

# Evaluation on Information Management in the Development of Smart City Tourism in the Era of Big Data

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**Abstract:** With the advent of the big data era, the development of smart city tourism is receiving increasing attention from people. This article explored the information management issues in the development of smart city tourism in the era of big data through in-depth analysis and research. Firstly, this article introduced the concept and significance of smart city tourism. Subsequently, an in-depth analysis was conducted on the information management issues in the development of smart city tourism in the era of big data, including data collection, data processing, and data application.

**Keywords:** Big Data; Smart City Tourism; Information Management; Data Acquisition

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## 1. Introduction

With the arrival of the big data era, big data technology has become an important application technology in various fields, among which the field of smart city tourism has received widespread attention. Smart city tourism refers to the digitization, networking, and intelligent processing of urban tourism resource information through information technology, providing personalized tourism services and experiences for tourists. Information management is one of the key links in the development of smart city tourism. How to effectively collect, process, and apply data has become a core issue in the development of smart city tourism.

## 2. Concept and Significance of Smart City Tourism

Smart city tourism refers to a tourism model that utilizes new generation information technology to digitize, digitize, and intelligentize urban tourism resources, providing new tourism experiences and services. Its main features include real-time perception of urban tourism resource information, digital display, fine management, and personalized recommendation.

The significance of smart city tourism is mainly reflected in improving the tourism experience, promoting the development of the tourism industry, improving the level of urban management, and promoting sustainable urban development.

## 3. Information Management Issues in the Development of Smart City Tourism in the Era of Big Data

In the era of big data, the development of smart city tourism cannot be separated from information management. Information management includes data collection, data processing, and data application, among which data collection is the first step of information management, and data processing and application are the key links of information management. The following would conduct an in-depth analysis of information management issues in the development of smart city tourism in the era of big data.

### 3.1 Data collection

In the era of big data, data collection is a very important part of information management in the development of smart city tourism. Smart city tourism requires a large amount of data support, and the quality of data collection directly affects the quality and effectiveness of subsequent data processing and application.

Smart city tourism requires data support from multiple departments and fields, so it is necessary to choose appropriate data sources. Data sources can include various forms such as government publicly available data, third-party data platforms, social media, etc., and suitable data sources need to be selected based on specific circumstances.

The data collection of smart city tourism can be carried out in a variety of ways, including traditional questionnaires, field

observations, web crawler, and new generation information technologies, such as mobile sensing technology, UAV remote sensing technology, etc. It is necessary to choose the appropriate data collection method based on the type of data and the collection scenario.

Smart city tourism involves a large amount of personal information and privacy data, so it is necessary to protect personal information and data privacy during the data collection process, and take necessary measures, such as data encryption, anonymization, etc., to ensure data security.

### **3.2 Data processing**

Smart city tourism requires processing a large amount of data to extract useful information and knowledge to support decision-making and application. The following is a brief introduction to data processing in the development of smart city tourism in the era of big data:

(1)Data cleaning and preprocessing: Due to the large number of data sources involved in smart city tourism, data quality and format may not be standardized. Therefore, data cleaning and preprocessing are necessary before data processing. Data cleaning can remove abnormal data and duplicate data, and data pre-processing can perform format conversion, normalization, discretization and other processing on data.

(2)Data storage and management: Smart city tourism requires the storage and management of a large amount of data, so it is necessary to choose appropriate data storage and management technologies. Common data storage and management technologies include relational database, NoSQL database, distributed file system, etc. At the same time, it is necessary to design appropriate data models and storage solutions based on the characteristics and application requirements of the data.

(3)Data analysis and mining: Data analysis and mining of smart city tourism extract valuable information and knowledge from a large amount of data to support decision-making and application. Data analysis and mining technologies include statistical analysis, data mining, machine learning, artificial intelligence, etc. It is necessary to select appropriate technologies and algorithms based on application scenarios and data types.

(4)Data visualization and application: Smart city tourism needs to visualize and apply the processed data. Data visualization can present data in the form of charts, maps, dashboards, etc., so that people can understand data more intuitively. Data applications can apply processed data to decision-making, recommendation, prediction, optimization, and other aspects to improve the service level and user experience of smart city tourism.

### **3.3 Data application**

The data application of smart city tourism can bring many new opportunities for the development of the tourism industry. The following is a brief introduction to the application of data in the development of smart city tourism in the era of big data:

#### **(1) Decision support for the tourism industry**

The massive data generated by smart city tourism can be used to support decision-making in the tourism industry. Through data analysis and mining, trends, tourist preferences, and demands in the tourism market can be identified, providing a basis for formulating more scientific development strategies and plans for the tourism industry. At the same time, data applications can optimize the allocation of tourism resources, improve resource utilization efficiency, reduce resource waste, and promote sustainable development of the tourism industry.

#### **(2) Improvement of tourism experience**

The data generated by smart city tourism can be used to optimize tourism products and services, and enhance the tourism experience of tourists. By analyzing tourist behavior and feedback data, problems in tourism products and services can be identified, providing improvement and optimization plans for tourism enterprises, and improving the quality and competitiveness of tourism products and services. Meanwhile, through data applications, more personalized and customized tourism products and services can be provided to meet the personalized needs of tourists and enhance their satisfaction and loyalty.

#### **(3) Tourism safety guarantee**

The data generated by smart city tourism can be used for tourism safety assurance. Through the analysis of tourism traffic and security incidents, problems and risks in tourism security can be identified, and timely measures can be taken to prevent and resolve them, thereby improving the security guarantee capacity of the tourism industry. Meanwhile, through data applications, more comprehensive and real-time tourism safety information can be provided, guiding tourists to plan their itinerary and activities reasonably, and improving their safety awareness and self-protection ability.

## **4. Solutions**

In order to promote the development of smart city tourism in the era of big data, some measures need to be taken to address

information management issues. Below are some solutions proposed:

(1) It is necessary to strengthen the quality control of data collection and processing, and improve the accuracy, completeness, and timeliness of data.

(2) It is necessary to strengthen data privacy protection and data security control to prevent data leakage and data security issues.

(3) It is necessary to utilize artificial intelligence and automation technology to improve the efficiency and accuracy of data processing.

(4) It is necessary to develop a tourism big data platform, establish tourism data standards and norms, and improve data sharing and interactivity.

(5) It is necessary to use artificial intelligence technology to improve the personalization and accuracy of data applications, and provide better tourism services and experiences for tourists.

(6) It is necessary to strengthen cross departmental cooperation, form a joint governance mechanism, and promote the comprehensive development of smart city tourism.

The above solutions are not a complete list of solutions, but rather provide some reference ideas and suggestions for information management issues in the development of smart city tourism.

## **Conclusions:**

The era of big data provides new opportunities and challenges for the development of smart city tourism. As a key link in the development of smart city tourism, information management needs to strengthen data collection, processing, and application management. In the process of solving information management problems, some measures need to be taken to improve the accuracy, security, and application effectiveness of data. Through cross departmental cooperation and joint governance mechanisms, the comprehensive development of smart city tourism is promoted. In the future development, smart city tourism would become increasingly intelligent and personalized, providing tourists with higher quality tourism services and experiences.

## **Outlooks:**

In the future, the development of smart city tourism would increasingly rely on big data technology and applications. With the continuous progress of technology and the continuous enrichment of data resources, smart city tourism would usher in a broader development space. In terms of information management, it is necessary to further improve the mechanism of data collection and processing, and improve the quality of data and application effectiveness. At the same time, it is necessary to strengthen data protection and privacy protection work to ensure the security and legality of data. In terms of data application, further exploration and innovation are needed to utilize big data technology and applications to achieve intelligence, personalization, and precision in smart city tourism, providing tourists with better tourism services and experiences.

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