Research on the Construction of Cultural Tourism Market in Shenyang Based on Big Data

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Abstract. In 2013, General secretary Xi Jinping proposed the strategic conception of building “the new Silk Road Economic Belt” and “the maritime Silk Road in twenty-first Century”. As the core city one belt, one road and one road in Shenyang will play a decisive role. This paper focuses on the construction background of “One Belt, One Road”, explores the development of Shenyang cultural tourism market under the background of “Belt and Road”. The article studies the development status of Shenyang cultural tourism market, and then analyzes the development and construction of Shenyang cultural tourism market “One Belt One Road”. The main research method of this paper is big data analysis. Combined with a large number of data, this paper makes a consumer portrait of Shenyang cultural tourism market, aiming to study the regional tourism consumer behavior. This paper gives Construction and research to provide advice and suggestions for regional economic development.

1. Introduction
The “Belt and Road” is a strategic concept proposed by President Xi Jinping in 2013. The promotion of the “Belt and Road” construction and the formation of a large-scale international cooperation and development pattern have provided a good opportunity for the provinces along the route to develop tourism industry and establish international tourism cooperation. As an important connection point and an open window of the “Belt and Road” northeast region, Shenyang’s tourism development will play an important role in the construction of the “Belt and Road”. The Shenyang Municipal Government pointed out that 2019 was the year of the merger of culture and tourism, and proposed the integration of literature and travel and the synergy.

2. Research Review
2.1. Literature Review
The research of foreign experts and scholars mainly focuses on the analysis of the “Belt and Road” economic belt and the coordinated development of tourism economy along the country. Most scholars in China use the “Belt and Road Initiative” as a research background to analyze the tourism development opportunities in various regions of China [1]. For example, Khetagurova V believes that the number of tourists in the Silk Road countries is affected by three competing factors: air traffic infrastructure, ground transportation infrastructure and cultural resources. Zou Yongguang analyzed the cyberspace structure of tourism economic linkages between the “One Belt and One Road” major cities in China. Yang Min analyzed the cross-border tourism cooperation development in Yunnan under the background of “One Belt, One Road” to scientifically design cross-border tourism routes and strengthen the training and management of tourism practitioners [2]. At present, the research on
cultural tourism in Shenyang from the perspective of research, including tourism brand construction, planning research, regional economy, etc., from the research content, mainly involves Qing culture, sports culture, industrial culture and rural culture.

2.2. Research Methods
Big data is based on the Internet, cloud computing, Internet of Things and other computing and networking technologies under the rapid development of the information technology industry. It is a process in which human beings conduct more in-depth and comprehensive analysis and utilization of information under the condition that information acquisition and acquisition capabilities are continuously improved and information storage is more abundant. With the boom of “Big Data”, it is imperative for tourism companies to expand their market by using data analysis technology to search for business opportunities in competitive markets, motivate potential customers, and expand market share [3].

Based on big data technology, this paper attempts to build a tourism portrait system for traffic data by collecting data, cleaning data, setting indicator sets and analyzing model construction in Shenyang cultural tourism industry [4]. Through the use of the system, the travel behavior patterns, personalities, preferences and habits of tourism users are captured from different angles. From the perspective of tourists’ needs, the development and construction of the Shenyang Cultural Tourism Market is integrated into the “Belt and Road”.

3. The Development of Shenyang Cultural Tourism Market is Integrated into the “Belt and Road”

3.1. Development Status of Shenyang Cultural Tourism Market
Shenyang is China’s first historical and cultural city. It is located in the central part of Liaoning Province. It is the economic, cultural, transportation and commercial center of Northeast China. It is a passenger transportation center to and from the Northeast, and has a comprehensive function. As an important window for China’s opening to the north, the “One Belt, One Road” construction provides a broad space for the Northeast region to further expand its opening up and promote economic growth [5].

According to statistics, as shown in table 1, in 2018, Shenyang received 83.056 million domestic and foreign tourists, and the total annual tourism market revenue reached 75.9 billion yuan. According to the Python language crawler technology to capture information about major travel websites, Shenyang currently receives 590,000 foreign tourists, and the total number of domestic and foreign tourists and total tourism revenue ranks 8th among 15 sub-provincial cities nationwide.

| Table 1. Shenyang tourism market from 2015 to 2018. |
|-----------------------------------------------|
| Total annual income (100 million yuan) | 2015 | 2016 | 2017 | 2018 |
|-----------------------------------------------|
| Number of visitors (10,000 person-times) | 9246.5 | 6389.7 | 7442.5 | 8305.6 |

Source: According to the statistics of 2015-2018.

3.2. Development and Construction of the “One Belt, One Road” in Shenyang Cultural Tourism Market
Shenyang currently has 1 5A-level tourist scenic spot, 20 4A-level tourist scenic spots and 3 world cultural heritage sites; it is an excellent national tourist city, a national historical and cultural city, a national environmental protection model city, a national forest city, and China’s top ten ice and snow tourism city. Although Shenyang’s tourism resources are abundant, there are many similar resources
and individual resources have not reached the domestic best. Compared with other cities along the “Belt and Road”, Shenyang lacks unique and innovative tourism products [6]. The six elements of food, housing, travel, tourism, shopping and entertainment are unevenly developed. The image design of urban tourism has not yet been established and spread. At the same time, Shenyang has its unique cultural advantages. Manchu culture, multi-ethnic culture and heavy industry culture, the three blend with each other, constitute a complex and diverse cultural system in Shenyang.

4. Consumer Portraits of Shenyang Cultural Tourism Market Based on Big Data
The user portrait is a new species developed by the Internet in the era of big data. As a product of an era, it will attract widespread attention from the academic and business circles. The precision and personalized service brought by the user portrait saves the operation of the enterprise. A lot of marketing costs, but also improve the research enthusiasm of researchers. For the portraits of tourists in the Shenyang Cultural Tourism Market, it is helpful to grasp the behaviors and preferences of tourists, and truly realize the “good fortune” to maximize the efficiency and effectiveness of the promotion of resources.

4.1. Raw Data
Raw data includes visitor attribute data and visitor behavior data. Relatively speaking, the visitor attribute data is static data and is relatively easy to obtain. The passenger behavior data can use the DPI data of the telecommunication operator, and the telecommunication carrier network obtains a large amount of access data of the telecommunication user through the monitoring device set at the gateway, and each piece of data represents the online access behavior of the user. From these data, more valuable information can be mined, and the online behavior patterns of tourists can be described from more dimensions.

4.2. Data Processing
By obtaining the static data and behavior data of the tourists, cleaning up the data noise, refining the important information to create labels, and initially assigning weights, then constructing the data and displaying it with visual representations.

Through the multi-channels such as China Mobile, Ctrip.com and Tuniu.com, the visitors from Shenyang have been used for portraits in the past three years. Inbound tourists from Shenyang are mainly Russian, Japanese and Korean tourists and Hong Kong and Macao tourists from China. Tourists in the triangle area are mainly. Through portraits, historical culture, historical sites, industrial imprints, and cool climate are the preferred labels for tourists. The age label is mainly for middle-aged and elderly tourists. In the winter tourist travel portraits of Shenyang, it was found that the proportion of post 80s reached 26%, people born after 2000 was 23%, and the young people in the ice and snow tourism were the main players. The source of tourists is mainly in the southern coastal cities of Shanghai, Guangzhou and Shenzhen. There are no obvious tourist sources in the winter tourists. From the passenger preference label, tourists prefer ice and snow sports and snowy customs. Visitors pay more attention to the quality of the slopes and auxiliary facilities.

4.3. Shenyang Cultural Tourism Service Adjustment Strategy
Through the portraits of Shenyang cultural tourism users and their IPA analysis, the label information of user portraits and their importance ranking are obtained. Governments and enterprises can maximize the use of resources and maximize value [7].

From June to August, it launched a special cultural and leisure activity featuring refreshing and pleasant summer, featuring the brand of “Breeze full of rhyme, summer cool and Shenyang”; maintaining the appeal to middle-aged and old-age tourists, and promoting red tourism, industrial imprinting and other special themes.

In winter, the main brand of Xuexiang style farmhouse and winter snow sports is launched. From the user’s portrait and IPA analysis, it can be seen that tourists are mainly tourists born after 80s, and
whom born after 2000, the female users are the core users of parent-child games, grasping the eyes of female users, and maintaining or even enhancing the attractiveness for female users is crucial [8]. In the creation of parent-child travel routes, it is necessary to design a “visual and educational combination” line. At the same time, the degree of parental involvement is taken into account in the circuit design, enabling consumers to interact in parent-child activities and increase family emotions.

The “One Belt, One Road” strategy provides a broad space for the Northeast region to further expand its opening up and promote economic growth. Through the portraits and IPA analysis of overseas tourists, it is concluded that the importance of the labels of overseas tourists is: “season: summer”, “gender: male”, “tourism resource selection: historical monuments”. For overseas tourists, it mainly introduces Manchu culture tour, northeast style tour and other special products [9].

5. Conclusion
With the application of big data technology in modern society, it has changed the traditional way of using sample data for prediction, making it possible to study the whole data and improve the integrity of the research results. In the context of big data, government policy support and optimization of big data technology have brought more possibilities for the construction and expansion of the Shenyang cultural tourism market. In the process of formulating strategies using big data, first of all, the channels and all aspects of the tourism market, tourists, scenic products and services and other related data to ensure the breadth and accuracy of data sources. Secondly, using big data to grasp the personal attributes and behavioral preferences of the tourist groups through the way of tourists’ portraits, and to explore potential tourists by refining the promotion content, and formulate corresponding tourism marketing strategies. This paper proposes that Shenyang should make full use of its unique Manchu culture, multi-ethnic culture and heavy industry culture, combine the bold and bold and wonderful two-person art of the Northeast people, build a complex and diverse cultural system, and seize the historical opportunity. Help Shenyang to better integrate into the “Belt and Road” and contribute to the development of “One Belt, One Road”.

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