseminating, and showcasing cultural resources [13], exemplified by innovative presentation formats for cultural heritage.

2.3 Developmental Framework of Digitalization Within China's Cultural Industry

Cultural industry clusters significantly promote regional economic development, such as New York, Birmingham, and San Francisco, which achieve economic innovation and revitalization through the integration of cultural industries. As digital processes accelerate, the spatial agglomeration of cultural industries has entered a new phase of rapid development that further enhances the effects of industrial clustering.

Numerous scholars have examined the regional development of digitalization within China's cultural industry (as detailed in Table 3). In summary, the overall developmental trend of the digital cultural industry in the Yangtze River Delta region is relatively stable, with a balanced level of competitiveness across various provinces. Conversely, in the Beijing-Tianjin-Hebei region, there exists considerable variation in competitiveness among its three constituent provinces and municipalities.

Table 3. Research on the Development Status of Digital Cultural Industry in a Specific Region or Province within China.

Research Objects	Main Scholars	Conclusions
Bei-jing-Tianjin-Hebei Region	Yanqun Zhang, et al. (2015), Sangeng Jiang, et al. (2017), Liping Ma, et al. (2019), Zheng, Li (2022), etc.	The integration degree within the Bei-jing-Tianjin-Hebei city cluster is notably suboptimal, primarily driven by Beijing, which holds a leading position in the development of China's digital cultural industry.
Integrated development of the Yangtze River Delta	Shi (2009), Keane, Chen (2019), Ruizhong Cao, et al.(2024), etc.	The digital culture industry in the Yangtze River Delta reveals a trend of "only super Power and multi-great Power", and the development level of various provinces and cities is relatively balanced [14].
The Guangdong-Hong Kong-Macao Greater Bay Area (GBA)	Xinyi Zheng, et al. (2023), Jin Zhou, et al. (2021), etc.	The Greater Bay Area benefits from a unique geographical location and industrial advantages, with the digital culture industry exhibiting the highest comprehensive strength. This concentration is primarily observed in the Pearl River Delta cities, which possess higher levels of economic development; however, this has not resulted in significant spatial spillover effects [15].

Furthermore, the advancement of digital technology has significantly reshaped the structure of the cultural market, leading to profound changes in the production, exchange, distribution, and consumption of both material and spiritual cultural products. Firstly, digital technology is integrated into and influences the production processes of cultural products. This digital transformation has concurrently given rise to new and innovative art genres and technologies [16]. Secondly, digital platforms have emerged as crucial channels for the exchange and distribution of cultural products, facilitating information sharing and diverse collaboration. Additionally, Huang (2022) revealed emerging trends in digital cultural consumption—such as platformization, spatial online engagement, subject diversification and experiential scenes [17], which present new requirements for enhancing the cultural industry chain. Snowball et al. (2022) emphasized not only product and process innovation but also service-oriented marketing innovations [18].

2.4 Challenges Faced with the Digitalization of China's Cultural Industry

Nevertheless, there are various challenges in the process of digitization of China's cultural industry. Based on the SWOT analysis of North America, Wang (2024) proposes persistent shortcomings in the international communication of Chinese mass culture amid digital development—such as content homogenization, high platform concentration, and insufficient localization—and emphasizes the need for enhanced

efforts in content innovation, platform development, and cross-cultural communication [19].

Digital platform is an important carrier and driving force for the digitalization of cultural industry, but also a double-edged sword. Duffy with others (2019) explore the impact of platforms on creators, creativity, and civil rights, arguing that digital platforms provide new means of production and broader forms of cultural expression, but at the same time impose restrictions on the creative process and change the nature of creative labor [20].

While the advancement of digital technology enhances work efficiency, the 'always-on' work culture has blurred the boundaries between professional and personal life, leading to a range of issues associated with digital labor that have become increasingly pronounced. Samuel (2020) explores the effects of digital technology on cultural workers, identifying problems such as the extension of intangible working hours, loss of interests due to intellectual property rights, and emotional distress stemming from free speech and pervasive scrutiny [21]. Valencia (2014) investigates the subjectivity of cultural workers within a digital production framework and finds that digital platforms may exacerbate control and exploitation in cultural labor [22].

In China, the digital development of the cultural industry encounters practical challenges such as the digital divide, while issues related to cultural security and governance have become increasingly prominent. The research conducted by Fang and Zhang (2022) [23] and so on indicates that the digital divide in the cultural sector mainly manifests as an imbalance in resources, facilities, and services between urban and rural areas, as well as across different regions and demographic groups.

3 The Current State of Digitization in the Chinese Cultural Industry

Faced with the wave of digitalization, China's cultural industry urgently needs to explore innovative development paths. Recently, scholars at home and abroad have conducted fruitful explorations on this theme, providing useful inspiration for the digital transformation and upgrading of China's cultural industry.

Drawing from the experiences of foreign countries, many developed nations have actively explored areas such as cultural heritage digitization, integration of technology within the cultural industry, and digital publishing, resulting in practical models for reference. Anastasovitis et al. (2024) propose a comprehensive framework for advancing the digitalization of cultural heritage, enhance public immersion and participation in cultural heritage, thereby making it 'alive' while realizing various values including education, research, display, and dissemination [24]. This study underscores the pivotal role of digital technology in addressing the 'dilemma' surrounding cultural heritage protection and development while offering new insights for implementing digital cultural heritage practices in China. Using London as a case study, Zhang (2024) demonstrating a viable path toward integrated development through digital means [25]. This is highly significant for advancing China's cultural industry's digitization.

The emergence of new business models, such as digital collections and digital copyright, has created new opportunities and imaginative potential for the digital transformation of China's traditional cultural industry. Wang and Zhang (2023) posit that digital collections are poised to become a significant breakthrough and a new avenue for the digital transformation of the book publishing industry [26]. This study reveals a micro-pathway for digitization within the cultural industry, offering valuable insights for other traditional cultural enterprises undergoing similar transformations. Monika et al. (2021) emphasize that the cultural and creative industries serve as vital drivers of cross-border innovation among companies, with digital transformation being a crucial pathway to establishing a robust cultural innovation ecosystem [27].

4 Conclusion

Grounded in China's national context, this paper systematically reviews the research of both Chinese and international scholars regarding the digitalization of the cultural industry. It is found that global digitalization efforts within global digitalization of cultural industry have received support at the national strategic level, with digital technology influencing all aspects of the cultural industry chain and being widely applied in its practices. However, these advancements also present significant problems and challenges. The digital economy, as a contemporary focal issue, has garnered considerable attention and discussion concerning its integration with the cultural industry within academic circles. Future research perspectives should be expanded in three key areas.

Firstly, regarding research content, greater emphasis should be placed on definitions, international exchange and cooperation, as well as technological development to establish a more comprehensive, unified, and dynamically adjusted theoretical framework for cultural industry digitalization. Secondly, from an international perspective, it is essential to actively pursue global collaboration to address the challenges posed by cultural industry digitalization; this approach can serve as a vital means to promote cultural exchanges and mutual learning while enhancing national culture's soft power and advancing studies on overseas communication capabilities within the sector. Thirdly, concerning research methodologies, current investigations into China's cultural industry predominantly focus on elaboration and description; thus there is a pressing need to strengthen scientific analyses related to the digital cultural industry while developing a theoretical model for its advancement from multidisciplinary viewpoints.

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