ABSTRACT

The focus of this dissertation is customer behavior during the process of searching the hotel information and booking a hotel through online travel agencies (OTAs). OTAs provide a large number of hotels to heterogeneous customers. Matching a hotel with a customer's preference is a challenge under the uncertain condition of customer (e.g., preference, arrival), especially when customers have multidimensional preferences and involve the impact of online review.

The full utilization of the hotel recommendation and online review mechanisms is mainly concerned in this dissertation. In the current situation, a number of OTAs provide a hotel recommendation mechanism by recommending a hotel in a sorting feature. A customer can sort the presentation of available hotels based on single attribute such as sorting by price, review rating, star rating and website's favorite. Although the current sorting mechanism of OTAs (e.g., website's favorite) can recommend a hotel efficiently in timely aspect, the recommendations might be biased because of the advertising fee to promote some hotels. Also, the current sorting mechanism of OTAs has limitations to satisfy the multidimensional preferences of customers, as most of them sort a number of hotels by considering single attribute (e.g., sorting by start rating). The number of hotels along with the sequence of available hotels shown on the Web site has the significant impact on the process of customer choice decision. Specifically, the online customers may fail to notice a satisfactory hotel if it is shown at the bottom of a long sequence. For an online review mechanism as well, a large number of online reviews involving unnecessary information (e.g., customer's complaints, bias review) are the barrier to reach a satisfactory hotel concerning the search time of customer.

In this dissertation, we presented the whole optimization of customer experience who uses OTAs search for the hotel information and perform a hotel booking transaction. The design and usage of the hotel sorting and online review mechanisms were investigated. Specifically, we proposed a new approach, based on a two-stage stochastic programming (2SSP) model, to design an optimal sequence of hotels and the selection of useful online reviews presented on the Web site. The objective is to help a customer could find a satisfactory hotel at the minimum number of search steps while satisfying the maximum utility gained from a selected hotel. We collected the customer data through a survey method and took the hotel information from the selected OTAs, mainly from Hotels.com and Agoda.com. This information was then used through the numerical experiments to simulate a case study of online hotel booking. The case study makes the proposed model close to the realistic mechanism. Even though our model might not 100% reflect the reality of online booking mechanism but none of the model in the research does as all the model are a simplified version of reality. Thus, it is our belief that the proposed model is a closest proxy of real customer searching behaviors as we incorporated the minimum and standard parameters taken from several surveys including the one we conducted.

Three model approaches were proposed in this dissertation (presented in Chapter 5, 6 and 7). That is, Chapter 5 mainly focuses on the design and usage of a hotel sorting approach. This model covers the basic idea of this dissertation that aims to maximize the customer experience through the profitable design of OTAs. It provides the interesting findings and the practical implications for OTAs and hotels. The OTA managers could adopt the proposed approach and the findings for decision making regarding to the strategy to sort the number of available hotels. Moreover, for the hotel managers, they can analyze their competitive position in the current market, and our model could extend to provide the direction of improvement to maintain the competitive advantages.

We extended the first model (presented in Chapter 5) to incorporate full scale of parameters, mainly on the parameters of online reviews. Accordingly, the extension of the first model by incorporating the sorting approach for online reviews is presented in Chapter 6. Similarly, Chapter 7 incorporated the hotel sorting and online review selection mechanisms. The decision for the online review management was made on the basis of different perspectives as in Chapter 6 (e.g., the decision based on the target and valence of reviews) and Chapter 7 (e.g., the decision based on the online review indicators). Thus, three models are differentiated on the basis of assumption and purpose of study. Accordingly, the formulation of the proposed model and application are slightly different to response the different features of OTAs (e.g., Hotels.com and Agoda.com).

In summary, this dissertation provides the contribution to tourism industry, e-commerce and knowledge science. It provides a framework that could promote the understanding of customer's behavior and profitable design of OTAs. It provide an effective approach that helps OTAs design the recommendation and online review mechanisms to enhance customer experience. Also, three chapters provide a new and different perspective of website design and online review management.

Keywords: Online hotel booking, Online review, Multi-dimensional Sequencing, Multi-preference Consumer, Stochastic programming