



Review

A hybrid multi-criteria decision making model to evaluate hotel websites

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ABSTRACT

Purpose: The main purpose of the study is to develop a robust and reliable model which evaluates the quality of hospitality websites, or more specifically, hotel websites.

Design/methodology/approach: The literature is deeply overviewed and an advisory board is consulted for determination of the critical factors affecting the quality of a hospitality website. Appointed criteria are organised as a hierarchy according to their orientation. A hybrid model including two multi-criteria decision making approaches, namely the Analytic Hierarchy Process (AHP) and Preference Ranking Organisation Method for Enrichment Evaluations (PROMETHEE), is proposed to achieve the purpose of the study. The AHP is utilized to weigh the criteria, and, ranking of the alternatives are provided via PROMETHEE. For the case study, websites of five-star hotels in Ankara, which is the capital city of the Republic of Turkey, are evaluated.

Findings: Encouraging results are obtained for the case study by the proposed model.

Originality/value: The proposed model provides reliable and robust results for any qualitative or quantitative criteria to evaluate hospitality websites which is a very important task for both customers, and enterprises, even for governments.

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1. Introduction

Independently of their sector, each big corporation has to store, categorize, manage and present their data and databases efficiently to be able to survive in this day. The Internet, which is one of the most important inventions, provides storing, sharing, and

reaching large data and datasets. Websites of big corporations must be designed well and managed properly, because the formal website of a corporation, an organization, or an establishment contains general data, additional data, advertisements, honors, and databases. In the literature, many studies can be encountered in which the problems related to web-based database management, website design, etc. are discussed. Data mining is extensively used by academicians and experts for the solution of the problems related large datasets. Besides web-based database management, and data management; perception of the end-users may be still the most significant key of e-business and institutional websites. Since perception and satisfaction of the end-users may have to be the

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main purpose from service providers' or producers' point of view, marketing becomes a very powerful and vital tool for the corporations. Shortly, presentation of the products and services is a crucial component for management. Internet seems a very powerful and efficient tool to achieve marketing goals for any kind of institutional corporations.

As the Internet has penetrated people's lives and companies' business practices, providing interactivity and commercial support, it has had a great impact on the marketing practices (Schmidt et al., 2008). The rapid development of information technology in general and the Internet in particular has dramatically changed the tourism industry (Ho and Lee, 2007). Palmer and McCole (2000) indicated that the hospitality industry is in an ideal position to exploit the potential of the Internet.

It is widely accepted that Internet can serve as an effective marketing tool in tourism (Buhalis, 2003; Buhalis and Law, 2008). According to Schmidt et al. (2008); there is a little doubt that the Internet is changing marketing practices, and, hotels are increasingly taking advantage of the Internet as a marketing tool.

Since the formal website represents the organization in Internet environment, website of an organization is crucial. Thus, to be able to deal with the competitors, website of an organization has to be effective and efficient. In order to measure website effectiveness, it is important to know what can be measured and how to measure it (Schmidt et al., 2008). We motivated by lack of such an overall website evaluation model which considers qualitative criteria from the end-user's point of view for hotel websites. In our proposed model, website effectiveness was investigated under consideration of realistic criteria which were determined in the previous studies with extended form.

In this paper, a multi-criteria decision making model which is capable of evaluating websites is presented. In this model, two of the well-known methods in the field of multi-criteria decision making (MCDM), namely the Analytic Hierarchy Process (AHP) and Preference Ranking Organization Method for Enrichment Evaluations (PROMETHEE), were integrated to obtain more robust and reliable results. In the literature, it can be faced the integration of the AHP and the PROMETHEE for other decision making problems. Babic and Plazibat (1998), Bilsel et al. (2006), Wang et al. (2006), Wang and Yang (2007), Dagdeviren (2008) can be some examples for applications which adopted the integration of the AHP and the PROMETHEE in various fields. Behzadian et al. (2010) may be viewed for more instances and further details about the integration of the PROMETHEE with other MCDM tools. In this study, we adopted a very similar approach in order to obtain which factors and how much they influence the quality of hotel websites, and to be able to sort the websites as to their quality. First, factors affecting the website evaluation problem are comprehensively investigated. Next, appointed dimensions through this investigation are weighed via the AHP. Thus, the decision maker has obtained the weights, which represent significance levels of the criteria and sub-criteria. Finally, the determined alternatives are ranked via the PROMETHEE based on the weights of the criteria and sub-criteria which were obtained in the AHP phase.

This paper is organized as follow: literature review is presented in the next section; utilized methods are briefly introduced in the Section 3 including two sub-sections, namely AHP method, and the PROMETHEE; proposed model is described in Section 4 which is provided by three sub-sections, namely determination of criteria, weighing criteria, and website ranking; in Section 5, discussion of the proposed model, and suggestions for future works take place.

2. Literature review

A website offers a business not only a platform to promote products or services but also another avenue to generate

revenue by attracting more customers. Unfortunately, not all websites successfully turn visitors into customers. Therefore, the effective evaluation of websites has therefore become a point of concern for practitioners and researchers (Chiou et al., 2010). In brief, website evaluation is of interest to academic researchers and industrial practitioners (Law et al., 2010). In the literature, many website evaluation studies can be faced. The evaluation of tourism websites (Dickinger and Stangl, 2013; Bastida and Huan, 2012), hospitality websites (Murphy et al., 1996; Jeong and Lambert, 2001; Wober et al., 2002; Schegg et al., 2002; Wan, 2002; Aksu and Tarcan, 2002; Huang and Law, 2003; Chung and Law, 2003; Law, 2005; Baloglu and Pekcan, 2006; Stockdale and Borovicka, 2007; Qi et al., 2008a; Xiong et al., 2009), destination websites (Feng et al., 2003; Beldona and Cai, 2006; Qi et al., 2008b), travel supplier websites (Kaynama and Black, 2000; Gupta et al., 2004; Roney and Ozturan, 2006; Bevanda et al., 2008), airline websites (Shchigliuk and Barnes, 2004; Harison and Boonstra, 2008), apparel websites (Kim and Stoel, 2004a,b; Park et al., 2012), travel websites (Mills and Morrison, 2003; Lu et al., 2007; Hu, 2009) can be given as examples for website evaluation studies.

In this paper, more specifically, hotel website evaluation is focused on. It is realized that statistical methods such as Exploratory Factor Analysis (EFA), Confirmatory Factor Analysis (CFA), Structural Equation Modeling (SEM) often used for the hotel website evaluation. Schmidt et al. (2008) can be obviously given as an example for this issue. Schmidt et al. identified 8 characteristics but reduced to 6 by the reason of very low variances of 2 characteristics. The first step for validation is to apply EFA which helps to determine whether the items were essentially associated with the identified categories from the literature. After validation of all the categories with CFA, SEM applied to validate an instrument for the measurement of website characteristics. As a result, interestingly, only characteristic of promotion has become significant on website effectiveness by SEM.

Yeung and Law (2004) suggested the usability of the hotel websites as a website evaluation criterion. A modified heuristic model was developed to compare and contrast the usability performance between chain and independent hotel websites. Experimental results indicated that the website usability performance of chain hotels was significantly better than independent counterparts.

Stepchenkova et al. (2010) evaluated websites of Convention and Visitor Bureaus (CVBs) via modified Balanced Scorecard (mBSC) with respect to overall technical functionality, customer friendliness and usability, effectiveness of marketing the destination, and information content. Spatial maps constructed for these four dimensions using ArcMap v.9.2 GIS software and CVB website performance assessed by the maps constructed.

Chiou et al. (2010) attempted to understand and improve website evaluation through the analysis of 83 articles by classifying them into IS, marketing, and combined-approaches. In this study, analyzing according to website strategy was employed by the proposed hierarchic construction for website evaluation after developing a criteria pool based on the goals and objectives.

Another considerable study in this issue is the literature review of Law et al. (2010). This paper analyzed previous hospitality website evaluation studies based on methodological approaches. Law et al. described 5 evaluation approaches for prior studies, namely, counting, automated, numerical computation, user judgment, and combined methods. It was indicated that while combined methods offered for today; inter-disciplinary approaches and theories which have contribution from other disciplines such as psychology, human-computer interaction, and engineering were offered for future studies to incorporate.

After that, Escobar-Rodriguez and Carvajal-Trujillo (2013) adopted two main objectives related to website strategies. To identify the strategies pursued by Spanish hotel websites, and to analyze

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