Retraction

Retraction: Research on SWOT Matrix and Selection Model of New Mode of Tourism and Vacation Project Development based on Computer Aided Analysis (J. Phys.: Conf. Ser. 1744 032235)

Published 16 September 2022

This article has been retracted by IOP Publishing following an allegation that raises concerns this article may have been created, manipulated, and/or sold by a commercial entity. In addition, IOP Publishing has seen no evidence that reliable peer review was conducted on this article, despite the clear standards expected of and communicated to conference organisers.

The authors of the article have been given opportunity to present evidence that they were the original and genuine creators of the work, however at the time of publication of this notice, IOP Publishing has not received any response. IOP Publishing has analysed the article and agrees there are enough indicators to cause serious doubts over the legitimacy of the work and agree this article should be retracted. The authors are encouraged to contact IOP Publishing Limited if they have any comments on this retraction.

Retraction published: 16 September 2022
Research on SWOT Matrix and Selection Model of New Mode of Tourism and Vacation Project Development based on Computer Aided Analysis

Suning Gong
School of Civil Engineering, Nantong Institute of Technology, Nantong, China, 226002

*Corresponding author e-mail: suning@ntit.edu.cn

Abstract. In order to better adapt to the analysis of the new development mode of tourism and holiday projects and analyze the internal and external factors that affect its development, this paper attempts to use the computer-aided SWOT analysis to construct the matrix of the development mode of tourism and holiday projects, and establishes the development mode selection model for quantitative analysis by using spss22.0, expert evaluation method and nine level weight scale method. The feasibility of the model is verified by a case study.

Keywords: Tourism Project, Development Mode, Selection Model, Swot Matrix

1. Introduction
The development of China's tourism and holiday projects has started, and will show a rapid development trend in the future, which may become a new growth point of the national economy. Meanwhile, China hosted the one belt, one road and the other one, World Expo, 2010, attracting people from all over the world to pay attention to the development of China. The government also put forward many policies to promote tourism development, such as the establishment of the "one belt" and "Free Trade Zone", which stimulated the development of tourism and holiday projects. The development of tourism in 2008 was also a major trend. However, after the development and construction of a large number of tourism and holiday projects in the previous stage, such projects encounter multiple problems, such as: it is more and more difficult to obtain land, more stringent requirements for development enterprises, high development costs, and increasing impact on the surrounding environment. The development mode plays a decisive role in the development of tourism and holiday projects, which is directly related to the success of tourism projects and the creation of economic benefits. In this context, which development mode can we choose to adapt to the current development situation? How to choose scientifically and reasonably? This is an urgent problem to be solved at this stage.

2. Types and status of innovation models
With the gradual improvement of people's living standards, people have gradually accepted the lifestyle of leisure vacation, which is the premise of the development of tourism and holiday projects,
and the basis for the development and expansion of China. Zhu Chenfei\textsuperscript{[1]} and Liu Tian\textsuperscript{[2]} classified the development modes of tourism projects, which were basically divided into four categories: business tourism mode, residential tourism mode, vacation tourism mode and comprehensive tourism mode. This classification method is based on the functions of development projects, and pays less attention to the current social environment, new needs and new technologies. With the multiple problems exposed in the development process of tourism and vacation projects in the previous stage, the mismatch between the existing part of the development mode and the tourism development, the rapid development of the Internet, the transformation of the current tourism mode, the promotion of supporting demand, and the change of investment and consumption demand, the development mode has also emerged with the times Objective characteristics and future development trend are summarized as the new model shown in Table 1.
Table 1. The new development mode of tourism and holiday projects.

| New model                  | Main types                                      | primary coverage                                      | Case                                    |
|----------------------------|------------------------------------------------|------------------------------------------------------|-----------------------------------------|
| New demand model           | Tourism + big health model                      | Health preservation, pension, rehabilitation and medical treatment | Sun City, USA                           |
|                            | Tourism + cultural performance mode             | Scenic performance, City show                        | Overseas Chinese town “Tianfu Shuyun”  |
|                            | Theme park mode                                 | Theme park, film theme park and IP                    | Changzhou Dinosaur Park, "Naked heart" sports town in Moganshan, Deqing         |
|                            | Tourism + sports mode                           | Event type, sports new town                           | "Naked heart" sports town in Moganshan, Deqing                                    |
|                            | Overseas mode                                  | Overseas investment, overseas acquisition            | Malaysia's "second home"              |
| New operation mode         | Tourism + big data                              | Record analysis, structured data, cross-border analysis, EEG test | Good house China                      |
|                            | Tourism + E-commerce                           | Online and offline interactive operation              | Tujia.com                              |
|                            | Tourism + travel agency                         | Capital cooperation and business cooperation          | Wuzhen + CYTS                         |
| New business model         | Property timesharing                            | Each room is divided into 52 co-ownership rights, each buyer has 1/52 property rights and one week use right every year | Zhonghong "yiletong card"             |
|                            | Point Club                                     | A certain amount of points are sold to the buyer at one time, which can be used arbitrarily in one or more hotels | Zunyou Holiday Club                   |
| New financing mode         | crowdfunding                                    | Financing development, development and financing, marketing promotion, operation and financing | Colorful investment, "Fuling 1898 mustard town" and Jinchao capital             |
|                            | PPP mode                                        | Company, contract                                     |                                        |
|                            | Private equity fund                             |Company, contract                                     |                                        |
| New service mode           | Self built service platform                     | Property service, community communication and business district service | Vanke "lives here"                    |
|                            | Borrowing platform                              | Integrating business service resources in various fields | Color cloud                           |

3. Research on SWOT selection model of development mode

This study uses the SWOT analysis method commonly used in the development strategy of enterprises to explore the development mode of tourism and vacation. This analysis method is often used in the study of tourism and vacation, such as Liu Yingjie[3], Lin Menglong[4], Liu Jun[5] all use SWOT analysis method to analyze the tourism resources in relevant articles. However, scholars generally lack of detailed analysis of the impact factors in the early stage, which are basically
subjective and qualitative description of the advantages, disadvantages, opportunities and threats of the project. They do not form conclusive data, which cannot be used as the basis of follow-up research. In the later stage, there is also a lack of relevant quantitative research content, which cannot really guide the development of tourism and vacation. In this paper, the selection model based on SWOT analysis method adopts the research steps as shown in Figure 1.

3.1. Analysis of impact factors
At present, the development enterprises of tourism and holiday projects have realized that the main work of tourism and vacation project development includes: integrating resources, building facilities, managing environment, restructuring industry, and ultimately improving the value of the plot and social benefits. The significance of tourism and holiday development model is to guide the introduction of appropriate tourism projects, reasonable allocation of resources, and enhance the value of resources. Therefore, development enterprises should choose the optimal and appropriate development mode based on the existing industrial model and combined with their own situation. Of course, no matter what kind of development mode is chosen, the ecological resources of tourism environment should be effectively protected, so that tourism and vacation projects can develop healthily for a long time. The choice of the development mode of tourism and vacation projects not only needs to rely on external resources, but also needs to give full play to the internal potential of enterprises. When the external environment changes, it will affect the development of enterprises in different modes. Combined with the times and frontier of the new mode of tourism and vacation project development, this paper puts forward the internal and external factors, main levels and main factors affecting the new mode, as shown in Table 2.

3.2. Comprehensive evaluation of each factor under the new mode
Through the analysis of the above-mentioned innovation and development modes, the average value is obtained by using the expert scoring method, and the three-level system of high-level, medium-sized and general level is used to determine the different levels of 11 factors required by various development modes, as shown in Table 2.
Table 2. Analysis of internal and external factors corresponding to the new model.

| Factor layer | Criterion layer | Factor layer New demand | Factor layer New operations | Factor layer New format | Factor layer New financing | Factor layer New services |
|--------------|----------------|-------------------------|---------------------------|-------------------------|----------------------------|----------------------------|
| Internal factors | Resource capability layer | Resource integration | high | commonly | high | commonly | middle |
|               | Land composite | high | commonly | high | commonly | commonly |
| Service capability | Supporting services | high | middle | high | commonly | high |
|               | Community platform | high | middle | high | middle | high |
| Capital capability level | Financing capacity | high | commonly | high | high | commonly |
|               | Multiple returns | high | middle | high | high | commonly |
|               | Return speed | high | middle | high | middle | middle |
| External factors | Change of tourism mode | high | middle | high | middle | middle |
| Ideological level | Changes in tourism policy | high | middle | high | middle | middle |
|               | Change of consumption concept | high | high | high | high | high |
| Technical level | Internet technology | high | high | high | high | high |

3.3. Establish the matrix of four SWOT strategic models

According to the SWOT analysis method, the selection process of the development mode of tourism and vacation project is to analyze and evaluate the main internal and external environmental factors that affect the choice of development mode. Focus on the analysis of project strengths, weaknesses, opportunities, threats, so as to select the appropriate development model[6]. By using spss22.0 software, the information collection, processing, internal and external factors are comprehensively analyzed, comprehensively evaluated and predicted. Four optional modes (ST mode, SO mode, WT mode and WO mode) are summarized. The SWOT matrix of the development mode of tourism and vacation project is constructed by integrating the characteristics of the new development mode and the different requirements for internal and external factors, as shown in Figure 2.
3.4. **Determine the weight value of each factor**

Because the importance of each factor in different development projects is different, the weight value of each factor in the project should be determined first, which requires the development enterprise to arrange experts and scholars to conduct field investigation on the project according to their own resources and strength, and use the expert scoring method to determine the weight value of the influencing factors. The importance degree of internal and external factors is determined by expert scoring method, and the 1-9 scale method proposed by American operational research scientist Sadie is used to assign the importance. The influence factors are expressed as $a_{ij}$, $a_{i}$, $a_{j}$, $a_{i}$, $a_{j}$ has the following characteristics: (1) $a_{ij} > 0$; (2) $a_{ij} = 1/a_{ji}$; (3) when $i = j$, $a_{i} = a_{j}$. The scoring standard adopts the nine level scale method as shown in Table 3. The score of each factor is summed and its score $S_i = \sum_{j=1}^{n} a_{ij}$, $S = \sum_{i=1}^{n} S_i$. The calculation formula of factor weight is: $R_i = S_i / S$, $1 \geq R_i \geq 0$, $\sum_{i=1}^{n} R_i = 1$. The smaller $R_i$ is, the smaller the influence degree is. The summary results are shown in Table 4.

| Table 3. The weight value of grade 9 factors. |
| --- |
| **Scale value** | **Meaning** |
| 1 | a<sub>i</sub> is as important as a<sub>j</sub> |
| 3 | a<sub>i</sub> is slightly more important than a<sub>j</sub> |
| 5 | a<sub>i</sub> is much more important than a<sub>j</sub> |
| 7 | a<sub>i</sub> is more important than a<sub>j</sub> |
| 9 | a<sub>i</sub> is more important than a<sub>j</sub> |
| 2,4,6,8 | Between two adjacent scale values |
| 1,1,1,1,1,1,1 | The scale value of a<sub>i</sub> and a<sub>j</sub> is the reciprocal of the scale value of comparison between a<sub>i</sub> and a<sub>j</sub> |

| Table 4. The weight determination table of each influence factor. |
| --- |
| **Impact factors** | a<sub>2</sub> | …… | a<sub>n</sub> | Score | Weight |
| a<sub>1</sub> | a<sub>12</sub> | …… | a<sub>1n</sub> | $S_1$ | $R_i = S_i / S$ |
| a<sub>2</sub> | 1 | …… | a<sub>2n</sub> | $S_2$ | $R_2 = S_2 / S$ |
| …… | …… | …… | …… | …… | …… |
| a<sub>n</sub> | a<sub>n2</sub> | …… | 1 | $S_n$ | $R_n = S_n / S$ |
| **total** | **S** | | **1** | | |
3.5. Evaluation of internal and external factors

The choice of the development mode of tourism and vacation project needs to comprehensively evaluate the internal and external factors affecting the project. This study adopts expert scoring method, \( MI = \{1,2,3,4,5,6\} \). Different values represent the relationship between the factor and project development (1: huge threat/ disadvantage, 2: moderate threat/ disadvantage, 3: mild threat/ disadvantage, 4: mild opportunity/ advantage, 5: moderate opportunity/ advantage, 6: huge opportunity/ advantage, average value: score value of the factor). \( U_i = R_i \times M_i \) means the weighted score \( U_i \) is the weight \( R_i \) of the factor multiplied by the corresponding score value \( M_i \). The sum of weighted scores of internal environment factors is \( U_y \), and that of external environment factors is \( U_x \). The highest value of \( U_y \) and \( U_x \) is 6, and the lowest value is 1. The evaluation of external environmental factors is shown in Table 5. In this way, the weighted score of internal environmental factors is calculated as \( U_y \).

Table 5. Project external factor evaluation table.

| Critical factor           | Score | Weight | Weighted score |
|--------------------------|-------|--------|----------------|
| Tourism policy environment| \( R_1 \) | \( M_1 \) | \( U_1 = R_1 \times M_1 \) |
| Change of tourism mode    | \( R_2 \) | \( M_2 \) | \( U_2 = R_2 \times M_2 \) |
| Consumption concept      | \( R_3 \) | \( M_3 \) | \( U_3 = R_3 \times M_3 \) |
| internet                 | \( R_4 \) | \( M_4 \) | \( U_4 = R_4 \times M_4 \) |
| Total                    |       |        | \( U_x = U_1 + U_2 + U_3 + U_4 \) |

3.6. Results analysis coordinates

The intermediate value of 3.5 is set as the critical value. \( U_x \in (3.5,6) \) represents that the opportunity of external environmental impact is greater than the threat. The larger the value, the more opportunities and the smaller the threat; If \( U_x = 3.5 \), it means that the impact threat of the external environment is equivalent to the opportunity, when \( U_x \in (1,3.5) \), it means that the impact threat of external environment is greater than the opportunity, and the smaller the value, the greater the threat and the less opportunities. \( U_y \in (3.5,6) \) indicates that the advantages of internal environmental impact are greater than the disadvantages, and the larger the value is, the greater the advantages and the smaller the disadvantages; \( U_y = 3.5 \) indicates that the advantages and disadvantages of internal environmental impact are basically consistent; \( U_y \in (1,3.5) \) indicates that the disadvantages of internal environmental impact are greater than the advantages, and the smaller values indicate the greater disadvantages and smaller advantages. The x-axis represents the external environment \( U_x \), and the y-axis represents the internal environment \( U_y \), forming a coordinate diagram as shown in Figure 3. As an intermediate value of 3.5, the coordinate map is divided into four different regions, and different regions correspond to different combinations of internal and external environmental impact factors of the project. Using the selection matrix of development mode, we can decide which development mode to choose for the development of tourism and holiday projects[7].

Area A: the advantages of the internal environment of the project are greater than the disadvantages, and the opportunities of the external environment are greater than the threats. Enterprises that choose the ST mode can adopt the new service and new financing mode.

Area B: the advantages of the internal environment of the project are greater than the disadvantages, and the threat of the external environment is greater than the opportunity. When choosing the ST mode, enterprises can choose new service and new financing mode.

Area C: the disadvantages of the internal environment of the project are greater than the advantages, and the threat of the external environment is greater than the opportunity. Enterprises that choose the WT mode can adopt the new operation mode.

Area D: the disadvantages of internal conditions outweigh the advantages, and the opportunities of external environment outweigh the threats. Enterprises that choose Wo mode can choose new business mode.
Figure 3. Results the coordinate diagram was analyzed.

4. Example verification
Taking Shitang bamboo sea tourism project of Hengxi street in Jiangning District of Nanjing as an example, combined with questionnaire and expert scoring table, this paper analyzes the application of the established matrix and selection model.

4.1. Project background
In the overall planning of tourism development in Jiangning District, it is mentioned that Yuntai tourist area is located as a mountain forest and wild tourism area. In the conceptual planning of Niushou mountain Yuntai Mountain Ecological Corridor in Jiangning District, Nanjing City, it is proposed that Hengxi street community should mainly develop scenic vacation and sports leisure projects. In 2015, Jiangning and Gaochun demonstration areas will be built, and 100 municipal "beautiful rural demonstration villages" will be created to provide support for rural agricultural modernization in the suburbs. In 2017, three demonstration areas will be built: Pukou, Liuhe and Lishui, and 200 municipal level "beautiful rural demonstration villages" will be created. The rural suburbs will initially build happy homes for farmers and beautiful urban villages. Jiangning belongs to the north subtropical monsoon climate, the annual average precipitation is about 1072.9 mm, the annual average temperature is about 15.7 °C, the average frost free period is about 224 days, and the weather change is relatively complex.

"Shitang bamboo sea" is located in qianshitang village, Hengxi street, Jiangning District, Nanjing. It has always been known as "xiaojuzhaigou" in Nanjing. It is located on the Bank of Jiulong lake. There are about 30000 Mu bamboo forests, forming the scenery of tea mountain bamboo sea and becoming the first batch of "tourism demonstration villages" in Jiangsu Province. "Shitang bamboo sea" is about 25 kilometers to Ma'anshan City and 38 kilometers to the central area of Nanjing. The southern part of the town belongs to Hengshan mountain range, and the west part belongs to Yuntai mountain range. In 2008, the government began to integrate leisure tourism planning with farmers' production, means of living and local original rural life, so as to improve the living environment of the village, and gradually transform the closed agricultural village into a comprehensive tourism village mainly for mountain dwelling and leisure, so as to increase the income of villagers and strive to build it into a "drunken and beautiful village" in Jiangning.

4.2. Selection of project development mode
In the form of questionnaire, experts' opinions were solicited, and the evaluation and assignment of each element of induction and classification were carried out. The weight of each impact factor was determined by expert scoring method, and the scores of internal and external environmental factors were counted. The project sent out 50 scoring questionnaires to the local experts familiar with the Shitang Zhuhai Tourism Project in Hengxi street, Jiangning District, the staff of Jiangning Planning Bureau and Hengxi street planning office, the planning and design personnel, planners and construction personnel of the project. Their scores can be used as important data for the quantitative analysis.

Calculate the weight r of each factor in the questionnaire, summarize the weight value of each factor, calculate the average value, and obtain the final weight value of the factor of each item, as shown in tables 6 and 7. Summarize the scoring table of experts' evaluation of internal and external factors, get the average value of each factor, as the final score of each factor, and then summarize the weight and score of internal and external factors, as shown in tables 8 and 9, and get the weighted score value.

**Table 6. The weight value of each factor in the project.**

| Internal factors | Factor                        | R  | Total |
|------------------|-------------------------------|----|-------|
| Resource capacity| Resource integration capability| 0.083 | 0.118 |
|                   | Land composite capacity a₆    | 0.035 |       |
| Service capability| Supporting services a₇        | 0.164 | 0.271 |
|                   | Community platform a₈        | 0.107 |       |
| Financial capacity| Financing capacity a₉        | 0.202 |       |
|                   | Multiple returns a₁₀         | 0.224 | 0.611 |
|                   | Return speed a₂₁            | 0.185 |       |
|                   | total                         |      | 1     |

**Table 7. The weight value of each factor outside the project.**

| Factor                        | R   | M   | U   |
|-------------------------------|-----|-----|-----|
| Resource integration capability a₅| 0.083 | 2.1 | 0.175 |
| Land composite capacity a₆    | 0.035 | 1.95| 0.068 |
| Supporting services a₇        | 0.164 | 1.7 | 0.278 |
| Community platform a₈         | 0.107 | 1.6 | 0.172 |
| Financing capacity a₉         | 0.202 | 1.4 | 0.282 |
| Multiple returns a₁₀          | 0.224 | 1.4 | 0.314 |
| Return speed a₂₁              | 0.185 | 1.2 | 0.222 |
| total U₊                      |      |     | 1.511 |

**Table 8. Evaluation table of internal factors of the project.**

| Factor                        | R   | Total |
|-------------------------------|-----|-------|
| Tourism policy environment a₁ | 0.213 |      |
| Change of tourism mode a₂     | 0.138 | 1    |
| Consumption concept a₃        | 0.131 |      |
| Internet a₄                   | 0.517 |      |
Table 9. Evaluation table of external factors of the project.

| Factor                        | R     | M     | U     |
|-------------------------------|-------|-------|-------|
| Tourism policy environment a₁ | 0.213 | 2.55  | 0.544 |
| Change of tourism mode a₂     | 0.138 | 1.9   | 0.263 |
| Consumption concept a₃       | 0.131 | 1.85  | 0.243 |
| Internet a₄                   | 0.517 | 1.55  | 0.801 |
| total Uₜ                      |       |       | 1.851 |

4.3. Case summary
Project: UX = 1.851, uy = 1.511, as shown in Figure 4, it is located in area C of the coordinate diagram. Therefore, WT mode is suitable for the project. It is suggested that enterprises adopt new operation mode according to the internal and external conditions of the project. The results of the project calculation are basically consistent with the development facts. The development unit of the project has a certain government background, and has a good grasp and application of national policies. Although the geographical basic resources are good, the financial capacity and service ability are poor. The use of the Internet is also very weak, which makes its influence and popularity less, and the future development space is limited. This requires the use of new operation mode in combination with local conditions, such as combining with big data analysis, accurately positioning consumer customers and providing professional and accurate services; cooperating with various e-commerce companies to expand the sales channels of agricultural and sideline products and various services, and accelerate the layout of tourism o2o mode; Shitang Zhuhai tourist area is free to visit, mostly for residents around Jiangning to drive to travel, with limited passenger flow. We can cooperate with travel agencies to increase the number of tourists from surrounding areas and other places; at the same time, we should increase online and offline marketing, use new media to promote and expand influence. Local streets, planning, tourism and development departments and enterprises are also making efforts in this direction, with fruitful results. Only in this way can we better promote the value of this geomantic treasure land and promote the development and development of larger areas around it.

The results show that the model is feasible and can be used for decision analysis of development units. This research will promote the current and future development of Shitang bamboo sea tourism project in Jiangning. However, since the quantitative evaluation of each factor in the model mainly uses the relatively subjective expert scoring method, in order to more objectively quantify the internal and external environmental factors, it is necessary to further optimize the research model.
5. Conclusion
In a word, tourism and vacation project is a new research field in China. The related research and development is just in its infancy, and it is still in the exploratory stage. It has a broad development market and its income is beginning to show. As a highly comprehensive industry, it involves a wide range of fields. This paper attempts to construct the SWOT matrix and selection model of tourism and vacation project development by combining qualitative and quantitative methods, hoping to promote the theoretical research and development practice in this field. However, what corresponding development measures should the government and enterprises take next? How to establish perfect laws and regulations for tourism and vacation development? How does the government strengthen development supervision? All these need long-term and unremitting efforts of experts and scholars to solve these problems.

Acknowledgments
1. Jiangsu University Philosophy and Social Science Research Project (2019SJA1497);
2. Nantong Institute of Technology’s Young and Middle-aged Research Backbone Training Program (ZQNGG310);
3. Nantong Institute of Technology's second batch of professors and doctoral studio fund projects (202002).

References
[1] Gong Suning. Research on development mode and selection matrix of "new demand" of tourism real estate in China [J]. United States and times, 2017, (10): 18-21.
[2] Gong Suning. Research on the innovation of tourism real estate development mode in China [M]. Nanjing: Southeast University Press, 2018: 147.
[3] Lin Menglong. Current situation and Countermeasures of sports tourism resources development in Wuyishan City [D]. Fuzhou: Fujian Normal University, 2014.
[4] Liu Jun. research on the development of tourist resorts around large scenic spots [D]. Hefei: Anhui Agricultural University, 2012.
[5] Liu Tian. Evaluation of tourism real estate development mode [D]. Wuhan: Hubei University, 2016.

Figure 4. The project result coordinate diagram.
[6] Liu Yingjie. SWOT analysis of the development of vacation tourism in China [J]. Modern business industry, 2014, 21:15-16.

[7] Zhu Chenfei. Research on the development mode of tourism real estate in tourism city -- taking Kaifeng City as an example [D]. Zhengzhou: Zhengzhou University, 2015.