Title	
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Citation	
Issue Date	2016-09
Type	Thesis or Dissertation
Text version	ETD
URL	http://hdl.handle.net/10119/13817
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学 位 の 種 類	博士(知識科学)		
学 位 記 番 号	博知第 187 号		
学 位 授 与 年 月 日	平成 28 年 9 月 23 日		
論 文 題 目	Partner Selection in Tourism Supply Chain Networks: Concepts, Decision Model, and Managerial Implications		
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論文の内容の要旨

The current situation of tourism organizations, in particular tour operators have to deal with several challenges. First is the consumers' variety of preferences. Second is the competition of direct service from accommodations. Last is the short-term relationship between tour operators and service providers. Since the service quality depends on the performances of partners, the management committees have realized the importance of partnerships is crucial for not only overcoming these difficulties, but also sustaining competitive advantages. The partnership has already recognized the benefits of helping firms to have better performances. However, most firms in fact fail in practical implementations causing huge unrecoverable and unavoidable sunk costs. Existing literature has suggested that the suitable candidate for collaboration can be initiated at a beginning of selection process. The question is how to evaluate which partner is the most favorable for collaboration make tourism partner selection problem critically very important. Nevertheless, there is no evaluation framework that is appropriately available for tourism firms.

In this study, we focus on the partner selection problem in tourism networks. The purpose is to develop the new evaluation model to advance the tourism supply chain literature. In the process of making a decision, as we have observed the literature in relevance contexts, the main characteristic of partner selection problem is generally dependent on not only the characteristics of multi-dimensional data and evidence available, but also the backgrounds of decision-makers involved. Additionally, due to the qualitative nature of most evaluation criteria, the data available are mostly qualitative and may be expressed solely by means of linguistic terms. These traits cause a difficulty for tourism firms to makes a effective decision under impreciseness, vagueness and uncertainty.

To assist the firms in making better decision, literature has suggested the usefulness of applying fuzzy-based computation approach when dealing with linguistic assessments. Given its advantages; however, the fuzzy-based approaches have some unavoidable limitations by several reasons. First is a difficulty of precise assigning and mapping linguistic assessments to fuzzy number representation. There are many types of fuzzy membership functions such as triangular, trapezoidal and so on. The different definitions of membership functions assigned lead different results. Second is most of available models assume that the linguistic judgments expressed by experts are precisely completeness. In practicality, however, due to humans' ability limitations, experts may express a partially preferences. Furthermore, limited by background knowledge and experience as well as evidence available, the linguistic assessments of experts regarding the same alternative are totally conflict. With regard to these mentioned obstacles, existing approaches cannot effectively capture the uncertain and vague information. This limitation effects on the preference orders of alternative in some situations. Last, by applying fuzzy-based computation scheme, the necessity of utilizing an linguistic approximation process to translate value back to the original ones causes the loss of information, which hence implies a lack of precision in the final result. These disadvantages as mentioned earlier would be especially and critically important in partner selection for collaboration contexts.

To avoid the limitation mentioned above, we present an evaluation model for tourism partner selection problem, which is formulated as multi-expert multi-attribute decision problem with uncertain linguistic assessments. The proposed evaluation model consists of two phases. Firstly, we model multi-expert linguistic assessments on single attribute by means of mass function and then make use of Dempster's rule of combination for attribute aggregation. Secondly, the combined mass function is transformed into corresponding probability distribution via Smets's pignistic transformation and finally defined a linguistic choice function based on the so-called satisfactory principle for ranking and selection.

The main contributions of this research are as follows. Firstly, we propose an alternative evaluation model for linguistic partner selection problem, which is can effectively capture the uncertain linguistic information and random preferences while maintaining the flexibility for managers in freely making decisions using uncertain linguistic assessments. Secondly, by computation solely based on the order-based semantics of the linguistic terms, the difficulty of quantifying a qualitative concept can be eliminated. Lastly, the illustrated practical case study is the first empirical research in contexts of partner selection for collaboration in tourism supply chain networks.

The dissertation is organized as follows. In Chapter 1, we review the research backgrounds and statement of the problem as well as purpose of the study. Chapter 2 begins with a brief of tourism supply chain concept. Then, a state-of-the-art decision model and method for partner selection are critically reviewed.

In Chapter 2 we also explain the basic concept of fuzzy multiple attribute decision making and follows by re-formulating a general scheme of ME-MADM problems with uncertain linguistic assessments as well as briefly introduce the Dempster-Shafer theory of evidence and Dempster's rule of combination using in this research. Chapter 3 introduces research framework and strategy for data collection Next, Chapter 4 explains a process of developing evaluation criteria for partner selection in tourism industry. Later, Chapter 5 describes a process of developing a tourism partner evaluation model and approach. In addition, the proposed method is illustrated with a real partner selection problem in tourism supply chain networks. Further, the performance evaluation of proposed method is also conducted. Finally, Chapter 6 concludes the paper with some discussions and concluding remarks as well as suggestions for future research.

Keywords: Multi-expert multi-attribute decision making, uncertain linguistic assessment, satisfactory principle, partner selection, tourism supply chain management

論文審査の結果の要旨

Partner selection is an important decision problem in supply chain management and has been widely studied in the last decades. So far, numerous decision models and approaches have been developed for solving the problem of partner selection in a variety of business contexts. However, according to the literature review, there has been no evaluation framework and method developed for partner selection in tourism networks. Previous studies have indicated that a success rate of providing services in tourism business depends on the performance of working partners, especially in designing a tour package. In addition, it is observed that although partnerships provide significant benefits, most tourism organizations fail in practical implementations causing the huge unrecoverable sunk costs such as negative reputation. These make the problem of partner evaluation and selection for tourism collaboration is critically very important and worth to be studied.

The research of this dissertation is therefore focused on developing an evaluation framework and method for the partner selection problem in tourism networks. The research problem is well defined and the research questions and objectives are specific and properly formulated. Also, a comprehensive overview of relevant literature related to the research problem is provided in the dissertation. The contribution of this dissertation is three-fold: (1) it proposed a set of evaluation criteria for partner selection in tourism supply chain networks, which were empirically verified using appropriate statistical techniques; (2) it provided a conceptual framework for partner selection in tourism collaboration in which the partner selection problem is formulated as a multi-expert multi-attribute decision problem with uncertain linguistic assessments; (3) it developed a hybrid evaluation model for tourism partner selection consisting of two phases: a *modeling and aggregation phase* that first models multi-expert linguistic assessments by means of mass functions and then makes use of Dempster's rule of combination for attribute aggregation;

and an *evaluation and selection phase* that transforms the combined mass functions into corresponding probability distributions and finally defines a linguistic choice function based on the so-called satisfactory principle for ranking and selection. Finally, a practical case study in Thai tourism industry was conducted to show the applicability of the proposed model as well. The research work presented in this dissertation has resulted in two journal papers, one of which has been accepted for publication, and several refereed conference papers.

In summary, Mr. PONGSATHORNWIWAT Narongsak has completed all the requirements in the doctoral program of the School of Knowledge Science, JAIST and finished the examination on August 9, 2016. All the committee members unanimously decided to pass the candidate.