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Application Model System of Ice and Snow Sports Intelligent Tourism on Acccount of Big Data

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Abstract: *The practice of ice and snow sports tourism in China usually takes the Beijing Winter Olympic Games as the basis to vigorously develop winter business and ice and snow projects. Scholars study how to conduct more in-depth research on ice and snow sports smart tourism. Skiing now accounts for about 1% of the population, and the sport is still in its infancy. Scholars put forward the big data technology, vigorously build ice and snow sports tourism wisdom application model, in order to let more people to understand and study the application of ice and snow sports tourism wisdom, at the same time with the aid of this model to promote the ice and snow sports tourism wisdom to promote consumption, reveals the consumption of snow and ice project factors, put forward how to further enhance the level of consumption. This paper studies the construction of the application model system of ice and snow sports intelligent tourism on account of big data, and reveals the relevant content and theoretical knowledge of the construction of the application model system of ice and snow sports intelligent tourism. The data test shows that the construction and exploration of the application model system of ice and snow sports smart tourism on account of big data effectively promotes the progress of the application model of ice and snow sports smart tourism.*

Keywords: *Big Data Technology, Ice-snow Sports, Smart Tourism Application Model, System Construction*

1. Introduction

The connotation of ice and snow tourism is very rich, including many concepts and definitions, among which, the project often carries out in-depth theoretical research and development. The development of tourism economy provides a good capital foundation for ice and snow tourism, and scholars put forward various theories to support it. Big data technology is a very efficient technology, which promotes the development of snow and ice tourism in many aspects. The technology analyzes a lot of data related to ice and snow tourism, so it can improve the development of ice and snow tourism. The construction and exploration of ice and snow sports intelligent tourism application model system on account of big data is conducive to the in-depth multi-factor research on ice and snow sports intelligent tourism application model system.

As for the research of big data technology, many scholars at home and abroad have carried out research on it. In foreign studies, SaetangW proposed big data technology and studied the determinants of BDT adoption in The Thai context on account of technology-organization-environment (TOE) framework and innovation diffusion (DOI) theory. Data were collected through an online questionnaire. A sample group of 300 IT employees from various Thai organizations was used. Structural equation model (SEM) was used to test the hypothesis. The results show that the statistical fitting between the research model and empirical data is: normalized chi-square= 1.651, GFI = 0.895, AFGI = 0.863, NFI = 0.930, TLI = 0.964, CFI = 0.971, SRMR = 0.0392, RMSEA = 0.046 [1]. GhallabH proposed a big data technology, a new model NRDD-DBSCAN on account of DBSCAN algorithm, which uses elastic distributed data sets (RDD) to detect anomalies affecting the data quality of iot technologies. Nrdd-dbscan has been applied to three different N-dimensional data sets (2-D, 3-d and 25-D) with satisfactory results [2]. RamzanS proposes to leverage big data and Internet of Things technology into the smart home, using smart grid systems for energy management and efficient data processing. Another important aspect of this study is the consolidation of the residential sector, which is the highest

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consumption of energy and generates a huge amount of data [3].

The development cycle of ice and snow sports tourism projects is very long. In this process, ice and snow sports tourism projects need to be graded from multiple angles and all-around. Big data technology collects a large number of resources and information related to ice and snow sports tourism by virtue of its own technology, and then establishes an algorithm model on account of the information, and finally achieves the goal of optimizing ice and snow sports resources by adjusting the algorithm [4-5]. According to the optimal model, ice and snow resources are allocated and utilized intelligently to promote the optimization of ice and snow resources. Research on the construction of ice and snow sports intelligent tourism application model system on account of big data promotes new research achievements in the construction of ice and snow sports intelligent tourism application model system.

2. Design and Exploration of the Construction of Application Model System of Ice and Snow Sports Smart Tourism on Account of Big Data

2.1 Large Data

Big data technology is a new generation of technology and architecture in the FIELD of IT, which rapidly obtains valuable information from various types of data [6-7].

The value of big data is to collect a huge amount of data through its own technology to learn and acquire knowledge. Meanwhile, the analysis module is used to analyze the data and convert the acquired knowledge into value, and then conduct transaction processing and operation. Objective To achieve better results and obtain value, this paper establishes a 4C model for specific analysis from four aspects, as shown in Figure 1.

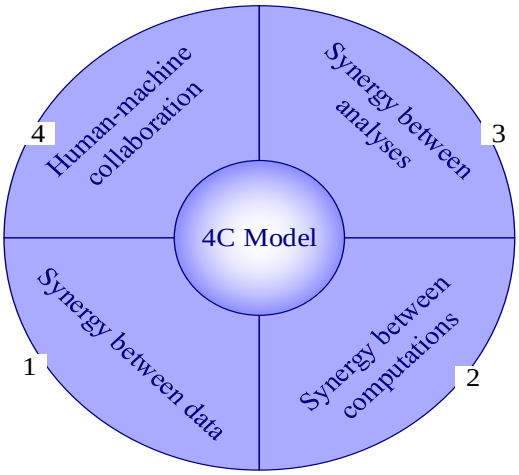

Figure 1: 4C model to carry out the coordination of four aspects

(1) Synergy between data. Data integration is a very common scenario [8-9]. Multiple data properties need to cooperate with each other, including data association, data aggregation, and try to promote the complementary performance of multiple data, so that we can see all the characteristics and scenarios of transactions more comprehensively. Data synergy can better predict poverty data for algorithms, consumer preference analysis, commodity sales analysis and so on.

(2) Synergy between computations. Data collaboration refers not only to the relationship between data, but also to collaboration in data computation. The result of data synergy between computations is the improvement of data computing efficiency. However, in the calculation of unique data, collaboration between computations first eliminates traditional small-scale computations. Data pipeline is a calculation process with a large amount of data, and multiple processors will run in parallel at the same time. Therefore, the collaboration between computations will give priority to the performance of big data processing. Computing resources are often scattered. In this case, the emergence of collaboration will greatly optimize computing resources and prioritize complex tasks in programs to enhance computing efficiency.

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(3) Synergy between analyses. Decision analysis is usually an indispensable part of transactions, and the objects of analysis are data and resources [10-11]. The goal is to transform existing data and resources into big data value. Traditional decision making often analyzes data and value transformation independently, analyzes the connection and coupling between data, and tries to achieve the global optimal function. The steps above are complex and need to be composed of many procedures or steps in parallel. These steps are composed of one analysis after another, and the process above is a collaborative process.

(4) Human-machine collaboration. With the adoption of big data technology, researchers tend to analyze the data first. No matter the selection of data or other operations, there are many synergies between human and machine. Man-machine collaboration involves the coordination between man and machine, and deals with the data processing process of cooperation between man and machine. Human-machine collaboration often produces greater algorithm intelligence, which is more conducive to intelligent decision making.

2.2 Research on the Construction of Application Model System of Ice and Snow Sports Smart Tourism on Account of Big Data

Big data technology is used to study the influencing factors of the application model of ice and snow sports intelligent tourism. In order to improve economic benefits, tourism enterprises must use marketing strategies scientifically and rationally according to different characteristics of each stage of product life cycle, as shown in Figure 2.

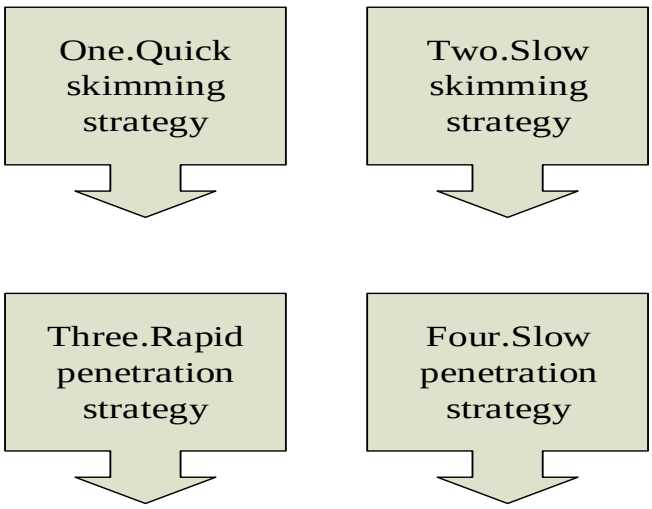

Figure 2: Ice and snow sports operation strategy

First, the quick skimming strategy. In other words, new tourism products enter the market first with high price and promotion [12-13]. For example, when skiing was originally promoted from competitive sport to mass sport and even tourism, the vast majority of tourist consumers were curious about skiing and had the desire to try it. And operators just catch this mentality of tourists to marketing, to adopt high membership form, high-grade equipment has enough ability to pay attractive group occupy the market share, misleading tourists think skiing project belongs to the high-end tourism products, make the enterprise in the face of the competition is weak, quickly develop "brand preference".

Second, the slow skimming strategy. That is, new tourism products enter the market with high prices and low preferences. After the vast majority of potential non-member consumers understand the ski tourism project, the tourism enterprise takes the time-limited preferential approach and gives discounts during non-weekends and holidays to attract part of the curiosity consumer groups. At this stage, the threat from potential competitors is not big.

Third, rapid penetration strategy. That is, new tourism products occupy the market rapidly with low prices and high discounts [14-15]. In general, when the potential tourism consumer market is large, and most of the tourism consumers only pay attention to the product price, consumers almost do not know about ski tourism products, only from the ski price to choose the destination of the marketing strategy. Operators compete on price to attract first-time ski tourists by reducing the costs of equipment and services. At this stage, the threat of potential competition is relatively large.

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Fourth, slow penetration strategy. That is, to seize the market with low price and discount of new tourism products [16-17]. When the popularity of ski tourism products is high, and the market development prospect is good, and the price of ski tourism is greatly different, the operator will attract more tourist groups in the form of packaging (eating, living and playing a dragon), and the potential competitors at this stage are relatively weak.

3. Research on the Construction Effect of Application Model System of Ice and Snow Sports Smart Tourism on Account of Big Data

Ice and snow sports tourism resources under cloud computing will be highly interconnected and fully communicated through the Internet. Now we are trying to establish the relevant algorithm model. The calculation model of the preservation mode MIN (f) of the data diversity evaluated is:

$$\min f = \sum_{i=1}^{m}\sum_{j=1}^{n} C_{ij} X_{ij} \tag{1}$$

In the above formula, C is the storage node in the algorithm model; I,j are variation parameters; X is the repository data set; M and n are collection parameters of multi-structure samples.

Big data is adopted for calculation, and the fuzzy clustering center is C(Y). A specific evaluation method is adopted to correlate many features of ice and snow sports tourism resources, and the clustering algorithm is adopted to identify these resources $l_{d_{ij} \to c_x}$. The calculation model is as follows:

$$l_{d_{ij} \to c_x} = \left(\frac{\sum_{v=0}^{|C_x|} \cos in_{ij \to x}(d_{ij}, d_{xv})}{|TF(t, C_i)| OF(p)} \right) - 1 \tag{2}$$

In the above formula, $\cos in_{ij \to x}(d_{ij}, d_{xv})$ is the clustering feature set after fusion processing, $TF(t, C_i)$ is the feature set of resource association rules, and $OF(p)$ is the feature set of mining. Data processing is carried out according to the above formula, so as to achieve the evaluation purpose of tourism resources.

First, ice and snow vacation mode. Relying on the unique snow and ice resources and good environmental folk customs, to participate in the local culture, the development of snow and ice vacation business. These businesses include snow and ice leisure, entertainment, consumption, providing accommodation and other services, which are often composed of holidays, outdoor sports and other holiday projects. While attracting tourists, while driving the development of local tourism economy.

Second, ice and snow theme park mode. Relying on ice and snow resources, we can build famous scenic spots and develop tourist hot spots to promote a large number of tourists to gather together. Meanwhile, we can combine ice and snow theme parks and projects to improve the economic benefits of the projects.

Third, ice and snow event mode. Ice and snow competitions are held all the year round, and a lot of publicity is made to attract a large number of tourists to watch the games or experience ice and snow sports.

Fourth, ice and snow festival mode. Actively hold festivals, these festivals can be many, such as ice and snow festival, Jia Nian celebration, folk culture festival and so on. Snow and ice mode first needs to invest in basic equipment, then improve the reputation of snow and ice local, increase the number of tourists.

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4. Investigation and Research Analysis on the Construction of Application Model System of Ice and Snow Sports Smart Tourism on Account of Big Data

In this paper, relevant evaluation software is used to collect, process and analyze the data of ice and snow sports tourism resources. The sample data is processed by combining hardware and software. In this paper, Linux is put into the software evaluation system, and C/S software end is used to build the hardware for the evaluation of ice and snow sports tourism resources, including data acquisition module, data processing module, program loading module and cross-compilation module. SQLServer database is used to evaluate the evaluation data. At the same time, the paper sets up the module list table and equipment parameter table for the evaluation of ice and snow sports tourism resources, configates the registers of the corresponding data sets, and uses the compilation mode to process the data in the database, so that the data can be better stored and retrieved intelligently.

The relevant data of the application model of ice-snow sports smart tourism in this test are shown in Table 1.

Table 1: Relevant data of the application model of ice-snow sports smart tourism.

Number of test		0	5	10	15	20
Degree of convergence	Big Date (%)	0	56	36	60	70
	Traditional mode (%)	0	23	21	25	27

It can be seen from table 1 that the convergence degree of the two algorithm modes, big data technology and traditional mode, is better than that of big data when the number of tests is 0,5,10,15,20 respectively. The traditional model has lower numbers.

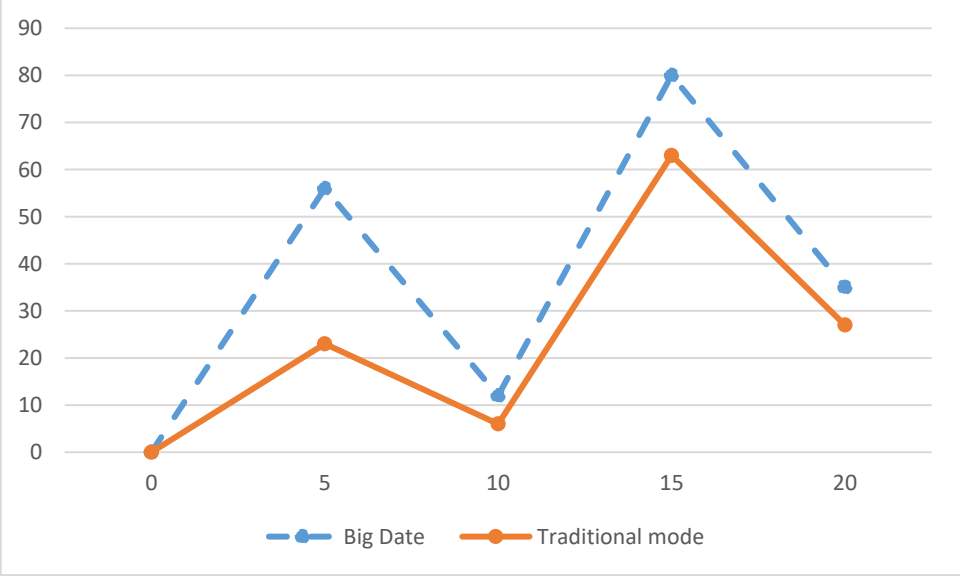

Figure 3: Ice and snow sports smart tourism application model test chart

In Figure 3, the blue dotted line represents the convergence degree of big data, and the orange line represents the convergence degree of traditional mode. As can be seen from the figure, the blue dotted line is higher than the orange line, indicating that the convergence degree of big data technology is bigger.

Data analysis shows that the construction and exploration of the application model system of ice and snow sports smart tourism on account of big data has a higher convergence degree in the application model of ice and snow sports smart tourism, indicating a better effect.

5. Conclusions

It can be found that the lack of compound management talents is an important reason hindering the development of ice and snow sports tourism. According to the actual situation, there are still many problems to be solved in the development of this new sports tourism industry in China, including how to deal with the relationship between market supply and demand, as well as the development, production and pricing of ice and snow sports tourism resources and related products. These problems

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are not solved will have a certain impact on the development of the entire industry. The construction and exploration of ice and snow sports intelligent tourism application model system on account of big data effectively promoted the comprehensive and deepening construction of ice and snow sports intelligent tourism application model system.

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