A CONSUMER PERSPECTIVE E-COMMERCE WEBSITE EVALUATION MODEL

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Abstrak

Kaedah penilaian laman web yang sedia ada mempunyai beberapa kelemahan seperti mengabaikan kriteria pengguna dalam membuat penilaian, tidak dapat berurusan dengan kriteria kualitatif, dan melibatkan timbangan dan pengiraan skor atau markah yang kompleks. Kajian ini bertujuan untuk membangunkan model hibrid penilaian laman web e-dagang yang berorientasikan pengguna berdasarkan Proses Hierarki Analisis Kabur (FAHP) dan Kaedah *Hardmard* (HM). Empat fasa telah terlibat dalam membangunkan model: pengenalpastian keperluan, kajian empirikal, pembinaan model, dan pengesahan model. Pengenalan keperluan dan kajian empirikal digunakan untuk mengenal pasti kriteria reka bentuk web kritikal dan mengumpul pilihan pengguna dalam talian. Data yang dikumpul daripada 152 pengguna di Malaysia dengan menggunakan soal selidik dalam talian, telah digunakan untuk mengenal pasti ciri kritikal dan skala kepentingan laman web e-dagang. Model penilaian yang baharu terdiri daripada tiga komponen. Pertama, kriteria penilaian pengguna yang terdiri daripada prinsip-prinsip penting yang dipertimbangkan oleh pengguna; kedua, mekanisme penilaian yang mengintegrasikan FAHP dan HM yang terdiri daripada penyataan matematik yang menghuraikan tanggapan subjektif, formula baharu untuk mengira timbangan dan skor bagi setiap kriteria; dan ketiga, prosedur penilaian yang terdiri daripada aktiviti-aktiviti penubuhan matlamat, penyediaan dokumen, dan pengenalpastian prestasi laman web. Model ini telah diteliti oleh enam orang pakar dan digunakan dalam empat kajian kes. Hasil kajian menunjukkan bahawa model baharu adalah praktikal, dan sesuai untuk menilai laman web e-dagang dari perspektif pengguna, dan mampu untuk mengira timbangan dan skor atau markah bagi kriteria kualitatif dengan cara yang mudah. Di samping itu, ia dapat membantu pembuat keputusan untuk membuat keputusan dengan cara pengukuran yang objektif. Model ini juga menyumbang pengetahuan baharu dalam bidang penilaian perisian.

Kata kunci: Model penilaian laman web e-dagang, Proses Hierarki Analisis Kabur, Kaedah *Hardmard.*

Abstract

Existing website evaluation methods have some weaknesses such as neglecting consumer criteria in their evaluation, being unable to deal with qualitative criteria, and involving complex weight and score calculations. This research aims to develop a hybrid consumer-oriented e-commerce website evaluation model based on the Fuzzy Analytical Hierarchy Process (FAHP) and the Hardmard Method (HM). Four phases were involved in developing the model: requirements identification, empirical study, model construction, and model confirmation. Requirements identification and empirical study were to identify critical web-design criteria and gather online consumers' preferences. Data, collected from 152 Malaysian consumers using online questionnaires, were used to identify critical e-commerce website features and scale of importance. The new evaluation model comprised of three components. First, the consumer evaluation criteria that consist of the important principles considered by consumers; second, the evaluation mechanisms that integrate FAHP and HM consisting of mathematical expressions that handle subjective judgments, new formulas to calculate the weight and score for each criterion; and third, the evaluation procedures consisting of activities that comprise of goal establishment, document preparation, and identification of website performance. The model was examined by six experts and applied to four case studies. The results show that the new model is practical, and appropriate to evaluate e-commerce websites from consumers' perspectives, and is able to calculate weights and scores for qualitative criteria in a simple way. In addition, it is able to assist decision-makers to make decisions in a measured objective way. The model also contributes new knowledge to the software evaluation field.

Keywords: E-commerce website evaluation model, Fuzzy Analytical Hierarchy Process, Hardmard Method.

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List of Abbreviations

DMs	Decision Makers
ACSI	American Customer Satisfaction Index
AHP	Analytic Hierarchy Process
ANP	Analytical Network Process
BNP	Best Number Preference
CAS	Criteria Average Score
CEC	Consumer Evaluation Criteria
CI	Consistency Index
COA	Center of Area
CR	Consistency Ratio
DQAS	Descriptive Question Average Score
FAHP	Fuzzy Analytic Hierarchy Process
IEEE	Institute of Electrical and Electronics Engineers
ISO	International Organization for Standardization
KMO	Kaiser-Meyer-Olkin
MCDM	Multi-Criteria Decision Making
SPSS	Statistical Package for the Social Sciences
TFN	Triangular Fuzzy Number
WAS	Weight Average Sum

List of Publications

Tarawneh, O., Ahmad, F. (2009). Investigating the characteristics used in quantitative analysis of websites evaluation. *Paper presented at the 4th International Conference on Information Technology held on 3-5 June* 2009, *Al-Zaytoonah University,* Jordan (pp.69). Jordan: IEEE Computer Society

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CHAPTER ONE
INTRODUCTION

Chapter One presents the background of the study, followed by the research problem, research motivation, research questions, research objectives, research scope, and research methodology.

1.1 Background

The importance of companies' websites has been recognized by many. A website is defined as a collection of related web pages on a particular subject that includes a beginning file called a home page. According to Olsina et al., (2001), Sekaran (2006) and Zhang et al. (2008), websites are considered as applications on the World Wide Web, which in turn is considered as software (Dominic & Jati, 2010). According to Jinling (2005), the web plays a major role in diverse application domains, such as business, education, industry and entertainment.

Many companies are moving from the traditional way of doing business to the electronic way to cope with the evolution, to be competitive and remain sustainable (Liu et al., 2007; Miranda et al., 2006). As a result, companies have begun to focus on e-commerce website construction in their strategic planning activities (Liu & Hu, 2008). In general, e-commerce can be defined as a business process of selling and buying products, information, and services through online communications or via the internet medium (El-Aleem et al., 2005; Li et al., 2005). Indeed, e-commerce is considered as one of the best methods for buying and selling products, services, and information electronically. Therefore, a large number of e-commerce websites have

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