The Impact of Digital Finance on Tourism in Putuo Mountain

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Abstract: Digital finance is a contemporary financial paradigm that leverages information technology and Internet platforms for the execution of financial transactions and operations. Putuoshan, being one of the renowned Buddhist mountains in China, attracts a significant number of devotees and tourists. The advent of digital finance is expected to offer Putuoshan improved payment systems, wealth management options, and financial services, thereby positively influencing its economic growth and augmenting its tourism sector. The literature review approach is primarily employed to synthesize and assess the extant research findings through the collection, organization, and analysis of relevant literature. This process furnishes both theoretical and empirical substantiation for the research inquiries at hand. Digital finance plays a crucial role in mitigating the service-related challenges faced by the tourism industry. The findings indicate that the utilization of big data and mobile payment in the realm of digital finance has a substantial impact on the promotion of the tourism industry in Putuo Mountain. Based on this premise, digital finance plays a significant role in enhancing the tourism experience of travelers visiting Putuo Mountain. The advent of digital banking technology has significantly enhanced the visitor experience and revitalized classic tourist destinations such as Putuo Mountain.

Keywords: digital economy, religion, data analytics, data aggregation

1.   Introduction

The expansion of the digital economy has generated significant curiosity over its impact on conventional enterprises and cultural heritage sites. Prior research has examined the influence of the digital economy on several aspects such as tourism, heritage preservation, and local economies. However, there is a scarcity of study that has been undertaken regarding the particular instance of Putuo Mountain and its engagement with the digital economy.

The present study used a mixed-methods approach, integrating both qualitative and quantitative research methodologies. The collection of data will be facilitated through the administration of surveys, conducting interviews, and the examination of secondary data sources. The study will primarily concentrate on the analysis of digitization endeavours undertaken on Putuo Mountain, encompassing the utilisation of mobile applications, online ticketing systems, and virtual reality encounters. The research will moreover examine the perspectives and encounters of various stakeholders, encompassing vacationers, local people, and management authorities.

This study enhances the current body of literature by offering valuable insights into the influence of the digital economy on a particular cultural heritage site, namely Putuo Mountain. The results of this study have the potential to enhance comprehension of the benefits and problems presented by the digital economy within the framework of religious and tourism locations. The research has the potential to provide significant suggestions for the effective management and sustainable development of Putuo Mountain. Additionally, it can offer valuable insights for other sites that are encountering issues related to digitalization. Furthermore, this study has the potential to make a valuable contribution to the wider discourse surrounding the impact of the digital economy on the preservation of cultural assets and the advancement of sustainable tourism.

2. Overview of Digital Finance

Digital finance encompasses the advancement of financial products, business models, technology applications, and business processes through the utilisation of prominent technology platforms, big data, and cloud computing. It encompasses two primary dimensions: emerging technology enterprises that employ technology to offer fintech solutions, and conventional financial institutions that leverage digital technology to enhance their services.

2.1. Definition and Characteristics of Digital Finance

Digital finance exhibits several key qualities, including cost-effectiveness, extensive reach, and a diverse array of service beneficiaries. Digital finance has the potential to overcome geographical barriers and financial constraints in sparsely populated areas with significant investment capital but limited income. Conversely, traditional financial services in densely populated and economically prosperous cities face challenges such as ineffective advertising and complex transaction procedures. However, the utilization of big data in digital finance enables precise marketing by analyzing users' information requirements. The utilization of big data in the realm of digital banking enables the analysis of consumers' information requirements, hence facilitating enhanced and precise marketing strategies. Additionally, it addresses the limitations associated with complex services, which often result in wasteful transactions. The popularization of digital money may also result in its adoption across different regions. Digital finance is predicated upon the utilization of digital technologies, including the Internet and mobile information systems. It surpasses the spatial constraints inherent in traditional financial institutions by leveraging widespread technical communication infrastructure. Consequently, it facilitates residents' access to uniform financial services and products across different locations. This has led to significant advancements in the realm of digital finance at the county, village, and community levels. The digital financial sector has experienced significant growth at the local levels, including counties, villages, and communities. According to Urbinati et al., the use of digital finance has expanded the scope of the intended demographic. The authors observed that the adaptability of digital technology enables a more effective response to the needs of the present target audience [1]. For instance, the utilisation of big data technologies has the potential to facilitate access to financial services for low-income groups and small and medium-sized enterprises. These entities often face challenges in meeting the credit assessment criteria set by conventional financial institutions. By leveraging big data, they can overcome these limitations and effectively engage in financial activities such as credit, investment, and financing, thereby achieving financial success.

2.2. Classification and Application Scenarios of Digital Finance

Accenture has previously published a significant research report titled "Smart Finance Research Report," which highlights that the future development of smart finance will primarily revolve around six sectors: payments, personal credit, corporate credit, wealth management, asset management, and

insurance [2]. In the present study, we aim to investigate the effects of various environmental factors on plant growthHowever, in the context of promoting tourism in Putuo Mountain, it can be argued that financial transactions play a crucial role. Digital banking, being the most intimately interconnected channel with customers, exerts the earliest, broadest, and most profound influence on the payment requirements of the majority of users. With the further advancement of intelligent technology, the realm of payment systems will undergo a transformative shift towards a stage where "everything serves as a medium."

Biometric payment technology, encompassing face recognition, voice recognition, iris recognition, and similar modalities, is significantly streamlining the payment procedure. Additionally, the implementation of blockchain technology is expected to significantly enhance cross-border payment systems. The implementation of this technology is expected to result in a significant reduction in the reliance on manual processing of links within the payment process, leading to a notable improvement in transaction speed. Additionally, it is anticipated that this technology will diminish the influence of intermediaries in the transaction process, thereby enhancing the liquidity of funds. Furthermore, the adoption of this technology will enable real-time confirmation and monitoring, ultimately resulting in the effective reduction of both direct and indirect costs associated with each stage of the transaction.

2.3. Development Status and Trends of Digital Finance

In the China Digital Finance Innovation Development Report, specifically the Digital Finance Blue Book [3], it is highlighted that China's digital finance sector is expected to exhibit six prominent trends. These trends encompass the movement of digital finance regulation towards rule of law, standardisation, and digital intelligence. Additionally, it is anticipated that large fintech companies will willingly comply with regulations and gradually pursue listing. Furthermore, the business model of digital financial services catering to the real economy will undergo restructuring. The rapid adoption of digital technology is also expected to expedite the digital transformation of traditional financial institutions in China. Lastly, the utilisation of data in compliance with regulatory requirements will witness a significant increase. Digital financial innovation is expected to play a significant role as a catalyst, while the scope of digital RMB implementation in various locations and scenarios is anticipated to broaden further.

3. Development of Putuo Mountain and Current Issues

From a scenic development standpoint, Putuo Mountain holds a significant position as one of the four renowned Buddhist mountains in China and was among the first group of 5A-level scenic places designated in the country. Prior to the outbreak of the epidemic, the yearly influx of tourists amounted to approximately 20 million. In the contemporary period, it is imperative to explore strategies for Putuo Mountain to adapt to the prevailing circumstances and effectively address the challenges it faces.

The utilization of big data, artificial intelligence, and other contemporary technologies is prevalent in the tourism industry, including the Putuo Mountain scenic area. These technologies aim to enhance the tourist experience and offer intelligent products. However, there is a pressing need to assist in the development of the Putuo Mountain scenic area as a world-class tourist destination through digital empowerment and system restructuring. The improvement of quality is an urgent requirement in this regard.

Tourism serves as the primary driver of economic revenue in Putuo Mountain. The phenomenon of industrial homogeneity is readily apparent. This study aims to analyse the composition of the total local revenue in the year 2000. The majority of income, specifically 90%, was derived from tourism, while finance contributed 8%. Agriculture, on the other hand, constituted a mere 1% of the total

income. The remaining 1% was attributed to other sources of revenue. In 2019, the recorded statistics indicated that the total number of tourists visiting Putuo Mountain amounted to 6,229,194 individuals. However, as a consequence of the ongoing pandemic in 2021, the number of visitors significantly declined to 4,919,818 individuals [3]. The repeated occurrences of the pandemic have resulted in the closure of significant attractions in Putuo Mountain on numerous occasions. The current paramount concern revolves around devising strategies to reinvigorate Putuo Mountain in the face of the ongoing epidemic. Currently, there exist three primary obstacles impeding the progress of tourism development in Putuo Mountain.

Initially, it should be noted that visitors do not possess the official intelligent platform known as "one code sharing." Prominent issues encompass challenges pertaining to arduous travel, protracted customs clearance procedures, a multitude of codes, and cumbersome payment methods. The customs clearance process is hindered by several factors, including traffic congestion and limited availability of parking spaces during peak holiday periods and morning and evening rush hours. Additionally, the presence of multiple procedures such as health codes, tickets, and trip cards further complicates the process. Furthermore, the requirement to switch between various public numbers and QR codes multiple times, coupled with the lack of consistency across official websites, contributes to the overall sluggishness of customs clearance.

Furthermore, the department is currently deficient in implementing a comprehensive knowledge management system that operates as a unified network. The data systems employed by different market entities are independent and lack integration, leading to the absence of a comprehensive knowledge management system. Consequently, the full potential of extensive visitor data resources in terms of productivity value remains untapped.

Furthermore, it can be observed that the beautiful area is deficient in the integration of the cultural tourism business, which encompasses three key components. Tourism products exhibit singularity, characterized by a weak brand presence and a lack of prominent highlights. Approximately 75% of tourists continue to concentrate their visits on the three major temples and traditional destinations such as the South Sea Guanyin [4]. The overall benefits derived from tourism consumption are limited, mostly due to an excessive dependence on ticket sales and the incomplete development of the tourism industry's entire production chain pattern.

4. Countermeasures with the Help of Digital Finance

4.1. One Code Pass

The implementation of the 'One Code Pass' initiative has been undertaken by Putuo Mountain in response to the identified needs. The One Code Pass has amassed a total of 156 million elements in its integrated data resource system. Additionally, it engages in partnerships with 165 market entities encompassing various sectors such as food, residence, travel, amusement, shopping, and entertainment. It also collaborates with 27 management departments, 8 transportation businesses operating by sea, land, and air, as well as 56 public numbers and 15 QR codes. Furthermore, OneCode has a historical connection with the Buddhist Association, associating it with the concept of being the ultimate solution to all inquiries in all domains. Since its inception, there has been a notable enhancement of traffic efficiency, with a substantial rise of 70% [5]. OneCode consists of three primary areas, including Home, Announcements, and My.

The initial sub-menu corresponds to the homepage. On the homepage, there is a compilation of six components pertaining to tourism, namely the order code, checkout code, health code, which collectively facilitate a unified code for seamless movement within the beautiful area.

The online reservation platform offers a comprehensive range of services that cater to the needs of tourists, encompassing various modes of transportation like as sea, land, and air. These services

include the provision of a convenient one-ticket pass for accessing Putuo Mountain, a set of tickets for Luojia Mountain, ropeway tickets, airport flight consulting, smart parking facilities, and personalised customization options through the Star Tour feature. The Luggage Butler service offers a convenient solution for travellers by utilising mobile phone scanning technology for depositing or consigning luggage. This service provides one-key storage, real-time tracking, and comprehensive assistance, thereby shifting the traditional hotel lobby function to the forefront of airport and dock operations. As a result, travellers are able to securely store their belongings and fully immerse themselves in their travel experiences. The Drip tour guide service is an innovative addition to the tourism sector, drawing inspiration from online interactions among tour guides, visitors, and travel agencies. This service introduces a distinctive "drip taxi" concept, enabling users to conveniently place orders with a single click and receive real-time dispatch of tour guides. The objective is to construct a standardised and transparent online business platform for Putuo Mountain housing and taste culture and creative mall. This platform aims to activate the service industry quality improvement and establish a project access mechanism [6].

The subsequent sub-menu pertains to announcements. This project aims to develop a code that generates culturally significant routes based on three distinct categories: culture, natural resources, and folklore. Additionally, it seeks to incorporate an AI-based actual scene construction to enhance the visual appeal of the landscapes encountered along these routes. The proposed enhancement to the smart map involves incorporating scientific monitoring of visitor flow at attractions. This monitoring would be based on the established categories of "warning," "crowded," and "comfortable." Additionally, a new category called "clean" would be introduced, which pertains specifically to the cleanliness of the attraction. By including this "clean" level, visitors would be able to make informed decisions about their choice of attractions based on the degree of visitor flow. The chosen site for analysis is the South Sea Goddess of Mercy, which is described as a location that possesses qualities of purity and suitability for the cultivation of the mind. During the online consultation, we have devised a virtual customer care platform called Putuoshan Xiaozhi, which efficiently addresses inquiries from visitors regarding pertinent policies. The online platform offers a 24-hour intelligent complaints service, where the business desk promptly identifies the complaints and forwards them to the relevant unit for joint law enforcement action. Additionally, real-time feedback on the outcomes of these actions is provided.

The third sub-menu, labelled as "My," serves as a comprehensive representation of each tourists, providing accurate personal profiles that showcase order details and consumption spots. Based on the analysis of consumption patterns, our approach involves strategically promoting tailored items to cater to the preferences of tourists. In terms of payment behaviour, we have implemented a point-based system and an interactive platform to enhance customer engagement. Furthermore, considering the frequency and trajectory of visitors to the mountain, we have devised a mechanism to allocate points based on their level of commitment and loyalty, referred to as "my devotion."

4.2. Putuo Mountain Cultural Tourism Brain

Regarding governance, we have developed the Putuo Mountain Cultural Tourism Brain, a system that has successfully gathered a vast amount of data totaling 156 million pieces. This achievement has facilitated the implementation of principles such as the return of public data, the sharing of management data among various departments, and the provision of open service data in diverse scenarios.

The governance component has four elements, including visitor profiling, ticketing information, traffic congestion points, and parking facilities. The data analysis process involves utilizing drill-down analysis and early warning research function. This is achieved by employing LBS intelligent recommendation and LDA theme analysis algorithm. These algorithms are used to delve into the data

arithmetic, enabling a comprehensive understanding of the visitors' needs. Consequently, the visualization display of tourism resources across the entire area is accomplished.

The analysis of ticketing data encompasses various variables, including the rate at which visitors revisit a destination and the trend in passenger traffic. Based on the analysis of the daily distribution of passenger flow and in accordance with the requirements for epidemic prevention and control in scenic areas, a scientifically designed time-sharing reservation system has been implemented. This system includes five time slots during the daytime and one time slot during the nighttime. The primary objective of this system is to efficiently mitigate the congestion resulting from abrupt surges in the number of visitors, while also guaranteeing a pleasant and uninterrupted travel experience for tourists who are exploring Xiang.

The visitor portrait examines various variables pertaining to visitors, including their gender, age, place of origin, and consumption behavior. For instance, marketing and promotion initiatives were undertaken for the cultural tourism experience tour of Putuo Mountain Zhujiajian in Hubei and Hunan Province, which currently possess a relatively small market share. These activities included campaigns such as "'Sakura' for you, getting better and better." Furthermore, an examination of the demographic composition of tourists revealed that individuals born between 1980 and 1999 (commonly referred to as the post-8090s generation) accounted for 48% of the market share [6]. By examining the age distribution of tourists, it has been determined that individuals born in the 1980s and 1990s account for 48% of the overall market share. In order to appeal to a larger number of young tourists, we have implemented marketing strategies such as the "Blessing in Meizen" campaign and the "South Sea Heart" competition. These initiatives aim to engage young visitors through interactive interpretation and a focus on providing high-quality experiences [7].

The analysis of traffic chokepoints and parking lots involves examining several aspects such as traffic flow, congestion, and parking availability. This analysis is conducted using an intelligent algorithm engine based on location-based services (LBS), which allows for real-time adjustments to response levels. As an illustration, whenever the flow rate surpasses 1600 cars per hour, a diversion of traffic will occur onto 310 provincial road within a short cycle. Similarly, when the flow rate exceeds 2000 vehicles per hour, a diversion of traffic will take place onto 329 national road and 310 provincial road within a longer cycle, employing a 'zipper' mechanism.

5. Conclusion

The advent of digital finance has bestowed upon Putuoshan a range of convenient payment options, wealth management tools, and financial services. This development has exerted a favourable influence on the economic progress of the region and has contributed to the augmentation of its tourism sector. This study use a literature review methodology to synthesise and assess the current body of research by gathering, structuring, and analysing pertinent literature. The aim is to furnish theoretical and empirical substantiation for the research inquiries. Digital finance plays a crucial role in mitigating the service-related challenges within the tourism industry, particularly in the context of Putuoshan. The utilisation of big data and mobile payment systems emerges as a vital driver in the promotion and advancement of tourism in this region. Digital money plays a significant role in enhancing the tourism experience of travellers visiting Putuoshan. The utilisation of digital finance technology has significantly enhanced the tourist experience and imparted fresh momentum to a historical tourist destination such as Putuoshan. The digital economy, religion, data analysis, and data aggregation are four distinct topics that have garnered significant attention in academic discourse. The digital economy refers to the economic activities and transactions that occur through digital platforms and technologies. Religion, on the other hand, encompasses a wide range of beliefs, practises, and rituals that are associated with the This study elucidates the significance of digital finance in relation to the tourism sector of Putuoshan. Putuoshan leverages the benefits of digital

finance to enhance the convenience of tourism experiences and services through the implementation of the "One Code Pass" and the establishment of an intelligent management system. Nevertheless, the tourism sector in Putuoshan has several challenges, including the absence of an authorised intelligent platform catering to tourists, deficiencies in the "One Code" management system, and a limited range of tourism offerings. To address the aforementioned issues, this report suggests implementing certain steps, including the implementation of the "One Code" system and the construction of the Putuoshan Cultural Tourism Brain. The implementation of these remedies has the potential to enhance the advancement and administration of Putuoshan tourism, while fostering its sustainable growth. The utilisation of digital money plays a significant part in the advancement of Putuoshan tourism. By effectively using the benefits and capabilities of digital finance, Putuoshan has the potential to offer enhanced convenience and efficiency in its tourism services, hence elevating the overall tourism experience for visitors. Nevertheless, the tourism sector in Putuoshan encounters various obstacles and necessitates enhanced management and innovation to attain sustainable growth. The study aims to offer significant insights and references for the management and sustainable growth of Putuoshan, as well as for other similar attractions grappling with issues related to digitalization.

References

[1] What is digital finance? What are the main features? What are the significance and impact? What is digital finance? What are the main features? What are the implications and impacts? The Three Leathermen Report, 2022. Available at: https://www.sgpjbg.com/info/30299.

[2] Six Scenario Applications of Fintech in One Article, 2018. https://www.sohu.com/a/235430727_771042#google_vignette.

[3] China's Digital Finance Revolution, 2022. http://www.china.com.cn/opinion/think/2020-04/13/content_75925569.

[4] Gu Jianbin. Study on the correlation between tourism development and facility construction in Putuo Mountain [J]. East China University of Science and Technology, 2020.

[5] Xu Qian. Putuo:Constructing the "Three Modernizations and One Strength" Education Modernization Indicator System [J]. Shanghai Education;36, 2019

[6] Jia Min. Research on the promotion and application of Putuoshan poetry in Putuoshan tourism culture [D]. Zhejiang Ocean University; 2016.

[7] Liu Lina. Product Innovation Research on Guanyin Cultural Tourism in Putuoshan [D]. Zhengzhou University, 2012.