Research on the Development of Smart Rural Tourism in Shandong Province in the Era of Internet

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Abstract. In the era of Internet with the rapid development of modern information technology, the cross-border integration of Internet and industry become a general trend, and smart tourism and smart rural tourism in China are born at the right moment. This paper analyzes the existing problems in the development of smart rural tourism in Shandong Province, puts forward four approaches to accelerate the construction of the basic guarantee system of smart rural tourism, construct the smart rural tourism service system and smart rural tourism marketing system, and strengthen the cultivation of smart rural tourism talents in Shandong Province, carries out the intelligent communication of rural tourism information in Shandong Province, promotes the demand and supply of tourists and rural tourism, and realizes the transformation and upgrading and smart development of rural tourism in Shandong Province.

1. Introduction
14 ministries including National Development and Reform Commission and National Tourism Administration jointly formulated and issued the Action Plan for the Quality Promotion and Upgrading of Rural Tourism Development (2017). In the Plan, it is put forward to promote the integrated development of “tourism + agriculture + Internet”, promote 1000 key rural tourism villages to establish cooperative relations with tourism e-commerce, modern logistics and relevant enterprises, continuously promote special actions on industrial construction of “rural tourism trunk project” and “one village one product”, encourage and guide rural tourism to combine with Internet and other modern information technologies, and develop smart rural tourism.

Smart rural tourism effectively uses the operation modes and technical methods of “smart tourism” in rural tourism to form a new development mode of rural tourism, so as to realize the transformation and upgrading of the development mode of rural tourism. Therefore, smart rural tourism refers to a new development mode of rural tourism to timely release information about rural tourism resources, rural tourism enterprises and activities of rural tourists to the outside world through building the “smart” rural tourism management and service platform and using big data technology, VR technology, Internet of Things technology, cloud computing, RFID and other modern technologies, and fully realize the informationization and intelligent of rural tourism from the aspects of tourism operation management, tourism destination marketing and tourism services, so as to enable tourists to meet all travel demands, and provide intelligent support for tourism authorities, rural tourism enterprises, rural tourism operators and other stakeholders.

Shandong actively responds to the policy and actively promote the transformation and upgrading of rural tourism. Shandong has a long history, developed agriculture, rich rural folk customs, rapid
urbanization and obvious advantages in developing rural tourism. As a big agricultural province, agriculture is a “gold signboard” of Shandong, but the environment and economic foundation of most rural areas in Shandong need to be improved. How to realize the integration of rural tourism and new technology in Shandong and promote the development of smart rural tourism will be the important development tasks in the future.

2. Existing Problems of Smart Rural Tourism in Shandong in the Era of Internet

2.1. The Construction Level of Smart Rural Tourism in Shandong is Low
With the rapid development of Internet technology, various scientific and technological means have penetrated into all walks of life to different degrees, and the development of rural tourism is also inevitable. However, at present, rural tourism in Shandong Province is still at a low level in the use of modern science and technology, which becomes a bottleneck in the transformation and upgrading of rural tourism in Shandong Province. First, the administrative departments of tourism at all levels have low management efficiency for the rural tourism industry, and the level of tourism informatization is not high. Second, the infrastructure providing support for smart rural tourism is backward. Many rural tourism areas have not achieved full Internet coverage and only some rural tourism operators can provide online tourism services and WLAN functions for tourists, which results in the low quality of rural tourism services.

2.2. The Service Level of Smart Rural Tourism is Low
Service quality is the fundamental factor determining whether the rural tourism industry can be developed sustainably and healthily. For now, the facilities and equipment for the smart rural tourism service in Shandong are not perfect enough to meet the demands of rural tourists for the increasingly improved service level of smart rural tourism, and there is a trend of increasing contradiction between supply and demand. At present, many rural tourism enterprises in Shandong have not realized the “smart” operation, and tourists cannot make mobile payment or online payment in the consumption process of rural tourism areas, which causes a certain degree of inconvenience to the tourists. Secondly, most of the residents in rural tourism areas have a lower level of education, their ability to use the Internet and new media is not high, and the information training is not enough, so professional and high-quality services cannot be provided in the process of tourist reception, which results in low overall service quality of rural tourism.

2.3. The Marketing Mode of Smart Rural Tourism in Shandong is Backward
The marketing efforts of Shandong’s rural tourism are not enough, especially the smart marketing is still very lagged behind and has not formed a very good rural tourism characteristic brand in the country. At present, the marketing and publicity of Shandong’s rural tourism is still based on the traditional “word of mouth”, and the scope of publicity and the audience are narrow, while the usage rate of new communication channels such as WeChat circle of friends, tourism forum and mobile App is low. Some rural tourism operators have already begun to use the Internet to make publicity, but it is only limited to information introduction and web publicity, and the intelligent and integrated network marketing platform has not been built, and there are problems of incomplete information, lack of authenticity and slow renewal rate for the marketing contents, which makes it difficult for rural tourists to obtain accurate information and results in low coverage in the national tourism market.

3. Analysis on the Development Strategy of Smart Rural Tourism in Shandong

3.1. Accelerate the Construction Pace of the Foundation Guarantee of Smart Rural Tourism Relying on the Internet Information Technology
1. Strengthen the construction of smart infrastructure. The government departments shall construct corresponding smart infrastructure based on the tourist attractions and attractions characteristics of each rural area and combining with the overall plan for tourism development and informatization development plan, and the infrastructure includes database and Internet of Things. Among them, the
construction of database is the foundation of the construction of smart tourist attractions, which collects massive information from the government and tourists to provide a reliable information source for the formulation of the development strategy of smart rural tourism, and the Internet of Things realizes the connection of things in the scenic spots, so the construction of smart tourism attractions shall attach importance to the configuration of each link of the Internet of Things.

2. Strengthen the construction of wireless network communication. Many rural tourism attractions cannot provide Wi-Fi, and even some attractions do not have 4G coverage, so tourists are unable to share their photos and travel insights with their friends and family, which seriously affects their travel experience. Therefore, the scenic spots shall establish a full coverage of free Wi-Fi wireless network, provide tour routes, scenic information guide, application service connection and tourism scene value-added services on the operation of Wi-Fi contents to tourists, and promote the penetration of tourists’ online payment to offline payment.

3. Accelerate the construction of information resource database of smart rural tourism. Firstly, different management bodies shall be incorporated according to the information of database, such as the meteorological management department that meets tourists’ requests for weather forecasts, the traffic management department that meets tourists’ requests for rural tourist transportation routes, and rural tourism operators who provide services for tourists. The information of these different management bodies shall be collected in detail and uniformly stored in the electronic platform. Secondly, the dynamic information collection system for rural tourism shall be established. The accuracy and update of information resource database for rural tourism must be ensured if the tourists’ information query for rural tourism can be satisfied more accurately with the help of Internet; therefore, a special information team must be set up to conduct field investigation, sort out and classify the information, and realize real-time update, especially the incomplete rural tourism data provided by some industry insiders must be investigated based on the principle of seeking truth from facts and select the optimal route. Thirdly, the realization of intelligent communication of rural tourism information in Shandong and the promotion of supply and demand between tourists and rural tourism must with the help the real-time monitoring of GPS, radio frequency technology and intelligent sensing technology on tourism resources, obtaining all kinds of data for tourism, carrying out effective integration through the automatic identification and classification processing of the information, and recommending intelligently. Fourthly, construct tourist complaint service function, timely listen to the evaluation and suggestions of Internet terminal visitors, and take the suggestions as an important basis for the restoration of information resource database. The tourism management department shall supervise and inspect it, and the rural tourism operators shall improve the information based on it to ultimately improve the satisfaction of tourists.

3.2. (II) Improve the Service Level of Smart Rural Tourism in Shandong and Build Smart Service System

Build the service system for smart rural tourism in Shandong is to jointly establish the service system for smart rural tourism based on the modern science and technology and information resource database, taking the smart rural service platform as the core, and connecting the public consultation platform, online payment platform, medical security system and security monitoring and early warning system through the service platform. Connect the tourist service center of rural tourism community, rural hotels, agricola and other rural tourism industries into the Internet of consulting services, provide one-stop rural tourism information consulting services to tourists, and upgrade and improve the tourism call center system. The summary is as follows:
3.3. Accelerate the Construction of Marketing System for Smart Rural Tourism in Shandong

The construction of marketing system for smart rural tourism in Shandong mainly includes the following four aspects: the first is to promote the construction of interactive terminal tourism information release systems for key travel-related places such as tourist distribution centers, scenic spots, stations, docks, expressway service areas, hotels, restaurants, and rural tourist spots; the second is to build a global tourism information service platform in accordance with the target positioning of “full coverage, full information, full service” to provide information release, product promotion, itinerary planning, online booking, online payment, tour guide, shopping guide, navigation, weather inquiry, travel tips, tour guide verification, scenic route arrangement, online complaints and evaluation, peripheral information inquiry, online travel experience, mobile location and other services to tourism enterprises and tourists; the third is to build the matrix of tourism media platform in Shandong, construct the Tourism Administration Net, Tourist Information Net, Microblog, Wechat to integrate into Chongqing APP and other media platforms, and realize information sharing and mutual promotion of travel service information on mobile phone screen, computer screen, touch screen and TV screen in accordance with the construction, operation and maintenance ideas of all media matrix and “one cloud and several screens”; the fourth is to strengthen the promotion and marketing of tourism in Chongqing by using multilingual websites and overseas social media platforms, provide comprehensive, accurate and timely public information services for tourists at home and abroad, make full use of new technologies, new applications and new channels to expand the distribution channels of tourism information, expand the coverage of tourism information services, and build a three-dimensional, all-round and widely-covered service system for tourism public information.

At the same time, the traditional marketing mode shall be dispensed and the marketing mode shall be innovated. The first is to implement precision marketing. Design the attractive tourist products and activities for tourist according to the operation mechanism of attention marketing, mobilize the enthusiasm and initiative of tourists to participate in the activities, and then accurately deliver the tourism product information to tourists with the help of marketing platform in smart tourism system, realize the good communication between platform and tourists, adjust the products and services in real time through the feedback of tourists, help the scenic spots realize precision marketing, and turn those tourism perceivers into real tourists. The second is the experience marketing based on VR (virtual reality) technology. The most fundamental difference between smart tourism and traditional tourism is
the “smart”. In addition to the tourism informatization, it pays more attention to the application of new technology. The application of VR technology in smart tourism can improve the perceptual experience of tourists, and make tourists' visual and auditory contact with tourism destinations in an all-round way, so as to change the traditional marketing mode of narrative tourism products, which assuredly provide a more powerful psychological implication for tourists to choose travel routes.

3.4. Strengthen the Cultivation of Smart Talents for Rural Tourism in Shandong
Shandong shall learn from the successful experience of advanced provinces and cities in rural tourism development in China, formulate and improve relevant policies and systems, and strengthen the cultivation and introduction of rural tourism talents, especially the smart management talents. Relevant government departments shall take the lead and organize, and rural tourism communities, rural tourism enterprises, colleges and universities shall cooperate to realize in-depth cooperation among “government, industry, enterprise and school”, establish smart education and training bases for rural tourism, and strengthen the cultivation of smart professionals for rural tourism. On the one hand, the training of knowledge related to rural tourism, management theory and other contents shall be strengthened; on the other hand, the training of modern information technology such as smart marketing, network platform building and data acquisition shall be strengthened. The level of international cooperation shall be expanded and the foreign high-end tourism talents who know the rural smart tourism shall be introduced. Under the coordination of competent government departments, rural tourism communities and rural tourism enterprises shall coordinate to strengthen the daily training of service personnel on rural tourism, invite university tourism teachers and experts in modern information technology to the site to provide accurate training for service personnel on rural tourism, and continuously improve the service quality and information usage level of service personnel on rural tourism.

4. Summary
Rural tourism has become an important means to balance urban and rural development and promote farmers’ income and wealth. With the rapid development of the Internet and the mobile Internet, tourists’ way of thinking and consumption habits have also changed, and there is a large space span between the scattered tourist attractions in the vast rural areas, the development of smart rural tourism is imperative. The personalized travel needs of tourists can be met on the basis of integrating multiple information resources relying on the powerful Internet data resources and cloud service platform, the original single tourism product structure shall be optimized, and various bottlenecks in rural tourism can be solved.

5. Acknowledgment
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