Assessing Travel Websites Based on Service Quality Attributes Under Intuitionistic Environment

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ABSTRACT

Digitalization has increased the importance of online marketing as compared to its traditional counterpart. Over the years, the number of customers using online portals for booking tickets and hotel rooms via online travel agencies (OTAs) has shown an increasing trend. This may be due to the discounts and add-on services provided by OTA retailers. Quality of the website attracts customers to make a visit and henceforth a purchase. Since the satisfaction of online customers impacts the success of a website, a model is proposed to rank OTA websites on the basis of factors that affect website quality. The website quality criteria considered are trust, ease of use, tangibility, ease of booking, navigation, customization, system availability, responsiveness, and interactivity of ewom (electronic word-of-mouth) systems. The model combines the multi criteria group decision making (MCGDM) techniques of intuitionistic fuzzy analytic hierarchy process (IFAHP) and intuitionistic fuzzy preference ranking order method for evaluation enrichment (IFPROMETHEE). A case study is provided to validate the model. The results of the case study show the higher ranking given to the OTA website with most efficient service quality attributes.

KEYWORDS

E-Commerce, Intuitionistic Fuzzy AHP, Intuitionistic Fuzzy PROMETHEE, Intuitionistic Fuzzy Sets, Online Travel Agency, Website Service Quality

1. INTRODUCTION

Technological advancements have led to greater interaction between the online customers and the marketers. The service sector has increased the usage of online platforms over the years. The increase in sales of hospitality sector especially the online travel is expected to cross 817.5 billion US dollars by 2020 (Statista, 2017). With the noticeable increase in online travel segment, the online marketing speculators are keenly focused on this industry (Sambhanthan & Good, 2014). OTA provides a single interface for the customers to compare prices and buy trips online (Ku & Fan, 2009). This is enhanced by enabling the customers to purchase air plane tickets, book hotel rooms, and hire cars

through various vendors but using single site and single transaction. Previous researchers have proved a positive correlation between pleasant online shopping experience and the quality of site (Wang, Law, Guillet, Hung, & Fong, 2015). Website quality is the perceived effectiveness of the online shopping site as per the customers browsing the website. The information quality, system quality, and service quality combine together to form a multidimensional construct the website service quality. Website service quality is an extension of the traditional service quality introduced by Parasuraman, Zeithaml, and Berry (1988) over the online mode (Zeithaml, Parasuraman, & Malhotra, 2002).

The effectiveness of a website can be measured by the satisfaction level experienced by online users during their browsing sessions. Many extant researches have vocalized the dimensions that impact website quality, which is a quintessential for online customer satisfaction (Yoo, Kim, & Sanders, 2015). Earlier studies in the hospitality sector were mainly centered about hotel industry (Ali, 2016; Li, Peng, Jiang, & Law, 2017). Not much work has evaluated and measured the success of online travel websites. This paper provides an intuitionistic multi criteria decision making approach to rank online travel agency (OTA) websites on the basis of constructs measuring website quality success. The dimensions considered for evaluation purposes are trust, tangibility, customization, ease of ordering, navigation, system availability, ease of use, responsiveness, and interactivity of ewom (electronic word-of-mouth) systems.

Nowadays, the decision-making process has become multiple criteria based rather than taking the decision on single criteria, as done previously (Akincilar & Dagdeviren, 2014). This has popularized the concept of multi criteria decision making (MCDM) among the researchers. MCDM theory has now passed through various evolutionary phases incorporating the concepts of crisp set (Saaty, 1980) and fuzzy set (Zadeh, 1965), and recently reached the intuitionistic fuzzy sets (IFS) (Atanassov, 1986). The IFS takes care of the degree of preference and non-preference faced by a decision maker about any alternative. Thus, the IFS are efficient in handling any hesitancy in decision making. Moreover, the researchers working in this area noticed the bias in inputs provided by the experts from whom feedback is sought. To tackle this problem, the concept of multi criteria group decision making (MCGDM) was introduced (Pérez, Alonso, Cabrerizo, Lu, & Herrera-Viedma, 2011). This provided the best solution by taking inputs from a number of decision makers, which are later integrated using aggregation operators. In this paper, we combine the MCDM techniques of Analytic Hierarchy Process (AHP) and Preference Ranking Order METHod for Evaluations Enrichment (PROMETHEE), extended over IFS under group decision making to rank the OTA websites under consideration. The Analytic Hierarchy Process is a MCDM technique used to handle both measurable and non-measurable data developed by Saaty (1980). It is a powerful tool which converts a difficult problem into a top-to-down structure to make it easily solvable. The Preference Ranking Order METHod for Evaluations Enrichment is an outranking technique under multi criteria decision making process, introduced by Brans and Vincke (1985). The method enables the decision maker to evaluate both a partial and a final ranking of the alternatives under consideration. Here, the intuitionistic fuzzy AHP (IFAHP) is used to obtain the criteria weight of the factors that impact the website service quality and the intuitionistic fuzzy PROMETHEE (IFPROMETHEE).

Therefore, the goal of this paper is to rank OTA websites on the basis of website quality success factors. The organization of the paper is as follows: Section 2 is a review of the related literature (titled Literature Review). Section 3 presents our methodology (titled Methodology). In this section, we describe the intuitionistic multi criteria decision making approach to rank online travel agency (OTA) websites on the basis of constructs measuring website quality success. Section 4 presents the findings after applying our model (titled Results). Here we present rankings based on seven website quality service factors namely trust, tangibility, customization, ease of ordering, navigation, system availability, ease of use, responsiveness, and interactivity of ewom (electronic word-of-mouth) systems. Section 5 (titled Conclusion) discusses the significance, limitations, and recommendations for future research for this study.

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