Handbook of Research on Web Information Systems Quality

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Chapter IV
Evaluation of the Effectiveness of Small and Medium Sized Businesses Web Sites in a Business to Business Context

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ABSTRACT

Many small and medium sized businesses (SMEs) have set up their own Web sites, as part of their business strategies, to improve their competitiveness and responsiveness. Careful evaluation and adoption of Web sites by SMEs can assist them in improving the effectiveness of their venture into e-commerce. This chapter discusses and analyses the effectiveness of SME business to business Web sites from a user perspective. An effective method of evaluating a Web site can contribute to the development of more quality Web sites and greater realization of benefits. Therefore, an established evaluation instrument (eQual) is used to assess 80 Web sites in terms of usability, information quality, and interaction and service. The analysis shows that although a significant number of sites reflect little understanding of the attributes of good design or potential benefits to be gained from Web sites, there are examples of competent and effective Web site use.

INTRODUCTION

The importance of e-commerce to small and medium sized businesses (SMEs) is growing as globalization and rapid technological changes have brought new opportunities as well as risks, via e-commerce, to the business environment. For example, SMEs play a crucial role in national economies and are estimated to account for 80% of global economic growth (Jutla, Bodorik, & Dhaliqal, 2002). One aspect of SME e-commerce activity that is acknowledged but rarely examined is their use of Web sites. Web sites are a "critical component of the rapidly growing phenomenon of e-commerce" (Loiacono, Watson, & Goodhue, 2002, p. 4) and their successful design and use can alter the effectiveness of an SME's venture into e-commerce. However, SMEs are still lagging behind larger organizations in the adoption and evaluation of their e-commerce activities despite the benefits it offers (Lin, Cripps, & Bode, 2005). Understanding the factors used by customers to evaluate Web site quality can serve as a basis for creating and improving Web sites (Webb & Webb, 2004).

Numerous studies have been conducted to examine the effectiveness of the Web sites in general (Hong & Kim, 2004; Shiels, McIvor, & O'Reilly, 2003; Tsai & Chai, 2005). There have been calls for more extensive work into the analysis and evaluation of Web sites in the business to business context in particular (Chakraborty, Lala, & Warren, 2002; Ellinger, Lynch, Andzulis, & Smith, 2003; Loiacono et al., 2002). However, relatively few studies have been conducted in SMEs. Therefore, the objectives of the chapter are to: (1) present and discuss the current Web site evaluation literature on SMEs in general; and (2) assess the quality of Web sites within the small business sector of one regional area within Australia, using an established quality evaluation instrument, eQual (Barnes & Vigden, 2002). This chapter contributes to a better understanding of how SMEs are addressing the constructs of Web site development identified in the literature. These constructs have been incorporated into eQual and tested in other environments (Barnes & Vigden, 2001, 2002, 2003). A deeper understanding of SME Web sites and where areas for improvement lie will enable development of support frameworks to improve SMEs' recognition and realization of benefits from their Web sites; a prerequisite for encouraging e-commerce adoption (Poon & Swatman, 1999).

BACKGROUND

Web Sites for SMEs

Several initiatives have been launched to improve electronic adoption rates and e-competencies (Jones Donald Strategic Partners, 2000; NOIE, 2002), but many SMEs are failing to achieve the levels of e-commerce abilities required to benefits from Internet based business (Lin, Cripps et al., 2005; Walker, Bode, Burn, & Webster, 2003). Smaller businesses are often caught between the need to understand the dynamic and frequently intimidating electronic environment and the need to respond to the many calls to conduct more business online (Goode, 2002; Walker et al., 2003). Their subsequent attempts to trade online results in e-commerce activity that is unproductive such as launching ineffective Web sites, ignoring customer e-mails, and failing to efficiently fulfill online orders. Where smaller businesses turn to consultants to overcome their own lack of expertise, results often fall short of expectations as SMEs do not have sufficient knowledge to judge the effectiveness of a consultant's work prior to implementation (Bode & Burn, 2001).

One highly visible aspect of e-commerce activity that is often seen as the first step toward online trading is the launch of a Web site. Statistics show that 36% of small and 82% of medium-sized businesses in Australia have established a Web site (ABS, 2003). Two thirds of SMEs believe that their

Web site enhances their business effectiveness, by increasing visibility and accessibility, improving communications, and increasing sales (ABS, 2003). This accords with Loiacono et al's (2002, p. 4) view that Web sites "play a significant role in the overall marketing communication mix." The implementation of B2B Web sites is seen as an important stage in e-commerce development (Ellinger et al., 2003) and a crucial part of a firm's use of the Internet for communicating, entertaining, and interaction with stakeholders (Chakraborty et al., 2002).

Despite the statistics and the frequent mention of the use of Web sites in much of the research on SME e-commerce adoption (Bode & Burn, 2001; Daniel, Wilson, & Myers, 2002; Korchak & Rodman, 2001; Tsao, Lin & Lin, 2004), the quality of such Web sites and the need to determine their function is rarely addressed (Manuel, 2004). Auger (2005) discusses the impact of design sophistication and level of interactivity in increasing the number of visitors and the impact on overall performance. While design sophistication was not found to necessarily positively affect performance, interactivity is an important asset. Fry, Tyrall, Pugh, and Wyld (2004) examine the elements of accessibility and visibility among the increasing number of sites on the Web. They note however, that government targeting of small businesses in this field tends to overly emphasize the technical rather than business aspects of Web site use. There are numerous online sources offering, often conflicting, advice and help on setting up a Web site while business organizations and government sources continue to encourage smaller businesses to launch Web sites. The proliferation of sites has increased the imperative for businesses to have some knowledge of what they intend their site to achieve.

That many of these sites are subsequently deemed ineffective by their owners is often due to an uncertainty over the role of the site and a lack of understanding of how to integrate Internet strategies into an existing business. Indecision and lack of knowledge leads to ineffective sites and consequent disappointment in recognizable benefits (Ellinger et al., 2003; Stockdale & Standing, 2004). Therefore, it is critical for these SMEs to understand customer requirements and to enhance their Web accordingly. A SME with a Web site that is difficult to use and understand can weaken the firm's presence on the Internet (Barnes & Vidgen, 2002). According to Turban and Gehrke (2000), there are significant discrepancies between factors identified in various academic publications and those rated in consumer surveys. Therefore, there is a need to identify critical success factors for effective Web site usage by SMEs both from the customers' viewpoint and from the designer and owner perspective. Such factors can contribute to the ability of SMEs to improve their Web sites over time, then benchmark against competitors and best practice in any industry (Barnes & Vidgen, 2002).

Evaluation

Evaluation is a complex but critical function of any business. The need to justify expenditure, to judge the effectiveness of a project or to measure academic achievement are common faces of evaluation. Calls for more holistic evaluations have been echoed in the field of information systems where the growth of electronic commerce has emphasized the need for more effective evaluations of IT (Stockdale & Standing, 2006). However, evaluation is not often carried out. For example, investigation by Lin and Pervan (2003), found that nearly 35% of large Australian organizations did not evaluate their IT and 67% did not determine whether expected benefits were being achieved. For those who have evaluated, evaluations have often been used to justify economic outlay and strategic achievements, with the required definitive outcomes such as a pass-or-fail/ yes-or-no judgment (Love, Irani, Standing, Lin & Burn, 2005; Smithson & Hirschheim, 1998). These evaluation processes often lead to inaccurate

and mechanistic methods and overly concrete outcomes (Lin, Pervan, & McDermid, 2005; Smithson & Hirschheim, 1998). As a result, organizations are under increasing pressure to find a way to evaluate the contribution of their IT to business performance, as well as to find reliable ways to ensure that the business benefits from IT are actually realized (Lin & Pervan, 2003).

The purpose of an evaluation is a key factor in planning how it should be carried out. Where definitive measurements are available and a judgment required on the success of a system, then an objective assessment is possible. Where an understanding of how users perceive the usefulness of a Web site or what makes them repeat their visits is required, more holistic methods are needed. The subjectivity the user brings to the Web site must be reflected in the evaluation if understanding is to be achieved. The subjectivity inherent in such evaluations should not be seen as a weakness of the evaluation but rather as a strength. Although these methods reduce an evaluator's ability to find "generalizable truths," it does allow for a local solution or local meaning to be identified (House, 1980). In the context of Web sites this is an important step toward achieving real benefits from an evaluation. Understanding of the local solution, in this case the Web site, is preferable to a generalizable judgment.

Web Site Evaluation

Many B2B Web sites have emerged from the rapid development of the Internet. As the number of Web sites has increased, it becomes critical to evaluate their effectiveness. This requires systemized evaluation criteria (Hong & Kim, 2004), constant assessment, careful management, frequent updates (Albert, Goes, & Gupta, 2004), and ongoing innovation (Reichheld, Markey, Jr., & Hopton, 2000). Indeed, Web site evaluation is the assessment of the effectiveness of the online trading in fulfilling or meeting business goals. It is an important way of ensuring that the Web site meets the business requirements of SMEs as well as the needs of their users. It has a range of potential advantages such as: (a) reduction of the risk of budget or scope blow-out; (b) refinement of the target and the scope of Web site activities (e.g., redevelopment and site marketing); and (c) identification and realization of the benefits at an acceptable cost (van der Merwe & Bekker, 2003).

Effective Web sites are usually dynamic, and subject to constant update, innovation, and management (Albert et al., 2004). To evaluate a Web site as a static object loses meaning, and sets the evaluation into Walsham's (1993) category of ritualistic measurement to reinforce existing judgments rather than as a means to achieve improvement. Web site evaluation has developed in an ad hoc way using a variety of criteria and methods. Mich, Franch, and Gaio (2003) have developed a model based on the use of Cicero's rhetoric to gain complete coverage of evaluation. This model takes the criteria of who, what, when, where, and how that are familiar in the Content, Context, and Process evaluation framework originally developed by Symons (1991). In contrast, Zhang and von Dran (2002) develop their arguments from Kano's model of customer expectations for feature categorization and also apply the nature of quality changes over time.

The underlying concept of these different models arises from the consideration of what is being evaluated and for what purpose the evaluation is being carried out. This affects the different way that Web site elements are considered in evaluations, such as domains, the ongoing of time and even cultural differences (Aladwani & Palvia, 2002; Mich et al., 2003; Schubert, 2003; Zhang & von Dran, 2002). Such elements are not of equal importance and have to be assessed by weighting according to the nature of the evaluation.

The advantages of evaluating multiple Web sites regularly are significant in the context of assessing these features. In contrast, to get an in-depth impression from a user perspective and a more complete understanding of user behavior

requires an individual approach (Ivory, Sinha, & Hearst, 2001). An individual approach is necessary for improving human interfaces, although it can also provide some basic and objective measurements. Mich et al. (2003) contribute by calling for consideration of the stakeholders' views within the evaluation. The stakeholders vary according to the reason for the evaluation. For example, users hold a central stake when user satisfaction is under consideration, but developers may have a greater influence on evaluations of Web site design. In both cases, users and designers are stakeholders in the Web site. Intention to use a Web site can be considered as a contribution to the assessment of a Web site from the user satisfaction perspective (Chiu, Hsieh, & Kao, 2005). User satisfaction has long been a significant measure of information systems success (DeLone & McLean, 1992) and this is echoed in the many evaluations that take this perspective. An evaluation instrument that is adaptable to a variety of uses requires that the instrument be easy to use, parsimonious to enable adaptation, and flexible enough to allow evaluator insights to be recorded (Barnes & Vigden, 2002; Mich et al., 2003).

RESEARCH DESIGN AND FINDINGS

To assess the quality of Web sites within the small business sector of one regional area within Australia, an established quality evaluation instrument, eQual (version 4), is used (Barnes & Vigden, 2002). The instrument was designed and tested over several years (Barnes & Vigden, 2001, 2002, 2003) as a method for assessing the quality of a firm's e-commerce offerings through its Web site. EQual (formerly known as WebQual) has been under development at the University of Bath since 1998. When using the instrument, Web site users are asked to rate target sites against a range of qualities using a seven point scale. The range of qualities have evolved through an iterative process, drawing on literature from mainstream IS research, service quality literature in marketing and e-commerce, and usability research from the human-computer interaction literature. Workshops and empirical research have been used to further refine the range of qualities contained in the questionnaire (Barnes & Vigden, 2001, 2002, 2003). EQual enables Web site quality to be judged through three dimensions: usability, information quality, and service interaction quality. In developing the instrument, Barnes and Vigden (2002) identified five factors of importance that are encompassed within the three dimensions: usability, design, information, trust, and empathy.

This research examines the Web sites of 80 SMEs based in Western Australia (WA). The region appears particularly suited to the development of e-commerce. WA has a high percentage of SMEs in the private sector that employ over 47% of nonagricultural workers (ABS, 2003). It is a technologically well developed region with a strong exporting economy. The use of e-commerce applications is well suited to its geographical isolation both within the state and from its export destinations. B2B e-commerce is the most profitable sector of online trading (Ellinger et al., 2003), although it has been insufficiently addressed in Web site evaluation research (Loiacono et al., 2002). This research targets B2B SMEs, but includes firms that also trade B2C. Purely B2C firms are not addressed in this research.

Data Collection and Analysis

Eighty SMEs trading in Western Australia have been identified through Web searches, use of online directories, Yellow Pages, and local knowledge. SMEs are defined according to the Australian Bureau of Statistics as firms employing less than 200 full time equivalent workers and that are not subsidiaries, public companies, or incorporated bodies (ABS, 2003).

An initial analysis of 10 Web sites was made by the authors to test eQual 4.0, the research instrument. This also enabled them to make a preliminary assessment of the range of SME Web sites in WA. The evaluation of the remaining 70 Web sites was then carried out by two businessmen and six research assistants under the guidance of the authors. The research instrument consists of 23 questions with a Likert scale of 1 to 7. After the initial analysis, the authors added a comment area for each question to collect further data on the evaluators' responses to each Web site. The qualitative nature of the additional responses enables the context of each Web site to be considered and supports greater understanding of the "why" behind identified patterns in the survey data (Barnes & Vigden, 2003).

Analysis of the data involved the assessment of each Web site within the three instrument dimensions of usability, information quality, and interaction and service quality. The researchers evaluated each of the Web sites using a Likert scale where the anchors are 1="strongly disagree" and 7="strongly agree" in each of the three instrument dimensions. The results were analysed using a statistical software package, SPSS. The evaluators' comments were analysed by coding the texts using the research instrument to construct the units of analysis. These were based around the three dimensions of the instrument and with particular reference to the five factors of usability, design, information, trust, and empathy as identified by Barnes and Vigden (2002).

Research Findings

Of the 80 SME Web sites evaluated, 46.9% were assessed as above average for overall quality, while a third (37.0%) was rated as below average for quality. The mean scores for the 23 eQual 4.0 questions are listed in Table 1. The findings are presented within the three dimensions of the research instrument.

Usability

In terms of Web site usability, most SME Web sites were easy to learn to operate (56.8%) and to use (65.5%). These Web sites had also conveyed a sense of competency (59.2%). However, only 49.4% of the Web sites examined reportedly created a positive experience for the users. Moreover, it appears that a positive experience was the most important usability factor for determining the overall view of the Web sites (correlation=0.858). Of those Web sites that had scored an overall positive rating, 76.3% of them had also scored positive ratings for conveying a sense of competency. Overall, the average score for the usability dimension was 4.39 out of a possible 7 points.

Usability in the context of this evaluation addresses how a user interfaces and reacts to a Web site: the emphasis is on the user and not on the designer or the software of the site (Barnes & Vigden, 2002). Ease of use of a Web site is seen as a prerequisite for visitor use (Barnes & Vigden, 2002) and has a positive influence on customer responsiveness (Dadzie, Cherlariu, & Winston, 2005). A Web site that is easy to use also enhances the ability of visitors to learn to navigate around the site and to find the facilities that they seek.

In a B2B situation it is to be expected that visitors will have at least some level of competency in electronic business, although this assumption should not be taken for granted. Therefore, Web sites should have high usability in order to attract visitors of all types. Design is an integral part of usability and influences both the evaluators' perceptions of ease of use, and of the sense of competence. Appropriate design was one of the lowest rated factors in the usability section.

Evaluation of a Web site must be necessarily subjective, but there was some consensus displayed by the evaluators on the ease with which visitors could learn how to use the sites and how

Table 1. Mean score for eQual 4.0 questions

eQual 4.0 questions	Mean	Sum	Standard Deviation
I find the site easy to learn to operate	4.52	366	0.823
My interaction with the site is clear and understandable	4.41	357	0.997
I find the site easy to navigate	4.51	365	0.976
I find the site easy to use	4.54	368	0.923
The site has an attractive appearance	4.48	363	1.256
The design is appropriate to the type of site	4.26	345	1.302
The site conveys a sense of competency	4.54	368	1.582
The site creates a positive experience for me	3.93	318	1.439
The site provides accurate information	4.20	340	1.487
The site provides believable information	4.49	364	1.518
The site provides timely information	4.14	335	1.498
The site provides relevant information	4.26	345	1.481
The site provides easy to understand information	4.20	340	1.249
The site provides information at the right level of detail	3.85	312	1.606
The site presents the information in an appropriate format	3.91	317	1.535
The site has a good reputation	4.22	342	1.533
It feels safe to complete transactions	3.93	318	1.464
My personal information feels secure	3.79	307	1.498
The site creates a sense of personalization	4.04	327	1.495
The site conveys a sense of community	4.12	334	1.426
The site makes it easy to communicate with the organization	4.93	399	1.170
I feel confident that goods/services will be delivered as promised	4.32	350	1.540
My overall view of this Web site	4.17	338	1.539

easy they were to use. However, it is worth noting that nearly a third of the Web sites did not rate as easy to use; a significant number in terms of potential users visiting and remaining to use the site. Web site users have low levels of tolerance and will move Web sites if they cannot find the information they need quickly (Shuster, 2000).

Information Quality

In terms of information quality, content is considered as the most important element of Web sites and is seen to be directly related to Web site success. Most B2B Web sites provided believable information (54.3%) but failed to provide information at the right level of detail (only 39.5%) as well as in an appropriate format (only 42.0%). Providing believable information to users was the most important information quality factor for determining the overall view of the Web sites (correlation=0.841). Of those Web sites that had scored an overall positive rating, almost all (97.4%) had scored highly for providing believable information. The average score for the information

quality dimension was also 4.16 out of 7 points.

An acceptable level of detail was visible in less than half the sites evaluated and some vital elements of information were missing from these sites. For example, information on products and services was found to be scant in many areas with the apparent assumption that the site visitor had sufficient knowledge to understand the variations of the product range. In contrast, one of the highly recommended sites had detailed information on the practical applications of each item in its product range linked to the catalogue entry, thereby providing levels of information to suit all customers.

A second important area where information was found to be lacking was in the provision of company details. This is considered a crucial element of a business Web site (Shuster, 2000) and is a necessary source of information for visitors searching for new suppliers. Again the highly rated sites had detailed company information that gave the history, business aims, location and sometimes testimonials from satisfied suppliers. In one case, the names, photograph, contact details, and area of expertise of each of the company's sales force were presented. This level of contact detail was rare and sites provided only an e-mail address or a telephone number. In one case the only content information was a map from which the customer could infer the address and in another the Web site consisted only of contact details rather like a telephone book entry.

The refreshment of content is seen to be an important element of Web sites to keep up interest levels and show that the company is maintaining the site (Shuster, 2000), but few of the Web sites showed evidence of current input. In at least half of the sites the last update or date of creation was unknown. In 12% of cases, the Web site had not been altered since before 2004 and only three sites actually gave a date of less than a month since the last upgrade. In the more highly rated sites, information was seen to be well organized, timely, and relevant. This led to the perception of accurate and believable information being presented. Some sites provided extensive information that was not found to be useful. For example, one company using natural products displayed encyclopedia extracts explaining the nature of the product, but had no prices or catalogue showing the product range on offer. The site had the appearance of an educational site rather than a commercial venture. The lack of prices on some transactional sites was somewhat of a puzzle and was recorded as insufficient information in the evaluation. In at least one case, prices may be visible through a passworded extranet, although it was not possible to verify this.

Interaction and Service Quality

In terms of interaction and service quality, most SMEs' Web sites made it easy for users to communicate with them (72.9%). However, only 39.5% of the Web sites evaluated made users' personal information feel secure and 42.0% made users feel it was safe to complete transactions. In fact, only three of the SME Web sites evaluated actually transacted online through secure sites. Moreover, the users' confidence in the delivery of goods/services as promised was the important interaction quality factor for determining the quality of the Web sites (correlation=0.889). Of those Web sites that had scored an overall positive rating, all had scored positively for making users feel confident that goods/services will be delivered as promised. In addition, the average score for interaction and service quality dimension was also 4.21 out of 7 points.

Channels for communication were offered by all sites in at least one form, although the use of e-mail did not predominate. There was also little evidence of multichannel communication on offer, with many sites offering either telephone or e-mail, or in some cases only a postal address. The three Web sites with fully functional secure transactional sites rated highly in all areas. In two other firms offering online purchase, the Web sites

offered a form into which visitors were invited to enter their credit card details, although no security precautions were evident. Other companies used intermediaries such as PayPal to host their transactions. Only one site offered a range of payment options within a secure site. Surprisingly, none of the sites discussed electronic invoicing or payment terms more in keeping with B2B transactions. The majority ran brochure sites only and invited potential customers to contact the firm to discuss things further. While this is an acceptable measure, the sites did not make it easy for potential customers to properly ascertain if they wished to progress with their enquiries; for example, by offering complete product lists, prices, delivery details, invoicing details, and so forth. Confidence in the delivery of goods received a 100% rating from firms considered to have very good sites, but was not relevant in the majority of cases where only brochure or catalogue sites were used.

DISCUSSION

The majority of Web sites examined were brochure and catalogue sites, with only 15 of the 80 sites selling online. The result accords with Albert et al.'s (2004) findings that while many visitors are comfortable conducting transactional activities online, the primary activity remains information and communication based.

The purpose of the majority of sites was held to be informational, either for existing customers or to attract visitors seeking to broaden their supplier base. In the transactional sites, online selling was primarily an addition to an informational site and only three sites had developed the secure transaction mechanisms necessary for online trading. These three sites displayed the attributes of full transactional sites, including delivery options, online tracking, and secure payment methods.

Users should have a positive experience when visiting a Web site (Barnes & Vigden, 2002; Turban & Gehrke, 2000). In a highly competitive commercial environment, a negative view of the overall experience might easily lead to a user searching for new suppliers. Where an established partner is concerned, it may be that they prefer not to use the site, thereby losing opportunities for realising the benefits of e-commerce. A positive experience for the user was found in only half of the Web sites evaluated. Despite higher ratings in the usability section of the analysis, half of the SMEs were rated as below standard overall. This reflects the evaluators' comments that although the Web sites were easy to use and good to look at, they did not enable the visitor to find what they wanted. This aspect of usability is strongly influenced by the Web site design. Good Web site design must fulfil customers' needs for information or transaction capabilities (Heldal, Sjovold, & Heldal, 2004). The evaluators rated the more complex Web sites, incorporating graphics, animation, and sound, as low on usability. The same sites also had lower ratings on information and interaction. The Web sites appeared designed to please the owner (or designer) rather than provide appropriate information to the visitor; a finding that supports the view that a designer's desire for artistry often supersedes the users' needs (Heldal et al., 2004). Because the designer viewpoint is rarely the same as the users', the dimension of service interaction quality can be affected by failure to address the customers and their needs.

The research instrument devotes a number of questions to ascertaining the quality of information, which is regarded as a major contributor to the success of a Web site. Consideration of the quality of the content presented is considered of primary importance when using a Web site (Turban & Gehrke, 2000). Specifically, comprehensive product information is vital if prospective customers are to develop an interest in the site and returning customers are to maintain

loyalty (Dadzie et al., 2005). Product information was found to be incomplete or not included in a quarter of the Web sites evaluated. This has significant implications for attracting and retaining customers who may find it preferable to search for information elsewhere rather than consider contacting the company for more details. Where product information was given, there were some innovative ideas with well structured pages to enable the visitor to choose the depth of information required.

A further concern in this area is the lack of company information, including contact details. Nielsen argues that the home page of a site is the online equivalent of the reception area. The impression created will often influence whether a visitor remains on the site or leaves immediately (in Shuster, 2000). The homepage should contain basic information about the company, together with an address, an e-mail, and a telephone number to support multiple communication options. The lack of such fundamental information creates an unprofessional appearance to visitors and does not provide the necessary introduction to those searching for new suppliers.

Clear concise text in an appropriate format gives a positive feel to a Web site (Turban & Gehrke, 2000) and this was one area in which performance was high with rare examples of inappropriate text or layout. However, the overall assessment of the Web sites were lower than indicated by this section as although the text was clear and well laid out, it did not provide the information that visitors were seeking. Also, the appearance of more timely text would benefit the majority of the Web sites, particularly where dates of homepage creation or last update were over a year old. While it was known that these firms are still operating, visitors from further afield may doubt their continuing existence and search elsewhere. It was possible to see some examples where the site had been created by Web consultants and subsequently left untended, probably through lack of in-house skills; a scenario well recorded in the literature (Bode & Burn, 2001; van Akkeren & Cavaye, 1999) and a problem for many smaller businesses dependent on the advice and expertise of consultants.

Concerns of empathy and trust are key factors of the service interaction quality (Barnes & Vigden, 2002). The evaluators' comments confirmed the correlation between users' confidence in the delivery of goods and an overall positive assessment of the site. This supports the concepts of trust and empathy as a key feature of Web site interaction. While high user confidence implies empathy and trust, the notion of trust did not appear to be associated with security. This may arise from the low number of the firms actually trading online. The issue of security is seen as a significant concern in the business press, although it is interesting to note that in Turban and Gehrke's (2000) determinants of e-commerce sites, experts did not rank security highly and concentrated on network security, copyright, and confirmation of purchase. In contrast, consumers ranked security as of first importance in an e-commerce situation. Only three sites rated highly for confidence in security from a transactional perspective. These sites also rated highly in regard to protection of customer information. Those firms that are transacting through the use of downloadable forms for credit card details did not rate highly from either perspective. It also appeared to the evaluators that these firms were not supporting significant levels of online trading.

What emerged from the examination of these sites is that few of the firms are prepared to trade online. This finding is well supported by the literature (Saban & Rau, 2005). Although some SMEs have the ability to develop Web sites that function at a high level of e-commerce, the majority retain an informational perspective. Several of the evaluated sites have been in existence for a number of years but have not progressed beyond the brochure or catalogue format. This would imply either that the site owners are gaining no benefits from the site and have no motivation to improve or

update them, or that they are satisfied with the level of custom being generated. Alternatively, the Web site may have been created as a result of peer group convention or perceived business wisdom to give the appearance of legitimacy (Grewal, Comer, & Mehta, 2001). In such cases owner expectations are usually low and lack of strategy means that the realization of benefits remains very low and interest in the Web site is abandoned (Stockdale & Standing, 2004). Resource constraints are another factor that influences more complex adoption, not least the industry sector and the IT skills within the firm (Poon & Swatman, 1999; van Akkeren & Cavaye, 1999). Higher than anticipated costs for developing and maintaining a highly functional Web site can also stall progressive development of an informational site (Saban & Rau, 2005).

The customer-centric sites discussed by Albert et al. (2004) are clearly beyond the scope of the SMEs discussed in this evaluation. Differentiating the design of nontransactional and transactional Web sites to reflect the goals and experiential requirements (Albert et al., 2004) implies a level of strategy development that is rare in smaller businesses. Nevertheless, the evaluated firms have dedicated resources to building Web sites, many have taken steps towards online trading and there were excellent examples of how even the smallest businesses could effectively use the Internet for business purposes.

CONCLUSION

User perceptions of the Web sites evaluated varied across the three dimensions used to assess them. The effectiveness of the Web sites was evident in specific areas; ease of use, attractiveness, and navigation were highly rated, as was providing believable information and conveying a sense of competence. The results in these areas are encouraging. Significant numbers of smaller businesses are managing to project themselves online and present Web sites that attract and encourage visitors.

Where problems can occur is in meeting visitors' subsequent needs. Users perceived that their needs were not met in regard to levels of information detail, and trust in the secure handling of both personal and transactional information. The inability to provide the right level of information and security seriously hinders the progression of e-commerce for these sites and affects the positive experience of the visitor. SMEs too often have little recognition of the benefits of a Web site and the adverse effect that an incomplete or untended site can have as an advertisement for ineffectiveness.

It is perhaps natural to emphasize the failings found in the evaluation and to overlook the number of smaller firms that are presenting competent and well designed Web sites to potential customers. Although in global terms the sites are not highly visible, within the regional market there is encouraging evidence of firms gaining benefits from their e-commerce activities and presenting effective Web sites to potential and existing customers. To extend the number of SMEs in this category, firms must be encouraged to develop the information and service quality dimensions of their Web sites and to gain an understanding of visitors' needs. Finally, a weakness of the study is the omission of the perspective of the Web site owners. A future development of this study could include, for example, their views on the effectiveness of the type and range of services and information that were offered on their Web sites.

FUTURE TRENDS

Several studies have found that SMEs are likely to increase the use of their Web sites in the future (e.g., Burns-Howell, Hemming, Gilbert, & Burns-Howell, 2004). Therefore, it is envisaged that SMEs' Web sites will play a vital role in attracting potential customers and in influencing purchasing decision as more and more businesses are beginning to conduct more and more of their business via their Web sites. However,

unless SMEs can see the benefits of using their Web sites, they are unlikely to continue investing and evaluating in their Web sites (Burns-Howell et al., 2004). Therefore, it becomes critical for the SMEs to understand customer requirements, to continuously assess the effectiveness of their Web sites, and to enhance their Web accordingly. In addition, to fully utilize the effectiveness of the Web sites, the design will need to be more business oriented than technical focused. Moreover, the Web sites will need to serve to the needs and business goals of the SMEs.

Furthermore, producing high quality functionality and information for a wide range of services and products may still be beyond the resources of many SMEs in the future. It may be more appropriate, for example, to simply provide links to the manufacturer's Web sites. However, SMEs are starting to leverage on business to business electronic commerce through their Web sites in gaining competitive advantage with the trend toward increased functionality supported by improved future Internet technology. The great challenge for the SMEs is to find the incentives and motivation to pour in more resources into updating and maintaining their Web sites, evaluating the impact of their Web sites, and then refining their services on a regular basis.

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KEY TERMS

B2BEC: Business-to-business electronic commerce. Business conducted through the Internet between companies.

Information Quality Dimension: This dimension considers content as the most important element of Web sites and is seen to be directly related to Web site success.

Service Quality Dimension: The dimension allows for examination of the role of service provider within organizations. This is particularly important in the context of e-commerce where the end user is the customer and not the employee.

SMEs: Small to medium enterprises. The European Commission has defined SMEs as organizations which employ less than 250 people.

Usability Dimension: This dimension addresses how a user interfaces and reacts to a Web site: the emphasis is on the user and not on the designer or the software of the site.

Web site: A place on the World Wide Web where an organization's homepage is located. It is a collection of Web pages, that is, HTML/XHTML documents accessible via HTTP on the Internet.

Web Site Evaluation: This is the weighing up process to rationally assess the effectiveness and benefits of Web sites which are expected to improve organizations' business value.

Web Site Quality: This refers to the elements of a Web site that affect the end user in the way they interact and use a business Web site.