Study on Digital Games Enabling Sustainable Tourism Development

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Abstract: The present study explores the sustainable development of tourism enabled by digital games. An investigation and research were conducted on the current state of the mutual relationship among the related departments, enterprises, and consumers. The study's findings indicate that the related departments have facilitated industrial integration through the implementation of relevant strategies, while enterprises have innovated by integrating game IP with local culture. However, the study also identifies challenges such as inadequate immersive experiences, fragmented branding, and a limited range of profit models. At the consumer level, the demand for game-based cultural tourism has become diverse and varied, particularly among young people and groups. The demand among young people for game-based cultural tourism is strong and varied, and the existing products are difficult to meet their needs for personalized exploration. The synergy of multiple parties, the organic unity of cultural heritage, economic benefits, and tourism experience can be realized, thereby injecting new kinetic energy into the transformation and upgrading of the culture and tourism industry. A comprehensive understanding of the prevailing circumstances and existing challenges regarding the integration of "culture and tourism + games" is imperative to facilitate informed decision-making processes by related departments and enterprises, thereby ensuring the attainment of sustainable growth in the cultural and tourism sectors.

Keywords: Digital Games; Cultural Tourism; Sustainable Development

1. Introduction

In the context of the digital era, digital games are emerging as a significant catalyst for the sustainable growth of the cultural and tourism industry. The Chinese government has accorded a high priority to the advancement of the digital economy, formulating comprehensive policy initiatives to foster the profound integration of the digital economy with the real economy. The Action Plan for Smart Tourism Innovation and Development places particular emphasis on the promotion of the convergence and advancement of online digital domains, such as e-sports and animation games, within the broader framework of offline tourism. From January to June 2024, the number of game users reached 674 million, with actual sales revenue reaching 147.267 billion yuan. Research reports indicate that players who engage in gaming more than three to five times a week tend to travel more frequently, with an average of more than three trips per year [1]. Digital gamers possess a considerable tourism market potential. The integration of digital games and tourism has emerged as a prevailing trend. In recent developments, game developers have engaged in collaborative efforts with local tourism bureaus and cultural and tourism resources, leading to the creation of a novel business model termed "travel + games." The game industry helps the integration of cultural and tourism resources, dissemination and promotion of Chinese culture at the same time, can be driven by online offline travel industry, so as to achieve greater commercial value [2]. The purpose of this article is to analyze how digital games are empowering the cultural travel industry, as well as the challenges and opportunities that arise from this. It is essential to understand the current situation and existing problems of "cultural tourism + games" to provide a solid basis for governments and enterprises to make

decisions. This understanding will facilitate the realization of sustainable development within the cultural tourism industry.

2. Literature Review

2.1 Concepts Related to Digital Games

Digital Game is an umbrella term for a variety of games played on digital devices using digital technology as a means and digital devices as a platform. The term was first coined in 2003 by the Digital Game Research Association. Game scientist Jesper Juul highlighted at the DIGRA conference that the concept of "digital games" possesses the advantages of cross-media characteristics and historical development in comparison to traditional games. In an article in the inaugural issue of Games Studies, the scholar Espen Arseth also highlighted the compatibility of the term "digital game" as a collection of many different media.

2.2 Current Status of Research on Digital Games and Tourism Economics

Liang Liuke et al showed that games and tourism could promote each other [3]. Xu dan employs Yangzhou as a case study to explore the potential of online games to attract young individuals to travel [4]. Pang YuQing et al analyzed the activities of Dabao 'en Temple in Nanjing, identifying game content, target population, and publicity as pivotal factors influencing the promotion effect [5]. Yu Boyuan et al. utilized a SWOT matrix to analyze the advantages and disadvantages of the integration of the tourism and gaming industries in Zhangjiajie [6]. Liu Hualing et al. analyzed the comments pertaining to the joint activities in Yu Garden, which revealed that an excess of tourists has the potential to adversely impact the experience [7]. However, the majority of extant studies focus on the influencing factors, and there is a paucity of research on the status quo and problems of the integration of games and cultural tourism. The following analysis will address these issues from three distinct perspectives: government, enterprises, and consumers. A comprehensive understanding of the prevailing circumstances and challenges pertaining to the integration of culture, tourism, and games is imperative for the formulation of scientific decisions by governmental entities and enterprises, thereby

ensuring the sustainability of the economy and the continuous development of the novel business model of "culture, tourism + games".

3. Analysis of the Present Status of Digital Games about Culture and Tourism

3.1 Government-level

In comparison with conventional methods, the cultural and tourism mode can offer a more substantial experience and increased added value. The integration of "culture and tourism + games" results in enhanced resource utilization and reduced environmental impact. It facilitates the preservation of cultural heritage and aligns more closely with individuals' aspirations for spiritual and cultural fulfillment. The government plays a pivotal role in development, formulating relevant policies that delineate the developmental trajectory, standardize market order, and ensure the sustainable growth of the travel industry. Concurrently, the government has proposed a series of specific implementing schemes and measures, actively encouraging participation in relevant enterprises and institutions to promote innovation in the tour industry and facilitate its advancement. To this end, government departments have initiated a series of policies and regulations, the principal documentation of which is presented in Table 1.

Among them, the Action Plan for the Innovative Development of Smart Tourism, released by the Ministry of Culture and Tourism on May 6, 2024, further proposes measures to promote the integration of online digital scenes, such as e-sports, animation, and games, with offline tourism experiences. It encourages the export of smart tourism products, including digital cultural creations, to enhance international communication capabilities and influence. The government can also take this opportunity to build brands and promote marketing, exemplified by the immense success of Black Myth: Wukong. As one of the filming locations for the game, Shanxi Province released a promotional video on the day of the game's launch, showcasing a comparison of actual filming locations, such as ancient temples and pagodas featured in the game. On the same day, tourism-related searches in Shanxi Province increased twofold compared to the previous day. The Shanxi

Provincial Department of Culture and Tourism also collaborated to create the "Follow the Monkey King to Swim in Shanxi" theme activities with AMAP, released a travel route guide focused on Shanxi's characteristic ancient buildings, and introduced innovative gameplay options, such as one-click travel route planning and the "Monkey King Treasure Hunt. " Shanxi Culture and Tourism launched four boutique tourism line products under the theme " Follow the Monkey King to Tour Shanxi. " This initiative has successfully transformed game traffic into tourism popularity and promoted the development of the local tourism industry.

Table 1. Main documents promoting the development of cultural tourism by the government

No.	Category	Name
1	Plan	National Tourism Enhancement Plan (2023–2025)
2		Development Plan for Tourism in Northeast China
3		Outline of the Strategic Plan for Expanding Domestic Demand (2022–2035)
4		Development Plan for the Outdoor Sports Industry (2022–2025)
5		14th Five-Year Plan for Cultural Development
6		Construction Plan for the Bashu Cultural Tourism Corridor
7		Construction Plan for the Beijing-Zhangjiakou Sports and Cultural Tourism Belt
8		14th Five-Year Plan for Tourism Development
9		14th Five-Year Plan for Sports Development
10	Policy	Implementation Opinions on Promoting Innovation and Development of Future Industries
11		Several Measures on Releasing Tourism Consumption Potential to Promote High-Quality Development of the Tourism Industry
12		Three-Year Action Plan for the Innovative Development of the Metaverse Industry (2023–2025)
13		Measures on Restoring and Expanding Consumption
14		Notice on Conducting Pilots for Cultural Industries to Empower Rural Revitalization
15		Notice on the Construction of National Demonstration Zones for Cultural and Tourism Industry Integration
16		Notice on Implementing the "Cultural Industry Park Companion Plan"
17		Opinions on Promoting Cultural Industries to Empower Rural Revitalization
18		Opinions on Promoting High-Quality Development of National Cultural Industry Demonstration Parks

3.2 Enterprise-Level
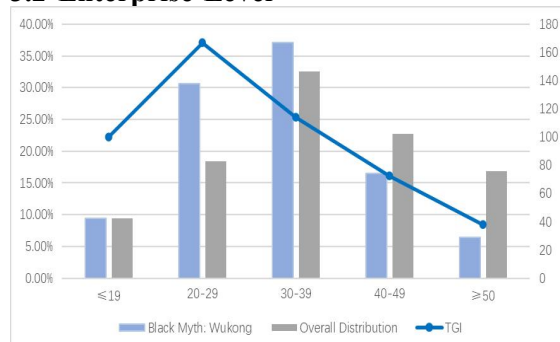
Figure 1. Comparison of the Age Distribution of Users of "Black Mythology" with the Whole Network and TGI Analysis

The game is divided into the following forms of play: integration of game IP with local scenery and cultural characteristics, food, hotels, products and services in the game and other real-scene restoration, game scene, background sound, and real-scene reproduction of characters, offline real-person cosplay of game characters, game NPC and real-scene collocation, implementation guidance, game story stage show, and plot line. Open-world games were selected as the research object, and eight games that were linked with cultural tourism were screened for statistics, as shown in Table 2.

As illustrated in Figure 1, the integration of game IP with local scenery and cultural characteristics is a predominant form of linkage between games and local activities, serving as the foundation for cultural tourism linkage. A limited number of games offer offline continuation of the game plot, a finding that merits attention. Research indicates that participants express heightened concern regarding he offline continuation of

the game plot (39.9%), underscoring the need for enterprises to enhance their efforts in this domain. Enterprises operating within the domain of "cultural tourism + game" fusion seek to leverage the cultural connotation inherent in innovative game products. Taking Black Myth: Wukong as an example, the game is based on the cultural background of the Chinese classical literature masterpiece Journey to the West, particularly centering around the story of the character Wukong. However, the game does not merely replicate the storyline of the original Journey to the West; rather, it employs innovative means to narrate the tale of a "post-Journey to the West era", in which the protagonist retraces the steps of the classic journey. This approach effectively stirs the desire to explore in young players, fostering a sense of affinity with the narrative [8]. Enterprises have meticulously excavated traditional Chinese cultural connotations, applying them to environmental art and music, among other forms. Players in the game environment have been meticulously designed to be "immersive" and "reminiscent of" the natural environment, evoking feelings akin to those experienced in "Lonely Smoke in the Desert". Companies leverage the rich connotations of traditional Chinese culture by applying them to environmental art and music. Players experience an immersive environment where they can feel traditional aesthetic sentiments such as "vast desert with solitary smoke" or peach blossoms drifting in streams in natural settings, and appreciate ritualistic principles in the solemn and majestic layouts of ancient palaces or the scholarly elegance of Jiangnan gardens, with their free-form designs, rockeries, and changing views with every step. Through stunning visuals and culturally profound narratives, the game achieves a deep integration of culture and gameplay [9].

Table 2. Statistics of 8 Game Activity Forms Related to Cultural Tourism

Game	Black Myth: Wukong	MOONLIGHT BLADE	Genshin Impact	A Dream of Jianghu	Justice	Undawn	Chimeraland	Honkai: Star Rail
Cooperation Location	Shanxi Culture and Tourism	Yongding Hakka Tulou	Huanglong Scenic Area	Kaifeng Qingming Riverside Garden	Daocheng	Shenzhen Happy Valley	Chongqing Wuxi County	Anhui Xidi Hongcun
Integration of game IP with local scenery and cultural characteristics	✓	✓	✓	✓	✓	✓	✓	✓
Food, hotels, products, and services in the game and other real-scene restoration	✓	✓		✓	✓	✓	✓	✓
Real-scene restoration of game scenes, background sound, and characters	✓	✓		✓	✓	✓	✓	✓
Offline real-person cosplay of game characters		✓		✓				✓
Game NPC and real-scene collocation, implementation guidance		✓		✓			✓	✓
Game story stage shows		✓						
Offline continuation of the game storyline	✓	✓		✓				✓

3.3 Consumer-Level

Currently, there is less data on "game + cultural tourism", take "Black Myth: Wukong" as an example and use the Baidu index to understand the relevant information from the side.

3.3.1 Portraits of Individuals Concerned about "Black Myth: Wukong"

A search was conducted on Baidu Index for the keyword "Black Myth: Wukong", with a time range from 20 August 2024 to 29 March 2025. The following characteristics of the audience interested in "Black Wukong" were obtained. In terms of geographical distribution, the top three regions are Guangdong, Jiangsu,

and Zhejiang. With regard to gender ratio, the male-to-female ratio is 25.76:74.24, indicating that male consumers are more attentive to "Black Myth: Wukong." In terms of age distribution, the age distribution of "Black Myth: Wukong" users were compared with that of internet users in general, and the Target Group Index (TGI) was introduced to evaluate the concentration of users of different age groups within the "Black Myth: Wukong" user base. The results indicated that users aged between 20 and 29 constituted the highest proportion of the "Black Myth: Wukong" user base, suggesting that the game holds particular appeal for young demographics.

Based on the above data analysis, the consumers who pay attention to "Black Myth: Wukong" are mainly concentrated in regions with relatively higher economic levels, and young people have a higher degree of concentration on "Black Myth: Wukong".

3.3.2 Characteristics of Consumers' Travel Consumption Behaviors
The initial factor to be considered is that of diversified consumer demand. The tourism market segmentation scenario is set to experience a considerable increase, reflecting the growing demand for personalized travel and promoting the diversified development of the tourism market. This can be evidenced by the emergence of various types of accommodation, including those specially designed for sports, amateur e-sports theme rooms, and those designed according to the local characteristics of legends.

The sustained rise in the number of single people and their rising spending power is set to drive continued economic growth, with single people becoming a new growth point for the economy. This is reflected in the rise of "solo trips", where people travel alone. This differs from past travel behaviors, where people traveled with friends and family, and is now mainly reflected in the growth of cities as a form of accommodation. Tourism consumption is both "cost-effective" and "sink market power".

The improvement of residents' income levels and the evolution of their consumption habits have led to a shift in the tourism consumption patterns of tourists. They are now more focused on cost-effectiveness and the practicality of tourism products and experiences, as opposed to blindly pursuing high-end luxury travel experiences.

4. Analysis of the Problems Existing in the Integration of Culture, Tourism, and Games

4.1 Lack of Offline Immersive Experience
The immersion experience is a key element for the successful integration of culture, tourism, and games. It enables consumers to fully immerse themselves and enhance their sense of identification and loyalty towards culture, tourism products, and games, promoting cultural dissemination and consumption upgrading. Players invest a lot of time and energy in games and establish deep emotional connections with game characters and plots. The continuation of game plots in offline environments allows players to continue this emotional connection in real-life scenarios. In the context of fierce market competition, some enterprises pursue short-term commercial benefits by rushing to launch products and seek profits, often neglecting the in-depth exploration of product quality and cultural connotations. Many "culture tourism + games" products merely list cultural symbols and historical stories as elements, without deeply exploring cultural connotations or integrating these elements into game gameplay and visitor experiences through innovative methods. This failure to engage with cultural elements in a meaningful way, both within the context of gameplay and visitor experiences, results in a disconnection that hinders the formation of effective interaction and resonance [10].

4.2 Lack of Branding and Market Promotion
The issue of brand building and market promotion is a notable challenge in the context of the collaboration between digital games and the cultural tourism industry. A significant concern is the limited duration of the collaboration, which often results in the partnership being constrained to short-term marketing objectives or specific activities. This limitation hinders the implementation of long-term planning and in-depth strategic alignment. For instance, the collaboration between games and local cultural tourism bureaus might involve the launch of limited-

time activities around a certain festival. Following the conclusion of these activities, there is a paucity of further expansion or continuation of the partnership, which limits the long-term market influence of the cooperation and fails to build a brand or create a long-term association impression for tourists. Moreover, poor market promotion effectiveness is also a common problem, which may be due to the failure of both parties to accurately identify the common interests of the target audience or the inability to choose appropriate promotion channels and marketing strategies. In some cases, the partnership may only remain at the surface level, such as embedding scenic area advertisements in the games or displaying game promotion boards in the scenic areas, without deeply integrating the characteristics of both parties to create customized promotion content, such as customizing game plots or offering special offline experiences. This results in the promotion information being unable to effectively attract potential interested groups and failing to achieve the expected market expansion effects.

4.3 Profit Model Innovation to be Explored

The profit model constitutes the fundamental element for the sustainable development of the integrated industry of culture, tourism, and games, directly affecting the survival and development of enterprises, the expansion of the industry scale, and the investment in innovation. A reasonable profit model can ensure the return of funds for enterprises, supporting the optimization and upgrading of products and services. Existing projects rely predominantly on traditional profit models, such as ticket sales and game item sales, exhibiting a lack of diversified and sustainable profit models. This has a detrimental effect on the long-term operation and development of the projects. The development of peripheral products is characterized by a lack of innovation, and there is a widespread phenomenon of homogeneity. Many integrated projects of culture, tourism, and games launch similar peripheral products, such as T-shirts, keychains, badges, etc., printed with game characters or scenic spot logos. These products exhibit a dearth of originality and cultural significance, resulting in their

inability to compete in the market and attract tourists to make repeat purchases.

5. Countermeasures and Suggestions for Promoting the Integration of Culture, Tourism, and Games

5.1 Build Immersive, Explorative, Interactive, and Personalized Tourism Experiences

5.1.1 Build Immersive Tourism

Game developers are encouraged to engage in collaboration with tourism destinations, integrating game content with tourism resources and devising novel business models that combine "culture and tourism + games". The integration of games provides new content and forms for tourism products, incorporating the cultural narrative background of scenic spots into tourism and the player experience in games into offline tourism. Scenic spots can utilize this immersive experience as a resource for tourism and sightseeing, thereby altering the tourist entertainment landscape and attracting increased numbers of visitors. The integration of tourist attractions into game scenes can be facilitated through real-scene scanning technology, or the cultural characteristics of tourist destinations can be promoted through game characters and narratives. Furthermore, the cultural communication capacity of digital games can be enhanced, and game developers can be supported in integrating more traditional cultural elements into game content, thereby promoting Chinese culture through the communication power of games. A notable example of this integration can be observed at the "Harry Potter" theme park at Universal Studios, where visitors engage with each other through the use of magic props, thereby creating an immersive experience akin to being transported into the magical world depicted in the series—an experience that online games are not yet capable of fully replicating.

5.1.2 Build Explorative Tourism

In the context of conventional tours, tour guides typically provide explanations, with tourists passively receiving information. However, when organizing activities, event organizers can integrate games with tourism. Travelers can explore tourism through the tasks set or the game routes, which is

analogous to the experience in games. This transformation involves the transition from online to offline exploration, from passive listeners to active explorers, and active participation in the tourism process. This approach fosters a deeper comprehension of local culture, enhances memory, and effectively promotes the dissemination of Chinese culture. The increasing popularity of "solo trips" is likely to further boost the popularity of exploratory tourism. The experience of "solo travel" bears a strong resemblance to how players explore games online, with individuals undertaking their operations to traverse the virtual landscapes. This experience offers a high degree of autonomy and adaptability, empowering solo travelers to plan their journeys according to their interests and requirements.

5.1.3 Build an Interactive Tour

The reconstruction of user experience through the conceptual framework of open-world games has emerged as a pivotal catalyst for the transformation of the cultural tourism industry. Open-world games serve not only as the "prototype" of the cultural tourism metaverse but also provide new scenarios for the cultural tourism industry through their sophisticated interaction design, economic models, and user stickiness. The integration of game-based elements within actual, real-world settings holds immense potential for the development of an interactive tourism ecosystem, underpinned by scalable technology, in-depth cultural experiences, and sustainable business practices. Taking The Song Dynasty Of Kungfu City as an example, visitors can earn silver tickets by playing games within the scenic area and exchanging these tickets for prizes. Meanwhile, NPCs (non-player characters) may attempt to snatch visitors' silver tickets. Visitors are allowed to converse with the NPCs; however, if they harass the NPCs, the NPCs will report them to the authorities, leading to the visitors' arrest and public humiliation through a ceremonial parade. This type of gameplay enhances thematic immersion, breaks away from the traditional static viewing model of scenic spots, and turns visitors into active participants in the storyline rather than mere observers. As a result, visitors can experience the immersive sensation that "the world changes because of their actions."

5.1.4 Build Personalized Tourism

Ordinary tourism is typically characterized by the utilization of predetermined routes. In contrast, contemporary young people exhibit a preference for self-driving tours, seeking experiences that extend beyond a single activity. Event organizers devise a multitude of routes, which can be categorized into primary and secondary pathways. The latter feature distinct initiation points, empowering tourists to make personalized decisions and fostering curiosity about subsequent experiences. It is also possible that tourists may develop an interest in other side quests, which could result in a return visit for a second. The impact of digital games on individual travellers can be considered on a number of levels, including game design, social interaction, and technological innovation, to develop specific strategies for tourism with different experiences.

5.2 Strengthen Brand Building

The cultural symbols, historical narratives, and natural landscapes of tourist destinations are deeply integrated with the game content, and the brand value is unconsciously transmitted through players' active exploration and emotional resonance, forming an immersive experience loop of "game is tourism, tourism is game". The integration of narrative-driven cultural transmission facilitates the implantation of a mainline/side story, with the game chapters being designed based on the historical events of the tourist destination (e.g., the ancient war story of the "Xi'an Terracotta Warriors"). This approach not only deepens the impression of tourists on the scenic spot but also effectively transfers cultural elements to tourists, thereby achieving the function of cultural transmission. The integration of fragmented narratives can enhance the sense of exploration, with stories being embedded within the scene, such as inscriptions on stone tablets, fragments of ancient books, dialect voice packages, and more. These "Gameplay Eggs" can be triggered by players, thereby unlocking the backstory of the tourist destination. Furthermore, augmented reality (AR) technology can be employed to obtain exclusive in-game props by scanning codes at real scenic spots, thereby establishing a linkage between online and offline

experiences. Exemplary cases in China include the activities of Moonlight Blade and the Ancient Town of Feng Huang. Stilt houses were recreated in the game. Players could unlock costumes and mounts by completing tasks such as "Miao Silver Craft", which increased the local tourism search volume by 320%. A similar phenomenon has been observed in the case of the foreign game Assassin's Creed and the Notre Dame in Paris. The game's meticulous restoration of the architectural details of Notre Dame has served as a valuable digital reference for the restoration project following the fire, while concurrently enhancing players' understanding of French culture.

5.3 Innovation of Profit Model

The integration of tourism destination elements into the game, encompassing game scenes, tasks, props, and other components, is a crucial aspect of the initiative. For tourism product development, game-themed tourism routes can be designed, such as cosplay parades and story-based check-in activities. For instance, the game's integration of traditional Chinese cultural elements, as exemplified by the collaboration with Dunhuang Academy and the preservation of intangible cultural heritage skills, has been a point of interest. The popularity of Black Myth: Wukong has led to the promotion of Shanxi's ancient architecture and culture by Shanxi Cultural Tourism. For instance, the official account of Shanxi Culture & Tourism has disseminated numerous videos about the game, showcasing Shanxi's historical architectural features. These videos have garnered significant attention. Shanxi Culture & Tourism further plans to integrate the architectural elements from the game with tourism resources, thereby creating specific tourism routes and activities. The objective is to attract tourists to visit the site, thereby further promoting the development of Shanxi's tourism industry and establishing an IP ecology that integrates "games + tourism + culture."

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