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Enhancing Tourism Intermediaries with the Data Mining Process

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Abstract. Data mining has received extensive research attention in the tourism industry owing to its benefit for managing large and complex buyer behavior in the industry. For tourism industry, the value of database pertaining to customer relationship management is increasingly addressed. This study examined the application of data mining for customer relationship management in the tourism industry in Taiwan. A qualitative method was employed to explore the perceptions of managers from the travel agencies. The findings suggested a proposed data mining process for travel agencies to develop long-term relationships with customers in the tourism industry.

Keywords: data mining, tourism industry, customer relationship management, Taiwan

1. Introduction

Nowadays, productivity growths rely not only on human labor but also on computational technology such as the integration of data mining and knowledge-based systems design. Computational technology involves equipment or engineering applications utilizing for organizational systems and results in remarkable revolution of consumers, institutions, companies, and industries globally. This revolution has also affected tourism industry as tourism is an information-based business [1]. Tourists today attain information through multiple channels, such as the Internet, handouts, or word of mouth, before making decision for desired destinations. Inevitably, age of the Internet has turned the business world to be more interaction information sharing. Computational technology is likely to offer what tourism organizations require (i.e. customer relationship management), and resulting in enhancement of their organizational performance and strategic competitiveness [2, 3].

Tourism is one of the largest industries in the global business [4-6] with investments of 12 % of world GDP [7]. Taiwanese government has been focused on promoting Taiwan as a tourist destination. This strategy has significant implications for travel agencies as they play a vital role by facilitating the operation of the tourism industry in Taiwan. In this regard, they act as intermediaries between suppliers of accommodation, transport and leisure services and the consumers. Further, travel agencies are recognised by the government as an important part of the distribution channel for inbound and outbound tourism to increase the number of tourists in the country [8].

Travel agencies, as tourism intermediaries, are under pressure due to high competition not only within the industry but also with other types of indirect competitors in Taiwan. Therefore, travel agencies should give importance regarding the application of computational technology into their organizations. This study aims to investigate the use of data mining in improving customer relationship management (CRM) for travel agencies in Taiwan.

2. Data Mining & CRM

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In recent years, the importance of databases has been proliferating in global businesses. Organizations must manage massive information from various sources regularly, and hence, they are seeking a tool or technique for collecting, storing, and analyzing a huge amount of data. In line with this reasoning, data mining has seen an explosion of interest from both academics and business practitioners [9] since data mining has been found useful for easily handling large and complex data sets in modern enterprises [10]. Data mining is defined as a process of searching formerly unknown but meaningful information by filtering large data sets and using a combination of pattern-recognition, model building, and validation techniques [11].

Given this fact in managing a number of data, data mining is the most appropriate method in representing the complexity of business environment among other statistical methods [12, 13]. The use of data mining techniques has received considerable attention primarily in manufacturing industry since the 1990s [14]. Nevertheless, the data mining applications in service businesses are rather limited. For a service firm, data mining is employed to convert customer information into customized and active marketing decisions to increase long-term profit [15] because one of its advantages is an interactive computer-based method employing statistics to gather and filter data into a format that is suitable for analysis [16, 17]. Hence, this technique provides a significant benefit for service businesses by revealing new patterns of buyer behavior [18], client attributes and purchasing patterns [19] as well as patterns of on-line customer enquiries [20].

Customer relationship management is perceived as an effective and efficient strategy for managing correspondence and interactions associated with customers and clients. The goal of CRM is composed of several elements that are to effectively synchronize customer information, to appeal new customers and maintain regular clients, to reduce the cost structure, to progress profits, and ultimately to continue competitiveness [21]. Organizations wherein the increasing competitive marketplace are suggested to conduct marketing campaigns involving CRM [22-25] so as to relentlessly improve customers relationship, customer loyalty, and customer retention in line with organizational profit capability.

Details of customers are indispensable in the tourism business. The managers of travel agencies utilize customer information to customize promotional offers for targeted customers. Long-term customers for organizations are less operating costs and increased purchases because they have fewer problems and fewer demands [26]. In order to deal with ever-changing customer demand, travel agencies need to focus on market segmentation through CRM to enhance the capacity of marketing and management on tourism products [27]. Information technology can help to improve the efficiency of CRM [28]. Therefore, CRM uses technological applications to assist organizations in achieving their overall business objectives.

3. Findings & Discussion

This study employed a qualitative research method. The target population is travel agencies operating in Taiwan. A snowball sampling technique was used to ask previous interviewee for providing the next potential research participant. Fifty travel agencies were approached and thirty-two agents agreed to interview for providing pragmatic details and informative suggestions.

According to the interview results, all thirty-two participating managers agreed that that the improvement brought about by data mining was beneficial in retaining customers for their firms. The managers interviewed also shared the opinion that data mining may serve as a tool to establish, maintain and enhance long-term relationships with customers. Of all research participants, the majority view revealed that the application of data mining was not fully employed by travel agencies in Taiwan. Given this result, a four-step process of data mining, which is feasible and worthwhile for travel agencies as tourism intermediaries, are presented as follows.

- *Step 1: Gathering customer data.* In this step, it is possible for travel agencies to retrieve other valuable customer information from their bookings and the membership registration process. This information includes special requests, type of desired accommodation, and the length of trip that can help travel agents to modify their marketing campaigns and increase bookings.

- *Step 2: Classifying customer data collected.* By utilizing data mining to compile information from collected data, customers are arranged into pre-defined segments that allow the size and structure of groups to be monitored. In the end, travel agencies can analyze the demographic information to allocate customers to segments, which relate to customer's purchases and demands.
- *Step 3: Identifying the targeted segment(s).* Data mining is employed to identify groups of customers with similar behavior and track as well as measure customers' reactions to different offers. CRM strategy can be devised after this step and used to establish long-lasting relationships with customers.
- *Step 4: Improving services.* High-profitability customers can be retained by means of data mining since this technique help customize the services according to each customer's preferences. For example, a travel agency is likely to create a personalized direct-mail campaign and send out to the target customer accordingly.

4. Conclusion

Data mining technique should be developed for travel agencies because this technique can help them to create marketing strategies and maximize organizational profits [29]. Travel agencies should accumulate large amounts of customer data, which can be integrated in databases that can be used to guide their marketing decisions. By using the proposed process for analyzing data collected, travel agencies can track customers' purchasing activities. This helps travel agencies customize an array of marketing deals and offers to match various customer preferences. As a result, travel agencies are able to prevent their valued customers from defecting to their competitors. Travel agencies can maintain regular clients, classify their preferences, and leverage short-term service costs, which in turn optimize profitability.

Due to technological development, the Internet becomes a contemporary communication platform for individual consumers in tourism industry and, if appropriately exercised, can be a prominent tool for travel agencies. The advantages of the Internet are pointed out as follows. First, it can facilitate two-way communication between travel agencies and consumers. Second, it allows immediate access at any location 24 hours a day. Third, it entails one-to-one marketing. Last but not least, it helps reduce production cost and marketing expenditures. The advantage of the Internet to provide one-to-one marketing is perhaps the most influential attributes mentioned above. One-to-one marketing refers to understanding individual needs and customizing what perfectly fit with their needs [30]. Once achieved, one-to-one marketing is likely to enhance customer loyalty and to lower cost structure. Data mining in conjunction with the Internet can generate one-to-one marketing [31], for instance, e-mail customer service, inquiry routing and on-line purchasing.

The empirical results of this study provide practical guidelines to travel agent managers who pursue enhanced level of organizational competitiveness. As a computational technique, the proposed process of data mining may encourage managers to use as a roadmap in establishing their organizational CRM strategies. In addition, travel agencies are suggested to adopt the application of data mining in Internet-based scenario for implementing their CRM strategies, which in turn sustain their competitiveness in current business environment and establish successful relationship with customers.

5. References

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