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Effects of web site characteristics on customer loyalty in B2B e-commerce: evidence from Taiwan

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This study proposes a model to explain how web site characteristics influence customer e-loyalty and positive word-of-mouth (WOM) via relationship quality (trust, satisfaction, and commitment) in business-to-business e-commerce. Three hundred and twelve online services users of the Market Intelligence Center in Taiwan were recruited and structural equation modeling was used to test the research hypotheses. The result indicates that web site characteristics positively influence relationship quality. A follow-up post-analysis showed how five dimensions of the web site characteristics impacted relationship quality. In addition, both trust and satisfaction have a positive direct effect on e-loyalty, but not on positive WOM. Finally, theoretical and managerial implications of the findings were discussed.

Keywords: website characteristics; relationship quality; customer loyalty

Introduction

An increasing number of firms are seeking help from market intelligence service companies in order to obtain up-to-date information on markets and trends. Drucker (2004, p. 16) also stated that 'The new economy may or may not materialize, but there is no doubt that the next society will be with us shortly. . . .The next society will be a knowledge society. Knowledge will be its key resource'. Therefore, the development of the market intelligence service industry is increasingly important to firms. Many well-known market intelligence service companies such as IDC (USA), Gartner (England), Forrest (Austria), SRI (USA) and Fuji Chemila (Japan) employ hundreds of industry analysts that provide market and industry intelligence worldwide. These companies focus on first-hand empirical studies, host topical conferences, and provide database memberships and consulting services. The Internet has become an essential platform for providing services (e.g. up-to-date and customized market and industry reports) and communicating with their customers. In order to follow the global trend to meet customers' needs in e-commerce (Wu, 2010), market intelligence service companies must provide quality services via the Internet. Thus, knowing how to build good relationships and retain customer loyalty using the Internet has become important issues in business-to-business (B2B) e-commerce.

Web site services are primarily offered through the content-based web sites and search engine (Hoffman, Novak, & Chatterjee, 1995). Such web sites should not only provide information, but also generate value-added content. In addition, immediate delivery of value-added content, interaction with customers and increasing the information shared among users have become the most competitive characteristics in B2B e-commerce

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(Ruyter, Wetzels, & Kleijnen, 2001). How web site characteristics influence relationships with customers and, as a result, lead to customer loyalty seems to be of interest to practitioners and scholars. Researchers also developed a web site assessment tool to help firms managing B2B web sites (Evans & King, 1999). Studies on these issues would help online service providers understand customer needs in order to provide better online services and retain customers. Although numerous studies have investigated relevant issues in business-to-consumer (B2C) e-commerce (e.g. Cyr, Kindra, & Dash, 2008), surprisingly little research effort has been conducted on answering these questions in a B2B e-commerce context.

B2B markets have played an important role in global e-commerce as they have a 40% growth rate and transaction dollars that are much higher than those of B2C markets (Wu, 2010). The needs of organizational customers are quite different from those of individual customers and as such, marketing strategies should differ accordingly. Individual customers in B2C markets focus on product specifications, functions, benefits, prices, and services, while organizational customers in B2B markets focus on communication platforms (e.g. information system (IS) platforms) in order to obtain market intelligence for decision making (Brain Thinktank, 2010). A recent report by Jack Morton Worldwide (2007) indicates that word-of-mouth (WOM) is even more influential in decision making in B2B markets than in B2C markets. Particularly, WOM is the leading factor to influence business technology and service purchasing decisions. Thus, it is important to investigate the antecedents of customer loyalty and positive WOM in B2B e-commerce.

The objectives of this research are to: (1) demonstrate that web site characteristics are important antecedents of relationship quality, which consisted of trust, satisfaction, and commitment in this research; (2) show that relationship quality mediates the relationship between web site characteristics and e-loyalty; and (3) address the relationship between relationship quality and positive WOM. The contributions of this research are to the B2B e-commerce literature and all into several ways. Prior research in B2B markets have focussed on how relationship quality (Rauyruen & Miller, 2007) and service quality (Gounaris, 2005) can be used to retain customers and build customer loyalty. To our knowledge, no studies have explored the antecedents of customer loyalty in B2B e-commerce from an IS perspective. The IS success model suggests that information, system, and service quality are key antecedents to a successful IS (DeLone &McLean, 2003; Petter & McLean, 2009). The original IS success model posited six dimensions of IS success: system quality, information quality, use, user satisfaction, individual impact, and organizational impact (DeLone & McLean, 1992). However, the original model measures only system and information quality and not service quality. Pitt, Watson, and Kavan (1995) indicated that service quality should be considered in order to reflect the service role of the IS. The IS success model has been updated to include service quality and could be used to measure e-commerce system success (DeLone & McLean, 2003). When applying the IS success model to e-commerce, the importance of including service quality in the model is much greater as service quality (e.g. customer support) influences customer retention and sales (DeLone & McLean, 2003). Although many researchers have applied this model to B2C service contexts (e.g. Ahn, Ryu, & Han, 2004; Chang & Chen, 2008), the applications of this model to B2B e-commerce contexts are limited. The IS success model focusses on user satisfaction (DeLone & McLean, 2003), but does not consider the role of trust and commitment in building customer loyalty (Morgan & Hunt, 1994). Therefore, expanding upon the relationship quality–loyalty model (Rauyruen &

Miller, 2007), our research considers web site characteristics as relationship marketing initiators in regard to developing customer loyalty in B2B e-commerce. In addition, most of the previous studies in this area focussed on 'overall' customer loyalty or e-loyalty (Chang & Huang, 2006; Cyr, 2008; Lin & Sun, 2009; Sanchez-Franco, Ramos, & Velicia, 2009), especially in the e-commerce context. Little research has focussed on the relationship between the relationship quality and WOM (Palvia, 2009; Ranaweera & Prabhu, 2003; Sweeney & Swait, 2008). In order to fully capture the concept of customer loyalty, we followed the composite loyalty approach, which consists of the two behavioral aspects, e-loyalty and positive WOM, and showed how positive WOM could be achieved.

Thus, this research attempts to fill these research gaps. We demonstrated the discriminant validity of the constructs, e-loyalty and positive WOM, and empirically tested the relationships among web site characteristics, trust, satisfaction, commitment, e-loyalty, and positive WOM in the market intelligence industry. To this end, this research tested the proposed model with 312 online market intelligence services users and the results will help service providers identify ways to build e-loyalty and positive WOM in a B2B context. In addition, this research showed that web site characteristics are an important predictor of relationship quality and contribute to user trust, satisfaction, and commitment. The research findings also indicated that not all relationship quality variables (only trust and satisfaction) lead to e-loyalty.

The rest of the paper is organized as follows. First, we review the literature in B2C e-commerce and B2B offline settings in regard to customer retention and loyalty. Then, we review the literature in regard to web site characteristics, relationship quality (trust, satisfaction, and commitment), e-loyalty and positive WOM. Next, we develop a conceptual model and formulate research hypotheses. Then, we present an empirical study and use structural equation modeling (SEM) to test the model and research hypotheses. Finally, we offer theoretical and practical implications of our findings and discuss limitations and future research directions.

Literature review and hypotheses

In IS literature (e.g. Chung & Shin, 2010; Gefen, Karahanna, & Straub, 2003), researchers have investigated various factors that could influence the success of a web site in regard to its customer retention, including web site design (Kim, Fiore, & Lee, 2007; Srinivasan, Anderson, & Ponnavolu, 2002; Wulf, Schillewaert, Muylle, & Rangarajan, 2006), web site–customer interaction and service quality (Devaraj, Fan, & Kohli, 2002; Loiacono, Watson, & Goodhue, 2002; Montoya-Weiss, Voss, & Grewal, 2003), and system and retail quality (Kim, Jin, & Swinney, 2009; Rodgers, Negash, & Suk, 2005) in B2C e-commerce. Prior studies have shown that the relationship development in B2B contexts not the same as that in B2C contexts (e.g. Anderson & Weitz, 1992; Morgan & Hunt, 1994; Tellefsen & Thomas, 2005). In B2B contexts, an exchange partner is actually composed of two distinct actors – the partner's overall organization and the partner's individual representative (Hakansson & Wootz, 1979). For instance, in the information service industry, service providers have exploited the Internet to customize their digital products and services based on customers' needs at the departmental and organizational levels (Shapiro & Varian, 1999; Wind & Mahajan, 1997). That is, they have to provide customers immediate information and reports of customer interests (Slywotzky, 2000). In addition, they need to constantly communicate with customers in different departments within the firm and make adjustments to the products and services

provided in order to improve product and service quality. As such, they are more likely to develop long-term relationships with and retain their customers. Thus, it would be inappropriate to generalize the existing work found within B2C contexts into B2B contexts without further empirical testing. In the B2B offline settings, prior studies have investigated how technology (Richard, Thirkell, & Huff, 2007) and service quality (Gounaris, 2005) impact relationship development and customer retention. Rauyruen and Miller (2007) showed that the relationship quality consisted of trust, satisfaction, and commitment, which determines B2B customer loyalty. However, little is known about retaining customers in the B2B e-commerce.

The Internet offers numerous opportunities by which B2B marketers can reach customers (Coy, Hof, & Judg, 1996; Shikhar, 1998). In the market intelligence service industry, nearly 90% of the services are provided in a digital form on a firm's web site (Market Intelligence & Consulting Institute, 2011). According to the B2B-to-employee model (Su & Ko, 2002), organizational customers purchase the rights to use digital products (i.e. online databases and services, including industry reports and videos) to share among employees at different departmental-level needs. Therefore, service providers need to decide how to plan, manage, and assess web sites in order to better serve and retain customers (Evans & King, 1999). In particularly, they need to enhance their supporting services and technology in order to achieve this goal (Ruyter et al., 2001). According to the IS success model (DeLone & McLean, 2003), information, system, and service quality are considered fundamental factors for developing a successful IS. In B2B e-commerce, web site characteristics involve these three fundamental factors (Evans & King, 1999). Thus, it is essential for service providers to understand how web site characteristics influence relationship quality and customer loyalty. Expanding upon the relationship quality–loyalty model (Rauyruen & Miller, 2007), our research considers web site characteristics to be relationship marketing initiators in the B2B e-commerce from an IS perspective and attempts to understand how the quality derived from web site characteristics impacts customer relationship quality and loyalty. Specifically, the proposed model investigates the relationships among web site characteristics, relationship quality (trust, satisfaction, and commitment), and customer loyalty (e-loyalty and positive WOM) in a B2B e-commerce context. The proposed research model is shown in Figure 1.

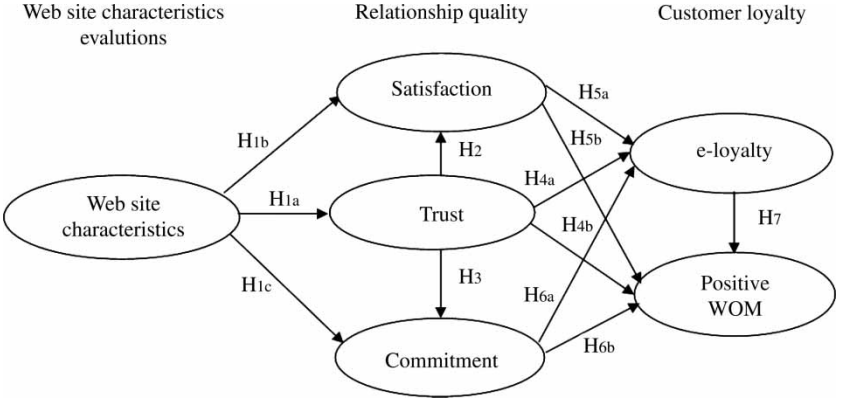

Figure 1. The research model.

Web site characteristics

Web site characteristics are defined as a user's overall impression of the web site elements in terms of system, information, and service quality (DeLone & McLean, 2003). Evans and King (1999) developed a B2B web site assessment tool that assesses five aspects: (1) home page: the home page should include a snapshot of the firm and points of contact and introduce the major components of the site; (2) overall site design and performance: ease of web site navigation, access speed, response time, and data security are critical to a web site's overall performance; (3) text content: the text content needs to be updated in a timely manner in order to meet customers' needs; (4) audio-visual elements: in addition to the text content, graphics, audio, and video are alternative ways to strengthen and rich content; (5) interaction and involvement: service providers are expected to respond to customer inquiries in a timely fashion via e-mails, chat rooms, or interactive surveys. Following this assessment, the construct was operationalized as a multidimensional construct in the present study.

Relationship quality

The concept of relationship quality arises from relationship marketing (e.g. Crosby, Evans, & Cowles, 1990; Dwyer, Schurr, & Oh, 1987), the ultimate goal of which is to strengthen relationships and convert indifferent customers into loyal customers (Berry & Parasuraman, 1991). Following Rauyruen and Miller (2007), this study also adopts these three distinct but relevant constructs: trust, satisfaction, and commitment to represent a higher level construct in regard to relationship quality in developing B2B customer loyalty. This approach has been widely used by prior empirical studies (Lagace, Dahlstrom, & Gassenheimer, 1991; Leuthesser, 1997; Smith, 1998; Wray, Palmer, & Bejou, 1994). We introduce each construct below.

Trust

Trust is seen as an expression of security between partners when making an exchange or in another type of relationship (Garbarino & Johnson, 1999). It also refers to a belief that a partner in a negotiation will not exploit or take advantage of the other's vulnerability (Dwyer et al., 1987; Santos & Fernandes, 2008). Trust is a significant concern to online services users. Hansen (1999) asserted that a well-designed web site can build trust and confidence. This study adopts the latter perspective and views trust as a web site user's confidence in the site owner's reliability and integrity (Smith, 1998).

Satisfaction

Satisfaction is widely used and recognized as a behavior indicator. Previous studies have used user satisfaction as an indicator of IS success (e.g. Bailey & Pearson, 1983; Lee & Shim, 2006; Zviran & Erlich, 2003). Satisfaction is defined as a web site user's overall evaluation of his relationship with the service provider (Smith, 1998).

Commitment

The concept of commitment originated from industrial and organizational psychology. Fehr (1988) viewed it as an intention to continue a course of action or activity such as maintaining a relationship with a business partner. Commitment is an important

element in developing successful long-term relationships (Dwyer et al., 1987). It is defined as a web site customer's intention to maintain a relationship with a service provider in specific regard to the customer's psychological bond to the service provider (Li, Browne, & Chau, 2006; Smith, 1998).

Customer loyalty

In order to better capture customer loyalty in B2B e-commerce, e-loyalty and positive WOM were considered in this study (Palvia, 2009; Ranaweera & Prabhu, 2003; Sweeney & Swait, 2008). Shaw (2002, p. 233) indicated that 'on the behavioral side, loyalty can be defined by the actual frequency and volume (cumulative sales) of the customer's purchases, and by the extent of positive word of mouth he or she generates'. E-loyalty has been conceived as a customer's intention to make a purchase from a web site and that the customer will not switch to another web site for the same item (Srinivasan et al., 2002). It focusses on a customer's behavioral intention. On the other hand, positive WOM is defined as a recommendation of a pleasant use experience to others (Anderson, 1998; Srinivasan et al., 2002).It can be a very helpful promotional tool if properly managed (Silverman, 1997; Sweeney & Swait, 2008).

Relationships between web site characteristics and relationship quality

Substantial research has studied the impact of web site characteristics in a B2C context. For example, Wulf et al. (2006) pointed out that web site content, organization, and technology are key factors that influence customer trust, satisfaction, and commitment. Rattanawicha and Esichaikul (2005) indicated that web site design characteristics are positively related to web users' trust and promote customer purchase behavior. Srinivasan et al. (2002) stated that one of the important factors that will attract customers and cause them to continue to patronize an online store is considering their needs in regard to customer services.

Similarly, web site characteristics are expected to influence relationship quality in a B2B context. DeLone and McLean (1992) showed that system quality has a positive influence on customer satisfaction. Bauer, Grether, and Leach (2002) indicated that Internet characteristics, such as interactivity, constant availability of information, and efficient transfer of information, would impact customer relationship building. That is, a web site that could offer good interactions with customers, high availability of information, or easy navigation through the information offered can lead to customer satisfaction with, trust in, and commitment to the relationship partner. Thus, it is expected that web site characteristics would positively influence trust, satisfaction, and commitment. Therefore, we hypothesized that:

H1a: Web site characteristics are positively related to trust.

H1b: Web site characteristics are positively related to satisfaction.

H1c: Web site characteristics are positively related to commitment.

Relationships among trust, satisfaction, and commitment in relationship quality

In B2C contexts, consumer trust before a specific exchange episode is found to positively influence post-purchase satisfaction (Singh & Sirdeshmukh, 2000). Such a relationship remains in the online retailing context as trust may be a fundamental component to

initiating a transaction. That is, customers may prefer to undertake transactions with online retailers they trust (Singh & Sirdeshmukh, 2000). This finding has been echoed by other empirical studies (Harris & Goode, 2004; Jin & Park, 2006; Kim et al., 2009).In B2B contexts, prior research has shown that trust positively influences satisfaction (Razzaque & Boon, 2003; Richard et al., 2007). Thus, it is expected that in the B2B e-commerce context, when customers trust in the online service provider, they are more likely to experience satisfaction. Therefore, we hypothesized that:

H2: Trust is positively related to satisfaction.

Buyers would form individual evaluations of trustworthiness toward their exchange partners (Čater & Čater, 2009; Doney & Cannon, 1997). Researchers have demonstrated that trust positively impacts commitment in online B2C contexts (Chaudhuri & Holbrook, 2001; Li et al., 2006; Luarn & Lin, 2003). In B2B contexts, trust facilitates the ability of buyers and sellers to work together in a collaborative fashion and overcome conflict (Morgan & Hunt, 1994). The relationship between trust and commitment is well established as numerous studies have shown the positive effect of trust on an exchange partner's commitment to a relationship (Caceres & Paparoidamis, 2007; Razzaque & Boon, 2003; Tellefsen & Thomas, 2005). Thus, it is expected that in B2B e-commerce contexts, when customers trust in the service provider, they are more likely to exhibit commitment to their relationship with the provider. Therefore, we hypothesized that:

H3: Trust is positively related to commitment.

Relationships between relationship quality and customer loyalty

Past research has indicated that trust is an antecedent to behavior intentions (Ruyter et al., 2001) and it is a central construct to the development of successful service relationships in B2B markets, such as achieving customer loyalty (Parasuraman, Zeithaml, & Berry, 1985; Rauyruen & Miller, 2007). Reichheld and Schefter (2000) highlighted the importance of trust in gaining customer loyalty in e-business. When customers develop trust in a service provider, it is very likely that they will stay with that service provider. This finding was confirmed by other researchers in B2B marketing (Cater & Zabkar, 2009; Mukherjee & Nath, 2007; Rauyruen & Miller, 2007).

Many WOM studies have investigated the relationship between trust and WOM in B2C contexts (e.g. Garbarino & Johnson, 1999; Gremler, Gwinner, & Brown, 2001; Ranaweera & Prabhu, 2003). Recent IS literature has demonstrated the positive effect of trust on online consumer behaviors and intentions (e.g. Gefen et al., 2003; Hong & Rim, 2010; Mukherjee & Nath, 2007). For instance, researchers have shown that customer trust, built via a company's efforts in building web site features, in a company is positively associated with the customer engagement in positive WOM communication (Hong & Rim, 2010; Mukherjee & Nath, 2007). That is, the more the customers trust the company, the more they will engage in spreading positive WOM advertising. It is expected that a similar effect will occur in B2B e-commerce contexts. We hypothesized that:

H4a: Trust is positively related to e-loyalty.

H4b: Trust is positively related to positive WOM.

Prior studies have demonstrated the relationship between satisfaction and customer loyalty in B2B contexts (e.g. Eriksson & Vaghult, 2000; Lam, Shankar, Erramilli, & Murthy, 2004; Rauyruen & Miller, 2007). Customer satisfaction positively influences

customer retention (Eriksson & Vaghult, 2000) and recommendation (Lam et al., 2004). In addition, Rauyruen and Miller (2007) indicated that satisfaction positively impacted both the behavioral and attitudal loyalty.

In B2C contexts, customer satisfaction has a significant influence on the behavioral aspect of WOM (Ranaweera & Prabhu, 2003; Richins, 1983). These findings were echoed by numerous studies (e.g. Heitmann, Lehmann, & Herrmann, 2007; Söderlund & Rosengren, 2007; Wangenheim & Bayón, 2007). Chung and Shin (2010) also demonstrated that in an online retail context, positive WOM can be generated through customer satisfaction. Thus, it is expected that in B2B e-commerce contexts, when customers are satisfied with their interaction with a service provider, they are more likely to exhibit behavioral loyalty (e-loyalty and positive WOM). Therefore, we hypothesized that:

H5a: Satisfaction is positively related to e-loyalty.

H5b: Satisfaction is positively related to positive WOM.

Committed customers typically show higher purchase intentions, better resist counterpersuasion, are more willing to pay a premium price, and are more eager to recommend the service provider to others (Wulf et al., 2006). Thus, commitment is considered to be a crucial outcome variable that is derived by web site development efforts (Wulf et al., 2006) and an important driver of customer loyalty (Fullerton, 2003). In a B2B context, Ruyter et al. (2001) showed that commitment influences a buyer's propensity to remain in the relationship. It is expected that high customer commitment will lead to high e-loyalty in B2B e-commerce.

In B2C contexts, researchers have indicated that the potential consequences of commitment include WOM communications, an important aspect of behavioral loyalty and that customer commitment has a positive impact on WOM (e.g. Harrison-Walker, 2001; Hennig-Thurau, Gwinner, & Gremler, 2002; Lacey, Suh, & Morgan, 2007). The same effect was observed in B2C e-commerce (Chung & Shin, 2010). When customers are highly committed to a service provider, then they are more likely to spread positive WOM about the provider. In the same vein, we expect that in B2B e-commerce high customer commitment would also lead to high positive WOM. Therefore, we hypothesized that:

H6a: Commitment is positively related to e-loyalty.

H6b: Commitment is positively related to positive WOM.

Relationships between e-loyalty and positive WOM

Zeithaml, Berry, and Parasuraman (1996) stated that loyal customers forge bonds with a company and behave differently from disloyal customers (Srinivasan et al., 2002). Following this reasoning, it is expected that customer loyalty impacts behavioral outcomes and the profitability of a company. One of the behavioral outcomes expected to result from e-loyalty is positive WOM (Srinivasan et al., 2002). Srinivasan et al. (2002) also indicated that higher loyalty enhances the opportunity for positive WOM. This finding is consistent with that of other studies (Dick & Basu, 1994; Hagel & Armstrong, 1997). Thus, it is expected that e-loyalty will positively affect positive WOM. Therefore, we hypothesized that:

H7: E-loyalty is positively related to positive WOM.

Methodology

Questionnaire and sampling

The research sample frame consists of users at the 385 organizational members of the Market Intelligence Center (MIC) in Taiwan, who had been using the online IS at least for the past 3 months. We chose the study context and sample for several reasons. According to the most recent Global Information Technology Report (World Economic Forum, 2011), Taiwan's networked readiness index has been improving for the past 4 consecutive years and ranks sixth among 138 economies. In particular, its extent of business Internet use ranks 10th out of the 138 economies. Thus, it serves as a fine study context for our research purpose. Taiwanese companies obtained the largest market share in more than 10 information and communication technology (ICT) product categories (e.g. netbook pc, motherboard, and notebook pc) worldwide (Market Intelligence & Consulting Institute, 2009). MIC has devoted its market intelligence services to the highly competitive ICT industry and is the largest market intelligence organization in Taiwan with organizational members across different industries, including IT, telecommunications and financial industries, and academic institutions (Yang, 2005). As MIC provides immediate market intelligence services to various industries, it has a market share of 22.7% in the entire market intelligent service industry in Taiwan. The role of the MIC market intelligence services for different industries is important. The MIC in Taiwan provides customized information services to its organizational members through its web site, which delivers immediate and relevant market intelligence reports to customers based on their needs. In addition, through its web site it offers online seminars that contain analyses by industry analysts to respective customers and interacts with customers regularly in order to strengthen the relationships. Given the reasons mentioned, we expected that the research findings would be generalizable to the B2B e-commerce in economies with equivalent networked readiness.

A questionnaire survey was used for this study. The questionnaire was refined through two phases before being officially distributed. In the first phase, three experts in the e-commerce area were interviewed. The items were modified to fit the web site service context. Second, the questionnaire was pilot tested using a convenience sample (30 respondents). The composite reliability (CR) and average of variance extracted (AVE) of each construct exceeded 0.7 and 0.5, respectively. The results suggested that the constructs had convergent validity (Anderson & Gerbing, 1988). The factor loading of each construct also exceeded 0.5, which suggested good reliability (Hair, Black, Babin, & Anderson, 2010) and met the requirement recommended by Bentler and Wu (1993) and Jöreskog and Sörbom (1993) (squared multiple correlation, $SMC > 0.2$). Thus, no items were removed from the questionnaire in the pilot test. Then, the questionnaire was officially distributed. Based on the firm's size, two to five users of the market intelligence services in each department from each firm were randomly selected as target samples. Survey packets, including a cover letter, a survey booklet, and a postage-paid return envelope, were mailed to all potential respondents. Reminder cards were mailed approximately 2 weeks after the initial mailing. Eight hundred and fifty questionnaires were delivered, and 342 surveys were returned from 114 firms. After filtering invalid questionnaires, 312 valid questionnaires were retained, with a valid response rate of 38%. The majority of the respondents were in the IT industry, accounting for 68.3% (including R&D, manufacturing, and distribution) while 31.7% (including financial, government, and academic institutions) in the non-IT industry. In regard to department classification, 44.6% of the respondents were in the market planning, 25.3% were in the general management, and 30.1% were in the

production, procurement, and finance; 43.3% of the respondents were lower level employees, 39.1% were managers, and 17.6% were chief executive officers. Following the IS success model (DeLone & McLean, 2003), this research tested the proposed model at the individual level, considering exogenous and endogenous issues. This approach was supported by the intraclass correlation coefficients (ICCs). ICC indicates how strongly the responses in the same firm are similar to each other. ICC(1) is the ratio of between-groups variance (i.e. the variance between different firms) to the within-group variance (i.e. the variance from the same firm). A lower ICC(1) indicates that the between-group variance is low and it can be ignored (Wen & Chiou, 2008). The ICC(1) of each construct in this research was less than 0.05, which suggests that the between-group variance is quite low and that the analysis at the individual level should be appropriate (Bliese, 2000). We compared the test results at the organizational level with those results at the individual level and did not find significant differences. The results suggest that the unit of analysis did not lead to any differences. This approach avoids the ecological fallacy of using organization generalizations to explain individual behaviors and accurately reflects user experience (Klein & Kozlowski, 2000).

To assess the possibility of the response bias in our samples, 312 responses were analyzed with analysis of variance (ANOVA) and chi-square analyses between respondents on key demographic variables. The result of the ANOVAs revealed no significant differences in the departments. The chi-square tests revealed that that percentages of respondents were not significantly different between the IT and non-IT industries ($\chi^2 = 1.521$, $p = 0.75 > 0.05$). In addition, another chi-square difference test was performed in order to check the difference between the loadings of the IT and non-IT samples. The test results did not show significant differences in the overall loadings of the web site characteristics, relationship quality, or loyalty between the two samples ($\triangle\chi^2 = 0.6$, $df = 1$; $p = 0.44 > 0.05$). Thus, the response bias should not be an issue in our sample.

The non-response bias was assessed through the extrapolation method of Armstrong and Overton (1977), which assumes that late respondents are comparable to non-respondents. Comparing the first 10% of the respondents and the last 10% of the respondents assessed non-response bias respondents. The results indicated that this was not a problem in the current study.

Measures

All of the constructs included in the proposed model were measured using multi-item scales drawn from previous studies that reported high statistical reliability and validity. The items used to measure each of constructs are presented in the appendix. The scales for measuring web site characteristics were adapted from Evans and King (1999). The scale items used to measure trust, satisfaction, and commitment were adapted from Smith (1998). The scales for e-loyalty and positive WOM were derived from Srinivasan et al. (2002). All items were measured on a seven-point Likert scale (1: strongly disagree, 7: strongly agree).We measured customer loyalty (e-loyalty and positive WOM) to the web site, not the service provider itself for the following reasons. First, previous research showed that relationship quality is equally important for retaining customers in online and offline settings (Walsh, Hennig-Thurau, Sassenberg, & Bornemann, 2010). That is, relationship quality influences customer loyalty to the service provider and its web site. Smith (2001) also suggested that the nature of e-loyalty and that of loyalty are the same. In addition, as mentioned, in the market intelligence service industry, nearly 90% of the services are provided on a firm's web site (Market Intelligence & Consulting

Institute, 2011). Thus, when web site characteristics improve relationship quality, consequently customer retention at the web site should increase as well. Therefore, we expect that good relationship quality would positively influence customer loyalty to the service provider's web site.

Common method variance

Use of self-reported data is a common practice in management research. Self-reported data on two or more variables collected from the same source may possibly lead to a common method variance problem. In order to evaluate the threat to this problem, Harman's one-factor test was conducted (Harman, 1967; Podsakoff & Organ, 1986). This test assumes that if a high level of the common method variance is present, then when all of the variables are entered together, they will load on one single factor that will account for all of the variance, or one factor will account for a majority of the variance. In this study, an exploratory factor analysis was performed and seven factors with an eigenvalue greater than 1 emerged. The first factor of variance explained only 36.24% of the total variance. The test results provide evidence that the common method variance should not be a concern in this study.

Results

In order to test the proposed model and the hypotheses that were previously stated, SEM was used. This study employed the two-stage approach suggested by Anderson and Gerbing (1988). First, the measurement model is estimated with confirmatory factor analysis (CFA) to test reliabilities and validities of the research constructs. Then, the structural model is used to test the strength and direction of the proposed relationships among research constructs. In this approach, the first step involves testing measurement model via CFA and the second step involves testing a series of structural models including the hypothesized model.

Measurement model

Measures of overall fit evaluate how well a CFA model reproduces the covariance matrix of the observed variables. The measurement model showed adequate fit: $\chi^2/df = 3.908$, goodness-of-fit index (GFI) = 0.84, non-normed fit index (NFI) = 0.85, comparative fit index (CFI) = 0.88, incremental fit index (IFI) = 0.88, and root mean square error of approximation (RMSEA) = 0.09. As shown in Table 1, the CR for each construct was above 0.817, demonstrating a reasonable degree of internal consistency between the corresponding indicators. Results also showed support for the convergent and discriminant validity. As evidence of convergent validity, each item loaded significantly on its respective construct (Anderson & Gerbing, 1988). No items were excluded from the construct measurements. Evidence of discriminant validity exists when the square root of the AVE in each construct exceeds the coefficients representing its correlation with other constructs (Fornell & Larcker, 1981). As presented in Table 2, the results indicate adequate discriminant validity.

In order to confirm the multidimensionality of the web site characteristics construct, we compared a first-order model in which all of the items were weighted as a single factor with a second-order model in which the various dimensions were measured as the construct under consideration. As shown in Table 3, the second-order factor

Table 1. Analysis of measurement.

Constructs	MLE estimates		CR	AVE
	Factor loading (λ_x/ λ_y)	Measurement error (δ/ ε)		
Web site characteristics				
Home page			0.817	0.600
WSC1	0.675***	0.444		
WSC2	0.858***	0.262		
WSC3	0.779***	0.341		
Overall site design and performance			0.849	0.584
WSC4	0.763***	0.357		
WSC5	0.734***	0.386		
WSC6	0.794***	0.326		
WSC7	0.764***	0.356		
Text content			0.880	0.595
WSC8	0.706***	0.414		
WSC9	0.780***	0.341		
WSC10	0.797***	0.323		
WSC11	0.795***	0.368		
WSC12	0.774***	0.347		
Audio-visual elements			0.866	0.563
WSC13	0.790***	0.330		
WSC14	0.718***	0.402		
WSC15	0.761***	0.282		
WSC16	0.692***	0.429		
WSC17	0.787***	0.333		
Interaction and involvement			0.900	0.529
WSC18	0.790***	0.331		
WSC19	0.767***	0.354		
WSC20	0.777***	0.334		
WSC21	0.700***	0.421		
WSC22	0.665***	0.456		
WSC23	0.744***	0.377		
WSC24	0.730***	0.391		
WSC25	0.633***	0.488		
Second-order factor of web site characteristics			0.934	0.741
Home page	0.912***	0.209		
Overall site design and performance	0.936***	0.185		
Text content	0.932***	0.146		
Audio-visual elements	0.782***	0.339		
Interaction and involvement	0.721***	0.401		
Relationship quality				
Trust			0.834	0.518
TR1	0.563***	0.558		
TR2	0.503***	0.618		
TR3	0.910***	0.168		
TR4	0.925***	0.221		
TR5	0.580***	0.459		
Satisfaction			0.842	0.531
SAT1	0.538***	0.583		
SAT2	0.574***	0.547		
SAT3	0.924***	0.197		
SAT4	0.592***	0.529		

(*Continued*)

Table 1. Continued.

Constructs	MLE estimates: Factor loading (λ_x/λ_y)	MLE estimates: Measurement error (δ/ε)	CR	AVE
SAT5	0.912***	0.209		
Commitment			0.827	0.564
COM1	0.925***	0.196		
COM2	0.562***	0.559		
COM3	0.923***	0.198		
COM4	0.484***	0.580		
Customer loyalty				
E-loyalty			0.943	0.701
ELO1	0.846***	0.285		
ELO2	0.865***	0.252		
ELO3	0.869***	0.245		
ELO4	0.822***	0.324		
ELO5	0.822***	0.324		
ELO6	0.841***	0.293		
ELO7	0.795***	0.368		
Positive WOM			0.912	0.724
PWOM1	0.927***	0.196		
PWOM2	0.797***	0.326		
PWOM3	0.743***	0.378		
PWOM4	0.921***	0.202		

Note: Web site characteristics is a second-order factor.
***$p < 0.001$.

Table 2. Analysis of discriminant validity.

	WEB	TRU	SAT	COM	E-LO	P-WOM
Web site characteristics	**0.861**					
Trust	0.468	**0.720**				
Satisfaction	0.541	0.486	**0.729**			
Commitment	0.556	0.496	0.667	**0.751**		
E-loyalty	0.511	0.418	0.560	0.572	**0.837**	
Positive WOM	0.509	0.663	0.520	0.539	0.463	**0.851**

Note: The diagonal line of correlation matrix indicates the square root of AVE. WEB: web site characteristics; TRU: trust; SAT: satisfaction; COM: commitment; E-LO: e-loyalty; P-WOM: positive WOM.

Table 3. Comparison of measurement models of web site characteristics.

Model	χ^2/df	GFI	NFI	CFI	IFI	RMSEA
First-order model	2.278	0.86	0.84	0.89	0.89	0.07
Second-order model	2.273	0.88	0.87	0.90	0.90	0.06
Recommended value	$\leq$3	$\geq$0.9	$\geq$0.9	$\geq$0.9	$\geq$0.9	$\leq$0.08

model of the web site characteristics demonstrated acceptable fit and performed better than the first-order model in terms of goodness-of-fit measures. Thus, we concluded that the second-order factor model was suitable for modeling the web site characteristics.

Structural model

The fit of data to the proposed model was adequate: ($\chi^2 = 1639.95$, $df = 393$, GFI = 0.81, NFI = 0.87, CFI = 0.89, IFI = 0.87, and RMSEA = 0.09). The chi-square test is sensitive to sample size, but the ratio of chi-square to degrees of freedom ($\chi^2/df = 4.17$) still fell within the suggested value of 5 or below (e.g. Bollen, 1989; Piquero & Rosay, 1998; Smith & Patterson, 1985). In addition, the other indices (GFI = 0.81, NFI = 0.87, CFI = 0.89, IFI = 0.87) were below the 0.9 benchmark, but it exceeded the recommended cut-off value 0.8 (Hu & Bentler, 1999). In practice, RMSEA close to 0.08 suggests an acceptable model fit (Browne & Cudeck, 1993; Etezadi-Amoli & Farhoomand, 1996; Hu & Bentler, 1999). Therefore, there was a reasonable overall fit between the model and observed data. Figure 2 provides a graphic representation of the estimates in the path diagram and presents the results of the hypotheses tests. The results showed support for 8 out of the 12 hypotheses.

Consistent with *H1a–c*, web site characteristics positively influenced trust ($\gamma_{11} = 0.145$, $t = 2.154$, $p < 0.05$), satisfaction ($\gamma_{21} = 0.487$, $t = 8.043$, $p < 0.001$), and commitment ($\gamma_{31} = 0.264$, $t = 2.859$, $p < 0.01$), respectively.

Trust positively affected satisfaction ($\beta_{21} = 0.573$, $t = 8.043$, $p < 0.001$) and trust positively affected commitment ($\beta_{31} = 0.370$, $t = 5.922$, $p < 0.001$). Both *H2* and *H3* were supported. Trust positively affected customer e-loyalty ($\beta_{41} = 0.197$, $t = 2.804$, $p < 0.01$), but not significantly impacted positive WOM ($\beta_{51} = 0.002$, $t = 0.052$, $p > 0.05$). Thus, *H4a* was supported, but *H4b* was not supported. Satisfaction also positively affected e-loyalty ($\beta_{42} = 0.349$, $t = 4.699$, $p < 0.001$), but not significantly impacted positively positive WOM ($\beta_{52} = 0.053$, $t = 1.026$, $p > 0.05$). *H5a* was supported and *H5b* was not supported. However, commitment did not have any significant effects on e-loyalty ($\beta_{43} = 0.085$, $t = 1.372$, $p > 0.05$) and positive WOM ($\beta_{53} = 0.039$, $t = 0.920$, $p > 0.05$). Both *H6a* and *H6b* were not supported. In addition, e-loyalty positively influenced positive WOM ($\beta_{54} = 0.785$, $t = 13.038$, $p < 0.01$). *H7* was supported.

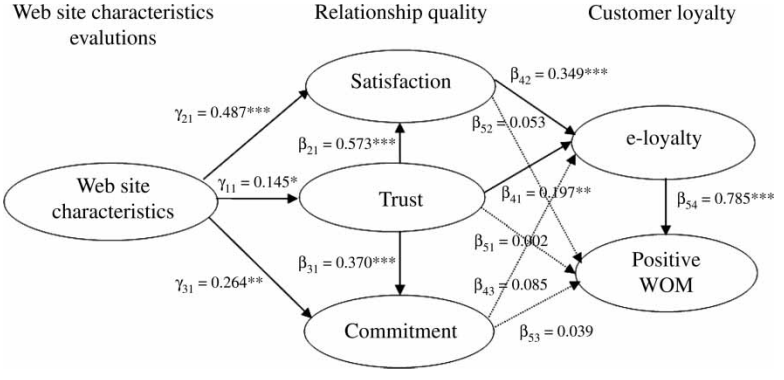

Figure 2. The hypothesized model. Notes: (1) Reported parameter estimates are from the completely standardized solutions. (2) $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$; solid arrow, significant path; dotted arrow, non-significant path. (3) Fit index: $\chi^2 = 1639.95$ ($p = 0.000$), $df = 393$, GFI = 0.81, NFI = 0.87, CFI = 0.89, IFI = 0.87, RMSEA = 0.09. (4) Trust$\rightarrow R^2 = 0.430$, satisfaction$\rightarrow R^2 = 0.237$, commitment$\rightarrow R^2 = 0.289$, e-loyalty$\rightarrow R^2 = 0.295$, WOM$\rightarrow R^2 = 0.683$; R^2: SMCs, the value represents the extent to which a measured variable's variance is explained by latent factors.

Table 4. Regression analysis of web site characteristics on trust.

Web site characteristics	Unstandardized coefficients		Standardized coefficients		Collinearity statistics	
	B	Std. error	β	*t*-Value	Tolerance	VIF
Constant	−2.574	0.579		−4.448		
Home page	0.069	0.085	0.067	0.812	0.304	3.286
Overall site design and performance	0.186	0.102	0.179	1.824	0.216	4.632
Text content	0.032	0.092	0.030	0.353	0.293	3.415
Audio-visual elements	0.549	0.075	0.361***	7.286	0.851	1.176
Interaction and involvement	0.336	0.076	0.209***	4.408	0.933	1.072

***$p < 0.001$.

Table 5. Regression analysis of web site characteristics on satisfaction.

Web site characteristics	Unstandardized coefficients		Standardized coefficients		Collinearity statistics	
	B	Std. error	β	*t*-Value	Tolerance	VIF
Constant	−2.197	0.534		−4.116		
Home page	0.052	0.079	0.053	0.663	0.304	3.286
Overall site design and performance	0.230	0.094	0.233*	2.445	0.216	4.632
Text content	0.101	0.084	0.098	1.195	0.293	3.415
Audio-visual elements	0.590	0.069	0.408***	8.497	0.851	1.176
Interaction and involvement	0.265	0.070	0.173***	3.771	0.933	1.072

*$p < 0.05$.
***$p < 0.001$.

Post-analysis

In order to compare the relative importance of the five web imperatives, we performed a post-analysis with regression analysis. A multicollinearity diagnosis was performed before the regression analysis. The variance inflation factor (VIF) coefficients were between 1.072 and 4.632, which indicated that the multicollinearity should not be an issue. The effects of the five dimensions of web characteristics on trust, satisfaction, and commitment are shown in Tables 4–6, respectively. The regression results showed that the audio-visual elements, interaction and involvement had positive effects on trust ($\beta_{\text{audio-visual elements}} = 0.361$, $p < 0.001$; $\beta_{\text{interaction and involvement}} = 0.209$, $p < 0.001$). The overall site design and performance, audio-visual elements, interaction, and involvement had positive effects on satisfaction ($\beta_{\text{overall site design and performance}} = 0.233$, $p < 0.05$; $\beta_{\text{audio-visual elements}} = 0.408$, $p < 0.001$; $\beta_{\text{interaction and involvement}} = 0.173$, $p < 0.001$). The audio-

Table 6. Regression analysis of web site characteristics on commitment.

Web site characteristics	Unstandardized coefficients		Standardized coefficients		Collinearity statistics	
	B	Std. error	β	*t*-Value	Tolerance	VIF
Constant	−1.106	0.506		−2.185		
Home page	0.041	0.075	0.046	0.551	0.304	3.286
Overall site design and performance	0.120	0.089	0.133	1.351	0.216	4.632
Text content	0.126	0.080	0.133	1.574	0.293	3.415
Audio-visual elements	0.489	0.066	0.368***	7.435	0.851	1.176
Interaction and involvement	0.217	0.067	0.154**	3.259	0.933	1.072

**$p < 0.01$.
***$p < 0.001$.

visual elements, interaction, and involvement have positive effects on commitment ($\beta_{\text{audio-visual elements}} = 0.368$, $p < 0.001$; $\beta_{\text{interaction and involvement}} = 0.154$, $p < 0.001$).

In addition, we further split the samples into IT and non-IT firms groups and examined the same effects in order to deliberate customization strategies. For the IT firms group, the audio-visual elements, interaction, and involvement had positive effects on trust ($\beta_{\text{audio-visual elements}} = 0.362$, $p < 0.001$; $\beta_{\text{interaction and involvement}} = 0.224$, $p < 0.001$). The overall site design and performance, audio-visual elements, interaction, and involvement had positive effects on satisfaction ($\beta_{\text{overall site design and performance}} = 0.245$, $p < 0.05$; $\beta_{\text{audio-visual elements}} = 0.409$, $p < 0.001$; $\beta_{\text{interaction and involvement}} = 0.191$, $p < 0.001$). The audio-visual elements, interaction, and involvement had positive effects on commitment ($\beta_{\text{audio-visual elements}} = 0.418$, $p < 0.001$; $\beta_{\text{interaction and involvement}} = 0.175$, $p < 0.001$). For the non-IT firms group, only the audio-visual elements had a positive effect on trust ($\beta_{\text{audio-visual elements}} = 0.381$, $p < 0.001$), satisfaction ($\beta_{\text{audio-visual elements}} = 0.422$, $p < 0.001$), and commitment ($\beta_{\text{audio-visual elements}} = 0.264$, $p < 0.01$).

Discussion

Summary of the findings and managerial implications

The purpose of this research is to propose and empirically test an integrated model for customer loyalty building in B2B e-commerce. Specifically, we explored the antecedents of customer loyalty in B2B e-commerce from an IS perspective. The findings provide support for the research model and 8 of the 12 research hypotheses. According to our findings, web site characteristics have a positive and significant impact on all of the relationship quality variables (trust, satisfaction, and commitment). Trust has a positive effect on both satisfaction and commitment. Both trust and satisfaction have a positive and significant influence on e-loyalty, but not on positive WOM. Both trust and satisfaction only influence positive WOM via e-loyalty. However, commitment does not influence customer loyalty, e-loyalty, or positive WOM. The post analysis of the impact of the five dimensions of the web site characteristics on relationship quality (trust, satisfaction, and commitment) revealed that the audio-visual elements, interaction and involvement were important predictors of relationship quality. The results indicate that audio-

visual elements, interaction and involvement were determinants of relationship quality for the IT firms, whereas the audio-visual elements were the main factor driving relationship quality for the non-IT firms.

This research suggests that web site characteristics are a good predictor of relationship quality, and will eventually lead to customer loyalty. Our findings support the view that providing high-quality web site services results in satisfied users and, thus, affects a firm's growth (Deshpande, Farley, & Webster, 1993; Zeithaml & Bitner, 2000). Specifically, the findings indicate that both trust and satisfaction will lead to e-loyalty. That is, customers who trust in or are satisfied with the contents and services of a web site are more likely to continue using the services provided by the service provider and renew memberships in the future. In addition, our findings indicate that both trust and satisfaction do not have direct effects on positive WOM. Both trust and satisfaction influence positive WOM via e-loyalty. The findings suggest that the effects of both trust and satisfaction on positive WOM may be fully mediated by e-loyalty, consistent with prior research (e.g. Kim et al., 2009). Thus, in order to generate higher positive WOM, managers need to enhance e-loyalty as it has a direct and strong influence on positive WOM. In addition, the results of this study do not support the idea that commitment influences both e-loyalty and positive WOM. The results suggest that managers should put more effort on enhancing user trust and satisfaction, as opposed to commitment, in order to retain customers.

Finally, our findings did not support the four of the hypotheses: *H4b*, *H5b*, *H6a*, and *H6b*. Several explanations exist for this lack of support. First, the current model was tested in a market intelligence industry context. The inconsistent findings when compared with those in prior research (Sweeney & Swait, 2008) might be due to industry differences. The relationships in prior studies were tested in retail banking and telecommunications. This issue warrants further study to investigate. In addition, the fact that the relationships between trust and positive WOM and between satisfaction and positive WOM were not supported might indicate behavioral differences between individual and organizational customers in terms of their behavioral loyalty. Positive WOM from organizational customers cannot be easily generated through trust and satisfaction and, instead, must depend upon the building of e-loyalty. In addition, Peterson and Wilson (1992) indicated that it is very likely that the measurement of satisfaction has a positive bias, and thus, cannot accurately predict WOM.

The hypothesized relationships between commitment and e-loyalty and between commitment and positive WOM were not supported. Our study investigated customer commitment in general. However, commitment can be further classified as calculative commitment and affective commitment. Calculative commitment refers to the level of commitment that customers are willing to make and is based on relationship investments, relationship benefits, and possible termination costs or switching costs (Anderson & Weitz, 1992). Affective commitment refers to the extent that customers are willing to maintain a positive and long-term relationship with suppliers based on personal connections (Konovsky & Cropanzano, 1991). It is possible that customers in the market intelligence industry develop more on calculative commitment and thus cannot lead to positive WOM. According to Rauyruen and Miller (2007), future research might want to investigate the possible effects of affective commitment on positive WOM.

This research contributes to the B2B e-commerce literature. From the IS perspective, the results provide an early conceptualization of the antecedents of customer loyalty. Our findings provide a basis for further studies on this important topic. The research findings also added evidence to the proposed relationships among trust, satisfaction, and

commitment. In addition, this research showed the discriminant validity of the constructs, e-loyalty and positive WOM. The results also have important managerial implications for managers in B2B e-commerce. First, an online service provider should understand the needs of their customers in order to deliver effective intelligence services on the web site. As such, the service provider will be more likely to enhance customer relationship quality and build customer loyalty. Our research suggests that the service provider should provide up-to-date industry information, enhance web site interactions with customers, and strengthen the web site interface design, including the ease of the web site use, audio and visual presentation, and delivery quality. These features will enhance customer trust, satisfaction, and commitment to the service provider. More specifically, among the five dimensions of the web site characteristics, audio-visual elements, interaction and involvement need additional attention. In the market intelligence industry, in regard to audio-visual elements, service providers could offer users seminars on the web, which users can attend seminars of their interests without any time constraints. In regard to interaction and involvement, service providers should ensure that customer inquiries and problems are addressed properly and e-mails are replied to promptly. In addition, customers' perceptions of audio-visual elements influence relationship quality substantially, regardless of the industry type. Service providers could customize the audio-visual elements and enhance the information presentation quality in order to build trust, satisfaction, and commitment, which subsequently lead to customer loyalty. However, not all web site characteristics impact relationship quality for IT and non-IT firms equally. Our research results suggest that interaction and involvement impact trust and commitment while the overall site design and performance, interaction, and involvement influence satisfaction in IT firms. These effects were not observed in non-IT firms. Thus, such findings will help service providers to prioritize their resources in enhancing its web site based on their customer base. Among the relationship quality constructs, trust seemed to be the most important construct. Consistent with prior research, this research found that trust was positively associated with satisfaction (e.g. Harris & Goode, 2004; Jin & Park, 2006; Kim et al., 2009) and commitment (e.g. Moorman, Zaltman, & Deshpande, 1992; Morgan & Hunt, 1994). Developing customer trust in the online service provider should be the most important initiative to consider as it will enhance customer satisfaction and commitment. It is also important to note that both trust and satisfaction do not lead to positive WOM. In order to generate positive WOM, service providers need to build customer e-loyalty first.

Limitations and future research directions

Despite the progress made by this research, it has some limitations, and as such, a number of issues remain unanswered. First, this research studied members of the MIC in Taiwan. The samples in this market intelligence firm and in the specific industry in Taiwan may limit the generalizability of the findings.This research did not find any significant differences between the IT and non-IT samples. However, we recommend that future research examines the robustness of the proposed model by including samples from other market intelligence firms or in other service industries and countries. For instance, future research may want to investigate other service industries, such as telecommunication (Lin & Chien, 2004) and financial industries (e.g. Akinci, Aksoy, & Atilgan, 2004; Ricard & Perrien, 1999). Customers in these industries might have different needs and interaction patterns with service providers. In addition, this research only controlled for the possible impact of the industry type on the results. Customer (e.g. prior experience), firm (e.g. customer

support and brand reputation), and context (e.g. product type and service context) factors may impact customer trust. A careful control of these factors will enhance the robustness of the research findings. Although the web site characteristics in our model involve information, system, and service quality dimensions indicated in the IS success model (Evans & King, 1999), the relative importance of each element on relationship quality and customer loyalty is not clear. Future research is encouraged in order to investigate this issue by using individual dimensions to provide more managerial implications. From the methodology perspective, this research tested the proposed model at the individual level. Although the data did not show that correlations between responses from the same firm should be a concern, when applying the IS success model at the individual level, future research should use with caution for possible endogenous or exogenous issues that were not considered in our research. In addition to customer loyalty, customer complaints (e.g. Blodgett, Wakefield, & Barnes, 1995) should be added to the model as a consequence variable. Given the unique characteristic of the market intelligence industry, most customers are forced to subscribe to the services. Future research should investigate how price sensitivity (i.e. membership fees) affects customer loyalty.

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Appendix. Scale items

Construct/item
Web site characteristics (Evans & King, 1999)
This website offers …
Home page
1. Clear, quick snapshot of the company, points of contact
2. Clear indication of site's contents
3. Attractive, compelling audio-visual elements
Overall site design and performance
1. Clean, organized, easy-to-navigate pages
2. Speed and response time, low congestion
3. Easy access to customer inquiry mechanism/home page throughout site
4. Security and protection measures
Text content
1. Up-to-date information
2. Clearly written, easy to understand, and well-organized content
3. Informational value
4. Educational/training value
5. Material presented in a compelling manner
Audio-visual elements
1. Graphical elements
2. Video elements
3. Audio elements
4. Response time/speed of audio-visual elements
5. Level to which audio-visual elements enhance the site
Interaction and involvement
1. Ability to e-mail firm from the site and responsiveness of reply
2. Customer inquiry mechanism/customer service
3. Channel support
4. Real-time online interactive elements (i.e. message board)
5. Interactive survey or program resulting in customized end user info
6. Online product demonstration
7. Online product delivery
8. Online ordering
Relationship quality (Smith, 1998)
Trust
1. I can count on this service provider to follow through on commitments

(*Continued*)

Appendix 1. Continued

Construct/item
2. Ulterior motives or hidden agendas are not a concern in this relationship
3. I respect this service provider's judgment
4. I trust in this service provider
5. I think that the service provider would try to take advantage of our relationship (R)
Satisfaction
1. Overall, I believe we are both quite satisfied with our interactive relationship
2. This is among the best service provider relationships that I've experienced
3. I think this service provider is pleased with our relationship
4. I would say our relationship couldn't be much better (R)
5. I have not been happy with this relationship (R)
Commitment
1. I believe we are both committed to this relationship
2. I have a strong sense of loyalty to this service provider
3. This service provider is prepared to make short-term sacrifices to maintain our relationship.
4. I believe we both view our relationship as a long-term partnership
Customer loyalty (Srinivasan et al., 2002)
E-loyalty
1. I seldom consider switching to another website
2. As long as the present service continues, I seldom consider switch websites
3. I try to use the website whenever I need to search market intelligence
4. When I need to search market intelligence, this website is my first choice
5. I like using this website
6. To me this website is the best website to search market intelligence
7. I believe that this is my favorite market intelligence website
Positive WOM
1. I say positive things about this website to other people
2. I recommend this website to anyone who seeks my advice
3. I encourage others to use this website
4. I do not hesitate to refer my acquaintances to this website

Note: (R) denotes the reverse-coded item.