Research on the Digital Development and Practice Path of the Grand Canal and the National Cultural Park of the Yangtze River in Wuxi

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Abstract: This article takes the section of the Grand Canal and the Yangtze River National Cultural Park in Wuxi as an example to explore the digital development and practical path. Through the analysis of its development overview, the development trajectory of Wuxi's practical measures in the digital development process of the Grand Canal and the Yangtze River National Cultural Park is outlined. Five suggestions are put forward for future practical path: overall planning, establishment of a sound policy and regulatory system; leading by technology, innovation-driven, improving protection level; activating cultural resources, creating characteristic cultural brands; strengthening talent cultivation, promoting public participation; promoting cross-border cooperation, promoting international development.

Keywords: National Cultural Park; Wuxi; Digital Development; Practice Path

1. Research background

The National Cultural Park is a unique concept put forward by China, which will provide Chinese wisdom and Chinese programs for the protection and utilization of world cultural heritage, and is of great significance to the great rejuvenation of the Chinese nation.[1] The publication of China's "Opinions on Promoting the Implementation of the National Cultural Digital Strategy" has made the digital reproduction of national cultural parks get more attention in the technical research path.[2]
With the progress of science and technology and the promotion of digital transformation, profound changes are taking place in the protection and inheritance of cultural heritage around the world. Since 2017, the Chinese government has proposed the construction of major cultural projects such as the Grand Canal and the Yangtze River National Cultural Park. Relevant guiding documents, planning and project work have gone ahead of the basic theoretical research,[3] "digital empowerment" has also become an important direction of the current national cultural park system construction.[4] This paper takes the Wuxi section of Jiangsu Province as an example to explore the digital development and practice path of the Grand Canal and the Yangtze River National Cultural Park.

2. Development Overview

The report of the 20th National Congress of the Communist Party of China clearly put forward specific development requirements in the field of cultural construction, such as "implementing the national cultural digitization strategy" and "building and making good use of the national cultural park", which pointed out the direction for further high-quality construction of the national cultural park.[5] Wuxi is the intersection of the Grand Canal and the Yangtze River, and is rich in culture and natural resources. In recent years, Wuxi has made remarkable achievements in the digital protection and inheritance of the Grand Canal and the Yangtze River National Cultural Park.

2.1 Wuxi Section of the Grand Canal Cultural Belt

Wuxi actively promotes the construction of the Grand Canal Digital Museum. As of 2023, several digital exhibition halls of the Grand Canal have been built, which have realized the digital presentation and dissemination of the history, culture and ecology of the Grand Canal. For example, in the Wuxi section of the Grand Canal, through virtual reality, augmented reality and other technologies,

tourists can have a deeper understanding of the history and culture of the Grand Canal.

2.2 Wuxi Section of the Yangtze River National Cultural Park

Wuxi has actively worked out the construction and protection plans for the Wuxi and Jiangyin sections of the National Cultural Park of the Yangtze River. In practice, Wuxi pays attention to the digital protection and inheritance of the Yangtze River culture, and has implemented a number of landmark projects. For example, through 3D scanning and digital modeling technology, the cultural heritage along the Yangtze River is digitally preserved with high precision, while using the Internet and mobile terminal devices, the public can remotely understand and appreciate the charm of the Yangtze River culture.

2.3 Driving Digital Development

The Wuxi Municipal Government has coordinated all forces and formulated a series of development plans and implementation plans to ensure the orderly progress of digital protection and inheritance. Wuxi actively promotes the integration and development of cultural industry and science and technology industry, and fosters a number of cultural and creative industries with the theme of digital protection and inheritance of cultural heritage. Wuxi actively cooperates and exchanges with international organizations and other cities, introduces advanced digital protection technology and management experience from abroad.

3. Development Track and Practice Path

3.1 Digital Development Track

In the process of digital development of the Grand Canal and the Yangtze River National Cultural Park in Wuxi, the development track of its practical measures can be summarized as follows: rapid technological updating, increased public participation and industrial integration.

Digital technology is a basic tool, which runs through all aspects of digital construction and is the technical guarantee of digital engineering.[6] In the implementation of digital protection project, Wuxi keeps up with the development trend of science and technology, continuously introduces and applies new technologies, and improves the efficiency and accuracy of digital protection and inheritance.

3.2 Multi-Dimensional Digital Protection

Firstly, through high-precision surveying and mapping, remote sensing, GIS and other technical means, the cultural heritage along the Grand Canal and the Yangtze River has been comprehensively investigated and registered, and perfect digital archives have been established. Secondly, using virtual reality, augmented reality, holographic projection and other technologies, the cultural heritage is digitally reproduced in an all-round way, so that the public can more intuitively understand and feel the history and culture of the Grand Canal and the Yangtze River. In addition, Wuxi has actively introduced digital restoration technology to accurately restore damaged cultural heritage, which provides a strong guarantee for the protection and inheritance of cultural heritage.

3.3 Digital Design of Core Cultural Attributes

Through in-depth excavation and research on the cultural heritage along the Grand Canal and the Yangtze River, the core cultural elements and characteristics are extracted, and creative design and presentation are carried out by using digital technology. For example, Wuxi has developed a series of digital creative products with the theme of the Grand Canal and the Yangtze River, including digital animation, virtual exhibitions, interactive games, etc., which are disseminated and promoted through the Internet and mobile terminal devices.

3.4 Development Mode of Virtuous Circle of Production and Consumption

On the one hand, by introducing advanced technology and cultivating talents, we can improve the efficiency and accuracy of digital protection and inheritance, and provide a strong guarantee for the production process. On the other hand, by developing digital cultural products and services, we can meet the needs of the public and consumer preferences, and promote the prosperity of the consumer market. For example, Wuxi has built a number of digital cultural experience centers and virtual exhibition halls, providing the public with a variety of cultural consumption options. At the same time, through the Internet and mobile terminal equipment and other channels, the promotion

of digital cultural products and services has expanded the consumer market and space.

4. Measures and Suggestions

4.1 Making Overall Planning and Management System

The Wuxi Municipal Government should strengthen the overall planning and management of the digital development and practice of the Grand Canal and the Yangtze River National Cultural Park. We should formulate and improve relevant policies and regulations to clarify the objectives and tasks of digital protection and inheritance. We should establish and improve cross-sectoral coordination and cooperation mechanisms, and strengthen communication and cooperation among relevant departments. In addition, we should increase the investment in digital protection and inheritance, and attract more social capital to participate in it.

4.2 Leading by Science and Technology and Driving by Innovation

Wuxi should actively introduce and apply advanced scientific and technological means and innovative technological achievements to enhance the protection level of the Grand Canal and the Yangtze River National Cultural Park. For example, advanced technologies such as artificial intelligence and big data are used to intelligently monitor and analyze cultural heritage, so as to discover and solve potential risks in time. At the same time, the application of digital restoration technology is actively explored to improve the efficiency and accuracy of restoration and ensure the authenticity and historical information of cultural relics. The use of 3D printing technology to reproduce and reproduce cultural relics enables more people to experience and understand the charm of cultural heritage.

4.3 Activating Cultural Resources and Creating Distinctive Cultural Brands

On the one hand, we should develop digital creative products with the theme of the Grand Canal and the Yangtze River, including digital animation, virtual exhibitions, interactive games, etc., and disseminate and promote them through the Internet and mobile terminal devices, so as to enhance the public's awareness and recognition of the Grand Canal and the Yangtze River culture.

On the other hand, through the analysis and mining of cultural tourism data, it can provide decision support and market promotion for cultural tourism industry. Through data analysis, we can understand the needs and preferences of tourists and optimize cultural tourism products and services.

By collecting and collating relevant data and information, digital archives and databases are established. Digital archives and databases can include basic information, historical evolution, protection measures and other contents of cultural heritage, providing basic data support for the protection and management of cultural heritage.

4.4 Strengthen Personnel Training and Promote Public Participation

By strengthen the training of talents in the field of digital protection and inheritance, we could build a number of professional teams and talent pools, and provide talent guarantee for the digital development and practice of the Grand Canal and the Yangtze River National Cultural Park.

Through various channels and forms, such as the Internet, mobile terminal devices, community activities, and the use of virtual reality, augmented reality and other technologies, the virtual display and interactive experience of cultural heritage can be realized. Through digital technology, cultural heritage can be presented to the audience, and the audience's participation and experience can be improved. At the same time, the public is encouraged to put forward opinions and suggestions to promote the optimization and innovation of digital development and practical work.

4.5 Promote Cross-Border Cooperation and International Development

Actively participating in activities and forums in the field of international cultural heritage protection and digitization, we could strengthen exchanges and cooperation with other countries and regions, introduce advanced international digital technology and protection concepts, and promote the digital development and practice of the Grand Canal and the Yangtze River National Cultural Park to the world.

In cooperation with enterprises and institutions in the fields of tourism, art,

science and technology, we will jointly develop digital products and services with international standards, such as virtual exhibitions, digital creative products and interactive experiences, so as to attract more domestic and foreign tourists to visit and experience the charm of the Grand Canal and the Yangtze River culture.

5. Conclusions

Wuxi's high-quality promotion of the digital development and practice path of the Grand Canal Yangtze River National Cultural Park shows a new way of cultural heritage protection and inheritance, and also provides new ideas and directions for the development and upgrading of cultural industries. Through the application and innovation of digital technology, Wuxi has not only strengthened the protection of the Grand Canal and the Yangtze River National Cultural Park, but also promoted the development and upgrading of the cultural industry, providing examples and inspirations for other regions.

Acknowledgments

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