

REVIEW ARTICLE

The notion and connotation of smart tourism through the lens of rational choice

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ABSTRACT

Despite coming from Western nations, the term “smart tourism” has “taken root and flourished” in China. In addition to reflecting the reality of how smart tourism is developing in China, current knowledge in the country's academic and industrial sectors also stimulates more study into the concept and tactics of smart tourism. This study offers fresh perspectives on the meaning and notion of smart tourism from the standpoint of rational choice theory, based on an understanding and analysis of the original mainstream technology application theory. It comes to the conclusion that encouraging travelers to make the best logical decision is the fundamental feature of smart tourism.

Keywords: smart tourism; technology application theory; rational choice theory

1. Introduction

As one of the hot words in the tourism industry, “smart tourism” appeared as early as 20 years ago. On December 5, 2000, Gordon Phillips defined “smart tourism” as “simply planning, developing and marketing tourism products and operating tourism business in a comprehensive, long-term and sustainable way”. In 2012, Molz, an assistant professor at Holy Cross College, proposed that “smart tourism uses mobile digital connection technology to create a smarter, meaningful and sustainable connection between tourists and cities”. The understanding of “smart tourism” by western people and scholars is different from that of China, which reflects that “smart tourism” is not a strict academic concept, but

a new concept based on industry practice and scientific and technological development. Understanding smart tourism from different angles and putting it into practice will have different implementation effects. Therefore, the concept of smart tourism cannot be entangled in forming a unified understanding. In view of this, this paper attempts to re-examine and think about the concept and connotation of smart tourism from the perspective of rational choice in economics, in order to guide the practice of smart tourism in China.

2. Understanding of the concept of smart tourism

The original concept of smart tourism takes the

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perspective of technology application^[1] and the perspective of information service^[2] as the mainstream point of view, and expounds the concept of smart tourism with tourists as the center and business as the center respectively. Among them, the perspective of technology application is generally accepted, reflecting the achievements of technology enterprises participating in the construction of smart tourism.

2.1. Concept classification of smart tourism from the perspective of technology application

The concept of domestic smart tourism takes technology application as the main perspective, which can better explain the domestic practice in the field of smart tourism. This perspective can be divided into “technology theory” and “model theory”.

The first category is the definition of “technology theory”. The definition of smart tourism of technology theory type can be divided into pure technology theory and effect theory.

(1) A purely technical point of view. This view holds that smart tourism is the specific application of technical products or technical products. As defined by Jin^[3]: smart tourism is a comprehensive application platform that provides various tourism public services for the general public, tourism enterprises and tourism management departments through smart phones, computers, touch screens and other service terminals supported by high technologies such as Internet of things and cloud computing. Another example is Ren^[4]. Smart tourism is a comprehensive application platform based on Internet of things, cloud computing, mobile communication technology, artificial intelligence and its integration. Du and Zhong^[5] believe that Yao Guozhang and Du Junping’s views on smart tourism are a “technical system” based on different technologies. In addition, the concept and connotation of smart tourism from the perspective of rational choice in the UK. The smart Tourism Organization^[6] also believes that smart tourism is tourism using or applying technology.

The viewpoint of technology theory equates

smart tourism with the construction of technology application platform, and emphasizes that the application of modern information technology plays a core role.

(2) Effect theory viewpoint. The viewpoint of effect theory emphasizes that smart tourism is the improvement of benefits brought by technology application. Liu and Fan^[7] believe that smart tourism is supported by cloud computing, Internet of things, high-speed mobile communication technology and intelligent terminal equipment to serve the development needs of intelligent management, active service, personalized tourism and information equivalence in future tourism management, and improve the scientific and technological content and service quality of the tourism industry Ye^[8], Xu et al.^[9], Huang and Zhang^[10], Xu^[11] and others hold similar views.

Since technology application is the basis for smart tourism to achieve better results, the viewpoint of effect theory can also be regarded as the expansion of the viewpoint of pure technology theory.

The second category is the definition of “mode theory”. Such views believe that smart tourism is a new tourism model, which can be divided into general model theory and specific model theory.

(1) General pattern theory. From the perspective of overall model theory, smart tourism is a change in the overall model of tourism. For example, Yao^[12] believes that smart tourism refers to taking tourists as the center, using “smart technologies” such as Internet of things, cloud computing, 3G communication, triple play and GIS as the means, computers, mobile devices and intelligent terminals as the tools, and smart services, smart commerce, smart management and smart government as the main forms. It is a new tourism operation mode based on fully meeting the service needs of tourists for “food, housing, transportation, tourism, shopping and entertainment” and taking creating greater value for tourists, travel agencies, scenic spots, hotels, competent government departments and other tourism participants as the fundamental task. Shen et al.^[13], Fu and Zheng^[14], Bao^[15] and others hold similar views.

(2) Specific mode theory viewpoint. The specific mode theory emphasizes that smart tourism is mainly reflected in the reform of one aspect of tourism. For example, Wu^[16] believes that smart tourism is a new tourism information development model based on cloud computing, with mobile terminal application as the core and high-efficiency information services such as perception and interaction as the characteristics. The core is “tourist oriented” high-efficiency tourism information services. Zhang et al.^[1] believe that smart tourism is a systematic and intensive management reform based on the new generation of information technology to meet the personalized needs of tourists, provide high-quality and high satisfaction services, and realize the sharing and effective utilization of tourism resources and social resources.

“Mode theory” regards smart tourism as a new mode of tourism development, and defines it from the perspectives of changes in operation mode, consumption form and management mode brought by smart tourism, which can well explain the practice of smart tourism in the fields of management, service and marketing.

2.2. Concept evaluation of smart tourism from the perspective of technology application

The existing literature on the concept of smart tourism from the perspective of technology application pays more attention to the means and forms of realizing smart tourism. Author believes that in terms of “technology theory”, technology is the means to carry out smart tourism, not the connotation of smart tourism. Smart tourism is attributed to technology or the application of technology, which replaces the connotation with means; In terms of the essence of tourism, it can be summed up as a mode of tourism, but not as a mode of tourism. Deng^[17] also pointed out that there are two misunderstandings in the existing concept of smart tourism, that is, replacing the connotation and essence with means and confusing tourism with tourism, smart tourism and smart tourism.

In the process of smart tourism development and construction, due to their understanding of smart tourism, relevant personnel tend to pay attention to technology application and system construction and ignore other work. Many people regard technology application as the core of smart tourism and believe that as long as advanced technology is adopted and application system is built, efficiency in all aspects can be improved and smart tourism can be realized. For example, Weng^[18] believes that the core of smart tourism is to make full use of intensive information development technologies such as cloud computing, aggregate a large number of tourism information resources, build a comprehensive service platform with overall resource planning, through information and rich application, and build an open smart tourism information system covering all kinds of users and all kinds of tourism business. The author will analyze this understanding from the following aspects:

Firstly, the view that technology is the core task of smart tourism may lead relevant personnel to overemphasize the status and role of technology in smart tourism and ignore the innovation of the business itself. Technology is important, but technology is only a tool and means for intelligent discovery and application. Technology itself is not wisdom and cannot determine the basic content and function of wisdom in the process of tourism. Therefore, technology cannot replace wisdom and become the core element of smart tourism.

Secondly, the technology core theory may mislead the handling of the relationship between technology and business in practice. Wisdom works mainly through business arrangement and human behavior. Therefore, a reasonable logical relationship between business and technology should be driven by business technology application, rather than business arrangement driven by technology application. Taking technology application as the core of smart tourism reverses the logical relationship between wisdom, business and technology, and may also cause waste of early investment due to continuous technology iteration.

Thirdly, the value standard of technology application is determined by the business, not by the technology itself. Taking technology as the core of smart tourism is easy to ignore the utility standard or value standard of smart tourism. The way of technology application needs to adapt to the business characteristics, and the technology needs to be applied under a certain business model. Therefore, when determining the technology application, it is necessary to first determine the relationship between technology and business and determine their mutual adaptability. Only through the continuous change of business and process reengineering can the two match effectively, so as to achieve the best efficiency of technology application.

To sum up, technology can not replace wisdom as the core content of smart tourism, and technology application can not rationally choose the concept and connotation of smart tourism from the perspective to replace smart application and business analysis as the main work of smart tourism. The goal, mode and efficiency of technology application are restricted by its social existence and business environment. It is necessary to treat the relationship between technology and smart tourism rationally.

3. Recognition of smart tourism— From the perspective of rational choice

From the perspective of economics, the use of factors is the best only when the marginal efficiency of different factor inputs is equal. Blindly taking technology as the core of smart tourism and blindly pursuing the use of advanced technology may lead to inefficient allocation of factors and failure to give full play to the potential of technology, which deviates from the core role of smart tourism in promoting the development of service tourism.

3.1. Understanding scope and objective basis

With the development and application of information technology, there are two basic changes in

Tourism: the acquisition of information is more comprehensive, sufficient, timely and cheap; the means of processing information are more abundant, diverse, popular and effective. These changes can make people use their wisdom to make smarter judgments and more effective choices when facing a variety of options in the tourism process, so as to make the tourism process more economical and efficient. It is based on the change and strengthening of the basic role of wisdom in the process of tourism that we can say that tourism is more intelligent. Without wisdom and the application of wisdom, it is impossible to talk about smart tourism. Compared with traditional tourism, smart tourism does not mean that wisdom comes from nothing, but only that the environment and mode of action of smart application have changed. Without this premise, smart tourism may only stay at the conceptual level and be difficult to implement.

3.2. Recognition of smart tourism

There are two basic points of smart tourism, namely, wisdom and tourism. The difference between smart tourism and traditional tourism is that the role of wisdom has brought changes to tourism. Wisdom and its application play a leading role in the process of tourism, so it has become the basic content of smart tourism.

Wisdom in smart tourism, from the perspective of rational choice, means that the tourism subject can make more effective choices or better decisions when facing a variety of possible schemes. Therefore, in essence, smart tourism is a kind of tourism that can make the tourism subject make a more reasonable choice. Therefore, we can define smart tourism as follows: smart tourism is a tourism in which the tourism subject can make more rational choices through the effective use of technology and knowledge when facing a variety of choices, or simply, smart tourism is a tourism in which the tourism subject can make more effective choices.

In the above definition, tourism is the subject of the concept, smart application is its basic connotation, while technology application is the basis and

means of smart generation and application. Mode change is the form change of smart tourism, and the effect is the result of smart application. Generally speaking, smart application is the core content of smart tourism and plays a leading role.

3.3. Smart tourism under rational choice

“Rationality” in rational choice theory is instrumental rationality that explains the relationship between an individual’s purposeful action and its possible results. Rational maximization is only a possibility for consumers with sufficient information and sufficient ability to process information. Taking the maximization principle of economic analysis as the starting point, it means that consumers pursue the maximization of utility^[19]. Rational choice theory has expanded from “instrumental rationality” to “value rationality”^[20]. In the field of information system, users’ adoption and use of information system and information technology, information and knowledge sharing behavior and information system security policy compliance behavior are all issues of great concern in the academic community. These involve the prediction and interpretation of users’ behavior, which can be studied from the perspective of rational choice. The perceived benefits brought by the service effectiveness of the information system exceed the perceived risks, which is the main reason for choosing to adopt and use the information system^[21]. Based on the connotation of rational choice theory, the essential characteristics of smart Tourism under rational choice can be further explained as follows:

(1) Choice is wisdom. Wisdom shows that the tourism subject can make effective and rational choices when facing a variety of possibilities. The connotation of rational choice is that the tourism subject can handle all kinds of tourism affairs more flexibly and effectively, that is, it can effectively use wisdom for tourism.

(2) Smart tourism is affected by many factors. Rational choice includes all kinds of choices in the whole process of tourism. Therefore, smart tourism is affected by various factors such as technology,

system, policy, standard, operation, management, service, culture and knowledge.

(3) The goal of rational choice is the best. The choice is rational, so it is intelligent. Because it is intelligent, it is optimal. However, the optimization of smart tourism is not the optimization that each subject can enjoy alone, but the optimization that each subject can enjoy together, which is the optimization of the whole society. This kind of optimization is the Pareto improvement that can be achieved by the whole society after dynamic game between different subjects.

(4) In a broad sense, the development of smart tourism mainly involves two aspects: ideological level and business level. Ideological work is mainly reflected by business arrangement, and the way of business arrangement determines the way of technology application. Therefore, business arrangement has become an important link connecting ideological work and material work. The view that technology application is the basis of smart tourism is one-sided.

(5) With the continuous improvement of technology application and business process reengineering, the way of rational choice will also evolve, resulting in the continuous transformation of tourism mode. This means that smart tourism needs continuous innovation in the development process.

(6) Smart tourism is a kind of tourism in which the tourism subject can make a more rational choice, which shows that compared with traditional tourism, smart tourism has a progressive application of wisdom, that is, it makes better use of technical means to solve the problems of tourism operation efficiency and experience.

The concept and connotation of smart tourism from the perspective of rational choice.

4. The core connotation of smart tourism from the perspective of rational choice

From the perspective of rational choice, smart

tourism is limited to the tourism activities of tourists, and it includes only tourists. However, because tourism cannot operate out of thin air, it needs the society to provide it with an effective environment. Therefore, in reality, the smart tourism discussed will involve not only tourists, but also enterprises providing services for tourists, governments supervising the tourism market, and community residents who can affect tourism activities. Continuous tourism activities are presented as a process coordinated by the four main bodies. From the perspective of interconnection, the basic work of promoting smart tourism not only needs to improve the cognition and quality of tourists, but also needs to improve the service and management level of enterprises, strengthen the effective supervision of the government, and coordinate the relationship between tourists and residents.

In terms of connotation, smart tourism is a tourism that can fully condense and effectively use wisdom. In this kind of tourism process, wisdom plays a vital role. It is the main factor to promote the development of smart tourism. Therefore, how to condense and apply wisdom has become the core work of smart tourism. Wisdom cannot be generated and applied out of thin air. The cohesion, promotion and application of wisdom need to rely on the business arrangements of enterprises and governments and the behavior choices of consumers and residents. Therefore, the core work of smart tourism can be transformed into business analysis and arrangement and behavior selection in reality.

Taking business analysis and arrangement as the main work of smart tourism development also lies in that it is the logical starting point of technology application. Only through business analysis and arrangement can the functional requirements of the application system be found and determined, and the system development can obtain a truly effective basis. Without business analysis, there is no scientific basis for technology application. Smart application and business operation need a good environment. Therefore, in reality, to promote smart tourism, we also need to do a good job in many aspects, such as

reengineering process, innovating mechanism, improving organization, perfecting means, optimizing environment and so on. Through business combining, we can find, condense and show wisdom, but to make effective use of wisdom, we also need to improve wisdom through process reengineering and expand wisdom through business innovation.

5. Summary and prospect

“Smart tourism” comes from the cutting-edge practice of the tourism industry. It is an industrial development strategy and industrial policy measure under the leadership of the government, not a purely theoretical concept and academic term. Regarding the understanding of the connotation, function and significance of smart tourism at the industrial level, the document “Guiding Opinions on Promoting the Development of Smart Tourism” issued by the former National Tourism Administration on January 10, 2015 is the most representative and authoritative. The document’s explanation of smart tourism is “using a new generation of information network technology and equipment to fully, accurately, and timely perceive and use various types of tourism information, so as to realize the intelligence of tourism services, tourism management, tourism marketing, and tourism experience, and promote tourism. The transformation and upgrading of the business format to a comprehensive and integrated type”, believes that “smart tourism is the demand of the tourist market. The new driving force and new trend that modern information technology drives the innovation and development of the tourism industry is an important starting point for comprehensively improving the development level of the tourism industry, promoting the transformation and upgrading of the tourism industry, and improving tourism satisfaction. The modern service industry is of great significance.” Therefore, it is necessary to interpret the concept and connotation of smart tourism from more levels and perspectives, in order to better realize its practical application value to the tourism industry through the construction of smart tourism.

The perspective of rational choice is to examine

the technology application, application subjects and value objectives involved in the concept of smart tourism from the perspective of economic rational choice hypothesis after the perspective of technology application and information service, and reconstruct the understanding framework of the concept of smart tourism. Tourists, as the main body of smart tourism application, rely on the convenience and timeliness demands realized by the technical platform when choosing (booking, booking) tourism activities (consumption), which is the core connotation of smart tourism. In order to effectively respond to these needs of tourists, tourism destinations need to make more efforts in innovating mechanism, improving organization, perfecting means and optimizing environment, so as to make smart tourism more operable. Specific recommendations are as follows:

(1) Innovative mechanism. The application of intelligence lies in the rational behavior of the application subject and the business activities of tourism. Therefore, behavior and business norms have a great impact on the effect of intelligent application. Mechanism innovation can lay the foundation for the production and application of wisdom, provide power for it and create conditions to improve efficiency.

(2) Improve the organization. Wisdom can be applied in the form of organization. Improving the organization can provide effective guarantee for the production and application of wisdom, such as flattening the organizational structure and providing service support for employees at all levels of the enterprise to end consumers.

(3) Improve the means. Application system is an important tool for condensing and applying wisdom. Building an information system for smart tourism is different from building a general tourism information system. The information system of smart tourism should not only help people deal with operational affairs effectively, but also help people deal with high-level complex affairs such as operation and management effectively, that is, the system should not only be hard-working, but also be smart and effective enough.

(4) Optimize the environment. To build an overall interconnected technical platform, relevant personnel need to do a lot of work, such as cultural construction, policy and standard formulation, and jointly create a good environment for the development of smart tourism through multi-party cooperation. In the future, a working environment conducive to promoting smart tourism can be formed in terms of the adoption of smart tourism related standards and norms and the construction of common technology support platform.

Conflict of interest

The authors declare no conflict of interest.

References

1. Zhang L, Li N, Liu M. On the basic concept of smart tourism and its theoretical system. *Tourism Tribune* 2012; 27(5): 66–73.
2. Li Y, Hu Z, Huang C, et al. The concept of smart tourism under the context of tourism information service. *Tourism Tribune* 2014; 29(5): 106–115.
3. Jin W. Smart tourism and construction of tourism public service system. *Tourism Tribune* 2012; 27(2): 5–6.
4. Ren H. The localization of smart tourism. *Ecological Economy* 2013; (4): 142–145.
5. Du P, Zhong X. Information vulnerable groups in the context of “smart tourism” and their supporting strategies. *Jiangxi Social Sciences* 2015; 35(11): 207–212.
6. UNWTO. Tourism resilience committee stresses need for “smart tourism” [Internet]. Available from: www.slideshare.com.
7. Liu J, Fan Y. The form, value and development trend of intelligent tourism. *Chongqing Social Sciences* 2011; (10): 121–124.
8. Ye T. Smart tourism: The second revolution of tourism industry. *China Tourism News*, 2011 May 25.
9. Xu B, Li D, Qian Y, et al. Smart tourism: A new travel tendency—A review on existing research. *Resource Development & Market* 2013; 29(7): 781–784.
10. Huang X, Zhang L. Wisdom leads the transformation of tourism industry. *Guangming Daily*, 2012 May 31.
11. Xu M. Progress of China’s smart tourism research. *Journal of Chongqing Jiaotong University (Social Science Edition)* 2017; 17(5): 63–69.
12. Yao G. A study on the construction framework of intelligent tourism. *Journal of Nanjing University of Posts and Telecommunications (Social Science Edition)* 2012; 14(2): 13–16, 73.

13. Shen Y, Zhang H, He Y. Current situation and thinking of smart tourism construction in China. *Gansu Agriculture* 2013; (3): 20–23.
14. Fu Y, Zheng X. The development status and countermeasures of smart tourism in China. *Development Research* 2013; (4): 62–65.
15. Bao Y. Review and prospect of domestic smart tourism research. *Productivity Research* 2016; (6): 156–160.
16. Wu T. National Tourism Administration identifies 18 cities as “national smart tourism pilot cities”—Yangzhou: The first batch of smart tourism pilot cities. *Yangzhou Daily*, 2012 May 24.
17. Deng H. Cognitive reconstruction of “smart tourism”. *Journal of South-Central University for Nationalities (Humanities and Social Sciences)* 2015; 35(4): 33–38.
18. Weng G. Smart tourism and the innovative mode establishment of regional tourism development in Qinhuangdao. *Urban Development Research Studies* 2014; 21(5): 35–38.
19. Li P. Challenge to the rational choice theory (RCT) and the way out. *Sociological Research* 2001; 16(6): 43–55.
20. Chen B. Reflections on the theory of rational choice. *Southeast Academic Research* 2006; (1): 119–124.
21. Zhao S, Yue Q, Lei J, et al. Rational choice theory and its application and prospect in the field of information system research. *Journal of Modern Information* 2020; 40(6): 163–170.