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## The Impact of Digital Transformation on Cultural Heritage Management and Commercialization in Heilongjiang Province

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### Abstract

This article investigates how digital transformation influences Heilongjiang Province's cultural sector, with particular emphasis on heritage management and commercialization strategies. The methodology encompasses analytical techniques, comparative analysis, logical inference, and visual data representation. The study underscores the critical role of cultural heritage preservation and value maintenance for intergenerational knowledge transfer. Geographic administrative boundaries and spatial distribution patterns of cultural assets within Heilongjiang Province form key components of the investigation. The main problems associated with the use of digital products and tools in the field of cultural heritage and commercialization in Heilongjiang Province are analyzed. The key features of the cultural heritage management and commercialization process in Heilongjiang Province are examined. Practical recommendations have been developed to improve the efficiency of cultural heritage management and commercialization in Heilongjiang Province in the context of digital transformation. The main expected outcomes of digital transformation's impact on cultural heritage management and commercialization in Heilongjiang Province should include improved efficiency of cultural activity management, popularization of cultural heritage sites and values, increased cultural awareness among youth, and economic benefits from cultural activities.

### For citation

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### Keywords

Digital transformation, management, cultural heritage, impact, commercialization, Heilongjiang Province, heritage sites, monuments, state policy, research methodology.

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## Introduction

In the context of rapid societal digitalization, new opportunities have emerged for transforming, developing, and managing various spheres and industries of the national economy. The cultural heritage of Heilongjiang Province is no exception - as a national treasure formed over a long historical period, it has undergone significant changes. Modern digital technologies have permeated the cultural industry and triggered a series of transformations in the cultural sphere of Heilongjiang Province, including enhanced efficiency of cultural heritage management, popularization of cultural products among broad population segments, economic benefits generation, and more. Consequently, digital tools and mechanisms can be viewed as drivers of socio-economic development in modern society. This establishes the relevance of the research topic, along with its theoretical and practical significance.

In recent years, China's digital economy has experienced rapid development, becoming a new engine for economic growth. [Yao,Zhao,Yu,2023, p.126].

The core research problem lies in the fact that Heilongjiang Province, amid rapid digitalization, has encountered challenges related to the management and preservation of cultural heritage sites. This necessitates the exploration of new approaches and mechanisms to address these issues, with the goal of safeguarding cultural heritage and transmitting it to future generations.

The scientific novelty of the research lies in the development of practical recommendations aimed at enhancing the effectiveness of digital transformation in managing and commercializing cultural heritage in Heilongjiang Province.

## Literature Review

The impact of digital transformation on cultural heritage management and commercialization in Heilongjiang Province has been studied by numerous Russian and international scholars. Research on the preservation of intangible cultural heritage in Heilongjiang using information technologies has been conducted by Yang Shu, Song Xiaoyan, Wang Chunmei, Ren Fei, Zhang Zesu, among others. Issues related to digital transformation of Chinese companies have been studied by Stoyanova O.V., Zhang Xinyi, Oyang Rogu, Yuan Yongyong, Yao Yao, Zhao Xiaoxue, Yu Huiling, etc.

The main research gaps identified in existing scholarship on this topic include insufficient examination of commercialization aspects of cultural heritage sites; lack of a comprehensive approach to managing intangible heritage systems; and inadequate study of the impact of digital tools and mechanisms on the cultural heritage domain in Heilongjiang Province.

## Materials and Methods

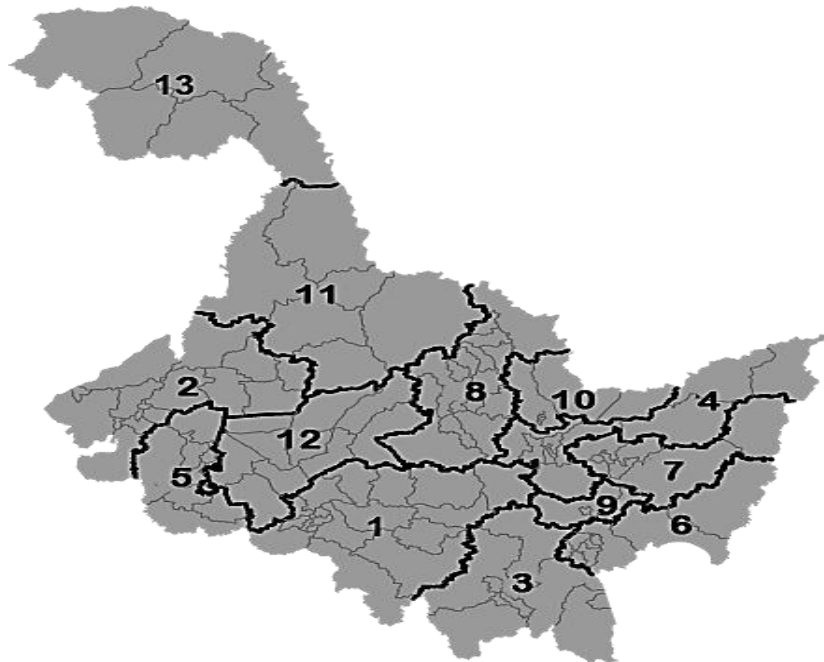
The main research methods employed were analysis, comparison, logical reasoning, and graphical methods. Specifically, the analysis method was used to identify the impact of digital transformation on the management and commercialization of cultural heritage in Heilongjiang Province. The logical reasoning method was applied in formulating and substantiating conclusions. The graphical method was utilized in creating images and diagrams.

## Results and Discussion

Culture and cultural heritage play a vital role in societal development and identity formation in the modern world. Heilongjiang Province has emerged as a prominent historical hub, garnering substantial

public interest through its notable advancements in cultural heritage stewardship and development initiatives in recent years.

Heilongjiang Province possesses substantial cultural heritage, including ancient national traditions, customs, monuments, art objects, music, theater, crafts, etc. It is important to note that the province is divided into 13 prefecture-level divisions (Fig. 1).



**Figure 1 - Administrative division of Heilongjiang Province**

Thus, at the county level, the province comprises 65 districts, 19 county-level cities, 45 counties, and 1 autonomous county. At the township level, there are 473 towns, 400 townships, 58 ethnic townships, and 353 subdistrict committees. The province contains a total of 14,488 villages.

Heilongjiang Province boasts numerous historical museums, architectural monuments, scenic parks, recreational areas, and tourist zones. Its rich cultural heritage diversity makes the province attractive to domestic residents, tourists, historians, and various researchers in the field of culture and cultural heritage. These cultural sites and values hold significant importance for societal development, not only from a cultural perspective but also in terms of aesthetic, moral, economic, and environmental dimensions [Yang,Song,Wang,2013, p.14].

It is important to note that intangible cultural heritage can generally be classified according to the territorial distribution of cultural sites. Figure 2 presents the distribution of cultural heritage sites in Heilongjiang Province.

Thus, it can be observed that the largest number of cultural heritage sites is located in Mudanjiang (46 cultural heritage sites). Harbin ranks second with 43 cultural heritage sites, followed by Qiqihar in third place with 22 cultural sites [Yu,2019, p.95].

In recent years, a new wave of scientific and technological revolution and industrial transformation, underpinned by information technology, has been gaining momentum. [Meng,2024, p.923].

Digital transformation in Chinese companies primarily affects the following key domains: finance, HR management, internal business operations, customer interaction, and supply chain management [Stoyanova,Zhang,2023, p.133].



**Figure 2-Distribution of Cultural Heritage Sites in Heilongjiang Province**

It should be noted that digitalization has unlocked new opportunities for the further development and transformation of the cultural sector in Heilongjiang Province. The impact of digital transformation on the management and commercialization of cultural heritage in Heilongjiang Province has manifested in the following aspects:

- 1) Enhanced promotion of cultural heritage sites among the general public and relevant stakeholders;
- 2) Opportunities for international cultural cooperation between various countries;
- 3) Development of commercialization and cultural trade in the international market;
- 4) Emergence of new digital platforms containing information and necessary data about key cultural heritage sites;
- 5) Expansion of information channels for cultural heritage preservation purposes;
- 6) Possibility of ensuring the preservation of core values of cultural heritage sites;
- 7) Increased engagement of youth with cultural heritage sites;
- 8) Capability for real-time utilization of cultural heritage data and management through digital systems with appropriate access and capabilities;
- 9) Elevation of cultural awareness within society, particularly among the youth, etc.

However, there exists a range of problems associated with the use of digital products and tools in the field of cultural heritage and commercialization in Heilongjiang Province, which include the following:

- 1) The problem of developing and utilizing linear models in the protection of cultural heritage sites (Heilongjiang Province primarily employs two main types of models, known as the "Endowment" model and the "Development" model. The first model involves direct state participation in protecting intangible heritage sites through corresponding programs and funding. However, its main drawback is that it misses the opportunity for "living" protection of cultural objects. The second model treats cultural heritage sites as commodities that, with state support, are supplied to consumers in the market. We believe the main disadvantage of this model is that intangible heritage sites may lose their historical value and significance to society);

2) The problem of fragmentation in the management system of cultural heritage sites in Heilongjiang Province (various materials and documents related to or containing information about key cultural heritage sites are located in different regions of China, which often complicates their search, utilization, and management) [Zhang,2024, p.46];

3) The problem of insufficiently effective protection in the field of cultural heritage preservation (there exists an issue of information security for intangible heritage sites, which requires attention to its revision and strengthening);

4) The problem of lacking systematic education in the development, preservation, and management of cultural heritage sites (this problem is caused by a shortage of specialists possessing relevant knowledge, experience, and skills in the field of intangible heritage. Consequently, it is necessary to expand and provide systematic education for training future professionals);

5) The problem of disrupted information transmission channels (the emergence of this problem is related to the fact that the main channel for transmitting knowledge and information in the province remains local residents. However, this is insufficient under modern development conditions and requires expanding information channels, creating platforms through digital tools and mechanisms) [Yuan,2024, p.75].

These and other problems necessitate the search for effective solutions aimed at enhancing the management and commercialization of cultural heritage in Heilongjiang Province.

The creation of a comprehensive digital platform for cultural heritage documentation represents a critical priority. Such infrastructure would aggregate dispersed information regarding intangible heritage assets, streamlining management processes and operational efficiency. The system would safeguard data integrity while maintaining robust information security protocols. Integration of museum collections, library holdings, and archival materials into this unified framework is essential. Successful implementation necessitates establishing standardized digital protocols governing both metadata structures and object documentation.

Expanding the application of contemporary digital tools in cultural heritage administration constitutes another vital objective for sustainable preservation and accessibility. To this end, it is advisable to implement an effective approach to supporting intangible objects, from their creation to their dissemination among various social groups and stakeholders. Additionally, it is necessary to establish a system for receiving patent applications related to the development of digital technologies aimed at working with cultural heritage objects. This will not only attract young specialists but also increase interest in the cultural sphere and its main products.

Third, it is crucial to ensure the commercialization of activities within the use of the digital platform. The transfer of permitted and legally accessible information, data, and materials directly related to cultural heritage objects can be provided for a fee. On one hand, this will increase the value and interest in the requested information among stakeholders, and on the other hand, it will generate economic benefits in the form of profits that can be directed toward the development and management of cultural heritage in Heilongjiang Province.

Particular attention should be paid to organizing virtual exhibitions on modern digital platforms, which will allow visitors to explore historical treasures and art monuments in real time, experience the full beauty of the presented objects and exhibits, and enjoy the atmosphere of panoramic viewing.

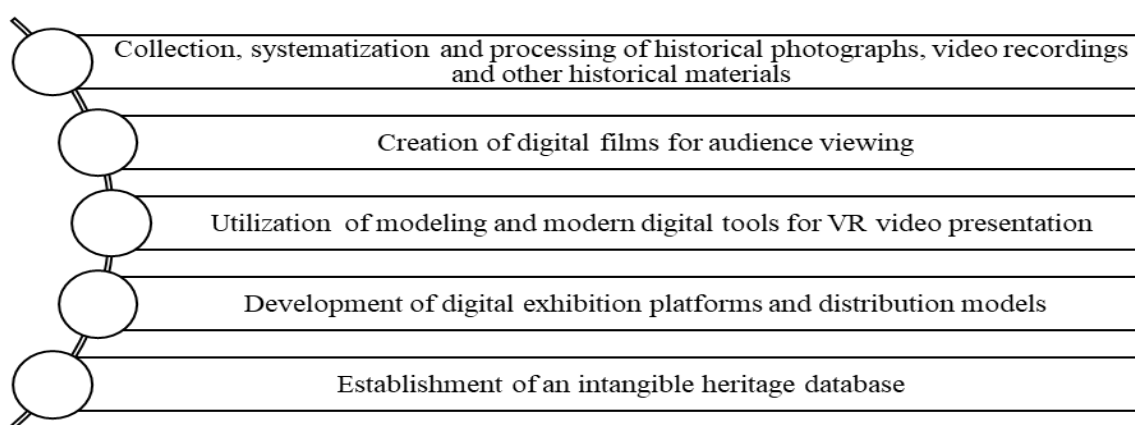
With the development of internet technologies and the digital economy, the virtual internet has significantly enriched people's experience and their direct participation through AR and VR equipment, gradually evolving into somatosensory and immersive technologies [Oyang,2024, c.93].

We believe that the process of managing cultural heritage and its commercialization in

Heilongjiang Province should be based on the following key principles:

- 1) Development of new digital technologies and innovations for managing cultural objects and products;
- 2) Ensuring systematic organization of digital data on cultural heritage objects for their analysis, processing, and further utilization;
- 3) Training specialists in digital management of cultural objects;
- 4) Implementation of planning and forecasting activities to enhance management efficiency;
- 5) Allocation of funding to ensure uninterrupted management of cultural heritage and historical values [Ren,Zhang,2023, p.77].

This article develops practical recommendations aimed at improving the efficiency of cultural heritage management and its commercialization in Heilongjiang Province under digital transformation conditions, as presented in Figure 3.



**Figure 3- Practical Recommendations for Enhancing the Efficiency of Cultural Heritage Management and Commercialization in Heilongjiang Province under Digital Transformation**

The collection, systematization, and processing of historical photographs, video recordings, and other historical materials involves organizing all materials obtained during the search process with subsequent potential for digitization. It should be noted that certain difficulties may arise at this stage, related to the fact that some historical materials have lost the clarity of their images and text visibility. Consequently, in addition to digital processing of the materials, preliminary restoration and reconstruction of historical documents is necessary.

The creation of digital films plays a crucial role in preserving cultural heritage and transmitting it from generation to generation. A historical film presented in a modern digital format using animation techniques is capable of attracting the attention of a large audience and generating viewing interest among spectators.

The use of modeling and modern digital tools and techniques enables the creation of three-dimensional forms for various objects, which adds an additional visual effect when viewing the film. Thus, it becomes possible to present the rotation of figures (various landscapes, glaciers, infrastructure objects) in three-dimensional space, showcasing the full beauty of the filming.

The creation of digital exhibition platforms and distribution models is based on the use of specially developed digital technologies through various mobile platforms, websites, etc. On one hand, this will facilitate the rapid dissemination of cultural heritage; on the other hand, it will ensure its integrity and preservation.

The establishment of an intangible heritage database will enable the integration of various archival materials, historical valuables, and documents into a unified digital information space. This will in turn ensure quick search capabilities and efficient management of the material records database.

We believe that these practical recommendations hold significant value for direct application in organizing the management and commercialization of cultural heritage in Heilongjiang Province.

In the future, digitalization will continue to transform China's economy, enhancing efficiency and mitigating the effects of potential economic growth slowdown that may occur as the Chinese economy reaches a new stage of development. [Huang,2023, p.10].

## Conclusion

Thus, the digital economy has truly become a powerful driving force for economic development. It has exerted tremendous influence on the management and development of cultural heritage, as well as its commercialization, in Heilongjiang Province under contemporary conditions. Significant achievements have been made in popularizing intangible cultural objects, enhancing the efficiency of information and communication exchange among all process participants, generating economic benefits from the implementation of various cultural products, and elevating the level of economic and information security in society, among other aspects.

It should be noted that certain difficulties and challenges exist on the path of digital transformation in the cultural sphere of Heilongjiang Province. We believe that the developed practical recommendations aimed at improving the efficiency of cultural heritage management and its commercialization in Heilongjiang Province under digital transformation conditions will enable the identification of effective solutions to these problems in the current environment.

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## **Влияние цифровой трансформации на управление культурным наследием и его коммерциализацию в провинции Хэйлунцзян**

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### **Аннотация**

В данной статье исследуется влияние цифровой трансформации на культурную сферу провинции Хэйлунцзян, с особым акцентом на управление наследием и стратегии коммерциализации. Методология включает аналитические методы, сравнительный анализ, логические умозаключения и визуальное представление данных. В исследовании подчеркивается критически важная роль сохранения культурного наследия и поддержания его ценности для межпоколенческой передачи знаний. Ключевыми компонентами исследования являются географические административные границы и пространственные модели распределения культурных активов в провинции Хэйлунцзян. Проанализированы основные проблемы, связанные с использованием цифровых продуктов и инструментов в области культурного наследия и коммерциализации в провинции Хэйлунцзян. Рассмотрены ключевые особенности процесса управления культурным наследием и его коммерциализации в провинции Хэйлунцзян. Разработаны практические рекомендации по повышению эффективности управления культурным наследием и его коммерциализации в провинции Хэйлунцзян в условиях цифровой трансформации. Основные ожидаемые результаты воздействия цифровой трансформации на управление культурным наследием и его коммерциализацию в провинции Хэйлунцзян должны включать повышение эффективности управления культурной деятельностью, популяризацию объектов и ценностей культурного наследия, повышение культурной осведомленности среди молодежи, а также экономические выгоды от культурных мероприятий.

### **Для цитирования в научных исследованиях**

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**Ключевые слова**

Цифровая трансформация, управление, культурное наследие, влияние, коммерциализация, провинция Хэйлунцзян, объекты наследия, памятники, государственная политика, методология исследования.

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