

The Role of Digital Culture and Tourism Industry in Promoting Local Economic Growth-The Case of Xi'an's Great Tang All Day Mall

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Abstract. Under the background of the rapid development of 5G, AR/VR, big data and other technologies, the cultural and tourism industry is accelerating its transformation to digitalization, and these technologies are driving the cultural and tourism industry into a new stage. This paper selects Great Tang All Day Mall as a typical case and systematically discusses the internal mechanism and practical path of digital cultural tourism industry driving local economic growth. Firstly, this paper constructs the framework of the economic mechanism of digital cultural tourism industry from the theoretical level, including direct economic contribution such as tourism revenue enhancement, indirect economic pull such as driving the development of related industries such as catering and lodging, as well as long-term social benefits such as the enhancement of the value of the city brand and the innovation of cultural inheritance. On this basis, the digitalization practice of Xi'an's Great Tang All Day Mall is analyzed in depth, specifically examining its innovative initiatives in the application of technological scenarios, marketing and IP operation. This study provides a theoretical reference for clarifying the interaction between digital cultural tourism and local economy and also provides a practical reference for the digital transformation of urban cultural tourism industry and high-quality economic development.

Keywords: Digital cultural tourism; local economy; cultural tourism industry; digital transformation.

1. Introduction

Against the backdrop of 5G commercialization, AR/VR technology iteration and deepening of big data analysis, the cultural and tourism industry is experiencing a fundamental shift from resource-dependent to technology-enabled. The 2024 Annual Research Report on China's Cultural Industry and Tourism Industry shows that the size of China's digital cultural and tourism market has surpassed 1.2 trillion yuan for the first time, accounting for more than 30% of the industry's total scale. This change is not only manifested in the digital upgrading of the form of tourism services - AI virtual guides to replace the traditional tour guide to explain 3D holographic performance to upgrade the landscape display, but also to promote the reconstruction of the industrial ecology. Digital culture and tourism break the boundaries between the culture and tourism industry and technology, business, media and other fields, giving rise to "online cloud tourism + offline experience" "cultural IP + digital consumption" and other new modes of business.

As an ancient capital rich in historical and cultural resources, Xi'an has shown unique advantages in the practice of digital cultural tourism. Its representative project Great Tang All Day Mall has transformed a traditional historic district into a composite cultural tourism IP that combines cultural experience, technological interaction and commercial consumption by digitally translating the cultural elements of the Tang Dynasty, such as the holographic projection The Great Tang Dynasty and the AR interactive installation Searching for the Tang Memory. Composite cultural tourism IP. Data show that in 2024, Great Tang All Day Mall received 74.75 million visitors, an increase of 212% compared to 2019 before the digital transformation, of which more than 75% of the visitors outside Shaanxi province and more than 70% of overnight tours accounted for more than 70% of the total, leading to more than 8 billion yuan of revenue from peripheral food and beverage, lodging, and other related industries, and becoming a typical sample of the central and western region's digital cultural tourism to drive the growth of the local economy.

Existing scholars suggest that the digital cultural tourism industry contains two dimensions. First, the digitalization of the cultural tourism industry, that is, through the digital technology of the traditional cultural tourism industry to carry out the transformation of the whole industry chain, with the help of the empowering effect of digital technology to increase the number of productions, enhance production efficiency. The second is the industrialization of digital culture and tourism, that is, to play the role of high-end production of digital technology in the culture and tourism industry, and to give rise to new forms and new models to expand the scale of the industry, which together reflect the two-way driving characteristics of the fusion of digital technology and the cultural industry [1]. Under the digital economy, the integrated development of urban cultural industry and tourism industry can be based on three modes: industry chain reorganization driven by supply-side reform, industry chain value co-creating under the orientation of cultural demand, and industry chain extension driven by digital technology [2]. The development of digital technology has promoted the rise of the digital industry revolution, which has not only given rise to the creation of rich and diversified digital cultural and tourism products but also made the enhancement of the display effect and consumption experience of innovative cultural and tourism products a real demand that needs to be met urgently. This demand further promotes the development of cultural tourism market products in the direction of diversification, prompts cultural tourism enterprises to expand market boundaries, comprehensively promotes the digital cultural tourism industry to a broader field of practice, and realizes the three-dimensional synergistic creation of economic value, brand value and development value [3].

This study adopts the progressive research path of "theory construction-case analysis-countermeasure suggestions". Firstly, based on the input-output model of industrial economics and the experience economy theory of tourism, this study constructs a three-dimensional mechanism framework of the role of digital culture and tourism on the local economy, including the direct contribution, indirect pull and long-term effect. Secondly, using Xi'an Great Tang All Day Mall as a case study, this study systematically discusses how the digital cultural tourism industry can promote the high-quality development of the local economy through the application of technological scenarios, marketing and IP operation, etc. Finally, this paper put forward optimization paths from the three levels of policy guidance, enterprise innovation, and technological upgrading to further promote the development of the digital cultural tourism industry to realize the development of the regional economy in other regions of China, providing reference.

2. Economic Mechanism of Digital Cultural Tourism Industry

2.1 Direct Economic Contribution

First of all, the significant increase in core tourism revenue is the most intuitive manifestation of direct economic contribution. The in-depth use of digital technology has given rise to independently operable immersive experience projects, such as interactive AR devices and virtual reality roaming, whose contribution to tourist satisfaction is significantly higher than that of traditional service elements [4]. These projects integrate cultural connotation, technological interaction and sensory stimulation in depth, forming a differentiated product beyond the traditional sightseeing model. Tourists show a higher willingness to pay for such scarce and immersive in-depth experiences, which enables such projects to realize market premiums based on unique value and become an important increment to the core ticket revenue of scenic spots.

Secondly, digital value-added services have opened up a new revenue channel, providing a series of efficient experiences that are difficult to realize in the traditional mode, and charging accordingly. In the field of culture and museums, for example, Dunhuang Mogao Grottoes AR guide system integrates "virtual mural restoration demonstration", "expert interpretation" and other functions, and activates the willingness of tourists to pay for in-depth cultural content through the internal purchase mode. These digital service modes break through the income boundaries of traditional cultural

tourism, enhance the income-generating capacity of cultural tourism projects with high value-added service forms, and directly promote the growth of tourism economic income.

The development and sale of derivatives constitute an important supplement to the direct economic contribution. Relying on the exploration of local characteristic tourism resources, cultural tourism subjects extract core cultural symbols, such as historical figures and architectural patterns, and transform them into physical cultural and creative consumer goods [5]. These commodities cover practical artifacts such as stationery and tea sets printed with cultural relic motifs, collectible items such as themed blind boxes and sculptural ornaments, as well as wearable products such as clothing and accessories that incorporate traditional aesthetics. The key to generating economic value lies in the cultural premium mechanism. Consumers not only pay for the use of goods, but also pay a premium for the cultural narrative, emotional resonance and identity they carry. For example, Great Tang All Day Mall launched a Q version of the "Tang Girl" IP series of blind boxes designed on the model of Tang Dynasty ladies, integrating elements of Tang Dynasty costumes and makeup, and becoming an object of collection for young tourists by virtue of its cute modeling and Tang Dynasty cultural connotations. Meanwhile, online channels such as official small programs and flagship stores on e-commerce platforms not only facilitate instant purchase by tourists but also realize the long-tail sales of derivatives and prolong the profit cycle of the IP.

2.2 Indirect Economic Pull

The core value of the digital cultural tourism industry lies not only in its own output value, but also in the industrial correlation effect and employment multiplier effect triggered by its role as a regional economic "growth pole".

A successful digital cultural tourism project can effectively gather the flow of people, logistics, capital flow and information flow, thus strongly pulling the synergistic development of upstream and downstream of the local industrial chain and related industries [6]. Taking Xi'an Great Tang All Day Mall as an example, the free opening policy of its core area and the integration of digital immersion experience in the whole area have brought tens of millions of annual traffic, which will be transformed into a huge consumer demand, benefiting many neighboring industries. The catering industry has benefited most directly from the formation of a special catering cluster around the project, from high-end banquets focusing on the experience of Tang culture to various types of local snack stalls, all of which have seen significant growth in customer traffic and revenue. The immersive and time-consuming digital cultural tourism experience has significantly increased the length of stay and overnight demand of tourists, boosted the occupancy rate and overall revenue of the neighboring hotels and B&Bs, and spawned new businesses such as smart hotels and immersive themed rooms. The transportation industry has also seen a huge increase in traffic due to the distribution needs of tourists. Theaters, cinema, KTV and other cultural and entertainment industries have also taken advantage of the situation to develop and form new hot spots for nighttime consumption. Particularly prominent is the rise of new cultural experience business, Great Tang All Day Mall through the materialization of the Tang Dynasty cultural scene to create and effectively activate the cultural experience needs of tourists and directly promote the Hanbok leasing and travel photography and other industrial development. Data show that Xi'an has more than 2,300 Hanbok-related enterprises, with an annual output value of 1.6 billion yuan, forming a synergistic effect of the industry driven by cultural scenes.

In addition, the digital cultural tourism industry can create a large number of employment opportunities. On the one hand, its high value-added attributes give rise to technology-intensive positions such as VR/AR content development; on the other hand, the expansion of related industries creates service positions such as catering services and hotel reception, and the connotation of traditional cultural tourism positions is also upgraded due to the demand for digital skills. Meanwhile, the innovation and entrepreneurship ecology formed by the core project attracts content creators and small and micro cultural and creative enterprises to gather, incubating flexible employment and entrepreneurial opportunities and optimizing the regional employment structure.

2.3 Long-Term Social Benefits

The deep value of the digital cultural tourism industry lies in the release of huge long-term social benefits, injecting lasting momentum into the sustainable development of the region. These benefits are centered on the increase of city brand value and the innovative revitalization of cultural heritage.

Relying on the fission propagation of social media and the extensive influence of digital IP, digital cultural tourism enables the city brand to break through geographical restrictions, realize efficient and vivid global communication, and significantly enhance its international reputation. The leap in the value of the city brand means the enhancement of regional soft power, which has a significant magnetic attraction effect on high-end talents, innovation and entrepreneurship and external capital [7]. It is conducive to attracting the inflow of talents pursuing high-quality cultural life and innovative environment, as well as high-quality investment in the fields of cultural industry, scientific and technological innovation, modern service industry, etc., thus injecting new high-end elements and development kinetic energy into the local economy, and forming a positive cycle of cultural prosperity, talent aggregation, industrial upgrading and sustainable economic development.

In the revitalization of cultural heritage, digital technology provides a revolutionary path for cultural inheritance. Through high-precision three-dimensional scanning, motion capture, panoramic image recording and digital modeling technologies, cultural heritage facing the risk of time erosion or destruction can be digitally collected, archived and reproduced to establish a permanent digital gene pool, effectively guaranteeing intergenerational inheritance of cultural resources. The use of modern media such as VR/AR, holographic projection, interactive devices and other modern media to creatively transform and innovatively express cultural connotations reduces the threshold of cultural understanding and attracts young groups [8]. Digital cultural tourism also opens up an effective channel for the integration of intangible cultural heritage into modern life and consumption scenes. Transforming ICH into digital cultural creation and immersive experience enables traditional culture to integrate into modern consumption scenes, provides new platforms and economic incentives for inheritors, and realizes the regeneration of cultural vitality.

The resulting long-term social benefits can support the transformation and upgrading of the city from an Internet celebrity destination relying on short-term network traffic effects to a sustained successful cultural tourism benchmark with long-term cultural appeal and comprehensive economic vitality. Although it is difficult to accurately quantify in the short term, it is the key cornerstone and lasting power to build the core competitiveness of the city, realize the mutual promotion of cultural confidence and economic prosperity, and promote regional high-quality development.

3. Analysis of the Digitalization Practice of Xi'an Great Tang Nocturnal City

3.1 Technical Scenario and Application Innovation

The core of digitalization practice of Xi'an Great Tang All Day Mall lies in reshaping the traditional cultural tourism experience mode with systematic technology integration, building a super experience field that deeply integrates digital space and physical space through immersive interactive scenes and intelligent management system, and realizing innovative transformation of cultural resources and extension of value chain.

At the level of creating immersive interactive scenes, 360° ring screen projection and dynamic capture technology significantly enhance the immersion and cultural cognition of tourists and become the core engine for attracting passenger flow. At the same time, the AR interactive device embedded in the neighborhood, "Searching for Tang", triggers the narrative of virtual historical figures through mobile scanning, turning the building facade and cultural relic signs into interactive digital narrative carriers. Specific venues introduced VR virtual roaming technology to build a digital twin model of Chang'an City in the Tang Dynasty. Visitors can travel to the Tang Dynasty market through the headset device, participate in virtual marketplace transactions, imperial examinations and other scenes, and complete the upgrade from "Watching History" to "Experiencing History" experience.

Technology empowerment is not only embodied in the cultural expression level, but also throughout the whole process of intelligent operation and management. 5G network-supported real-time passenger flow monitoring platform through heat map analysis and early warning mechanism, coordinated with the intelligent scheduling of security, cleaning and performing arts resources, which significantly improves the ability to cope with the flow of passengers and the safety of the tour. The intelligent lighting system based on the Internet of Things automatically adjusts the light and shadow atmosphere according to the real-time passenger flow density, day and night rhythms and activity themes to dynamically optimize the comfort of the tour environment. Linkage with the urban transportation data platform provides real-time parking guidance, bus connection prediction and other intelligent transportation services, significantly improving the convenience of the tour. The integration of digital service ecosystems, such as sensorless payment and intelligent guides, further shortens the chain of consumer decision-making and optimizes the efficiency of visitors' movement lines. For example, convenient measures such as code-sweeping ticketing and face-swiping passes reduce queuing congestion and release more time for a cultural experience and consumption transformation.

3.2 IP Operation and Marketing

Systematic cultural IP shaping and innovative digital marketing strategies are indispensable for the brand influence of Great Tang All Day Mall to break through the circle and the introduction of continuous customer flow.

The project takes the Tang culture as its genetic core and builds a paradigm of "contemporary translation of historical IP". In terms of reshaping the cultural foundation, the project explores the symbols of the Tang Dynasty such as court etiquette and market folklore and physically restores the Tang Dynasty market scene through The Longest Day in Chang'an themed block, transforming static history into an immersive and dynamic cultural field. At the same time, original content such as the Tang Secret Box interactive performance deconstructs historical tales and incubates virtual IPs such as Tang Xiaofei and Li Bai, as well as Miss Tumbler and other personalized symbols. The project will also build a theme store around the IP, launching derivatives such as Tang Nui, Velvet Bun and other national trend cultural and creative blind boxes, and digital pattern Hanboks, to enhance the commercial value of the cultural IP.

At the marketing level, the project leverages short video platforms such as TikTok and Rednote to create pop-up such as IPs Miss Tumbler and ShengTang Secret Box which have been broadcasted more than 5 billion times, realizing phenomenal dissemination. The official account combined with KOLs to produce creative content such as the Crossing Tang Makeup cross-dressing challenge, which triggered UGC fission, and the total broadcast volume of related short video topics exceeded 10 billion times in 2024. In addition, the project made good use of digital media to carry out events and cross-border marketing. At the Lantern Festival in 2023, Shaanxi Radio and Television launched a VR panoramic live broadcast of the "Chang'an Yuan Universe and Shangyuan Lantern Festival", which attracted more than 10 million viewers; at the Spring Festival in 2021, the company linked up with Glory of the King to launch the Chang'an Sai Nian Theme Skin, and set up an AR interactive check-in point, realizing the two-way infusion of "online traffic-offline experience".

4. Optimization Suggestions and Future Path

4.1 Policy Synergy and Ecological Construction

The government needs to strengthen top-level design and build a systematic policy support system. On the one hand, it can take the lead in building a regional digital cultural tourism sharing platform, integrating resources such as 5G base stations, cloud computing centers and motion capture laboratories, reducing the cost of digital transformation of small and medium-sized scenic spots, and avoiding duplication of construction and technological waste. For example, it can refer to the collaboration model of the Yangtze River Delta Digital Cultural Tourism Alliance, establish cross-

regional technical standards and resource sharing-mechanisms, and promote the standardized output and modularized application of holographic projection, intelligent navigation and other technical solutions. Simultaneously establish a digital resource base of historical and cultural heritage, such as the Guanzhong Tang cultural architecture three-dimensional model database, to promote cross-project authorization reuse, to avoid the homogenization of the scene from the source.

On the other hand, tax incentives and special subsidy policies should be improved, and VAT exemptions or additional deductions for R&D expenses should be given to enterprises that carry out the digital protection of non-legacy and develop original cultural IPs, so as to guide the flow of social capital to the field of cultural and technological integration. Establish a statistical monitoring system for the digital cultural tourism industry, scientifically assess the industry's economic contribution and social benefits, and provide data support for policy optimization. In addition, we should strengthen cross-sectoral collaborative governance, coordinate the strength of culture, tourism, science and technology, market supervision and other departments, formulate specifications for the construction of digital cultural and tourism scenes, prevent the risks of cultural distortion and business ethics in the application of technology, and create a healthy and orderly development environment.

4.2 Cultural Excavation and IP Revitalization

As the main body of innovation, enterprises need to break through the shallow technology grafting mode and focus on deepening the value of cultural IP. On the one hand, they should build an IP gradient development system, extend unique IP symbols to education and games, develop interactive learning APPs of Tang poems or authorize the creation of The Longest Day in Chang'an narrative puzzle game, so as to promote the penetration of IPs from sightseeing and consumption to lifestyles. On the other hand, the company digs deep into the regional cultural kernel, integrates elements such as non-heritage skills and traditional folklore into digital cultural tourism product design, expands the IP derivative value chain, realizes multi-dimensional IP value through the development of diversified derivatives such as digital collectibles, virtual idols, theme games, etc., and extends the life cycle of the IP. For example, in cooperation with shadow puppets, Tang Sancai and other non-genetic inheritance bearers, develop AR interactive shadow puppets experience projects or NFT digital Tang Sancai collections to realize the modern expression of traditional culture.

In addition, the IP dynamic optimization mechanism based on visitor behavior data should be established to identify experience bottlenecks in real-time through the heat map of passenger flow and UGC sentiment analysis, or the analysis of online comments, consumer preferences and other data, to accurately grasp the changes in market demand, and timely adjustment of the IP content and presentation form. For example, after finding that the architectural details of the VR scene have been criticized, people quickly optimize the modeling texture and test the new content on a small scale, comparing the length of stay of tourists, re-purchase rate and other indicators to verify the effect, so as to achieve a data-driven dynamic match between the digital experience and the needs of tourists.

4.3 Technical Innovation and Security

At the level of technology application, the layout of metaverse, artificial intelligence and other cutting-edge technology scenarios should be forward-looking. People can explore the construction of Virtual Tang culture City, through the digital twin technology to reproduce the architectural style and social scene of Chang'an City in the Tang Dynasty, combined with VR equipment to provide tourists with an immersive historical traversal experience, and at the same time, develop the Tang Dynasty city life themed virtual social space to enhance user stickiness and participation. At the same time, develop a virtual social space with the theme of Tang Dynasty City Life to enhance user stickiness and sense of participation [9]. In the field of digital collectibles, the NFT issuance mechanism can be optimized, combining digital collectibles with offline experience rights, such as holding specific the NFT can enjoy exclusive guided tours of scenic spots, priority participation in cultural activities, etc., to enhance the practical value and collection attractiveness of digital collectibles.

Relevant departments need to attach great importance to data security and privacy protection and establish a security management system covering the whole process of data collection, storage, transmission and use. Blockchain technology is used to realize the encrypted storage and traceability management of tourists' data, strictly comply with the Data Security Law, the Personal Information Protection Law and other laws and regulations and implement the principle of "minimum necessary" in the application of technology to prevent the risk of data leakage and misuse [10]. In addition, we should also promote the establishment of digital cultural tourism technology innovation alliances, joint colleges and universities, scientific research institutions and enterprises to carry out key technology research, break through the high-end AR/VR equipment, holographic projection systems and other core technologies dependent on imports, reduce the cost of technology application, and enhance the industry's independent innovation capability.

5. Conclusion

This study takes Xi'an Great Tang All Day Mall as an empirical case and systematically analyzes the role of digital culture and tourism industry on the local economic growth mechanism and practice path. The study builds a three-dimensional analysis framework covering direct economic contribution, indirect industry pull and long-term social benefits, and confirms that digital cultural tourism reconfigures the cultural tourism experience mode through technological empowerment, which not only directly creates immersive consumption scenarios and digitalized service revenues, but also promotes the upgrading of catering, accommodation and other related industries through industry chain synergy, and creates long-term positive impacts on the enhancement of the value of the city brand and the living legacy of cultural heritage.

From the theoretical level, this study breaks through the single linear growth logic of the traditional culture and tourism economy, reveals the progressive logic of activating and regenerating cultural resources by means of digitization driven by digital technology, and then promotes the innovation and breakthrough of the experience scene in the direction of immersive, and ultimately contributes to the synergistic development of the industrial ecology, which provides a new perspective for understanding the integration mechanism of the digital economy and the cultural industry. At the practical level, the exploration of Great Tang All Day Mall shows that the contemporary revitalization of historical and cultural resources needs to rely on holographic projection, AR interaction and other technological means to transform static cultural elements into dynamic scenes that can be participated in and consumed, and at the same time expand the value boundaries with the help of IP operation and digital marketing, which provides a replicable practical paradigm for the transformation and upgrading of regional cultural tourism industry.

The study also points out that there are still challenges in the development of digital cultural tourism, such as the homogenization of technology applications and insufficient in-depth development of cultural IP. In the future, the study can further focus on the integration and innovation of cutting-edge technologies such as metaverse and artificial intelligence with cultural heritage, explore the multiple possibilities of digital cultural tourism in the balanced development of regional economy and the protection of non-heritage, and strengthen the integration of interdisciplinary theories, so as to provide more systematic theoretical support for the construction of a technologically-enabled and culturally-led model for the high-quality development of the local economy.

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