Analysis of Tourism Industry Network Marketing Based on Big Data

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Abstract

Information technology has been continuously developing in recent years where information transfer characterized as being fast, comprehensive, long distance and convenient in tourism industry has become a necessary requirement. Based on this, network marketing of the tourism industry comes into being. It changed the traditional face to face trade to online trade by using internet for tourism products marketing, providing convenience for more tourists, so as to achieve higher economic growth. At the same time it enables personalized tourism products for different tourists. This article analyzes the current situation of tourism industry network marketing based on big data, and tries to evaluate network marketing performance level using analytic hierarchy process, hoping to provide theoretical and experience reference to tourism enterprises for their network marketing in the future.

Keywords: Big data, Tourism industry, Network marketing, Strategy, Analysis.

1. BACKGROUND

1.1 Literature review

Tourism industry, usually characterized as being information-intensive, is the pillar industry of national economy. Therefore, how to optimize the marketing mode of tourism industry and effectively manage a large number of tourist information has become the research focus of the current tourism academic field (Chen, 2013). The current big data is considered an important strategic resource of many industries, playing a vital role in the Internet age. Therefore, network marketing based on big data has become a leading marketing method of varies industries (Gao and Zhang, 2014). With tourism resources being non-transferable, network marketing based on big data is applied in the industry to fit the fast-changing, convenient and comprehensive modern society (Yu et al., 2015). In addition, the emphasis of tourism industry network marketing should be put on resources integration of all aspects, using diversified network marketing methods, to enhance the comprehensive strength of the tourism industry in this country, and to gradually improve the competitiveness of the tourism industry (Liu and Zhang, 2016).

1.2 Purpose

With the development of the information age, network marketing becomes more and more important, and takes an important position in the field of marketing. It has also become the main mode for tourism enterprises when they try to diversify their marketing activities, bringing fresh ideas to the tourism industry (Gao and Zhang, 2014). Moreover, due to the fact that tourists are asking for various products and services nowadays, more and more tourism enterprises pay more attention to the dynamic changes in tourism market, and tourists demand changes for tourism products. Based on this, this paper analyzes the current situation of tourism network marketing, establishes an evaluation system for the network marketing model, tries to maximize the potential of network marketing in tourism industry, and fully mobilizes the enthusiastic and innovative factors of tourism industry. There’s no doubt that it has become a research focus of many tourism related departments (Xu and Yang, 2015).

2. THE CURRENT SITUATION OF TOURISM INDUSTRY NETWORK MARKETING BASED ON BIG DATA
The continuous development of social economy is energizing the competition in tourism industry. Under this circumstance, travel agencies began to explore new ways for their further growth. At the same time, the continuous improvement of information technology enables network marketing as one of the main ways for tourism enterprises to seek innovative opportunities. In order to make the fast and healthy growth happen, travel agencies are actively conducting online marketing campaigns in which diversified tourist routes can be automatically generated based on customers’ requirement, such as the optimal route for every travel spots, or private tailored tourism product for black visitors. In recent years, the travel agencies are using network marketing to offer visitors with package deals of consulting and reservation services with regards to food, accommodation, transportation, sightseeing, shopping, and entertainment, as shown in figure 1, to meet the further needs of tourists and improve their satisfaction level so as to get a good word of mouth among clients which is helpful for the popularization and brand building of their tourism products.

In the context of the big data era, tourism industry such as travel agencies has tried many innovative network marketing campaigns to better comply with the trend of the modern times: firstly, making full use of big data resources in tourism network marketing campaign. Some of the travel agencies are taking initiative to set up their own customer database, mainly through collecting and sorting their new and old customer information, subdivide the target customers, and conduct precise marketing of tourism product upon different target customer groups. Secondly, the big data technology is also used to refine tourist routes. At present, the tourism industry in this country are using big data technology to make more innovations, by adopting new induction for original products, such as reclassification of tourism products in different destinations, price-making of different products, so as to achieve differentiated marketing effect. Thirdly, social networking software is used for network marketing. Marketing through SNS which mainly consists of Weibo, WeChat, QQ, Momo, etc. in China has the advantages of low promotion cost, effective in quick time, and fast transmission. Therefore, travel agencies has formulated personalized and unconventional marketing content such as eye-catching humorous language choice, special product packaging and promotion, and regular update of product information on SNS, to let visitors get to understand the latest promotion scheme and special offer in a timely manner, thus to introduce more clients to the agencies.

3. THE ESTABLISHMENT OF THE PERFORMANCE EVALUATION INDEX MODEL OF TOURISM INDUSTRY NETWORK MARKETING

3.1 Establishment of evaluation model

This paper comprehensively studied the actual development of tourism industry, combing tourist satisfaction questionnaire, and summed up the key indicators that impacting network marketing performance evaluation in tourism industry. And through the selection of indicators for travel agencies, the data needed by the analytic hierarchy process (AHP) was finally obtained to establish the performance evaluation model for network marketing in tourism industry (Wang et al., 2013). The model is based on three influencing factors of tourism industry network marketing: Beingexperimental, Connectivity and Virtuality. In the Beingexperimental part, a tourist perspective is considered to seek the evaluation indexes. In the Connectivity part, the perspective from the tourism industry, such as travel agencies, catering enterprises and car rental companies is considered to seek the evaluation indexes. And in the Virtuality part, indexes are mainly about website establishment and operation. In actual situation, the three influencing factors are related to both economic benefits and social benefits. Therefore, the performance evaluation index model of tourism industry network marketing is established based on the above analysis, as shown in figure 2.
3.2 Model analysis

This paper, based on the five star graphs of performance evaluation indexes and BSC, further studied the internal relation between the performance evaluation indexes and found that the website is the cornerstone, as many travel agencies and other related tourism enterprises release their tour information and resources through their website in a timely manner, and tourists usually obtain tour information by browsing the website before they go to travel and again will eventually get their appraisal on service experience back to the travel agencies through the network, which can help the tourism product supplier find the problems existing in the process of network marketing and work out corresponding solutions. The index of social benefits and economic benefits, mainly from a perspective of tourism scenic area, considering local tourism policies, is to make an evaluation on the benefits of local tourism industry through network marketing. In addition, from the perspective of website, travel agencies, and social benefits we also know that the three influencing factors are dependent variables, and the tourists and economic benefits are independent variables, which is to say, network marketing performance of the tourism industry is an evaluation upon website, tourists, travel agencies, social benefits and economic benefits (Wang et al., 2016), as shown in figure 3. Based on the above analysis, this paper makes a detailed analysis of tourist website, tourists, travel agencies, social benefits and economic benefits.

3.2.1 Travel website

Travel website is the most important index to evaluate network marketing performance. It reflects the number of visit times, duration of stay, feedback on reservation, number of links of similar website, and advertising effectiveness module, which all have influence on network marketing performance. Travel website is a portal, as it communicates directly with the consumers, affects the success of tourism network marketing. Therefore the website design should be highlighted with tourist scenic spot, restaurant, shopping destinations and so on. In addition, website should reflect the authenticity of these indexes. Indexes those are hard to be quantified shall be associated with one or more related indexes. This fundamentally reflects the problems existing in the website have practical values to setting up the performance evaluation model. Therefore tourism enterprises should pay special attention to the fine differentiation and high efficiency when building the portal website.
3.2.2 Tourists

As the experiencers of tour service, tourists’ perception of products and services is an important factor affecting the development of tourism industry. Tourists’ satisfaction, complaints, preference is of great significance for network marketing. Tourists’ appraisals on travel website can not only test the quality of travel service, but also feed their suggestions back to the website. The website can communicate with tourists through instant messaging software in real time and find out the problems existing in network marketing, so as to prompt enterprises to make timely improvement and corresponding solutions. The important position of tourists in network marketing lies in the fact that they can find the problems existing in a timely manner, and puts forward their demands for tourism products in the website platform. And tourism enterprises, through the analysis of the demands, can create new marketing methods of their tourism products.

3.2.3 Economic benefits

The evaluation of economic benefits in tourism industry network marketing performance includes the proportion of the tourism industry in the national economy, customer growth and information utilization. From the perspective of tourism’s contribution to local economy, this paper studied the influence of the economic benefits on network marketing performance. (Yu et al., 2015).

4. ANALYSIS OF TOURISM INDUSTRY NETWORK MARKETING PERFORMANCE

4.1 Analytic hierarchy process

Analytic hierarchy process (AHP) is primarily a hierarchical study carried out upon the complicated subjects. Usually there’s an including or included implication between different layers. By analyzing cause and effect, we can deduct the relationship between different factors, and finally establish hierarchical model with to define different layers. The analytic hierarchy process has an obvious advantage when used in studying of complicated subjects. The theme of tourism industry network marketing performance evaluation is relatively scattered, but each subject has certain relevance. Therefore, the analytic hierarchy process can be used to study the evaluation system of the performance level.

4.2 Analysis process

Based on the main influencing factors of tourism industry network marketing performance, a hierarchical analysis model composed of target layer and criterion layer is established among which the target layer is the tourism industry network marketing effect evaluation system, and the criteria layer includes tourists, travel websites, social benefits and economic benefits.

4.3 Establishment of judge matrix

The main function of the judge matrix is to determine the influence degree of each layer’s index of on the upper layer index, and use the data between the two indexes to establish the judge matrix to determine the influence degree. The judge matrix B is established for the tourism industry network marketing performance evaluation system.

\[
B = \begin{bmatrix}
B_{11} & B_{12} & \cdots & B_{1n} \\
B_{21} & B_{22} & \cdots & B_{2n} \\
\vdots & \vdots & \ddots & \vdots \\
B_{n1} & B_{n2} & \cdots & B_{nn}
\end{bmatrix}
\]

given that \(b_{ij}=1(i=j=1, 2, 3, \ldots, n)\) and \(b_{ij}=1(i=j=1, 2, 3, \ldots, n)\), according to the judge matrix B, we could get the indexes weight of first layer \(\sum_{j=1}^{n} a_{ij} \) \((i < n, j < n)\), \(w_{i} = \frac{1}{n} \sum_{j=1}^{n} a_{ij} / \sum_{j=1}^{n} a_{ij} \) \((i < n, j < n)\) so that we can conclude \(w_{1}=0.51, w_{2}=0.32, w_{3}=0.09, w_{4}=0.04, w_{5}=0.08\).

4.4 Empirical verification

For judge matrix B, it satisfied \(BW=\lambda_{max}W\), among which, W is the corresponding eigenvectors after normalization, \(\lambda_{max}W\) is the biggest characteristic value of judgematrix, W is all levels in half matrix element
value. This paper introduced the consistency of judge matrix B index: \( CR = \frac{CI}{RI} \), including RI as the consistency index, which has a positive correlation with the order number of judge matrix. The greater order number the greater the likelihood of a consistency random deviation. Moreover, \( CI = \frac{\lambda_{max} - n}{n - 1} \), \( n \) is the dimension of matrix B. When \( CR \leq 0.1 \), the consistency test of the judge matrix conforms to the standard. In addition, according to the evaluation process of the analytic hierarchy process (AHP), and combining with the tourists’ appraisal on tourism industry network marketing strategy, as shown in Table 1, we can see some deficiencies in the tourism network marketing and some problems that need to be solved. First, the big gap between the secondary index and the weight of the website is 0.51, indicating that tourists pay more attention to the attraction of the website when choosing travel products online. Therefore, the travel agencies and related enterprises in the tourism industry should pay attention to the innovative setting of the website to attract the attention of tourists when conducting network marketing campaigns. The weight of tourists is 0.32, indicating that tourists pay more attention to the satisfaction of products when choosing shopping products online. Therefore, tourism enterprises should pay more attention to improve tourist satisfaction and enhance tourists' perception experience when providing tourism services. The weight of tourism club is 0.09. It fully shows that the tourism enterprises’ indexes have less influence on the selectivity of tourists when they choose tourism products online. The proportion of social benefits and economic benefits was 0.04, which accounts for a small proportion, indicating that the impact degree of social benefit and economic benefit was less in the evaluation of network marketing performance of tourism industry. Through the above analysis, the tourism industry can be used as a reference for network marketing, and adjust the network marketing strategy.

**Table 1** Tourism Network Marketing Performance Evaluation Index Layer

<table>
<thead>
<tr>
<th>Target layer</th>
<th>Criteria layer</th>
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</thead>
<tbody>
<tr>
<td>Tourism industry network marketing performance evaluation index system</td>
<td>Network marketing ( w_1 ), 0.51</td>
</tr>
<tr>
<td></td>
<td>Tourist ( w_2 ), 0.32</td>
</tr>
<tr>
<td></td>
<td>Travel agencies ( w_3 ), 0.09</td>
</tr>
<tr>
<td></td>
<td>Economic benefits ( w_4 ), 0.04</td>
</tr>
<tr>
<td></td>
<td>Social benefits ( w_5 ), 0.08</td>
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</tbody>
</table>

5. CONCLUSIONS

Network marketing brings economic benefits for tourism industry. At the same time, it promotes the development of the tourism products which are no longer limited by transaction time and location, which enables virtual business, further promotes the development of tourism industry. It also provides a wealth of information resources for tourists, so the choice of tourist destinations is increasing. The network marketing of tourism industry also provides a platform for tourism enterprises to communicate and interact with tourists. In addition, this paper through performance evaluation of network marketing, finds out the influence degree of the indexes to the performance level in the process of marketing, hoping to provide reference and experience for tourism enterprises when they conduct network marketing, so as to promote the healthy development of tourism industry network marketing.

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