

The influence of Small Enterprises Websites on Users' Satisfaction

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ABSTRACT

This study advocates that websites' levels of applications/functions are a major determinant of customer satisfaction, and by extension, a determinant of the merit of a firm's e-commerce system. In particular, it aims to inspect the potential influence of small enterprises website applications on visitor satisfaction. The model fashioned for this research outlines the main constructs involved in manifesting the potential influence of website characteristics on visitor satisfaction. An instrument consists of 17 questions was designed to collect data required to evaluate the actual satisfaction of visitors with small enterprises websites. The model was tested via surveying individuals in urban New South Wales (Australia). The expectation disconfirmation theory (EDT) was employed to assess user satisfaction. The multiple regression method (MLR) technique was applied to analyse the collected data. The results demonstrated that the competence of website components is critical in shaping visitors, customers, and potential customers' attitudes, behaviours, and satisfaction.

Keywords: *Small Enterprises, Websites Applications, User Satisfaction, Perceptions, Propagation, Efficiency, Criteria, Expectation Disconfirmation Theory, Paradigm, Phenomena, Quantitative Method, Multiple Regression Method.*

1. INTRODUCTION

Recognising that e-commerce website aptitude to satisfy its users' needs serve organisations attempts to achieve their strategic purposes. Organisations websites' capacity to rouse and fulfil customer desires and expectations is a key to improving their businesses' bottom line. An organisation with a website reflecting the requirements of its customers will, therefore, generate a better image and enhance its competitive position. In fact, the success of firms' e-commerce websites in creating a constructive attitude hinges on their ability to meet customer expectations, needs, and desires (Schaupp, Fan, & Belanger, 2006). Studies conducted by Aladwani and Palvia (2002), DeLone and McLean (1992), Loiacono, Watson, and Goodhue (2002), Ranganathan and Ganapathy (2002), and Seddon (1997) affirmed that user satisfaction is a key indicator of information system success. Add to these, the valuable efforts in time and funds that are often required to instigate and launch an e-commerce website necessitate the need to understanding the actual influence of website applications on shaping customer attitudes. The potential influence of websites on users' satisfaction has encouraged researchers such as Auger (2005) to aver that addressing customer requirements is becoming essential for e-commerce success. Testing customers' perceptions of a website is regarded an enviable way to make inferences regarding its impact. This is seen as serving the strategic objectives of the organisation, particularly when the assessment is supported by empirical inquiry. For this reason, it seems imperative for organisations to evaluate customer perceptions of their e-commerce system applications. In doing so, organisations can identify website strengths and weaknesses, and create benchmarks against competitors and best practice in the marketplace. The focus of the current study is on website applications in the context of small enterprises, considering visitors' (i.e., potential customers) viewpoints. The following sections address e-commerce website structures and functions. First, related literature is reviewed in order to note links with the research problems and questions. This is followed by a discussion of the research rationale, the satisfaction magnitude, the satisfaction definition, the research paradigm, the theoretical background, the proposed model, the proposed hypotheses, the measurement of the proposed model constructs, and the data analysis. Next, the implications of the study are outlined. Finally, the limitations of the study, recommendations, and suggestions for future research are noted.

2. LITERATURE

Satisfaction as a construct in assessing information system (IS) success has been well researched. Bailey and Pearson (1983), who tested user satisfaction with computer system characteristics, conducted an early study in this field. The instrument they proposed included several constructs (39 items) linked to information quality, system efficacy, and employee and managerial participation. Bailey and Pearson's instrument was used by Ives, Olson and Baroudi (1983) to develop a 13-item instrument to measure user satisfaction with the information of organisations' data processing group. Baroudi, Olson, and Ives (1986) employed Bailey

and Pearson's (1983) instrument to test the causal associations of user participation with system utilisation and information satisfaction. Doll and Torkzadeh (1988) developed an inclusive 12-item user satisfaction tool with five key constructs, including content, accuracy, format, ease of use and timeliness, to determine end-user satisfaction with computers. Doll and Torkzadeh's instrument has been widely accepted and regularly used to measure end-user computing satisfaction (Doll, Deng, Raghunathan, Torkzadeh, & Xia, 2004; McHaney, Hightower, & Pearson, 2002; Somers, Nelson, & Karimi, 2003). McKinney, Yoon, and Zahedi (2002) proposed an instrument for assessing web-customer satisfaction throughout the information stage. The mechanism they recommended suggests a measurement for online customer satisfaction incorporating the expectation disconfirmation model, and the IS success model (DeLone & McLean, 1992). Their findings demonstrated that information quality and system quality are key deciders of customer satisfaction.

What's more, previous studies claimed that websites applications must fulfil customers' expectations. If these expectations are not fulfilled, the exit strategy can simply be applied, by means of moving away to other sites (Graja & McManis, 2001). Visitors/ users/customers who feel frustrated with a specific system may not use it again. Users of website who realise that their expectations not met are more likely not to utilise it in the future (Bailey & Pearson, 1983; Ives, Olson, & Baroudi, 1983; Bhattacharjee, 2001; Te'eni & Feldman, 2001). In fact, dissatisfied customers can ruin firms' investment efforts, making it very difficult to achieve genuine benefits from e-commerce. Satisfaction represents an essential instrument in constructing a competitive edge in the business environment. Proficiency of website applications is likely to result in enhanced visitor satisfaction, and consequently to increase the chance of visits and re-visits. Evidence from prior studies indicates a significant linkage between customers' satisfactions and re-purchases intent (Patterson, Johnson, & Spreng, 1997). Schwarz (2001) claimed that organisations could lose up to 60 percent of potential transactions due to customers dissatisfied with the services provided by their websites. Cheung and Lee (2005) alleged that satisfaction could attract 80 percent of internet shopping consumers to perform repeat purchases within two month, whilst 87 percent of unsatisfied customers would never return. Hence, regularly measuring customer satisfaction contributes to improving system success and to achieving an organisation's strategic objectives.

3. STATEMENT OF THE PROBLEM

The propagation of e-commerce raises questions regarding customer satisfaction with the performance of website components. The focus is on investigating how this new business portal can influence customer/user/visitor satisfaction. A review of literature treating website applications shows that, so far, the topic of customer satisfaction with e-commerce websites has not been well researched, whether a few studies that investigated e-commerce customer satisfaction or, no studies have been found in this area as claimed by Gide and Wu (2006). The crucial role of website applications in achieving organisations' objectives, the widespread use of Internet utilities among almost all societies worldwide, the likelihood of change in customer satisfaction requirements over time (Mahmood, Burn, Geomoets, & Jacquez, 2000), the rapid development of technology, and the impact of customer satisfaction on intentions to repurchase (Preis & Kellar, 2003), necessitate further research effort. An understanding of how the attitudes and behaviours of customers/visitors who utilise online systems are interacted by websites application capability is needed. This topic will be of great interest to businesses, since customer dissatisfaction can lead to organisations failing to achieve their objectives (Cunliffe, 2000). Tackling this topic also will help to test the validity of prior studies' satisfaction instruments applied in the web-based information system environment, develop and/or sustain theories to explain/predict customer satisfaction in the e-commerce context, identify the factors affecting visitor satisfaction with the website systems of small businesses, constantly test visitor satisfaction to identify changing attitudes over time (Khalifa & Liu, 2004); and diagnose possible causes of dissatisfaction and suggest corrective action. Examining website applications for different business sectors and situations will provide a greater understanding of the overall satisfaction phenomenon as regards e-commerce websites. In fact, evaluating customer satisfaction with websites seems necessary to comprehend the circumstances under which attitudes and behaviours are influenced by information system applications. Therefore, the linkage between visitors/potential customers and the e-commerce systems implemented by small enterprises is the central focus of this paper.

4. THE RESEARCH RATIONALE

The aim of this study is to assess the potential influence of website status on visitor satisfaction. The results are anticipated to illuminate our understanding of the impact of the websites applications on their visitors' satisfaction. By this means, small enterprises (SEs) can optimise their current e-commerce systems, and base future improvements of their websites on sound empirical findings. This study may also assist SEs to quantify the actual value added by their e-commerce systems, as well as to identify measures of the

efficiency of their implemented systems. Such measures will help organisations' decision-makers to evaluate system impacts and develop future e-commerce strategies. This study also aims to test various components of e-commerce websites in order to offer benchmark performance indicators, which will underpin a comprehensive framework for measuring website system success in SEs. Briefly, the study is designed to address the potential influence of SEs' website status (applications/functions); to produce a model that reflects the characteristics of e-commerce systems in a small business milieu; to bridge the gap that currently exists in the literature by investigating the implications of website e-commerce system in Australian SEs; and as well offer SEs useful precedures they must follow, when they decide to go online and/or to enhance their current system.

5. THE EFFECT OF SATISFACTION ON INFORMATION SYSTEMS

User/visitor satisfaction has a significant impact on information and web-based systems. It is one of the most important constructs used to assess the prosperity of information systems (DeLone & McLean, 1992, 2003; Rai, Lang, & Welker, 2002; Zhang, Lee, Huang, Zhang, & Huang, 2005; Zviran & Erlich, 2003). It is also an ideal surrogate for evaluating IS system success (Bailey & Pearson, 1983), a key indicator of customer retention (Hallowell, 1996; Rust, Zahorik, & Keiningham, 1995) and an important factor in customer repurchase intentions (Preis & Kellar, 2003). Above all, there is abundant evidence that there are many benefits linked with a high level of user satisfaction. The claimed benefits include enhancing customer loyalty, reducing price elasticity, increasing customer base, improving product portfolios, enhancing product brands, improving profitability and market share and so forth (Anderson & Srinivasan, 2003; Andre & Saraiva, 2000; McColl-Kennedy & Schneider, 2000; Meuter, Ostrom, Roundtree, & Bitner, 2000; Naumann, Jackson, & Rosenbaum, 2001). The significant impact of satisfaction on the success of online-based activities is undeniable, practically when users/visitors affirm that they favour such systems. Researchers believe that websites play an essential role in supporting the visibility of organisations' images in the marketplace. Studies conducted by Dreze and Zufryden (2004), Ghandour, Deans, Benwell, and Pillai (2008), Lee, Hoch, Podlaseck, Schonberg, and Gomory (1999), Quelch and Klein (1996), Schubert and Selz (2001), and Thelwall (2000), claim that a website offers organisations an additional channel to market products and services, to acquire new customers and to promote the product brands, enhancing the relationship with customers.

6. DEFINITION OF SATISFACTION

Satisfaction terminology refers to the valuation of the reaction or feeling of users/ visitors/potential customers relative to their experience of all aspects of the system put in place by an organisation to market its products and services (Seddon, 1997; Spreng & Mackoy, 1996). The principal emphasis is on how products offered by organisations meet or surpass customer expectations. The concept of satisfaction, here, is typically reflecting individuals' beliefs, feelings, and attitudes towards various aspects of a system output. This multi-dimensional notion is associated with the judgment of individuals of a particular computer system's applications and functions (Doll & Torkzadeh, 1988). The degree to which users think that the system meets their requirements (Ives, Olson, & Baroudi, 1983). The user's overall emotion/attitude/feeling regarding a particular issue (Oliver, 1981), and on top, the effect of an assessment of the website applications with the expectations of what the site should provide (Spreng & Mackoy, 1996). Satisfaction is absolutely linked to the prosperity of the organisation (Naumann, Jackson, & Rosenbaum, 2001; Meuter, Ostrom, Roundtree, & Bitner, 2000), since a satisfied user/visitor is expected to boost system use reuse. Studies conducted by Ives, Olson, and Baroudi (1983), and DeLone and McLean (2002) have confirmed this proposition by identifying a positive reciprocal association between user satisfaction and system utilisation. In this study, satisfaction is defined as an evaluation of an individual attitude in reflecting the beliefs that the usage of a website has induced. This attitude can be interpreted as a tendency to respond favourably or unfavourably to website applications/functions. The concept of satisfaction adopted here, therefore, is concerned with the assessment of individual responses to all aspects of a website implemented to promote and sell products and services. This implies that we are interested in the satisfaction of users/visitors who deal with output generated by e-commerce websites. The intention is to investigate individual beliefs about the influence of website applications. The focus here is devoted to evaluating visitors' satisfaction with overall functions of a website's contents and services. Defined in such a way, visitor satisfaction can serve as a dependent variable in investigating the influence of e-commerce websites. In consequence, selected method must reflect the nature of the object under study and its expectation.

7. THE RESEARCH PARADIGM

A research paradigm is an array of beliefs articulate the approach that knowledge is oriented and understood (Crook & Garratt, 2004; MacKenzie & Knipe, 2006). These beliefs are concerned with a philosophical view

of the world's reality, the knowledge methods, and the techniques applied to attain that knowledge. Generally, the paradigm is based on three fundamentals: (1) beliefs about the nature of the world around us; (2) the ways in which knowledge is claimed, developed and justified; and (3) the principles employed to perform the paradigm activities (Coll & Chapman, 2000; Desphande, 1983; Guba & Lincoln, 1994; Krauss, 2005; Perry, Riege, & Brown, 1999). The research objective is important, as the appropriateness of a research approach is determined by the nature of the phenomena to be explored (Easterby-Smith, Thorpe, & Lowe, 2002). Thus, the selected method must reflect the nature of the object under study and its expectation (Dobson, 2002; Sayer, 1992). However, the aim of this research is to obtain a broad perspective of visitor beliefs and feelings towards e-commerce system websites applications. Which factors affect their attitudes and encourage them to visit and re-visit a website? This question will be explored by testing existing theories, such as disconfirmation theory (Churchill & Suprenant, 1982). This paradigm, which is based on logical and empirical beliefs, looks to identify the goals of a research study through testing real life concerns.

8. THE THEORETICAL BACKGROUND

Individuals or groups' acceptance of, adoption of, use of, and satisfaction with information technology, innovation, and e-commerce are associated with feelings, beliefs, and reactions. Examination of the interaction of such issues has been largely based on behavioural theories. Technology acceptance model (TAM) (Davis, 1986, 1989), the theory of planned behaviour (TPB) (Ajzen, 1991), the theory of reasoned action (TRA) (Ajzen & Fishbein, 1980), social cognitive theory (Bandura, 1991; Compeau & Higgins, 1995) and disconfirmation theory (Churchill & Suprenant, 1982) have been among the theories employed to explain people's adoption, use, and satisfaction behaviour. These theories primarily emphasise the impact of information technology and innovation functions on individuals' intentions and feelings and on their actual actions. Recognising this, this study endeavours to: (1) conceptualise and analyse the characteristics of website applications in order to predict actual behaviour (reactions, attitude, and decisions) of visitors to e-commerce websites; (2) analyse website functions/components to determine which changes at the structural level will lead to changes in individuals' reactions, feelings, attitudes and behaviours; (3) develop a theoretical base which precisely illustrates the constructs and processes involved in forming customer attitudes (negative or positive) toward the embedded applications of a website system.

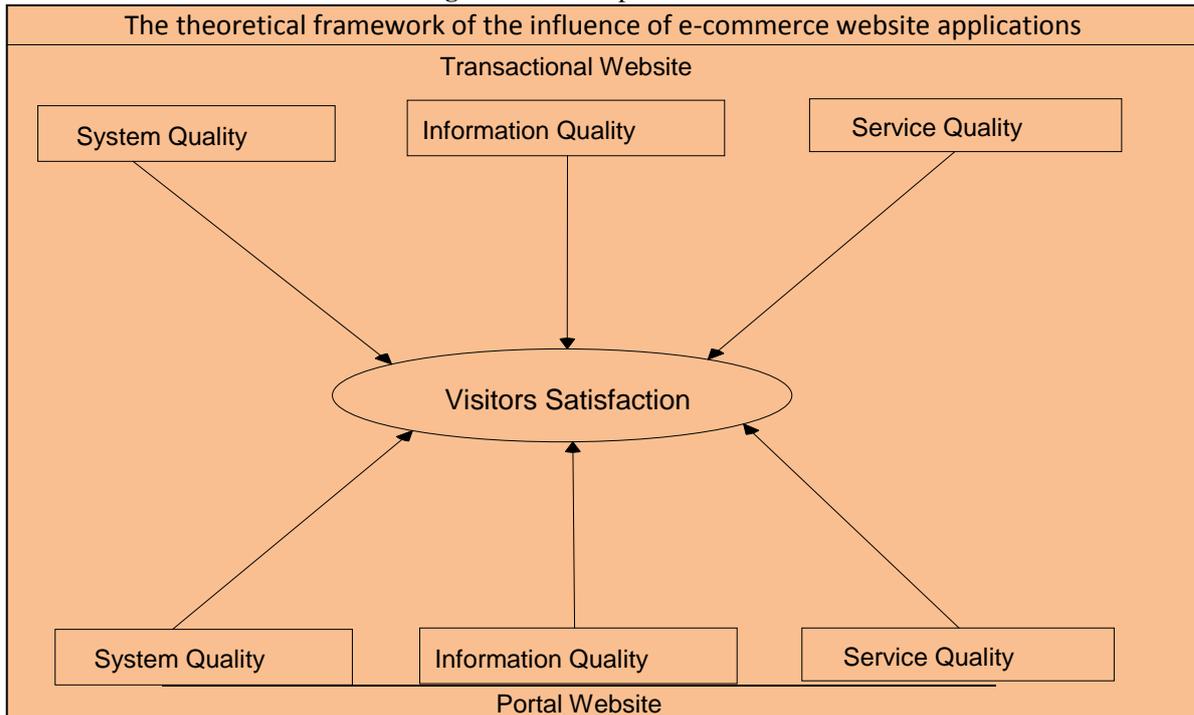
Accordingly, the notion of satisfaction with website systems is associated with visitors' beliefs, reactions, and attitudes regarding e-commerce systems. The applicability of traditional behavioural theories is clear. In order to discover how small enterprise e-commerce systems influence overall visitor satisfaction, the expectation disconfirmation theory (EDT) was chosen. EDT theory (Oliver, 1980; Churchill & Suprenant, 1982) is one of the most significant theory, and was originally employed to assess user satisfaction in the marketing (Bhattacharjee, 2001; Patterson, Johnson, & Spreng, 1997; McKinney, Yoon, & Zahedi, 2002; Yi, 1990), EDT is a well-known theory created to predict and explain consumer satisfaction with products and services (Patterson, Johnson, & Spreng, 1997; Oliver, 1980). It has also been utilised to study the adoption of information technology (Bhattacharjee, 2001). Lately, this theory has been applied to assess user satisfaction with information technology (Bhattacharjee & Premkumar, 2004; Hsu, Chiu, & Ju, 2004; Khalifa & Liu, 2002, 2003). According to EDT satisfaction evolves because of a judgment between individual's apprehension of efficiency and cognitive principles. Satisfaction is initiated through the strength and trend of the interaction between the system applications and a cognitive principle (Oliver & DeSarbo, 1988). This is based on the belief that satisfaction is an outcome of the relationship between actual performance and expectations. EDT argues that individuals' satisfaction can be clarified by a comparison between early expectations, which are determined based on previous practice and facts, with a system's virtual functions. Expectations reflect an individual's level of values, which are primarily shaped by earlier practice and present information (Zeithaml, Parasuraman, & Berry, 1990). Expectations are fashioned by individual expertise and perception of contextual aspects, and linked to the extent of system features and individual values. A study by Susarla, Barua, and Whinston (2003) concluded that expectations have a great influence on satisfaction. Expectation disconfirmation theory is suitable for studying satisfaction, as individual feelings and beliefs considerably affect stance and satisfaction. Therefore, applying expectation disconfirmation theory is applicable for helping us predict visitor satisfaction with website systems implemented by small organisations. EDT might also assist us in explaining the actual reactions of visitors by illuminating how initial expectations regarding e-commerce website systems are converted by disconfirmation into satisfaction.

Moreover, the expectation disconfirmation model has been tested in a range of practical studies (e.g. Chiou, 1999; Spreng, MacKenzie, & Olshavsky, 1996; Susarla, Barua, & Whinston, 2003; Yelkur, 2000). The appropriateness of this theory (which was initially employed to investigate customer satisfaction in marketing contexts) for testing customer satisfaction in the e-commerce context is attributable to the fact that the participants in this study all had previous experience of e-commerce websites. Individuals' prior usage experience made them more likely to be able to assess precisely what they expected, thus adding reliability and meaning to the criteria for evaluating satisfaction (Bhattacharjee, 2001). Participants' experience of the actual nature of e-commerce websites enhanced their capability to know what they expected from sites when they used or visited them. This knocks down the criticism of applying the disconfirmation theory to study information system and e-commerce, as they occupied with novel aspects, which may impede the creation of precise expectations. In this study, participants' expectations were principally based on prior experience and existing knowledge. The evaluation, therefore, will rely on people who have adequate prior experience and knowledge to form concrete expectations.

9. THE PROPOSED MODEL

A website is a multidimensional notion constructed of a combination of components involve in manifesting its overall utility (Song & Zahedi, 2001). Literature suggests that websites' embedded components, functions and performance fashion visitor feelings, attitudes, and behaviours (Gelderman, 1998; Kang & Kim, 2006). Prior studies of user satisfaction with information and web-based systems suggest that content quality as well as system and service quality plays a decisive role in modelling user willingness, and shapes the degree of their real use and satisfaction (e.g. Agarwal & Venkatesh, 2002; Bailey & Pearson, 1983; Cheung & Lee, 2005; DeLone & McLean, 1992, 2002, 2003; Devaraj, Fan, & Kohli, 2002; Doll & Torkzadeh, 1988; Elliot, Morup-Petersen, & Bjorn-Andersen, 2000; Gehrke & Turban, 1999; Huizingh, Krawczyk, Bijmolt, & Hoekstra, 2007; Y.K. Kim, E.Y. Kim, & Kumar, 2003; McHaney, Hightower, & Pearson, 2002; McKinney, Yoon, & Zahedi, 2002; Miller & Doyle, 1987; Muylle, Moenaert, & Desponti, 2004; Ives, Olson, & Baroudi, 1983; Raymond, 1987; Schaupp & Belanger, 2005; Shim, Shin, & Nottingham, 2002; Song & Zahedi, 2001; Turban & Gehrke, 2000; Venkatesh & Agarwal, 2006; Venkatesh & Ramesh, 2006; Wang, Tang, & Tang, 2001). Seddon (1997) demonstrated that online satisfaction is influenced by information quality and system quality. McKinney, Yoon, and Zahedi (2002) created a theoretical model of web satisfaction, which suggested information quality and system quality as the key components of web satisfaction. Muylle, Moenaert, and Desponti (2004) proposed an instrument for evaluating website user satisfaction which was based on three key factors: information (relevance, accuracy, comprehensibility and comprehensiveness), connection (ease-of-use, entry guidance, structure, hyperlink connotation, and speed), and design. Kim and Lim (2001) and Y.K. Kim, E.Y. Kim, and Kumar (2003) claimed that design, service, attractiveness, and informativeness were the key factors affecting user satisfaction on the web. Khalifa and Liu (2002) employed both expectation and desire disconfirmation theory to examine satisfaction with Internet-based services in the milieu of an online knowledge community. Their results confirmed that expectation and desire disconfirmation have considerable mutual influence on customer satisfaction. McKinney, Yoon, and Zahedi (2002) revealed that information quality and system quality are key constructs in influencing customer satisfaction. Susarla, Barua, and Whinston (2003) stated that expectations had substantial influence on satisfaction. The findings of the above-mentioned studies undoubtedly affirm that the quality of information systems and web-based Internet components influence user/visitor attitudes toward the system, and subsequently shape their intentions to re-visit. This implies that the more pleased users are with a website's applications, the more likely they are to use it again. This contributes to the actual payback generated by the system, as far as; satisfaction reinforces visitor/user intention to use, their actual use, and reuse.

The model created for this research outlines the main constructs of the theoretical framework involved in manifesting the potential influence of a website on visitor satisfaction. Satisfaction is determined by customer expectations concerning website components and functions. The model suggests that visitor satisfaction is mainly affected by perceived efficiency of website applications. This is based on three key constructs related to website structure, represented by system quality, information/content quality and service quality. The model endeavours to reflect, as rationally as possible, the behavioural reaction of visitors to small enterprise websites. It is planned to assess the influence of e-commerce website applications, represented by two widespread models amongst SEs, the portal website and the transactional website. Figure (1) below summarises the main constructs of the proposed model.

Figure 1: The Proposed Model

Source: developed for this study

The research question of this study endeavours to detect the influence of website applications on visitor behaviour, and so identify the actual influence of small business website efficiency on customer satisfaction. The question is based on the concerns illustrated in the proposed model. The question is employed as an approach to determining the extent and significance of the influence of website applications on visitor satisfaction (feelings, attitudes, and behaviours). It intends to assess how website system characteristics affect visitor satisfaction.

10. THE RESEARCH METHODOLOGY

The appropriateness of any research method is driven by the nature of the phenomena to be explored (Easterby-Smith, Thorpe, & Lowe, 2002). In this case, the quantitative approach was selected as the most appropriate means to achieve the research goals. This decision was due to the facts that the study aims to obtain a broad perspective of visitor beliefs and attitudes towards SEs website applications, that the study will test the existing theory of disconfirmation expectation, and that the study is explanatory in its broader consideration of the primary research problem. The study aspires to explain, analyse, and integrate information concerning the various factors associated with website efficiency and impact. This is achieved via a quantitative approach, relying entirely on primary data, and utilises the questionnaire survey as the most appropriate tool for data collection. The chosen approach was based on the belief that this method would help us to produce broadly generalisable information relevant to answering our research question. Data collected via this method is often believed to yield more objective and accurate information, because it is collected using standardised methods.

The questionnaire developed for this research considered the research objectives, potential respondents' ability to provide the required information, the data collection method, and previous research guidelines (Dillman, 2000; Malhotra, 2004; Zikmund, 2003). The questionnaire was intended to gather information about the participants' attitudes and perceptions regarding various statements related to websites' components and functions. The questionnaire design was based on earlier studies in the area (e.g. Abdinnour-Helm, Chaparro, & Farmer, 2005; Bailey & Pearson, 1983; Doll & Torkzedah, 1990; Etrzadi-Amoli & Farhoomand, 1996; Guimaraes & Gupta, 1988; Ives, Olson, & Baroudi, 1983; Miller & Doyle, 1987). The proposed instrument consisted of 17 questions, which aimed to evaluate the actual satisfaction of visitors to small enterprises websites via three underlying dimensions applied by SEs (information quality, system quality and services quality). The questionnaire proposed a mechanism to measure perceptions of websites by visitors/potential customers. It addressed issues linked to visitor attitudes towards using and purchasing from a website. Participants were asked to familiarise themselves with two pre-determined sites before answering a set of Likert scale-based questions. Participants in this study were identified by using a

snowball sampling technique. This method is usually used in situations when the desired sample population is rare, hard to locate, and/or it is cost prohibitive to locate them. Snowball sampling is a non-probability process based on the judgement of the researcher. Creating a snowball sample requires identifying one or more units in the desired population and employing these units to find additional units until a sufficient sample size is met. For instance, in this study, we identified a small number of individuals (referred to as units) who agreed to take part in the research. We then employed these units to find more units, until a satisfactory sample size was achieved. Taking into consideration the nature of the study, only those units who indicated that they had previous experience of e-commerce activities were selected to participate in the study. The participants were individuals aged between 18 and 39. The sample comprised individuals from an urban district in New South Wales. Participants were asked to conduct appraisal tasks for two websites, one patrol/passive site, and one transactional/active site. The chosen sites were representative of mainstream sites implemented by small enterprises. A maximum time of 10 minutes was anticipated to fully answer the questionnaire survey. A total of 102 people completed the survey using the sites. The questionnaire was used to assess potential customer/visitor perceptions of the websites' efficiency, and their attitudes toward the e-commerce system. The items used for each dimension are presented in Appendix (1). All items were measured with a seven-point Likert scale. The measures of visitor satisfaction vary from 1, "poorer than I anticipated", to 7, "better than I anticipated". The midpoint was labelled "as I anticipated". The Likert summated scale is considered suitable for all methods of data collection because it is simple and offers "straightforward phrasal representations" (Quee, 1999). It is also helpful if the respondent is reluctant or unable to express his attitude in a straightforward manner (Quee, 1999). Data collected from the questionnaires was then edited, coded, and entered into the statistical program Statistical Package for Social Sciences (SPSS), and then cleared to ensure that the data obtained was complete, accurately entered and arranged to facilitate analysis. Inferential analysis was conducted to determine the relationship between satisfaction and e-commerce website applications (portal website and transactional website) as two separated dependent variables and the predictors/independent variables of each model. The main inferential statistical technique employed to test the hypotheses was multiple regression method.

Based on research conducted by Martin and Malay (2001), Rao, Metts, and Mora Monge (2003), Sekhar (2001), Straub and Klein (2001), Taylor and Murphy (2004), a dichotomy model was adopted to investigate the association between SEs website applications and their visitors satisfaction. The proposed bi-dimensional model consists of a portal stage and a transactional stage. At the portal stage, the firm's website offers four key functions, including brochures displaying product information, contact information and company information, and frequently asked questions (FAQs). At the transactional stage, the firm's website includes selling, buying and ordering facilities, search capabilities and product feedback in addition to portal stage components.

11. THE HYPOTHESES LITERATURE BACKGROUND

The proposed hypotheses on the topic of visitor satisfaction with small enterprise websites are based on a broad examination of previous research findings. The hypotheses are linked to website's system, information, and service quality. System quality is referred to as the merit of the system in terms of its component performance and information processing. Previous studies clearly point out that website quality, design and characteristics play a vital role in improving business, persuading online visitors to purchase and re-visit (Hill, 2001; Kim, Shaw, & Schneider, 2003; Zviran, Glezer, & Avni, 2006). Typically, websites are developed with a number of basic designs playing a role in their actual efficacy (Song & Zahedi, 2001). Evaluation of the website system quality can be largely based on the existence of various features linked to system structure and design, such as navigation capability, flexibility, usability (ease of use), system reliability, security and online response time of page loading (DeLone & Maclean, 1992; Fellenstein & Wood, 2000; Gehrke & Turban, 1999; Hamilton & Chervany, 1981; Han & Noh, 1999; Hill, 2001; Korper & Ellis, 2001; Nantel & Senecal, 2009; Swanson, 1974; Turban & Gherke, 2000; Venkatesh, 2000; Wang, Tang & Tang, 2001).

Information quality refers to the characteristics and manifestation of information in the e-commerce system (Cunliffe, 2000; Dedhia, 2001; Y.K. Kim, E.Y. Kim, & Kumar, 2003; Nantel & Senecal, 2009; Savin & Silberg, 2000; Von Dran, Zhang, & Small, 1999; Zhang, Keeling, & Pavur, 2000). Prior research asserts that information quality is one of the key determinants of visitors' actual reactions to a website (e.g. Chen & Wells, 1999; Huang, Lee, & Wang, 1999; Janda, Trocchia, & Gwinner, 2002; Palmer, 2002; Szymanski & Hise, 2000; Turban & Gehrke, 2000; Turban & Gehrke, 2000; Zhang, Keeling, & Pavur, 2000). In reality, a website's ability to create an optimistic perception for its use and to stimulate an intention of reuse must be accompanied by succinct, meaningful, and easy to understand information. Aspects associated with understandability, reliability, usefulness (depth/breadth), timeliness, informativeness, sufficiency, relevance,

clarity, accuracy, and completeness were considered as the key dimensions of information quality (e.g. Bailey & Pearson, 1983; Gallagher, 1974; King & Epstein, 1983; Madu & Madu, 2002; McKinney, Yoon, & Zahedi, 2002; Palmer, 2002; Swanson, 1974; Song & Zahedi, 2007; Thong, Hong, & Tam, 2006). Understandability is concerned with information clarity, reliability, succinctness, soundness, and consistency (Y.K. Kim, E.Y. Kim, & Kumar, 2003; Palmer, 2002; Song & Zahedi, 2007). Reliability is concerned with the extent of information accuracy, relevancy, completeness, soundness, consistency and credibility (Kim, Kishore, & Sanders, 2005). In brief, content quality is concerned with information's logical organisation, ease of comprehension, accuracy, comprehensiveness, reliability, clarity, relevance and currency. Service quality refers to the system delivering adequate performance to boost the website function. This entails employing the available technological facilities to enhance the targeted goals of organisations. Due to its critical role in system success, literature confirms the necessity for service quality as part of evaluation of information systems (Kettinger & Lee, 1995; Li, 1997; Wilkin & Hewitt, 1999). The key dimensions of website service quality include features linked with customer service regarding responsiveness, after-sale support, FAQs to answer customer inquiries, and policies on issues such as privacy and returns (Elliot, Morup-Petersen, & Bjorn-Andersen, 2000; McKinney, Yoon, & Zahedi, 2002; Parasuraman, Zeithaml, & Berry, 1985; Parasuraman, Zeithaml, & Berry, 1988; Song & Zahedi, 2001; Wang, T. Tang, & J. Tang, 2001; Gehrke & Turban, 1999). The concept of service quality includes all aspects connected with offering support for website visitors/consumers.

The above-mentioned literature provides the basis for the proposition of the relationship between visitor satisfaction and the efficiency/application of website performance. As Cadotte, Woodruff, and Jenkins (1987) stated, by using prior principles, standards or expectations, visitors make judgments about a website's actual performance. The hypotheses are intended to measure the effects of websites' system quality, information quality, service quality, and overall efficiency on visitor satisfaction.

➤ **Hypothesis Linked to Website System Quality**

System quality is particularly concerned with the functions provided by a website, such as accessibility, ease of navigation, access to information, ability to load quickly, appearance/attractiveness, and security and privacy policies. Literature alleges that visitor satisfaction stems from navigational aspects. For instance, DeLone and McLean (2003), and Venkatesh (2000) state that ease of navigation in terms of time and effort required to fulfill a specific process plays a critical role in forming visitor attitudes toward using the website. Campbell and Maglio (1999), and Palmer (2002) point out that loading time also has a great influence on customers' perceived attitudes towards website systems. Nantel and Senecal (2009) affirm that the likelihood of customers completing tasks on a website is linked with the actual webpage loading time. McKinney, Yoon and Zahedi (2002) assert that the actual download time while navigating shapes visitors' judgment of website usefulness. Nowadays, advancements in information technology allow firms to expect download times of less than one or two seconds, which is, fulfil their objective worldwide. For SEs, a download time of less than 2 or 3 seconds creates a more positive website valuation than a lengthy download time of over 3 seconds. Y.K. Kim, E.Y. Kim, and Kumar (2003) argue that website attractiveness is linked to the quality of the system's physical components put in place to persuade customer participation. Thelwall (2000) claims that well-structured websites provide organisations with a significant opportunity to enhance their positions in the marketplace. That is, a website reflecting individuals' principal requirements of formation will have a great effect on their perceived satisfaction. Accordingly, based on the findings of studies conducted by DeLone and McLean (1992, 2002, 2003), Evans and Wurster (2000), Fellenstein and Wood (2000), Gehrke and Turban (1999), Hamilton and Chervany (1981), Han and Noh (1999), Hill (2001), Iacovou, Benbasat, and Dexter (1995), Jakovljevic (2004), Kim, Shaw, and Schneider (2003), Korper and Ellis (2001), Campbell and Maglio (1999), McKinney, Yoon, and Zahedi (2002), Nantel and Senecal (2009), Palmer (2002), Poon and Strom (1997), Poon and Swatman (1995), Raymond (2001), Rosenzweig, Roth, and Dean (2003), Schuete (2000), Song and Zahedi (2001), Swanson (1974), Thelwall (2000), Turban and Gherke (2000), Venkatesh (2000), Wang, T. Tang, and J. Tang (2001), Warrington, Abgrab, and Caldwell (2000), Watson (2002), and the theoretical framework model proposed for this study, it is suggested that better system quality is likely to lead to visitor satisfaction, and improved rates of website visits and re-visits. This guides us to hypothesis H₁ about website system quality, which is devoted to assessing the link between system quality and the visitor satisfaction:

H₁: System quality has a great influence on the satisfaction of visitors to the organisation's website.

➤ **Hypothesis Linked to Website Information Quality**

Content quality of websites in this research includes various key variables related to the logical organisation of information, ease of comprehension, accuracy, comprehensiveness, reliability, clarity, relevance and

currency. Information quality refers to the extent that information provided on a website (comprehensiveness) reflects the needs and expectations of potential customers (Dedhia, 2001). Potential customers will judge an organisation's website by its functionality (Savin & Silberg, 2000), looking for traits such as logical organisation and presentation of information, and the ability for a user to control the contents (Von Dran, Zhang, & Small, 1999). In other words, locating required information within the website is regarded as the core objective of potential customers/visitors. Merwe and Bekker (2003) claimed that exploring information, gathering information, and evaluating information are the key processes of any online transaction, as buyers seek and collect information on potential products or services prior to deciding whether to make a purchase. Janda, Trocchia, and Gwinner (2002), Nantel and Senecal (2009), Szymanski and Hise (2000), and Turban and Gehrke (2000) argued that quality and organisation of web content has a great impact on whether or not users will complete their shopping tasks on a website. According to the literature, system informativeness affects visitors' beliefs, attitudes, and intentions of using of a particular website. A study on mobile internet services by Thong, Hong, and Tam (2006) found that users' actual responses, satisfaction, and intentions to continue use are linked with the mobile system's perceived utility. Song and Zahedi (2007) concluded that usefulness and comprehensibility of information also have an immense influence on users' desire to use a website. Accordingly, based on the findings of studies conducted by Dedhia (2001), Janda, Trocchia, and Gwinner (2002), Merwe and Bekker (2003), Nantel and Senecal (2009), Savin and Silberg (2000), Song and Zahedi (2007), Szymanski and Hise (2000), Thong, Hong, and Tam (2006), Turban and Gehrke (2000), and Von Dran, Zhang, and Small (1999), and the theoretical framework model proposed for this study, it is suggested that better information quality is likely to lead to visitor satisfaction, and improve the rate of website visits and re-visits. This assumption leads us to state hypothesis H₂, which concerns website content/information quality, and is devoted to assessing the link between information quality and visitor satisfaction.

H₂: Information quality has a great influence on the satisfaction of visitors to the organisation's website.

➤ **Hypothesis Linked to Website Service Quality**

Service quality refers to the overall effectiveness of online support capabilities, in terms of responsiveness (receiving help promptly), reliability, assurance, and empathy (Parasuraman, Zeithaml, & Berry, 1988). It also includes a website's follow-up services, such as the responses to frequently asked questions, customised site intelligence, and order tracking. Service quality is considered extremely significant in enhancing the success level of the e-commerce system. Literature indicates the need for a service quality measure to be incorporated in information system success models (Kettinger & Lee 1995). Consequently, based on the findings of studies conducted by Elliot, Morup-Petersen, and Bjorn-Andersen (2000), Evans and Wurster (2000), Gehrke and Turban (1999), Iacovou, Benbasat, and Dexter (1995), Jakovljevic (2004), Kettinger and Lee (1995), Li (1997), McKinney, Yoon, and Zahedi (2002), Parasuraman, Zeithaml, and Berry (1985), Parasuraman, Zeithaml, and Berry (1988), Poon and Strom (1997), Poon and Swatman (1995), Raymond (2001), Rosenzweig, Roth, and Dean (2003), Schuete (2000), Song and Zahedi (2001), Wang, T. Tang, and J. Tang 2001, Warrington, Abgrab, and Caldwell (2000), Watson (2002), Wilkin and Hewitt (1999), and the theoretical framework model proposed for this study, it is suggested that service quality has a great influence on visitor satisfaction. This leads us to state hypothesis H₃ about website service quality, which is devoted to assessing the correlation between visitor satisfaction and the service quality provided by a website. It is conceded that service quality is particularly concerned with responsiveness, prompt assistance when needed, follow-up services, responses to frequently asked questions and tracking orders.

H₃: The service quality of a system has an immense influence on the satisfaction of visitors to the organisation's website.

➤ **Hypothesis Linked to Website Efficiency**

System efficiency refers to the level of utility of an e-commerce website for several different business activities (Kraemer, Gibbs, & Dedrick, 2002). This study asserts that two main sequential stages of website application can be identified in regards to SEs. These are portal or passive website presence and transactional or active website presence. A portal website refers to basic passive web presence for communication. This stage entails the initial steps organisations take to become involved in a digital environment, which include displaying: (1) product brochures and services offered (Timmers, 2001); (2) contact information; and (3) other relevant information in a static manner. In this stage, the website offers a "window to the web" (Barry, 2000, as cited in Rao, Metts, & Mora-Monge, 2003), and provides an opportunity to expand market base (Evans & Wurster, 2000). An active website constitutes an improved website presence. An active website is equipped with the capabilities to sell and buy, offering customers secure payment facilities. Active websites accommodate the facilities to conduct online transactions and

services. They allow firms to present additional functions by offering: opportunities to (1) sell, buy, and order; (2) search capabilities and product feedback; (3) and the opportunity to link information with inventory data. Therefore, based on prior research findings (Jakovljevic, 2004; Raymond, 2001; Rosenzweig, Roth, & Dean, 2003), it is suggested that the transactional website is more likely to satisfy visitors than the portal website. This leads us to state hypothesis H₄, concerning e-commerce website status: H₄: The transactional website is more likely to positively influence the satisfaction of visitors than its counterpart, the portal website.

12. MEASUREMENT OF THE PROPOSED MODEL CONSTRUCTS

Website efficiency and visitor satisfaction are measured against a range of criteria based on studies conducted by Bellman (2001), Deeter-Schmelz and Kennedy (2004), Fellenstein and Wood (2000), Hassan and Li (2005), Joseph, Cook, and Javalgi (2001), Kalakota and Robinson (2001), Kambil (1995), Karagozoglu and Lindell (2004), Karayanni and Baltas (2003), Korper and Ellis (2001), Pavlou (2003), Riquelme (2002), Schneider and Perry (2000), Schuete (2000), Sekhar (2001), Straub and Klein (2001), Straub, Limayem, and Karahanna-Evaristo (1995), Warrington, Abgrab, and Caldwell (2000), Zhang and Von-Dran (2000). Evaluation of the portal website was based on: (1) displayed company information; (2) displayed brochure and product information; and (3) displayed contact information and feedback. Evaluation of the transactional website was based in addition to all portal stage characteristics, on its ability to: (1) sell or buy online utilise ordering and payment facilities; (2) receive product feedback; (3) utilise search capabilities; and (4) provide after-sales customer service and support. Measurement of system quality (technical aspects), linked to the basic function of the websites, was based on: (1) navigation and accessibility in regards to ease of navigation, access to information, and speed of loading; (2) appearance and attractiveness; (3) security; and (4) privacy policy. Measurement of information quality was based on: (1) logical organisation of appropriate information; (2) ease of understanding, comprehensiveness, reliability, soundness, and consistency; (3) relevance; (4) currency; and (5) concision and clearness. Measurement of service quality was based on: (1) responsiveness in regards to receiving assistance and follow-up services promptly; (2) answers to frequently asked questions (FAQs); (3) tracking orders in the after-sale phase; and (4) policies on issues such as privacy and returns. Evaluation of visitors' overall satisfaction was based on: (1) satisfaction with information provided by the company's website; (2) satisfaction with the quality of services offered by the company's website; and (3) satisfaction with the system quality of the company's website.

13. THE ANALYSIS METHOD

The multiple regression method (MLR) was applied to inspect the potential interrelationship of the proposed model constructs. This method allows researchers to test more than one variable (explanatory) to predict the criterion (outcome). MLR is a flexible and powerful extension of the general linear model (GLM) that enables a researcher to test the relationship between one dependent and one or more independent variables by employing a series of statistical techniques. This method aims to examine the relationship between the explanatory variables represented in the website system, information, and service quality, and the outcome variable represented by the website visitors' satisfaction. It is employed to determine how website applications influence visitor satisfaction; using multiple regression will help us identify the actual influence of the website application on the satisfaction of the website visitors. MLR was selected to assess the likelihood that visitor satisfaction is motivated by website efficiency/application or level of capability. The model contained three main independent factors, system quality, information quality, and service quality, and one dependent factor, visitor satisfaction. Each of these variables was represented in a cluster of predictors.

The structure of a multiple regression prediction equation in this study is:

$$Y = a + b_1X_1 + b_2X_2 + b_3X_3 + u$$

Where:

Y= the dependent variable that we are trying to predict

X₁ is the score on the first predictor variable of system quality

X₂ is the score on the second variable of information quality

X₃ is the score on the third variable of service quality

a= the intercept

b= the slope

u= the regression residual (unobserved factors).

➤ **Data Analysis**

For transactional website, the mean across items Q₁ to Q₅ of system quality, Q₆ to Q₁₀ of information, Q₁₁ to Q₁₄ for transactional website, and Q₁₅ to Q₁₇ of overall satisfaction with the website was calculated to form new variables. Item to total correlation and inter item correlation were calculated. Using the criteria presented by Hair, Anderson, Tatham, and Black (1998), the above-mentioned items were all found to display item-to-total correlations greater than the criterion of .50. The items of system quality, information quality, service quality, and overall satisfaction with website quality were also found to display inter-item correlations greater than the criterion of .30, as recommended by Tabachnick and Fidell (Pallant, 2007). All items in the questionnaire were considered suitable for PCA and subsequently sufficient for evaluating the measures of internal consistency. Principal components analysis (PCA) was performed to examine whether each group of items could be considered to measure a single underlying construct. Four components (one component for each group of the items linked with the website’s system, information, service, and overall satisfaction) were extracted with eigenvalues greater than one and so unidimensionality was assumed. Coefficient (Cronbach) alpha for the Q₁ to Q₅ items scale $\alpha = .83$, Q₆ to Q₁₀ items scale $\alpha = .84$, Q₁₁ to Q₁₄ items scale $\alpha = .82$, and Q₁₅ to Q₁₇ items scale $\alpha = .73$, were found to be good. The results indicate that the new variables (syst_qua), (info_qua), (serv_qua) and (genr_sat) were found to have an excellent level of reliability. These variables were used as the measure of system quality, information quality, services quality, and overall satisfaction in the analysis presented below.

In an attempt to identify univariate outliers for the variables (syst_qua), (inf_qua), (serv_qua), and (genr_sat), histograms and box plots were visually inspected and standardized (z) scores were calculated for each respondent. No case with an absolute value in excess of 3.29 ($p < .001$) was identified. A test for multivariate outliers was then conducted using a technique described by Tabachnick and Fidell (1996). Using data from the set of four new variables, the Mahalanobis distance was calculated for each case. Tabachnick and Fidell state that the Mahalanobis distance should be interpreted as a X^2 statistic with the degrees of freedom equal to the number of independent variables (IVs). They recommend that a criterion of $p < .001$ be used to evaluate whether a case is judged to be a multivariate outlier (Tabachnick & Fidell, 1996). A critical value of $X^2 = 18.467$ was therefore used. No case was identified with a score in excess of this value, and so, no multivariate outliers were identified. The normality of the distribution of the scores of the syst_qua, inf_qua, serv_qua, and genr_sat variables were investigated. Values of skew and kurtosis were calculated for the distribution of scores for these variables. To test whether the distribution’s skew significantly deviated from that of a normal distribution, the skew value for syst_qua (-.56), inf_qua (-.28), serv_qua (-.43), and genr_sat (-.60) was divided by the standard error of the skew, (.24) for each variable. This yielded z-scores of -2.36, -1.18, -1.82 and -2.49 which were interpreted to be non significant, as they do not exceed the absolute value of 2.58, $p < .001$ (Tabachnick & Fidell, 2007) for samples less than 300. Similar procedures were conducted for kurtosis, where the kurtosis value of .31, -.17, -.54 and .10 was divided by the standard error of kurtosis (.47) for each variable. This yielded a z-score of -.65, -.35, -1.14, and 0.22 respectively for each variable, which were interpreted to be non significant, as they did not exceed the absolute value of 2.58, $p < .001$, (Tabachnick & Fidell, 2007) for samples less than 300. A Pearson product-moment correlation method was applied to examine whether there was a significant relationship between system quality, information quality, services quality, and the overall satisfaction of each construct. The results of the analysis revealed a significant positive correlation between (syst_sat) and (syst_qua) $r = .79$, $p < .0005$; (inf_sat and info_qua) $r = .76$, $p < .0005$; and (serv_sat and serv_qua) $r = .83$, $p < .0005$. Using the enter method, a multiple regression was performed between visitors satisfaction (genr_sat) as the dependent variable and system quality (syst_qua), information quality (info_qua) and services quality (serv_qua) as independent variables.

Table 1: Model Summary **b**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.877 ^a	.768	.761	.40025	2.034

a. Predictors: (Constant), SERV_QUA, INFO_QUA, SYST_QUA

b. Dependent Variable: GENR_SAT

Source: developed for this research

Table 2: ANOVA ^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	52.096	3	17.365	108.396	.000 ^a
	Residual	15.700	98	.160		
	Total	67.796	101			

a. Predictors: (Constant), SERV_QUA, INFO_QUA, SYST_QUA

b. Dependent Variable: GENR_SAT

Source: developed for this research

As Tables (1) and (2) show, this combination of variables significantly predicted customer satisfaction with firms' websites. The analysis shows that the multiple correlation coefficient ($R = .88$) was significantly different from zero, $F(3,102) = 108.40$, $p < .0005$, and 76 % of the variation in the dependent variable was explained by the set of independent variables ($R^2 = .76$).

Table 3: Coefficients ^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	-.355	.319		-1.112	.269			
	SYST_QUA	.379	.050	.410	7.564	.000	.681	.607	.368
	INFO_QUA	.249	.052	.248	4.771	.000	.515	.434	.232
	SERV_QUA	.422	.047	.489	8.899	.000	.739	.669	.433

a. Dependent Variable: GENR_SAT

Source: developed for this research

All the variables were found to significantly contribute to prediction of visitor satisfaction, where system quality (*syst_qua*) $sr^2_i = .37$, $t = 7.56$, $p < .0005$, information quality (*info_qua*) $sr^2_i = .23$, $t = 4.77$, $p < .0005$, and service quality (*serv_qua*) $sr^2_i = .43$, $t = 8.90$, $p < .0005$. The predictors' beta weights of .41, .25, and .49 for each variable respectively suggest that better functions offered by websites contribute most to predicting visitor satisfaction. Durbin-Watson value of 2.03 (Table 1), which tests for autocorrelated errors, suggesting a negative correlation between adjacent residuals. A rule of thumb courtesy of Field (2009) suggests that values less than one (1) and more than three (3) are definitely cause for concern. The closer to '2' the value is the better. In our case, the value is 2.03, which means that the assumption has almost been met.

Similar procedures were applied for portal website data. The principal component analysis conducted on the items of questions Q₁-Q₁₆ (only Q₁₁ to Q₁₃ were used to measure service quality) resulted in the presence of four new components that include: one component (*syst_qua*) to represent system quality; one component (*info_qua*) to represent information quality; one component (*serv_qua*) to represent service quality; and one component (*genr_sat*) to represent the overall satisfaction with the website application. The analysis revealed that the new components were found to display item-to-total correlations greater than the criterion of 0.50. Each of these newly composed items were also displaying item-to-total correlations greater than the criterion of 0.30. The reliability coefficient (Cronbach's alpha) for composite variables (.79, .82, .72, .73) was found to comply with the generally agreed lower limit value of 0.70 as suggested by Hair, Black, Babin, Anderson, and Tatham (2006) and Sekaran (2003). A test to identify univariate outliers for the variables (*syst_qua*, *inf_qua*, *serv_qua*, and *genr_sat*) was conducted. Histograms and box plots were visually inspected and standardized (z) scores were calculated for each respondent. No case with an absolute value in excess of 3.29 ($p < .001$) was identified. A test for multivariate outliers was then conducted using data from the set of four variables (*syst_qua*, *inf_qua*, *serv_qua*, and *genr_sat*), the Mahalanobis distance was calculated for each case. Based on the rule of thumb suggested by Tabachnick and fidell (2007), a critical value of $X^2 = 18.467$ was used. No case with a score in excess of this value and so no multivariate outliers were identified. A test to examine the normality of the distribution of the scores of the variables (*syst_qua*, *inf_qua*, *serv_qua*, and *genr_sat*) were conducted. The value of each variable skew (-.38, -.23, -.57, and -.35) and Kurtosis (-1.18, -1.07, -.55, and -.57) were divided by the standard error of the skew (.24) and the kurtosis (.46) for each variable. This yielded a z-score of -1.58, -.96, -2.38 and -1.48 for skew and -2.49, -

2.26, -1.16, and -1.21 for kurtosis, respectively for variables (syst_qua, inf_qua, serv_qua, and genr_sat), which were interpreted to be non significant as they do not exceed an absolute value of 2.58, $p < .001$ (Tabachnick & Fidell, 2007) for samples less than 300. The results of the analysis of correlation test between syst_qua, inf_qua, serv_qua, and the overall satisfaction genr_sat, revealed a significant positive correlation between syst_sat and syst_qua, $r = .75$, $p < 0005$; inf_sat and info_qua, $r = .82$, $p < 0005$; serv_sat and serv_qua, $r = .74$, $p < 0005$. A Multiple regression was performed to determine the best linear combination of the website system quality (syst_qua), information quality (info_qua) and services quality (serv_qua) for predicting customers' satisfaction (genr_sat).

Table 4_Model Summary ^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.868 ^a	.754	.747	.37087	1.980

a. Predictors: (Constant), SERV_QUA, INFO_QUA, SYST_QUA

b. Dependent Variable: GENL_SAT

Source: developed for this research

Table 5: ANOVA ^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	41.349	3	13.783	100.208	.000 ^a
	Residual	13.479	98	.138		
	Total	54.829	101			

a. Predictors: (Constant), SERV_QUA, INFO_QUA, SYST_QUA

b. Dependent Variable: GENL_SAT

Source: developed for this research

As Tables (4) and (5) show, the analysis results revealed that the multiple correlation coefficient ($R = .87$) was significantly different from zero, $F(3,102) = 100.21$, $p < .0005$, and 75 % of the variation in the dependent variable was explained by the set of independent variables ($R^2 = .75$).

Table 6: Coefficients ^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Correlations		
		B	Std. Error	Beta			Zero-order	Partial	Part
1	(Constant)	-.214	.174		-1.230	.222			
	SYST_QUA	.210	.059	.223	3.557	.001	.650	.338	.178
	INFO_QUA	.407	.057	.423	7.170	.000	.677	.587	.359
	SERV_QUA	.453	.054	.468	8.374	.000	.689	.646	.419

a. Dependent Variable: GENL_SAT

Source: developed for this research

Table (6) reveals that syst_qua, info_qua, and serv_qua variables were found to significantly contribute to the prediction of visitors' satisfaction, where syst_qua $sr^2_i = .18$, $t = 3.56$, $p < .0005$, info_qua $sr^2_i = .36$, $t = 7.17$, $p < .0005$, and serv_qua $sr^2_i = .42$, $t = 8.37$, $p < .0005$. The predictors' beta weights of .22, .42, and .47 for each variable respectively suggest that better functions offered by websites contribute most to predicting visitor satisfaction. Durbin-Watson value of 1.98 suggests a positive correlation. Based on Field (2009), rule of thumb the closer to two (2), the value is the better. In our case, the value is 1.98, which means that the assumption has almost been met.

Furthermore, to examine the influence of the website applications on overall visitors' satisfaction. The general satisfaction component (genr_sat) of both portal and transactional websites were summed and divided by two (2 is the number of the variables) to form a new component, the general overall satisfaction of the website (g_sat_ov). The new component represents the average satisfaction of the participants with

the websites' efficiency. Prior to performing an analysis, a test to identify univariate outliers for the new variable (g_sat_ov) was conducted. Histograms and box plots were visually inspected and standard scores were calculated for each respondent. No outlier cases were identified. The respondent displayed standard scores with an absolute value of under 3.29 ($p < .001$). A test for multivariate outliers was then conducted using data from the variable (g_sat_ov), the Mahalanobis distance was calculated for this case. Based on the rule of thumb suggested by Tabachnick and fidell (2007), a critical value of $X^2 = 10.828$ was used. No case was identified with a score in excess of this value and so no multivariate outliers were identified. A test to examine the normality of the distribution of the scores of the variable (g_sat_ov) was conducted. The value of the variable skew (-.38) and Kurtosis (.42) were divided by the standard error of the skew (.24) and the kurtosis (.47). This yielded a z-score of (-1.59) for skew and (.88) for kurtosis, which were interpreted to be non significant as they do not exceed an absolute value of 2.58, $p < .001$ (Tabachnick & Fidell 2007) for samples less than 300. A Pearson test was then conducted to examine whether there is a significant relationship between (g_sat_ov) and (genr_sat) of the portal and transactional website. The result of the analysis of correlation test between portal website genr_sat, and the overall satisfaction (g_sat_ov), $r = .66$, $p < .0005$, and between transactional website (genr_sat), and the overall satisfaction (g_sat_ov), $r = .74$, $p < .0005$ revealed a significant positive correlation. The results show clearly that participants were largely more satisfied with the transactional website than its counterpart the portal website, where the value of the transactional website's $r = .74 >$ portal website's $r = .66$. This result has been verified by a frequency analysis for general satisfaction of the portal website Table (7) and the transactional website Table (8).

Portal website satisfaction

Table 7: General satisfaction frequency analysis

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1.00	3	2.9	2.9	2.9
1.33	3	2.9	2.9	5.9
1.67	5	4.9	4.9	10.8
2.00	15	14.7	14.7	25.5
2.33	11	10.8	10.8	36.3
2.67	17	16.7	16.7	52.9
3.00	15	14.7	14.7	67.6
3.33	15	14.7	14.7	82.4
3.67	15	14.7	14.7	97.1
4.00	3	2.9	2.9	100.0
Total	102	100.0	100.0	

Source: developed for this research

Table 8: General satisfaction frequency analysis

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 3.00	5	4.9	4.9	4.9
3.67	1	1.0	1.0	5.9
4.00	9	8.8	8.8	14.7
4.33	9	8.8	8.8	23.5
4.67	10	9.8	9.8	33.3
5.00	21	20.6	20.6	53.9
5.33	14	13.7	13.7	67.6
5.67	14	13.7	13.7	81.4
6.00	12	11.8	11.8	93.1
6.33	7	6.9	6.9	100.0
Total	102	100.0	100.0	

Source: developed for this research

As shown in Table (7) above, the overwhelming majority of the participants (97.1 percent) were not satisfied with portal website functions. Approximately all participants have rated their satisfaction with the website under four (1 to 3.67), which represent a neutral point on a seven point Likert scale, where a score of one (1) represents strongly disagree and a score of seven (7) represents strongly agree. This result reflects unsatisfied dominance among visitors of the portal websites. On the other, the frequency analysis for overall level of participants' satisfaction with the transactional website (Table 8) demonstrates that the overwhelming majority of the participants (85.3 percent) were satisfied with transactional website functions. The majority of participants rated their satisfaction with the website over four (4.33 to 6.33). While, this result reflects satisfied dominance among visitors of the transactional website, it indicates clearly that the transactional website has a considerably higher positive significance impact (85.3 of scores are > 4) on visitors' satisfaction than its counterpart the portal website (97.1 of scores are < 4). This claim is supported by the linear regression analysis, where the multiple correlation coefficient of transactional general satisfaction ($genr_sat$) $R = .74$, $F(3,102) = 119.21$, $p < .0005$, and 54 % of the variation in the dependent variable was explained by the independent variables, where $R^2 = .54$. Whereas, portal general satisfaction ($genr_sat$) $R = .66$, $F(3,102) = 77.29$, $p < .0005$, and 43 % of the variation in the dependent variable was explained by the independent variables, where $R^2 = .43$.

14. THE ANALYSIS DISCUSSION

The results of the MLR analysis for the website application revealed support for hypotheses H_1 , H_2 , H_3 , and H_4 . This means that the system quality (H_1), the information quality (H_2) and the service quality (H_3) have a significant impact on the satisfaction of visitors to the websites. This finding is in line with prior studies, which have suggested that: (1) system quality contributes to improving business figures and efficacy, persuading online visitors to make purchases and encouraging them to make repeat visits (Hill, 2001; Kim, Shaw, & Schneider, 2003; Song & Zahedi, 2001; Zviran, Glezer, & Avni, 2006); (2) information quality is one of the key determinants of actual visitor reactions to using the website (Chen & Wells, 1999; Huang, Lee, & Wang, 1999; Janda, Trocchia, & Gwinner, 2002; Palmer, 2002; Szymanski & Hise, 2000; Turban & Gehrke, 2000; Turban & Gehrke, 2000; Zhang, Keeling, & Pavur, 2000); and (3) service quality is one of the key determinants of e-commerce system success, which makes it an imperative part of evaluating information system usefulness (Kettinger & Lee, 1995; Li, 1997; Wilkin & Hewitt, 1999). The analysis results verified the claims that websites' embedded components, their functions, and performance fashion visitor feelings, attitudes and behaviour (Kang & Kim, 2006; Gelderman, 1998) as well as their intention to re-visit sites (Pi, Li, Chen, & Chen, 2007; Rai, Lang, & Welker, 2002). The outcome agrees with the findings of studies conducted by Agarwal and Venkatesh (2002), Bailey and Pearson (1983), Cheung and Lee (2005), DeLone and McLean (1992, 2002, 2003), Devaraj, Fan, and Kohli (2002), Doll and Torkzadeh (1988), Elliot, Morup-Petersen, and Bjorn-Andersen (2000), Gehrke and Turban (1999), Huizingh, Krawczyk, Bijmolt, and Hoekstra (2007), Y.K. Kim, E.Y. Kim, and Kumar (2003), McHaney, Hightower and Pearson (2002), McKinney, Yoon, and Zahedi (2002), McKinney, Yoon, and Zahedi (2002), Miller and Doyle (1987), Muyllé, Moenaert, and Desponti (2004), Olson and Baroudi (1983), Raymond (1987), Schaupp and Belanger (2005), Seddon (1997), Shim, Shin, and Nottingham (2002), Song and Zahedi (2001), Turban and Gehrke (2000), Venkatesh and Agarwal (2006), Venkatesh and Ramesh (2006), Wang, T. Tang, and J. Tang (2001), in terms of the influence of system, information, and service quality of information- and web-based systems on user satisfaction. The findings of this study clearly support the proposition of a link between system, information and service quality, and visitor satisfaction. Providing that potential customers judge an organisation's e-commerce system they visit, by the ability of the website to offer the most convenient functions that satisfy their needs (Savin & Silberg, 2000). This means that when visitors search an organisation website, they expect to find that:

- ✓ The website's quality is ease of navigation, load quickly, reflect individuals' principal requirements of formation, and offer safe environment and sound privacy policy.
- ✓ The website's information is logically organised and presented, and the user can control the contents (Von Dran, Zhang, & Small, 1999).
- ✓ The website's services are effective as regards the online support capabilities, such as quick responsiveness (receiving help promptly), reliability, assurance, and empathy.

In addition, the findings of this study reveal that the transactional website has a considerably higher positive influence on visitor satisfaction than its counterpart, the portal website. In this instance, the results of linear regression analysis showed that 54% of the variation in the dependent variable of the transactional website was explained by the independent variables ($R^2 = .54$). However, only 43 % of the variation in the dependent variable of the portal website was explained by the independent variables ($R^2 = .43$). This suggests

that the portal website and the transactional website had an almost incongruous influence on visitor satisfaction. In other word, it means that the transactional website has an upper significant influence on the visitors' satisfaction, and in turn, has a significant influence on the website visit, revisit, and the actual sales than its counterpart the portal website. This finding verified that website efficiency, in respect of its application as portal or transactional, to be a key predictor in influencing the satisfaction level of visitors to the organisation's website. The finding correspondends with prior studies, which suggested a strong association between websites' embedded components, their functions and performance, and visitor feelings, attitudes, behaviours (Kang & Kim, 2006; Gelderman, 1998) and intentions to re-visit the site (Pi, Li, Chen, & Chen, 2007; Rai, Lang, & Welker, 2002).

Furthermore, the subsequent sections address the implications of the study findings. It includes a debate of the study findings regarding the influence of website application.

15. THE IMPLICATIONS OF THE RESEARCH FOR E-COMMERCE WEBSITE APPLICATION

The findings of this study offer an empirical affirmation that website application is playing a key role as a determinant of visitor satisfaction with the website systems of small enterprises. The empirical support for the influence of website application on visitor satisfaction offered cover regional level in Australia (New South Wales urban). The findings also, unearth that the more the efficiency of website application, the more the influence on visitors' satisfaction, visit and revisit, and subsequently a better prospect of achievement for the organisation's e-commerce system. What is new, the aspiration of understanding as fully as possible the implication of the website phenomenon is accomplished all through rigorous conceptual procedures to assure that the assumptions being proposed are indeed truthful. In fact, by verifying a set of pre-specified relationships, this study affirms that the phenomenon being studied is existing.

✓ **The Implications of the Proposed Model**

Research on satisfaction with website systems of small enterprises is rare. This study has provided practical support for the creation of model that clarifies the impact of website application on customer satisfaction. The model tested in this study can serve as a reference source for various parties in better understanding the influence of website system applications, and offer recommendations based on the empirical findings. The model can be considered to be a great aid for small enterprises contemplating or are embarking on e-commerce. It illuminates how a website can affect an e-commerce system, and offers useful information for enhancing understanding of customers' anticipated demands. The developed model provides useful empirical suggestions. It also offers practitioners, policy makers, small enterprise owners and managers, and other interested parties, insightful information about the pathways that small enterprises must follow to implement an effective website that can achieve the desired outcomes.

✓ **The Implications of the Strategy/ies to Promote Website Functions**

The findings of this study have considerable implications for the effort to develop appropriate strategy/ies for promoting e-commerce applications among SEs. This study has outlined the path that policy makers and business practitioners must follow when developing future strategy/ies to promote e-commerce within SEs. The findings clearly show that implementing an appropriate website system by means of developing a relevant online strategy, which reflects the business's goals and customer needs is desirable. This offers SEs the opportunity to achieve their objectives and helps them to survive in an increasingly tough competitive marketplace. The findings of this study can also, be used as a basic background offering ongoing advice and support for developing future strategy/ies to establish, promote, and enhance e-commerce adoption and implementation.

16. LIMITATIONS OF THE STUDY

Like other studies, this study involves various limitations that could affect the overall validity and reliability. The principal limitations of this study are linked to it being a regional study, employing a snowball technique to obtain the sample size using a survey to collect data. First, the probability of response bias, which could exist because of the participants' tendency to respond to questions in a certain way, might misread facts (Zikmund, 2003). This problem could be attributed to the characters of the participating people, being associated with each other, since they refer to each other to complete the survey. This might raise concern in regards to common characteristics they may possibly have, which make them answer the survey questions in such similar way. Second, the sample method utilised to identify people to participate in this research was not based on a strictly random sample. The selected sample size was based on a convenience sample method (snowball technique), where the selection was purely subjective and arbitrary. This non-probability sampling method suffers from problems of extreme bias, which raises the question concerning appropriateness the reasonableness of the results are? That is to say, the sample size chosen by

the snowball method may not be entirely representing customers' base of e-commerce in Australia. Third, only 102 people completed this study. This is a relatively small size, and may threaten the outcome's validity. Fourth, the study focused on a specific category of web-based systems. Two forms of website were used as an indicator of e-commerce website efficiency. It may be necessary to consider whether similar results can be observed if other types are used. Fifth, in verifying the influence of website application on visitor satisfaction, the study emphasised factors observed in a metropolitan environment in New South Wales, Australia. This may raise doubts that the findings may have applicability elsewhere. That is, the way people interact with online technology may differ across geographic boundaries. All these limitations may raise doubts about the ability of this study to generalise its findings.

Nonetheless, in an attempt to improve the validity, reliability and subsequently the overall generalisability of the research findings, many procedures were applied. The questionnaire survey allowed a much more meaningful means of how the question to be answered, with a relatively full understanding the nature of the website components. The structure and layout of the study's questionnaire were comprehensible and easy to read. The question contents were clear, avoided ambiguity, abstraction, connotation and linked to the information required and reflected the study objectives. Therefore, we believe that participants who completed the questionnaire were capable to make truthful judgments concerning the website applications. The research has projected and examined a number of significant factors that affect website visitor satisfaction. The participants in this study in fact represent an essential part of the general population of online clientele. The findings of this study do provide guidelines for organisations that plan to improve their e-commerce models.

17. RECOMMENDATIONS

The findings of this study undoubtedly confirm the significance of the role of e-commerce system websites in manipulating actual levels of visitor satisfaction, and consequently in enhancing business competitiveness in the marketplace. SEs must be aware that as far as their website is concerned: (1) system quality must be accessible, easy to navigate, attractive and secure; (2) information quality must be accurate, comprehensive, reliable, clear, relevant and current; (3) service must be responsive and prompt, offering follow-up services and excellent responses to frequently asked questions. Hence, SEs who have already implemented or contemplate implementing an e-commerce system should fully understand that website applications will play a significant part in augmenting visitor satisfaction, and thereby, the success of their business efforts. SEs must be aware that implementing an e-commerce website will not automatically be of great assistance to them, unless the website system quality is effective and attractive, information quality is ideally presented, and service quality satisfies customer needs. The pathway to success is clear: planning and creating e-commerce websites must reflect customers/potential customers' demands. For this reason, to be able to gain the utmost benefit from e-commerce systems, businesses in general and SEs in particular should think through the following suggestions:

- Implement the e-commerce system that suits your business activities.
- Constantly update your website capability.
- Monitor developments in e-commerce innovation and determine how they can be leveraged to improve the current business practice.

18. Suggestion for Future Research

Further research efforts in this field are required to shed more light on the influence of website application on visitor satisfaction. For instance, this study has addressed the effect of the website efficiency on a limited extent, by investigating two categories of the website applications (portal and transactional). Thus, extending future research to include other categories, such as the integration stage, would help clarify the influence of website applications on visitor satisfaction. In addition, this research has tested the influence of e-commerce websites in a specific urban Australian location (NSW). Future studies looking into the influence of e-commerce websites in other Australian states, or nationally, would be of great help in verifying the validity of these research finding. On top of this, various opportunities exist for future studies to address the above-mentioned limitations. Even so, additional empirical investigations that further illuminate the impact of website status on e-commerce system success are required for validating the findings of this study. Whether the results of such studies support or refute the outcomes of this research, they will provide further theoretical and practical contributions to the knowledge of e-commerce and website applications. The findings of this study alleviate the way of potential upcoming studies on numerous interrelated areas.

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Appendix 1 The questionnaire survey

Dear participant

Following are some statements regarding your evaluation and attitude toward the two specific websites' application. Please indicate to which extent you agree with these statements by circling the appropriate number, where (1) indicates poorer than I anticipated, and (7) indicates better than I anticipated? Please answer the questions to the best of your knowledge. Most of the questions require your view or opinion measured on a seven-point scale. There is no right or wrong answer. We are only interested in your opinion on the issues.

Please note that all your answers will remain confidential.

Based on your expectations, how do you rate your satisfaction with the following characteristics of the system quality provided by the website?

Statement	Poorer than I anticipated				Better than I anticipated			
	1	2	3	4	5	6	7	
Q1. To what extent does the website appearance offer an attractive format?	1	2	3	4	5	6	7	
Q2. To what extent does the website offer ease of navigation (user-friendly offer an ease access to information needed, without clicking over many pages)?	1	2	3	4	5	6	7	
Q3. To what extent is the website able to download information quickly (how rapid is the information is downloaded)?	1	2	3	4	5	6	7	
Q4. To what extent does the website offer a secure environment for navigation?	1	2	3	4	5	6	7	
Q5. To what extent does the website offer an appropriate privacy policy?	1	2	3	4	5	6	7	

Information quality

Based on your expectations, how do you rate your satisfaction with the following characteristics of the information content provided by the website?

Statement	Poorer than I anticipated				Better than I anticipated			
	1	2	3	4	5	6	7	
Q6. To what extent does the website provide accurate, concise, and clear information content?	1	2	3	4	5	6	7	
Q7. To what extent does the website provide comprehensible information content, in terms of:	1	2	3	4	5	6	7	
Ease of understanding	1	2	3	4	5	6	7	
Comprehensiveness, richness, and detail.	1	2	3	4	5	6	7	
Usefulness, soundness and relevance.	1	2	3	4	5	6	7	
Reliability and consistency.	1	2	3	4	5	6	7	
Q8. To what extent does the website provide relevant information?	1	2	3	4	5	6	7	
Q9. To what extent does the website provide up-to-date information?	1	2	3	4	5	6	7	
Q10. To what extent does the website provide appropriate information format (clear and logically organised)?	1	2	3	4	5	6	7	

Service quality

Based on your expectations, how do you rate your satisfaction with the following characteristics of services provided by the website?

Statement	Poorer than I anticipated				Better than I anticipated			
	1	2	3	4	5	6	7	
Q11. To what extent does the website offer responses and prompt assistance when needed?	1	2	3	4	5	6	7	
Q12. To what extent does the website offer an appropriate answer for frequently asked questions (FAQs)?	1	2	3	4	5	6	7	
Q13. To what extent does the website offer customers the ability to track orders in the after-sale phase (follow-up services and access to the transaction file)? (This question is devoted to the transactional website only.)	1	2	3	4	5	6	7	
Q14. To what extent does the website offer sound and clear policy on issues related to returns?	1	2	3	4	5	6	7	

Overall visitor satisfaction

Based on your expectations, how do you rate your overall satisfaction with the following components of the website?

Statement	Poorer than I anticipated				Better than I anticipated			
	1	2	3	4	5	6	7	
Q15. How would you rate your overall satisfaction with the system quality of the website?	1	2	3	4	5	6	7	
Q16. How would you rate your overall satisfaction with the information quality of the website?	1	2	3	4	5	6	7	
Q17. How would you rate your overall satisfaction with the service quality of the website?	1	2	3	4	5	6	7	

Thank you for your participation.