The Study to the Levels of Knowledge Management in Mount Laojun Scenic Spots in Lijiang

Ding Li, Shang-Cheng Zhang, and Xiao-Qing Li

***Abstract*—Knowledge management (KM) is applied at the scenic area management and used to explore innovative models in travel services management. Knowledge management has a positive meaning to improve service standards and quality. Based on the questionnaire investigation, we interview the staffs in Laojun Mount scenic. This study takes Laojun Mount scenic area in Lijiang, Yunnan as an example to construct the performance of KM evaluation system in this scenic. The fuzz AHP is applied to determine the weight of each index and the KM results of comprehensive evaluation. Thus several new methods for further planning and development of Mount Laojun in Lijiang are proposed to enhance the competitiveness of the scenic overall.**

***Index Terms*—Innovation, travel services, comprehensive evaluation, questionnaire survey, AHP, solution.**

I. Introduction

In recent years, scholars began to focus on application of knowledge management (KM) in tourism. Gareth Shaw thinks current research on knowledge management and knowledge transfer in the context of innovations. Specific attention is focussed on the integration of management perspectives into tourism research [1]. Jason F. Cohen examines the effects of knowledge management on the performance of hospitality firms from three theoretical perspectives. The complementarity and contingency perspectives performed better than the universalistic perspective [2]. Marco Rossetti explores different application scenarios for the topic model method to process these textual reviews in order to provide accurate decision support and recommendations as well as to build a basis for further analytics [3]. Hossein Nezakati studies the understanding of knowledge sharing in social media in tourism sector. Specific concentration is on integration of tacit knowledge sharing during pre-travelling decision making [4].

Mario J. Donate presents empirical evidence of the mediating effect of KM practices in the relationship between knowledge-oriented leadership and innovation performance [5]. Julia Nieves analyses hotel firms established throughout the Spanish territory and finds human capital and integration capability positively influence management innovation; relationships with external change agents positively affect management innovation; relationships with industry agents are not related to management innovation [6]. Isabel Llodrà-Riera analyzes the weight that different information sources exert in defining the overall information source construct [7]. Jarle Aarstad finds that innovating firms can reduce path-length, but uncertainty is a necessary catalyst for this process to take place [8]. As the spatial carrier of tourism activities, scenic spots should possess good operational and managerial level to determine good qualities of service and competitiveness in the tourism industry. The business environment of scenic spots have changed vastly with the globalization of economic development and the advancement of technology. In this case, the knowledge management has become an effective way to gain competitive advantage to cope increasingly fierce competition among scenic spots. The introduction of knowledge management is an important means in the development and effectively management in scenic spots such as to enhance tourist demand ,enrich tourism products, expand sales, improve the position of industry and other aspects. In this paper, we take the situation of KM in Laojun Mount in Lijiang as an example to investigate and research it and put forward some corresponding countermeasures to deal existing problems in this scenic spots.

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II. Overview KM in Scenic Regions

A. Significant and Content of KM in Scenic Regions

As a new term in the field of management, KM is not widely defined in general. There are different definitions to it by different scholars from different angles and demands. The same condition is taken place in academic circles to KM of scenic area. In this study, we research the content of KM in tourism enterprise and define it as: to construct the facilities of knowledge based on good networked and information it can take part in the process of management are composed of collect knowledge, organize knowledge, innovate knowledge, diffuse knowledge, use and develop knowledge etc. These facilities can find new ways to share explicit and tacit knowledge and help staff to use the wisdom of the collective to improve the innovative and on demand capability in scenic regions.

B. Methods of KM in Scenic Regions

The use of knowledge management in one scenic regions is conducive to the information interaction with another scenic regions. For the tourism industry, the importance of information exchange is self-evident. Tourist attractions can publish the latest information through the network. Tourist

can get information about scenic attractions through the website, mobile phone's APP application software to develop the appropriate tourism plans. The decision makers of scenic regions have understood the interests and demands of tourists mostly came from the staffs contact with tourists directly. Due to a lack of concentration, smooth flow of information feedback and comprehensive way, the decision-makers hadn't known the interests and demands of tourists too much. They maybe understood the problems too subjective and one-sided. Through building KM information system in scenic regions, we can interact with the outside world easily. To implement knowledge management in the scenic area, we will access to information of scenic practitioners and tourist conveniently. The KM information system can analyze the situation of scenic timely and combine market demand with objective realities in local development to help administrators making reasonable strategies

III. Present Situation of KM in Laojun Mount

A. Overview of Laojun Mountain Scenic

There are more than 1324 square kilometres in Laojun Mountain, Lijiang, Yunnan province, China. It owns rich alpine vegetation, rare animals and plants, many of the glacial lakes and unique Danxia landform .There are many minority nationalities such as Naxi, Bai, Lisu, Pumi, Yi and others live inner this scenic to constitute colourful folk customs thus making it possess very unique landscape and ornamental value and scientific research value . Lijiang Laojun Mountain is continuous stretch and fluctuate for hundreds of miles, layer cascade folds. It consists of four spots: Danxia landform in Liming spot, ninety-nine Longtan spot, Geladan alpine grassland spot, gold silk factory spot. The main peak be called jade peak with golden threads that located the middle of Laojun Mountain. It raised above sea level 4515 meters. Ancient historians called it the ancestor of all mountains in Yunnan province. As one of the world natural heritage, Lijiang Laojun Mountain is one of eight major scenic area of three rivers flow parallel.

B. Data Sources

The present management situation of Lijiang Laojun Mountain scenic are studied by questionnaire survey. A total of 80 questionnaires were distributed, 79 were recovered, 79 effective questionnaires, the questionnaire recovery rate was 98.75%.In the investigation of the crowd senior managers accounted for 3.4%, 22.4% middle managers, general managers 14.7%, grass-roots staff accounted for the main,59.5%. After finishing the analysis, we can see that the present knowledge management situation in Laojun Mountain scenic spot.

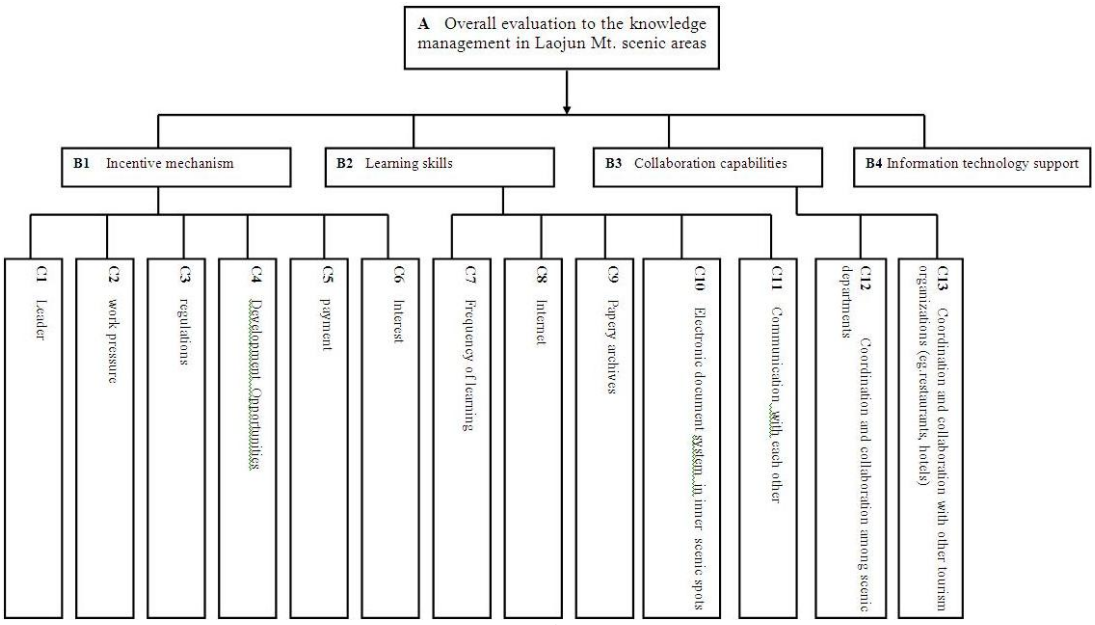

Fig. 1. AHP model of KM in Laojun Mt.

C. Set up a System to Evaluate Index

The goal of scenic regions in KM is to set up a mechanism for encouraging employees to participate in knowledge sharing. This mechanism use various tourism knowledge effectively and create new knowledge to help staff in scenic regions. The key of setting up a system to evaluate index in scenic regions is to establish the conceptual framework of the entire system that reflects various indicators in specific. The criteria that reflect performance of KM in scenic consists of incentive mechanism, learning skills of employee, cooperation ability and information technology support. The incentive mechanism reflects the factors adjust the enthusiasm of the staff. Employee's learning skills embody a knowledge management process in scenic area that the staff have abilities to acquire, organize, and transfer knowledge. Cooperation ability reflects the internal and external environment in the scenic spot to support each other. Information technology reflects the support capacity to the infrastructure of scenic spot. The scenic spots of knowledge management system in Laojun were identified as 3 levels and 14 indicators were selected to describe its AHP model. See above Fig. 1 showing AHP model of KM in Laojun Mt.

D. Set up 5 Levels to Evaluate Index

To comprehensively evaluate the performance of

knowledge management of scenic spots, we need to determine the various indicators of evaluation set $V = \{V_1, V_2, ... V_m\}$. Vi represents the *i*-th level on the total m levels in this set. According to the actual situation, this paper chooses total five levels in this set i.e. $V = \{V_1, V_2, V_3, V_4, V_5\}$; V_1 is best (largest) / everyday, V_2 is better (larger) / often, V_3 is general / sometimes, V_4 is bad (less) / occasionally, V_5 is worst (least) / hardly. Analytic Hierarchy Process (AHP) is applied to determine the weight of various indictors in same level to the hierarchy characteristics of knowledge management performance evaluation system through expert interview and questionnaire survey through expert interview and questionnaire survey according in scenic spot. The pairwise comparisons are adopted to form an evaluation matrix to calculate the relative priority of the weight of each indicator. This paper identifies the weight set of subcriteria to criteria: A_1 = (0.035, 0.079, 0.053, 0.257, 0.389, 0.186); A_2 = (0.459, 0.140, 0.074, 0.078, 0.249); A3= (0.500, 0.500). The weight set of criteria to goal: A= (0.512, 0.297, 0.122, 0.069).

IV. Data Analysis and Result

A. Data Processing

The staffs in scenic regions review each factor of criteria to subcriteria to reflect the relationship between them based on evaluation set $V = \{V_1, V_2, V_3, V_4, V_5\}$ as shown in Table I.

TABLE I: All Levels of Index Evaluation of Knowledge Management of Laojun Mountain Scenic Area

First Level Indicator	Weights	Second Level Indicator	Weights	V_1	V_2	V_3	V_4	V_5
B1	0.512	C1	0.035	0.154	0.288	0.541	0.010	0.010
		C2	0.079	0.058	0.278	0.603	0.048	0.019
		C3	0.053	0.029	0.250	0.395	0.259	0.058
		C4	0.257	0.077	0.144	0.551	0.125	0.106
		C5	0.389	0.048	0.144	0.530	0.154	0.125
		C6	0.186	0.058	0.278	0.624	0.038	0.010
B2	0.297	C7	0.459	0.038	0.451	0.426	0.058	0.019
		C8	0.140	0.067	0.237	0.425	0.194	0.077
		C9	0.074	0.029	0.192	0.364	0.173	0.230
		C10	0.078	0.010	0.154	0.468	0.173	0.192
		C11	0.249	0.058	0.352	0.437	0.058	0.096
B3	0.122	C12	0.520	0.038	0.319	0.312	0.138	0.192
		C13	0.480	0.058	0.269	0.281	0.154	0.238
B4	0.069			0.010	0.326	0.530	0.125	0.010

TABLE II: Comprehensive Evaluation of Knowledge Management Level in Laojun Mountain Scenic Spots

Evaluation results	Incentive mechanism	Learning skills	Collaboration capability	Comprehensive evaluation
Evaluation value	**2.914**	**3.529**	**2.875**	**3.268**

B. First Level Evaluation Index

Let Ri is an evaluation matrix consists of each element in set V according to the index of second level. Bi is another evaluation matrix be attained by AioRi i.e. Bi=AioRi to indicate the first level index. Where o is the synthetic operation. The different fuzzy operators can be adopted depending on the actual situation and operational effect. We used the multiply and take a larger operator model M (o, V) and normalize this process later. The results are shown as follows: $B_1 = A_1 \times R_1$ = (0.056, 0.150, 0.505, 0.158,0.13); $B_2 = A_2 \times R_2$ = (0.039, 0.449, 0.393, 0.058, 0.062); $B3 = A_3 \times R_3$ (0.055. 0.295, 0.279, 0.149, 0.221); B_4 = (0.010, 0.326, 0.530, 0.125, 0.010).

C. Comprehensive Evaluation of KM in Laojun Mount

The fuzzy evaluation matrix R consists of first level index is obtained according to the evaluation results of first level: $R = (B_1, B_2, B_3, B_4)T$. Then the results of evaluation matrix of the second level is: B=AoR. B is normalized to B = <0.052, 0.239, 0.454, 0.139, 0.118). The formula $C = \sum_{i=1}^{5}(6-i)b_i / \sum_{i=1}^{5} b_i^2$ can be calculated to state the comprehensive evaluation value for KM in Laojun Mount straightforward. C is the fuzzy comprehensive evaluation value. The result C is 3.054. bi correspond 5 levers to its attached . The value of i are from 1 to 5. The comprehensive evaluation values were 2.914, 3.529, 2.875 and 3.268 corresponding to the incentive mechanism, learning skills, collaboration and information technology support respectively (see Table II).

The levels of KM in the Laojun Mount are concluded as following: 8.1% of the better, 27.0% of the good, 41.2% of the general, 12.2% the less, 11.5% the worst. So the level of KM in the Laojun Mount is general according to the principle of maximum degree. The results showed the assessments of the information technology support ability and learning skills of employees in scenic spot are higher than other aspects. The incentive mechanism of the comprehensive evaluation value is relatively low only 2.914 making clear there are further strengthened in establishing a reasonable incentive mechanisms in Laojun Mount scenic areas. The evaluation value of cooperation capabilities is lowest only 2.875 indicating there are isolated islands of knowledge existing from the internal to external circumstance of scenic areas to

impair overall benefit.

V. KM Strategies in Laojun Mount

A. Establishing an Innovative Human Resource System based on KM

A set of training system of staffs in scenic regions should be established firstly. Training play an important part in knowledge management it can improve the overall quality of the scenic employees. The content of the training should focus on practical, flexible and diverse forms. For example, some people understanding local culture deeply should be hired to train these staffs frequently and reorganize local cultural heritage in detail. Secondly, a set of appraisal system to staffs based on material foundation in the scenic area should be implemented effectively to guarantee incentive mechanism becoming evidence-based incentives. For instance, increasing the remuneration is the most direct way. In addition to material rewards ,the spiritual motivation is very important letting each employee has the opportunity to display their talents by e.g. to promote job, praise publicly, incentive travel etc. Finally, the senior managers should create a comfortable working environment for the staff to create a harmonious, pleasant, mutual respect, aggressive atmosphere to maximize the staff's' enthusiasm and creativity to achieve the purposes to dig deeper tacit knowledge and innovate in scenic regions.

B. Establish Mutual Alliance of Knowledge among Tourist Attractions

There are more characteristics of the regional economy in tourism economy. The economic benefits of one scenic spot are closely related to its surrounding scenic. The information-sharing mechanism should be established with surrounding tourist attractions to exchange and share related resources through the complementary advantages among each other to determine whether making tourist together to a group or divided it to several groups. At the same time, through information interaction administrative staff can also coordinate the characteristic construction of local scenic to distinguish each other and avoid duplicate construction seeking win-win in the competition and cooperation to promote development in harmonious ways.

VI. Conclusion

With the development of tourist attractions in the future, the use of knowledge management to improve the competitiveness in tourist attractions will be the inevitable choice in knowledge economy era. In this paper, Mount Laojun in Lijiang is chosen as a typical example of scenic to investigate and analyze the knowledge management status quo, indicating the construction of information is gradually strengthened and explicit knowledge management is maturing step by step while there are some problems existing: lacking the source of innovation and attention to excavate tacit knowledge and existing the insulated island of knowledge. Some solutions were put forward from human resource management, organizational structure, and innovation etc. points of view. This study use AHP and fuzzy evaluation method to set up a comprehensive evaluation model about KM level in scenic spots. There are some scientific and rational in theory.

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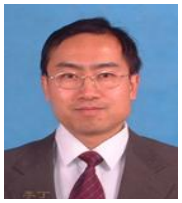
References

[1] G. Shaw and A. Williams, "Knowledge transfer and management in tourism organisations: An emerging research agenda," *Tourism Management*, vol. 30, no. 3, pp. 325-335, 2009.
[2] J. F. Cohen and K. Olsen, "Knowledge management capabilities and firm performance: A test of universalistic, contingency and complementarity perspectives," *Expert Systems with Applications*, vol. 42, no. 3, pp. 1178-1188, 2015.
[3] M. Rossetti, F. Stella, L. Cao, and M. Zanker, "Analysing user reviews in tourism with topic models," *Information and Communication Technologies in Tourism*, 2015, pp. 47-58, Springer International Publishing.
[4] H. Nezakati, A. Amidi, Y. Y. Jusoh, S. Moghadas, Y. A. Aziz, and R. Sohrabinezhadtalemi, "Review of social media potential on knowledge sharing and collaboration in tourism industry," *Procedia-Social and Behavioral Sciences*, vol. 172, pp. 120-125, 2015.
[5] M. J. Donate and J. D. S. Pablo, "The role of knowledge-oriented leadership in knowledge management practices and innovation," *Journal of Business Research*, vol. 68, no. 2, pp. 360-370, 2015.
[6] J. Nieves and M. Segarra-Ciprés, "Management innovation in the hotel industry," *Tourism Management*, vol. 46, pp. 51-58, 2015.
[7] I. Llodrà-Riera, M. P. Martínez-Ruiz, A. I. Jiménez-Zarco, and A. Izquierdo-Yusta, "A multidimensional analysis of the information sources construct and its relevance for destination image formation," *Tourism Management*, vol. 48, pp. 319-328, 2015.
[8] J. Aarstad, H. Ness, and S. A. Haugland, "Innovation, uncertainty, and inter-firm shortcut ties in a tourism destination context," *Tourism Management*, vol. 48, pp. 354-361, 2015.



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