

**Features and Functions for
Business-to-Business Websites:
An Exploratory Study of What Users Want**

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**Features and Functions for Business-to-Business Websites:
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Features and Functions for Business-to-Business Websites: An Exploratory Study of What Users Want

The dollar amount of Business-to-Business (B2B) transactions on the web is large and growing. Retail trade on the web, is also growing but is estimated to be less than one-third the volume of B2B online transactions. Nevertheless, until now, most research on web transactions and interfaces has focused on the Business-to-Consumer (B2C) sector. Given the importance of the B2B sector, it is important to fully understand the needs of business customers. This research is the first attempt to focus solely on the needs of B2B website users using data collected through a nationwide online survey. We find that in e-space, B2B customers are significantly different from B2C customers. For example, while an entertaining (or fun) site will increase the willingness of B2B website users to search for information online, it does not affect the willingness of B2B customers to purchase online. This and other findings in our study demonstrate that the design specifications for a website need to be sensitive to the projected manner in which the site will be used. As competition online intensifies, B2B websites that are designed to facilitate either information search or efficient purchasing will provide a competitive advantage.

Key Words: Perceptual Dimensions, online purchasing, B2C websites, online exchanges.

The importance of the Internet for Business-to-Business (B2B) firms should not be underestimated. In 2000, on-line purchasing was only three percent of the total B2B non-service market in the US yet the dollar amount of B2B networked transactions is estimated to be three times that of Business-to-Consumer (B2C) transactions (Pastore 2000, Mullaney 2003). Growth for the B2B online sector is expected to be 68 percent yearly for the US through 2005 (Staff 2002). As more B2B firms use the internet for communication, distribution and technical support, competition both online and offline will intensify. Being able to build a website that a) customers will want to use and b) meets corporate needs, will be an important capability. Currently, B2B website designs are based on assumptions about the needs of users and not on empirical evidence about what B2B users really need from a website.

B2C websites and consumer Internet shopping habits have been studied more thoroughly than B2B even though B2B online sales are significantly higher than those of B2C. One might hypothesize that since many B2B users of the Internet are also B2C online purchasers, B2B and B2C online e-commerce users should exhibit similar behavior. However, this may not be the case. Because of the importance of online commerce for B2B, this idea needs to be tested. Accordingly, we undertake a study of the needs of business customers who use websites for online purchasing and information search.

We first provide a review of the extant literature that focuses on the B2C website use. One question that emerges from the review relates to the distinction between B2B and B2C. Wolfinbarger and Gilly (2001 and 2002) provide evidence that there are differences between what goal-directed and experiential B2C users look for in a website. Building on the B2C studies and specific needs in the B2B context, we develop hypotheses of what B2B website

users need. Through factor analysis we show that information search and purchasing are two distinct activities for B2B website users. A second factor analysis conducted on pre-selected features and functions identified seven key perceptual factors for B2B website users. Regression analysis using the perceptual factors shows that while users engage in a combination of information search and purchasing when using a site, the features and functions that influence their experience for each of these activities are different. Moreover, when approaching the use of B2B websites from this optic, we find significant contrast between the perceptual factors that are important for B2B website users and the factors that have been identified as important for B2C website users. In the next section we provide a review of previous research that is based primarily on the needs of B2C website users.

Review of B2C Website Study Results

B2B Internet users have received little attention from academics, but B2C interactions have been studied extensively. In this section, we review studies of the perceptual factors that are important to B2C website users. Computer scientists, psychologists, and marketing researchers have all weighed in on the subject, and anecdotal evidence has been published in both the popular press and academic journals (Kirsner 1998). Within the B2C context, various outcomes (dependent variables) and possible factors have been studied. Table 1 shows the factors that have emerged as significant and some that were found to be insignificant. Not surprisingly, few published studies report factors that were found to be insignificant. Naturally, the significance of different factors depends on the outcome variable, but there do not seem to be consistent findings regarding the functionalities or characteristics a website needs in order to be effective. Given the different scales and factor labels used in

the studies of Table 1, we have tried to group similar factors under common titles. For example, what we group under “playfulness” has been labeled “entertainment value” (Eighmey 1997), simply “entertainment” (Chen et al. 2002; Chen and Wells 1999) and “playfulness” (Liu and Arnett 2000).

Insert Table 1 about here

Eighmey (1997) investigated which factors influenced user perceptions of website functionality. Participants rate three of 28 commercial websites on various characteristics. All reported results are aggregate and not subdivided by type of shopper or type of website. “Entertainment value” (categorized as playfulness in Table 1) emerged as the factor that explains the most variance within the sample (explaining 37 percent of variance). The second significant factor, ease of use (site design in Table 1), explained 8 percent of variance. The third factor (4.4 percent of variance explained) consisted of questions about the amount and newness of information available (“information” in Table 1). From the field study, the author concludes that the best or most highly rated sites will be those that combine information with entertainment in a clear and efficient manner (Eighmey 1997).

The studies by Chen and Wells (1999) and Wolfinbarger and Gilly (2002) both investigated “attitude towards the website”. Chen and Wells (1999) had MBA and undergraduate students rate a subset of 120 B2C sites that ranged from Amazon.com to Dell.com and “eAgent” sites (sites which help users to generate web presentations). Three factors emerged as significant: entertainment (“playfulness” in Table 1), informativeness (“information” in Table 1), and organization (“site design” in Table 1). Wolfinbarger and Gilly (2002) surveyed online purchasers of products to measure “attitude towards the website”, and found customer service, system use (“transactions” in Table 1) and site design

to be significant. Site design is the only factor that both studies found to be significant in determining attitude towards the website. Few authors reported insignificant factors, but Wolfinbarger and Gilly (2002) report that privacy had an insignificant effect on “attitude towards the website”.

Wolfinbarger and Gilly (2002) also investigated the global quality of website experience. Four dependent variables were analyzed (quality, satisfaction, loyalty intentions and attitude toward the website). Four factors were found to be significant predictors of the dependent variables: customer service, site design, reliability and privacy. However, the only dependent variable that was significantly impacted by privacy was quality.

Satisfaction was studied by Wolfinbarger and Gilly (2002) and Szymanski and Hise (2000). With satisfaction as the dependent variable, Wolfinbarger and Gilly (2002) found that customer service, site design and reliability were significant. In an earlier study of e-satisfaction by Szymanski and Hise (2000) respondents were asked to compare off and on-line shopping experiences. Their results show that convenience, financial security, the quality of information and site design are significant antecedents of e-satisfaction. Szymanski and Hise theorized that the number and variety of product offerings would also be a significant antecedent of satisfaction but this was not confirmed in the online survey. While both studies investigated satisfaction with websites, the only significant factors common to both studies were the quality of information and site design.

The fourth dependent variable that Wolfinbarger and Gilly (2002) included in their study was loyalty intentions. Similar to the “attitude towards the website” and “satisfaction” results; convenience, site design and reliability were significant determinants of loyalty intentions. Ranganathan and Ganapathy (2002) studied another outcome variable; purchase

intent. They found that both privacy and financial security as well as information and site design were significant determinants of purchase intent.

Building on an earlier study of service quality (Zeithaml et al. 1993), Zeithaml et al. (1996) analyze a construct called e-service in the online arena. E-service is defined as: “all cues and encounters that occur before, during and after the transactions (2002, p. 362)”. Fulfillment, efficiency, reliability and privacy were observed to significantly impact e-service (Zeithaml et al. 2002).

A related dependent variable, website success, was investigated by Liu and Arnett (2000). The authors surveyed the web managers for the corporate websites of Fortune 1000 companies. Designers and managers (not users) were surveyed. In this study, a successful website was defined as a site that: “attracts customers, makes them feel the site is trustworthy, dependable, and reliable and generates customer satisfaction (Liu and Arnett 2000, p. 24).” Information quality, learning capability, playfulness, system quality, system use and service quality were hypothesized to be important to website success. For the 119 corporate site web managers who responded to the survey, only four factors emerged as significant: quality of information, site design, system use, and playfulness.

A conclusion we make from the above survey of studies is that it is difficult to identify general findings on core website features and functionalities. Depending on the study and the dependent variable investigated, a feature may be significant, while in other studies it is not. Only “site design” was significant across several studies. In most studies, having a site that is well organized, easy to navigate and focuses on meeting the needs of users was found to have significant impact.

From a preliminary study that included focus groups, Zeithaml et al (2000) conclude that instead of adding features and functionalities that are in vogue, web managers and e-tailers should find out what is necessary to meet the needs of the customers or visitors to that site. The results of the studies suggest that different factors will be important depending on how users plan to use the site.

B2B versus B2C

B2B and B2C marketing and buying are traditionally regarded as different areas of study. Nevertheless, some researchers argue that buyers should not be categorized as consumer versus business. In an early study, Sheth (1974) highlighted the similarity between consumers and business buyers. His theory of family buying states that the decisions families make are similar to organizational buying. Zaltman and Wallendorf (1979) concur by explicitly stating that when making large or important purchase decisions, families behave similarly to organizations. Likewise, organizational buyers will behave autonomously with minor purchases, much like consumers. Zaltman and Wallendorf (1979) also argue that the information gathering process and purchase steps are basically identical for consumers and companies.

One way that consumers and business buyers differ is whether or not they are making experiential or hedonic product purchases. While a consumer might shop for the newest color or fashion in shoes or a great deal on a collectible, business buyers focus almost exclusively on purchasing functional goods. Wolfenbarger and Gilly (2001) draw a distinction between goal directed purchases and experiential (also called fun) purchases. Through focus groups, they found that consumers have different behavior online depending on whether they are goal

directed or in an experiential phase. Goal directed searches are narrowly defined for specific products or specific information, while experiential searches involve more browsing. The Industry Standard (Solomon 1999) estimated that 66 to 75 percent of shoppers online engage in goal directed behavior and the others engage in experiential behaviors. Not distinguishing between these two buying behaviors (functional and experiential) could be a cause of the mixed results in the B2C studies shown in Table 1.

No studies listed in Table 1 break down the type of site by functional versus experiential goods. However, Wolfenbarger and Gilly (2001) do offer some evidence about the differences between goal-oriented and experiential users. The authors surveyed online purchasers of products (mainly books, clothing and apparel and music/videos) from e-tail sites. The authors break the sample into two groups: browsers and goal-oriented shoppers. The differences between browsers and goal-oriented purchasers are shown by the relationship of four key factors (website design, reliability, security/privacy and customer service) to overall quality. Overall quality is the only dependent variable reported in the breakdown. For goal-oriented shoppers, customer service has a positive and significant relationship with overall quality. For browsers, it does not. For both groups, website design and reliability have positive and significant relationships with overall quality. While demonstrating similarities between the two groups, the findings do highlight the existence of an important difference: the result for overall quality shows that goal-directed shoppers want customer service, while experiential shoppers do not. From exploratory focus groups, Wolfenbarger and Gilly (2001) found that goal-oriented shoppers want control, freedom and lack of commitment to a site. In contrast, experiential users want to be entertained and find bargains. In both the exploratory focus groups and the online study, Wolfenbarger and Gilly

(2001 and 2002) show that goal-directed and experiential users have different needs from websites.

In the following section, we develop a set of hypotheses that follow from our literature review and the apparent similarity between goal-directed shoppers in the B2C context and B2B website users.

Hypotheses for B2B Websites

First, we develop hypotheses about the expected importance of features and functions for B2B website users. We then classify the features and functions based on their relative importance to either information search or purchasing. Finally, we investigate how these factors influence information search and purchasing. Table 2 summarizes the hypotheses and the relevant theoretical background derived from the B2C literature.

Insert Table 2 about here

Despite the volume of business over B2B websites, no research has been conducted to determine what is important to B2B users of the Internet. In addition, previous studies have not examined the different needs of goal-directed and experiential B2C users (B2B users may be similar to goal-directed B2C users). As noted earlier, our hypotheses regarding the needs of B2B website users build on findings in the B2C literature.

Information Search and Purchasing. Zeithaml et al (2002) offer a definition of e-Service Quality from an earlier B2C study that includes areas covered by our B2B study:

[eService Quality is] the extent to which a website facilitates efficient and effective shopping, purchasing and delivery of products and services (Zeithaml et al. 2000).

In our study, we concentrate primarily on the first two stages: shopping (or information search) and purchasing.

Buying behavior, for both consumers and businesses consists of several stages. One of the pre-purchasing phases (for both consumers and businesses) is information search (Berkowitz 2000; Ranganathan and Ganapathy 2002). Purchasing takes place after information search (and evaluation) is complete. One issue that emerged from the exploratory discussions was that not all sites serve the same purpose. There are sites that users go to for information, others that are used as portals and still others that are used for purchasing. Additionally, on B2C websites, consumers often abandon shopping carts or simply search online for information and then purchase at a local store. In fact, as a result of this behavior, the backend hardware of e-tail sites often designed more for shopping than for actual purchasing (Vallamsetty et al. 2003). There is no reason to believe that the same features will be important for people who use sites to gather information as for those who use sites to make purchases. Therefore, we posit:

H1: Information search and purchasing on the web are different behaviors.

As information search and purchasing are hypothesized to be distinct constructs in terms of B2B website behavior, we develop hypotheses for both information search and purchasing online.

Price Information. Shoppers (also known as information searchers) are looking for information about available products including price information. When price information is available on a website, it allows an information searcher to obtain relevant information both quickly and effortlessly (Wolfenbarger and Gilly 2001). An online site that includes pricing

information also helps a goal-directed buyer to compare suppliers and make a decision: it should thus attract goal-oriented shoppers and lead to use of the site for both information search and purchasing (Lynch and Ariely 2000). Since price information should be important for both information search and purchasing, we hypothesize:

H2: Ability to search price information increases satisfaction with the experience and improves intentions to visit and purchase.

Information Availability. While price information will be important for both information search and purchasing, product information should be more important for information search than for purchasing. Wolfenbarger and Gilly (2001) identify the availability of information as a key factor for getting people online. Having information available 24 hours a day, instead of making people wait for business hours to talk to a representative, will enable users to connect online and search for information or products. Conversely, abundant information may not have a significant impact on the attractiveness of a site for purchasing. While previous research has shown that information availability is a primary reason for people to use certain sites (Li et al. 1999; Swaminathan et al. 1999; Van den Poel and Leunis 1999), information does not necessarily translate to purchasing. Because conversion from browsing to purchasing is not automatic, we hypothesize:

H3: Availability of information will improve intentions to search for information but not intentions to purchase.

Site Design. Similar to most new technologies, the rate of adoption is affected by not only how useful a technology is, but also by how user-friendly the technology is for new users

(Davis 1989; Davis et al. 1989). B2B users of websites are not just purchasing agents trained in EDI, but they are engineers and technologists looking for answers as efficiently as possible. A site design that makes information readily accessible in a logical and organized fashion will appeal to goal-oriented searchers and purchasers:

H4: Ease of use (site design) will increase the likelihood of visiting a site for both information search and purchasing.

Privacy. For people using the Internet for information search only, privacy should not be a major concern. Privacy is defined as keeping confidential information, such as the names or e-mails of customers or information that was collected by the website confidential (Zeithaml et al. 2002). Websites provide privacy to users by restricting access to any information (such as names) that were obtained through regular interaction with users over the website. However, an information searcher can conduct searches on most websites with anonymity. The searcher's personal computer can have the cookie mode disabled and a user does not need to share information to search at most sites. Thus, the privacy policy of a site should not impact information search behavior. However, when purchasing a product (good or service) over the Internet, a user must provide personal information such as name, company name, address and email address. If a potential buyer does not feel confident that the company operating the site will use her information with discretion, she will be unlikely or hesitant to purchase at the site. Therefore we posit:

H5: Having to share personal information with a site will decrease the likelihood of purchasing but will have no effect on information search.

Customer Service. The availability of customer service at a website should influence purchase behavior positively but have no impact on information search. One reason that people use the Internet is to bypass sales people. Those that are doing narrow, focused searches want to hone in on the information and products that they are looking for and not be distracted (Wolfenbarger and Gilly 2001). Customer service becomes important when an item is about to be purchased or has been purchased. Order tracking and post-sales support are elements of customer service. As these impact the buying decision and not information search, the impact on the two constructs should not be equal:

H6: Customer service on the website will increase purchase behavior but not increase information search tendencies.

Personalization. Widely used B2C sites, such as Amazon.com, remember the identity of users when they logon. Amazon.com users receive recommendations on books they might like based on previous behavior. The Wall Street Journal online (wsj.com) also allows subscribers to personalize their front page by selecting the type of articles they would like to see when they enter the site. Such services would appear to attract site users and make it easier to find information that is of interest. While these services can help in information retrieval, the same may not be true in purchasing situations. Because B2B purchasers generally focus on buying specific products or services, these personalization and recommendation systems should have little, if any, influence on purchasing. Therefore, we posit:

H7: Personalization will positively influence information search but not purchasing.

Entertainment. Experiential users and browsers on the Internet benefit from the enjoyment in finding a bargain or a collectible for which they had been searching (Wolfenbarger and Gilly 2001). Fun sites such as disney.com or pillsbury.com were found by Eighmey (1997) to be among the highest rated by his survey participants. While experiential browsers are attracted to sites that are fun and offer entertainment, goal-directed searchers and purchasers should not value the distracting features that such sites include. Therefore, we posit:

H8: Fun or entertaining sites will not increase information search or purchase by B2B users.

Data, Empirical Analysis and Hypothesis Testing

In order to test our hypotheses we developed a survey for B2B website users which was developed based on two phases of exploratory studies. We first discuss the exploratory studies and then the online study.

Exploratory Study 1: Focus Groups and Discussions

Executives attending Executive Education programs at a major business school participated in individual discussions and focus groups to provide initial information about the features and functions B2B users need and value in a website. These discussions generated a list of 82 perceived features of websites.

Exploratory Study 2: Initial Site Ratings

From the preliminary list of functions and features, an initial questionnaire to rate sites was developed. Multiple ratings were obtained on 70 pre-selected sites. The sites came

from eight different sectors. As can be seen in Table 3, all of the sites were for functional (and not experiential) goods, services or information.

Insert Table 3 about here

A factor analysis was performed on the ratings of the 70 sites. The factor analysis revealed 10 key perceptual factors by which respondents view the sites. These 10 factors explain about 50 percent of the variance in the sample. The top three explain 30.5 percent of the variance in the sample. Table 4 shows the 10 factors and the variance explained by each factor. The “technical information friendliness” factor explains the largest percent of the variance (13.77 percent). Questions that load on this factor include: amount of detail on routine products, availability of alternative suppliers for routine products and amount of technical information on industry non-routine products. The second factor (9.35 percent of total variance) is “pricing sophistication”, and it includes questions about how much information there is on price and calculating value for the user. The third most important factor (7.38 percent of total variance) regards the revenue model for the site. Questions that loaded on this factor included: degree to which the site generates revenue from advertising and promotion, the quantity of advertising on the site and if one pays a fee to use the site.

Insert Table 4 about here

Online survey

The final phase of data collection involved an online survey based on the results of the exploratory focus groups and initial site ratings. The functions and features found to be most important in the preliminary studies were included in the online survey. The survey also contained detailed questions to learn more about the important factors revealed in the preliminary study. For example, the revenue model of a site emerged as an important factor

in the preliminary study. Therefore, questions were included in the online survey asking respondents what they thought the revenue model of a site should be.

During the pre-testing phases of the study, the Surface Mount Technology Association (SMTA)¹ expressed an interest in applying the results of the study to upgrade its website. In exchange for providing access to their membership for the survey, SMTA members received preliminary results from the study. In addition, the members were asked to rate the SMTA site (SMTA.org) and provide detailed feedback to assist SMTA in redesigning and improving its site.

All 3,258 SMTA members received a personalized e-mail announcement and invitation to complete the survey. Each e-mail invitation included a unique identification number and unique password. Once logged on, a respondent could change the password, but not the identification number. If a respondent did not finish the whole survey at once, the identification number and password made it possible to log on later and continue the survey from wherever the respondent had stopped.

In return for completing the survey, each participant received an immediate benchmark report of how her responses compared to others that had completed the survey. Using the identification number and password, participants could check back multiple times to see how many people had answered the survey and obtain an updated benchmark (there was no penalty for responding early). Additionally, participants were told that the information from the survey would be used to improve the SMTA website.

Of the 2,941 delivered emails, 352 people logged on to the survey. Some people logged on to the survey, but did not complete any questions. 248 respondents answered at

¹ SMTA is a non-profit international association of companies and individuals involved in all aspects of the electronics industry.

least one question for a response rate of 8.4 percent. Respondents were able to rate up to three B2B sites with which they had buying or browsing experience. On average, each of the 248 respondents provided at least partial information on 2.4 sites, and of the 604 site evaluations, there were 243 unique sites. Some sites received multiple ratings. For example, SMTA's own site (SMTA.org) had 180 ratings. There were no restrictions on sites that could be rated but participants were asked to focus on sites that they used for business. In the B2B arena, a large amount of purchasing happens over private sites or through Electronic Data Interchange (EDI). Even so, significant purchasing and information search does occur on public Internet sites (Berkowitz 2000). While most of the sites that were rated by participants are Internet sites available to the public, the differences in features and functions of extranet sites and public Internet sites are small. Therefore, our findings have application to private/extranet sites even though our research is focused on publicly accessible sites. Because the invited survey participants were members of the SMTA, a majority were involved in the electronics industry. 70 percent of respondents identified themselves as from an electronic manufacturing service company, a manufacturer or a marketer of electronics. An additional 10 percent of respondents were from services or consulting companies, and the remaining respondents worked for companies that were involved in a variety of fields from agriculture to retailing. Also, the majority of respondents (82 percent) had technical backgrounds. The respondents covered a wide range of positions in their firms, from top or senior management to junior management.

Respondents possessed a range of Internet usage experience. 26 percent had used the Internet for commercial purposes for fewer than six months. However, 50 percent had used the Internet for commercial purposes for more than two years. Sixty-two percent used the

Internet to make purchases, obtain information or solve problems daily (a further 23 percent used the Internet for those same purposes weekly). The remaining respondents used the Internet for purchasing, to obtain information and/or to problem solve approximately once per month. Over 95 percent of the respondents' companies had operating websites or websites under development. 85 percent of the companies had used the Internet for more than two years, and only 5 percent of companies had been using it for fewer than six months. With such a wide range of experience in the use of B2B websites, the group of respondents appears to cover the full range of Internet users for both purchasing and searching for information online.

Data

The ratings consisted of two types of questions. First, respondents rated each site on an item and then evaluated the general importance of that item. The first 30 questions covered the functionality of the site and asked the respondents to rate the importance of each function. The site rating scale was a seven-point scale with anchors of "Strongly Agree" to "Strongly Disagree". The general importance rating scale was a five-point scale of "Very Important", "Somewhat Important", "Minor", "Trivial", and "Irrelevant/ Distracting". The appendix contains the 30-site dimension and the 30 general functionality/importance questions. After the function / feature questions, there were six questions specific to each site about whether the person would buy online at the site, search for information at that site and/or compare prices on the site. The questions were rated on a seven-point scale with anchors of "Very Likely" to "Not at all Likely". These questions (numbers 31 – 36) are included at the end of the appendix.

Hypothesis Testing

To test our hypotheses, we use the data obtained from the final online survey. We divide our hypothesis testing into four parts. First, we use factor analysis to confirm the existence of two distinct behaviors by B2B website users: information search and purchase (H1). Once the existence of the two behaviors has been established, we take a look at the feature and function data by ranking in terms of average importance scores. This will provide an overview of the data and in aggregate will allow us to highlight key features and functions for B2B users. The third step is to factor analyze the features and functions to see if the thirty top features (from the pre-study) can be represented by a smaller number of factors. Seven factors emerge from the factor analysis; however, these factors do not allow us to evaluate H6 (customer service) or H7 (personalization). None of the indicators related to customer service or personalization map to the seven factors. In the final step, H2, H3, H4, H5 and H8, are tested by regressing the seven factors on information search and purchase intent as dependent variables. The regression results allow us to evaluate the impact of each factor on information search and purchase intent for B2B website users.

Hypothesis Testing: Information Search and Purchase (H1)

To rate the six outcome variables, a seven-point scale from “Not Likely at All” to “Very Likely” was used. The six dependent (outcome) variables were:

1. In the future I will buy online at this site.
2. Based on my experience, I will buy at this site versus other sites offering similar products and services.
3. In the future I will buy at this site instead of ordering by fax, telephone or personal calls.

4. I will use this site to obtain information on products and services, but not necessarily to buy.
5. I will use this site to compare prices but not necessarily to buy.
6. I will mainly use this site to get information and news.

While each outcome variable has a different focus, three of the variables ask specifically about purchasing and the other three mention information search. In order to investigate the relationships among the six outcome variables, we first looked at the correlations between each pair as shown in Table 5. The first three variables (“In the future I will buy online at this site”, “Based on my experience, I will buy at this site versus other sites offering similar products and services”, and “In the future I will buy at this site instead of ordering by fax, telephone or personal calls”) are highly correlated with correlations ranging from 0.67 to 0.85. None of these variables has high positive correlations with any of the three remaining variables. The first three are all negatively correlated with the last outcome variable: “I will mainly use this site to get information and news”. “I will use this site to compare prices but not necessarily to buy” does not correlate as highly with any of the other five variables. “I will use this site to obtain information on products and services, but not necessarily to buy” and “I will mainly use this site to get information and news” have a correlation coefficient of 0.43.

Insert Table 5 about here

To further understand the outcome variables and the relationships among them, we conducted exploratory factor analysis. Given the high correlations between each pair of the first three variables, we expected that the first three might load on the same factor. But, we were uncertain about the number of factors that would best explain the relationships among the variables. We used S-Plus 6.1 to perform the factor analysis and Varimax rotation to

ensure orthogonal constructs. The one factor solution was not optimal ($p < 0.00$). A two-factor solution provided statistically better results ($p > 0.10$) and also made intuitive sense. The first factor accounts for a full 40 percent of the variance in the sample, and the second accounts for 14 percent. Table 6 contains all the factor loadings for the two-factor solution. The first three highly correlated outcome variables load positively and heavily on the first factor and do not load at all on the second factor. Two of the remaining variables (“I will use this site to obtain information on products and services, but not necessarily to buy” and “I will mainly use this site to get information and news”) load heavily and positively on the second factor and load negatively on the first factor. This is consistent with the correlation results that showed these two variables are positively correlated but negatively correlated with the three variables that load on the first factor. The remaining outcome variable (“I will use this site to compare prices but not necessarily to buy”) loads more heavily on the second factor than on the first (0.305 versus 0.151).

Insert Table 6 about here

The two factors make intuitive sense as the first factor is comprised of three variables that deal specifically with purchasing and the second factor contains the information search variables. The variable that loads positively on both factors involves “searching for price”. The results from the factor analysis support H1 that information search and purchasing are separate constructs.

Hypothesis Testing: Features and Functions Rankings

Utilizing exploratory data analysis, we tested the results of the online survey to see how they compared to exploratory studies on B2B websites and to similar studies in the B2C

arena. A first look at the data showed some similarities to what would be expected given the results of previous B2C studies. Table 7 contains the top ranked (most important) features and functions identified by our respondents. Rankings of the importances do not provide insight into whether these features and functions are important to searchers or purchasers separately. They provide an aggregate view of how important the features and functions are amongst all that were investigated. When we ranked the importance questions, “easy to use” was the most important item of the 30. Research by Szymanski and Hise (2000), Ranganathan and Ganapathy (2002), and Wolfinbarger and Gilly (2002) all singled out site design (or ease of use) as a significant factor for B2C e-customers. The high rank of “easy to use” provides a degree of support for H4: Ease of use (site design) will increase the likelihood of visiting a site for both information search and purchasing, but does not show if the feature is important for both information search and purchasing.

Insert Table 7 about here

Our respondents rated personal privacy (not having to share personal information with others) a close second. Privacy was mentioned as a significant factor in several B2C studies (Ranganathan and Ganapathy 2002; Zeithaml et al. 2002). However, Wolfinbarger and Gilly (2002) found privacy to be significant only in measuring quality of an online experience, but not for predicting satisfaction, loyalty intentions or attitude towards the website. Again, this high rank (second of 30) provides some support for H5 (Having to share personal information with a site will decrease the likelihood of purchasing but will have no effect on information search). Yet, it does not show whether the effect is more important for purchasers than for searchers.

Unlike B2C studies, the respondents in our survey gave personal attention and customer service features an average rating of “somewhat important”. These two items were in the middle of our 30 rated features and functions. Note that the 30 features included in the online survey were chosen based on an importance ranking out of more than 80 features in the exploratory studies. In fact, all 30 of these features were rated as “somewhat important” (at the very least) in the exploratory studies. Thus, we can neither reject nor accept H6 (that customer service on the website will increase purchase behavior but not increase information search) based on our analysis. In contrast, Wolfinbarger and Gilly (2002) found customer service to be important for all four of the dependent measures that they analyzed (quality, satisfaction, loyalty intentions, and attitude towards the website).

For B2B users, the lowest rated features (with average ratings of “minor importance”) were for customization of the website and allowing alternative purchasing options such as reverse auctions or bidding. Again, it should be noted that even though these features were of low importance in the online survey, they were in the “top 30” from the exploratory studies. As a result, we cannot use the low ranking or personalization/customization as a basis for supporting or rejecting H7 (Personalization will positively influence information search but not purchasing).

Independent Variables

In this section, we use regression models to determine the features and functions that are important for the two key activities of B2B website users: information search and purchasing. As mentioned earlier, factor analysis is used to reveal seven key perceptual factors. We then estimate two models with “information search” and “intent to purchase on

the site” as the respective dependent variables and the seven factors as explanatory variables. The regression analysis shows which features and functions have an effect on the likelihood of a user selecting a particular website for either information search or online purchasing.

Hypothesis Testing: Factor Analysis

We start with exploratory factor analysis as a preliminary technique to determine the number of factors involved (Gerbing and Anderson 1988). We used S-Plus 6.1 to perform principle components analysis of the 30 importance attributes from the online survey. The principle components analysis indicated that there were nine factors with eigen values of 1 or more.

Further analyses were completed using Factor Analysis. Items were retained if they loaded .40 or more on a factor and did not load at .40 or higher on any other factor (Churchill 1979). 13 items were retained that loaded on seven factors. The retained questions and factors are shown in Table 8.

Insert Table 8 about here

The 13 importance items that compose the seven factors were subjected to confirmatory analysis using LISREL 8 (Joreskog and Sorbom 1993) to check discriminant validity of the model. From the LISREL output, we extracted the correlations between each pair of the seven factors. Table 9 shows that all of the correlations between factors are significantly different from 1, meaning that there is good discriminant validity between each pair of factors.

Insert Table 9 about here

The seven factors that emerge from the analyses are: pricing and purchasing, transactions, fun, privacy, ease of use, seller focus and links. Six of the seven factors map onto at least one of the hypotheses (H2 – H8). However, neither “customer service (customer service on the website) nor “personalization” map to any of the factors that emerge from the factor analysis. Thus, the analysis will not allow us to sharply evaluate H6 or H7.² While disappointing, it is interesting that neither “customer service” nor “personalization” emerge as key perceptual dimensions for B2B website users.

The significance of customer service in the B2C context was shown by Wolfinbarger and Gilly (2002) to affect all four dependent variables: quality, satisfaction, loyalty intentions and attitude towards the website. While “customer service” does not emerge as a perceptual factor, we do have an indicator for “customer service” (question 8) for which we have an importance measure. Interestingly, the respondents in the B2B survey did not rank the importance of customer service highly. On average, the respondents rated customer service features as “somewhat important”, ranking it as the 18th most important feature of the 30 that were rated. Other questions were related to customer service such as order tracking (question number 9), personal attention while online (question number 26) and order modification (question number 10) were all also rated as “somewhat important. The rankings of these features were 14th, 16th and 17th respectively out of the 30 rated features (the seven-factor solution did not include any of the customer service questions mentioned above). While our results do not provide support for H6, we cannot infer the opposite i.e., that customer service is not important. It may be that customers are obtaining the levels of customer service they

² A first step in evaluating the role of features in determining website user behavior is to confirm that differences in the features are in fact, perceived by users. The second step is to see how these differences affect the likelihood of a site being used for either information search or online purchasing.

want on all the sites they use regularly. Because our analysis is an analysis of variance, this would explain why “customer service” did not emerge as a key perceptual factor.

Personalization is addressed in the survey with the question: “When I start using this site, I can customize its appearance and functionality to best suit my usage and activities on the site”. This was one of the least important of the 30 features and functions included in the online survey. B2B respondents rated this feature as of “minor importance”, and it is the 29th ranked (out of 30) website feature. Given the low ranking of personalization and its absence as a key perceptual factor, our study does not provide support for H7.

One of the factors, seller focus, emerges from our analysis but is not addressed by any of the hypotheses that we developed in advance. There is only one indicator “They had the seller’s needs in mind when designing this site” that loads significantly on this factor. In spite of having no ex ante hypotheses regarding this factor, we include it in our regression analysis given its apparent importance to website users.

Regression Results

To test for the possibility of contrasting effects of the seven factors on information search and purchasing, we construct two dependent variables using the loadings from the factor analysis of the outcome variables. Each dependent variable was then regressed on the seven factors. The data for the regressions came from the 280 site ratings where respondents had completed all measures. Table 10 contains the results of the standardized regressions. To test for multi-collinearity, we checked the variance inflation factors (V.I.F.’s) of both regressions. All of the values were below “10” in fact, none exceeded “1.5”, showing that multi-collinearity was not a problem in the regressions. The regression results provide insight

about the influence of each factor on both information search and purchasing. We find positive and significant support for information availability (H3) for information search, and positive and significant support of site design (H4) for purchasing. As hypothesized, sharing personal information (H5) had a negative and significant impact on purchasing. The results of the hypothesis testing are shown in Table 11 and discussed below.

Insert Table 10 about here

Insert Table 11 about here

Price Information (H2): The coefficients in both equations for pricing are directionally correct (positive) but are not significant. Despite the finding by Lynch and Ariely (2000), our data do not support the hypothesis that availability of price information increases the likelihood of information search or purchasing on a website.

Information Availability (H3): The factor “links” essentially relates to the availability of information. In the “information search” regression, the coefficient of this factor is positive and significant ($p < 0.00$). As hypothesized, information availability is not significant for purchasing. The results from the regression support H3 (Availability of information will improve intentions to search for information but not necessarily to purchase).

Site Design (H4): Two factors, “ease of use” and “transactions” are related to the site design hypothesis (H4). “Ease of use” consists of the questions: “The site is easy to use” and “They had my needs as a customer in mind when designing this site”. While we hypothesized that site design would be a positive and significant factor for both information search and purchasing, the coefficient of “ease of use” is not significantly different than zero in either regression.

The factor “transactions” is made up of three questions: “The site is reliable when quoting costs, compared to actual and transaction costs after delivery”, “The site is primarily oriented towards helping me execute purchase transactions as efficiently as possible”, and “This website facilitates collaborative activities among companies in terms of ordering, shipping, marketing and/or others”. These questions focus specifically on site design for transactions. Here we get partial support for H4. The coefficient for transactions is positive and significant ($p < 0.00$) for purchasing. In fact, it is the largest coefficient in the purchasing regression. We believe that this is explained by the fact that most of the indicators that load on to “transactions” are indicators that relate primarily to how the design of the site makes purchases efficient and easy to execute. However, for information search, it is significant and unexpectedly negative. This is difficult to explain but we suspect that site designers balance the importance of information provision and purchasing when they design sites. The attention devoted to making information search easy (or painless) might be lower for sites that are designed primarily for purchasing and vice-versa.

Privacy (H5): The privacy coefficient in the purchasing regression is negative and significantly different than zero, which supports H5. The question that loads on privacy is: “This site requires a lot of non-financial information in order to register and use the site.” Therefore, the negative sign means that users have concerns about sharing personal (non-financial) information with a site. The hypothesis is further supported by the non-significant coefficient ($p = 0.41$) on privacy in the information search regression.

Entertainment (H8): We did not expect B2B users to be attracted to fun or entertaining sites in either information search or purchasing modes. Yet, the coefficient on fun is positive and significantly different than zero at $p = 0.07$ in the information search

estimation. The coefficient is not significantly different than zero for purchasing ($p=0.52$). At the stricter level of significance ($p<0.05$), our hypothesis that B2B users will not be impacted by fun or entertaining features is supported. However, there is some evidence (at $p=0.07$) that even B2B users are attracted to an enjoyable site when searching for information.

Discussion and Conclusions

Our data show that there are two distinct activities engaged in by B2B website users: information search and purchasing. Depending on the outcome desired by the user (to gather information or to execute a purchase), the study also shows that the user prefers different website features and functions.

We had hypothesized that price information (H2), information availability (H3), site design (H4), and personalization (H7) would have positive and significant impact on the intention to use a site for information search. Our analysis supports H3 as the availability of information significantly improves the intention to search for information. However, our data does not support the other hypotheses. In fact, transactions (part of H4, site design) had an unexpectedly negative and significant sign in the regression for information search. Personalization was not included in the regression analysis as no factor for personalization emerged from the factor analysis. Fun (H8) was not expected to be important for B2B users, but for information search, it was positive and significant at $p=0.07$.

We hypothesized that price information (H2), site design (H4) and customer service would be important determinants of the likelihood to use a site for purchasing. Having to share personal information (privacy, H5) was hypothesized to have a negative impact on purchasers. The data analyses support the importance of site design (H4) and the detrimental

impact of having to share private information (H5). However, the coefficient for price information was not significant. “Customer service” was not included in the regression analysis, as no “customer service” factor emerged from the factor analysis. Therefore, our study does not provide clear direction on the impact of customer service on purchasers. Both information availability (H3) and fun (H8) were hypothesized to be not significant for B2B purchasing, and our data and analysis support this.

Theoretical Implications

Little previous research in the B2C arena has focused on goal-directed versus experiential users and no research has segmented sites based on whether they are primarily used for the purchase of functional or experiential goods. Given the inconsistent results of B2C studies and the results of our B2B sample, it is clearly important to distinguish between online activity that is B2B versus B2C. In addition, the objectives of a user appear to be critical in determining how she responds to the features and functions that are built into a given site.

Managerial Implications

Several implications from the regressions shown in Table 10 and the hypothesis testing shown in Table 11 are immediate. If you want your customers to use the site for information search, include links and make the site fun and attractive. For a site that is to be used for purchasing, the design of the site should focus on transaction efficiencies and being reliable when quoting costs. Having to share personal information detracts from the site if the users are interested in purchasing, but has no effect on those that are just looking for

information. The data also show that a site cannot be everything to everyone at the same time. The transactions factor is highly significant and positive for purchasing, but is negative and significant for information search.

For B2B users, there appear to be strong differences in the factors that impact the likelihood of using a given site for either information search or purchasing. When designing a website, a company should decide which type of user they wish to attract and design the site accordingly. If the company wishes to ensure that both types of activities are attractive on its site, the design challenge is greater as the site needs to score highly on a number of factors, some of which may be in conflict with each other. Conversely, an option might be to build two different sites where a common portal allows the user to self-select the site suited to her objectives.

B2B Limitations and Future Research

Even though B2B users of the World Wide Web also purchase using Electronic Data Interchange (EDI) and/or extranets, the differences between extranet sites and Internet sites are not great. An extranet site is a site built by a supplier for its business customers. While the sites are considered private and customized, many functionalities are common across all sites. In general, a supplier uses a common platform to create private sites for its customer because building an entirely new site for each customer would be financially prohibitive. Customization is delivered through pricing, special offers, product-line, billing, delivery and shipping that are specific to the customer. As a result, we believe our findings are applicable to both private sites and extranets. Future research should focus on determining if there are any significant differences between private site design and public site design.

While price information (H2) does not appear significant in our study, this may be a result of how B2B purchasing is done. As many suppliers are pre-determined and purchasing contracts are fixed, the pricing issue may not be as important to the B2B website user as originally envisioned. The lack of support for personalization (H7) may stem from the nature of B2B transactions. Supplier companies may provide “customized” extranet sites for a client companies. These sites, while designed around a common platform, can allow a user with the client company to see only the goods, services and pricing that their company has negotiated. In this manner, personalization is already done for the user before she even visits the site.

Similarly, security (of financial information) is often discussed in the B2C literature as a concern of users (Ranganathan and Ganapathy 2002; Szymanski and Hise 2000). Financial information security did not emerge as a concern of B2B users. Again, this may be

the result of many purchase transactions going through pre-approved suppliers and/or private sites.

Future studies should focus on the differences and similarities between goal-oriented consumers and B2B users. Additionally, a study that focuses exclusively on private sites used by businesses might reveal differences which would be useful for firms that have reason to restrict public access to their websites. Despite the limitations of our study, it is an important first step in determining the similarities and differences between B2B and B2C website requirements.

Appendix: Survey questions used in data analyses

Independent Variable Measures

Questions (Scale Anchors: Strongly Agree to Strongly Disagree):

1. On this site, it is easy to get answers to specific questions on the products and services being sold.
2. On this site, it is possible to have access to alternative sourcing/supplier options.
3. The site provides alternate ways to determine prices of the products it sells, allowing me to optimize my transactions.
4. On this site, it is easy to compare prices between alternative suppliers.
5. This site provides useful purchasing options through online events such as bidding or reverse auctions.
6. This site contains lots of advertising and promotion.
7. It is possible to use this site to access services that may be of personal interest to me (e.g. training opportunities, job listings, online shopping).
8. This site has a variety of customer service features (bulletin boards, e-mail, discussion groups, chat rooms, etc.).
9. On this site, it is easy to track my order at any time (from the initial request until delivery).
10. On this site, it is easy to modify my order (quantities, specifications, delivery details, etc.) even if I have already submitted the order.
11. The site provides useful background information on the suppliers of products/services available on the site.
12. In order to purchase on this site, I must provide lots of financial information about my company.
13. On the site, it is easy to obtain financial services (e.g. credit approvals, loans, terms).
14. This site requires a lot of non-financial information in order to register and use the site.
15. The site has a global orientation (geographical coverage, languages, worldwide delivery).
16. The site is easy to use.
17. The site is visually attractive.
18. The site is fun to use.
19. You are unlikely to be misled by the site.
20. Business and personal information that you provide to the site will not be passed on to other parties
21. They had my needs as a customer in mind when designing this site.
22. They had the sellers' needs in mind when designing this site.
23. This site provides assistance for your own product or service introductions.
24. This site is primarily oriented towards helping me execute purchase transactions as efficiently as possible.
25. This site is primarily oriented towards helping me to quickly find solutions to business and technical problems.
26. This site provides personal attention, when needed, while being online.

27. The site is reliable when quoting costs, compared to actual and transaction costs after delivery.
28. The costs of using this site (registration, membership, etc.) are reasonable.
29. When I start using this site, I can customize its appearance and functionality to best suit my usage and activities on the site.
30. This website facilitates collaborative activities among companies in terms of ordering, shipping, marketing and/or others.

Importance Measures of Independent Variables

Questions (Scale Anchors: Irrelevant/Distracting to Very Important)

Each of the above 30 questions were followed by another question: “The Importance of this dimension to me.”

Dependent Variable Measures

Questions (Scale Anchors: Not at all Likely to Very Likely)

1. In the future, I will buy online at this site.
2. Based on my experience, I will buy at this site versus other sites offering similar products and services.
3. In the future, I will buy at this site instead of ordering by fax, telephone or personal calls.
4. I will use this site to obtain information on products and services, but not necessarily to buy.
5. I will use this site to compare prices but not necessarily to buy.
6. I will mainly use this site to get information and news.

**Table 1:
Selected B2C Website Literature**

	Szymanski and Hise (2000)	Ranganathan and Ganapathy (2002)	Chen and Wells (1999)	Liu and Arnett (2000)	Eighmey (1997)	Zeithaml, Parasuraman, Malhotra (2002)	Wolfenbarger and Gilly (2002)			
Subjects:	Online customers	214 online shoppers	Students rating B2C sites	Webmasters Fortune 1000 Comps.	Lab study (online) of 28 sites		Online consumer panel			
Convenience	Significant									
Customer Service							Significant	Significant	Significant	Significant
Financial Security	Significant	Significant								
Product Offerings	Not Significant					Significant (fulfillment)				
Information	Significant	Significant	Significant	Significant	Significant					
Site Design	Significant	Significant	Significant (organization)	Significant	Significant		Significant	Significant	Significant	Significant
System use (transactions)				Significant		Significant (efficiency and reliability)	Significant	Significant	Significant	Significant
Playfulness			Significant (entertainment)	Significant	Significant					
Privacy		Significant				Significant	Significant	Not Significant	Not Significant	Not Significant
D.V.	e-Satisfaction	Online purchase intent	Attitude toward the site	Website success	User perceptions of functionality of websites	e-Service	Quality	Satisfaction	Loyalty Intentions	Attitude Towards Website
R-square	.28	Discriminant analysis	.63	Factor Analysis			.64	.55	.48	.63

*Note: Results only show what was tested in each study. For example, not every study had a “Playfulness” factor. Also, there are difficulties, matching factors across studies. An attempt was made to determine common factor names.

Table 2
B2B Hypotheses and their B2C Bases

Hypotheses	Selected B2C Studies on which the hypothesis is based	Explanation	Hypothesized Influence on Information Search	Hypothesized Influence on Purchasing
H1	<u>Information Search and Purchasing</u> Information search and purchasing on the web are separate constructs	Ranganathan and Ganapathy 2002		
H2	<u>Price Information</u> Ability to search price information increases satisfaction with the experience and improves intentions to visit and purchase.	Wolfenbarger and Gilly 2001 Lynch and Ariely 2000	+	+
H3	<u>Information Availability</u> Availability of information will improve intentions to search for information but not necessarily to purchase.	Liu and Arnett 2000 Chen and Wells 1999 Li et al. 1999 Van den Poel and Leunis 1999	+	N.S.
H4	<u>Site Design</u> Ease of use (site design) will increase the likelihood of visiting a site for both information search and purchasing. a. Ease of use factor b. Transactions factor	Ranganathan and Ganapathy 2002 Wolfenbarger and Gilly 2002 Liu and Arnett 2000 Syzmanski and Hise 2000 Chen and Wells 1999 Eighmey 1997	a. + b. +	a. + b. +
H5	<u>Privacy</u> Having to share personal information with a site will decrease the likelihood of purchasing but will have no effect on information search	Ranganathan and Ganapathy 2002 Wolfenbarger and Gilly 2002 Zeithaml et al. 2002	N.S.	-
H6	<u>Customer Service</u> Customer service on the website will increase purchase behavior but not increase information search tendencies.	Wolfenbarger and Gilly 2002	N.S.	+

			similarly to the B2C goal directed searchers.		
H7	<u>Personalization</u> Personalization will positively influence information search but not purchasing.	In common use on B2C sites	Personalization is common at many B2C sites. Many sites suggest products of interest based on previous behavior. B2B users are goal directed and purchasing specific products for their company. Recommendations or personalization (of the website) should not influence purchases. However, giving a B2B information searcher personalized suggestions may make search easier.	+	N.S.
H8	<u>Fun</u> Fun or entertaining sites will not increase information search or purchasing by B2B users.	Liu and Arnett 2000 Chen and Wells 1999 Eighmey 1997	Goal directed B2C website users do not mention fun or playfulness as a reason to use a website. B2B users should behave similarly to goal-directed B2C users.	N.S.	N.S.

**Table 3:
Sectors and Sites Included in Initial Survey Pre-test**

Sector Name	Participating Sites
1. Agriculture	Agriculture, Agex, Agrositio, Agrimail, Campo21, Directag, E-markets, Rooster, Deere
2. Finance	Equityplaza, Creditex, Ecredit, Elease, Muniauction, Tradeweb, Ultraprise, E-galicia
3. Information Technology	Yet2, Oracle, I2(tradematrix), Dell, Cisco, Ind2ind, Ariba
4. Healthcare	Sciquest, Neoforma, Medibuy, Idx, Webmd, Connectmed, Allscripts, Proxymed, Bionexo
5. Logistics & Procurement	Celarix, Logistics, Nte, Fedex, Mercotrack, Freightquote, Freemarkets, From2, Iprocure, Shop2gether
6. Metal	E-steel, Metalsupplier, Metalsite, Rmc, Virtualsteel, Materialnet, Aluminium, Siderca, Steelmills
7. MRO & Multivertical*	Equalfooting, Facilitypro, Grainger, Mro, Works, Procurenent, Plazavertical, Verticalnet, Vexem, Ventro
8. Plastics	Chematch, Plasticsnet, Plasticsarea, Plasticsnews, Fibersources, Todoplastico, Geplastics, DuPont

* these sites are grouped together since their clients are similar and they provide an enormous array of items/services across all aspects of the business

Table 4:
Key Factors from Ratings of 70 Sites

Factor	Variance Explained
Technical Information Friendliness	13.77%
Pricing Sophistication	9.35%
Revenue Model of Site	7.38%
Site to User Orientation	5.58%
Quality/Scope of Online Ordering	4.77%
Quality/Scope of Marketing Support	4.25%
Quality/Scope of Financing (i.e. Risk Reduction) Support	3.57%
Vertical Orientation of Site	3.34%
Flexibility of Site to be Personalized for Individual User	3.20%
quality/Scope of Delivery/Shipping Monitoring	2.85%

Note: Above Tables are based on a pilot survey conducted by the authors with several classes of executive participants

**Table 5:
Correlations of the Six Dependent Variables**

	In the future I will buy online at this site.	Based on my experience, I will buy at this site versus other sites offering similar products and services.	In the future I will buy at this site instead of ordering by fax, telephone or personal calls.	I will use this site to obtain info on products and services, but not necessarily to buy.	I will use this site to compare prices but not necessarily to buy.	I will mainly use this site to get information and news.
In the future I will buy online at this site.	1.00					
Based on my experience, I will buy at this site versus other sites offering similar products and services.	0.54	1.00				
In the future I will buy at this site instead of ordering by fax, telephone or personal calls.	0.71	0.67	1.00			
I will use this site to obtain info on products and services, but not necessarily to buy.	-0.19	-0.15	-0.19	1.00		
I will use this site to compare prices but not necessarily to buy.	0.11	0.14	0.03	0.15	1.00	
I will mainly use this site to get information and news.	-0.34	-0.25	-0.24	0.43	0.09	1.00

**Table 6:
Factor Loadings of the Six Dependent Variables***

	Factor 1	Factor 2
In the future I will buy online at this site.	0.960	
Based on my experience, I will buy at this site versus other sites offering similar products and services.	0.894	
In the future I will buy at this site instead of ordering by fax, telephone or personal calls.	0.752	
I will use this site to obtain info on products and services, but not necessarily to buy.	-0.140	0.762
I will use this site to compare prices but not necessarily to buy.	0.151	0.305
I will mainly use this site to get information and news.	-0.318	0.515

*Note: varimax rotation was used to insure orthogonal factors

**Table 7:
Top Ranked Features and Functions**

	Feature or Function	Average Importance Score**
1.	This site is easy to use.	1.07
2.	Business and personal information that you provide to the site will not be passed on to other parties.	1.19
3.	They had <i>my needs as a customer*</i> in mind when designing this site.	1.25
4.	This site is primarily oriented towards helping me to quickly find solutions to business and technical problems.	1.26
5.	You are unlikely to be missed by the site.	1.26
6.	On this site, it is easy to get answers to specific questions on the products and services being sold	1.29
7.	The costs of using this site (registration, membership, etc.) are reasonable.	1.32
8.	The site is reliable when quoting costs, compared to actual and transaction costs after delivery.	1.62
9.	This site is primarily oriented towards helping me execute purchase transactions as efficiently as possible.	1.76
10.	On this site, it is possible to have access to alternative sourcing/supplier options.	1.77

*Emphasis in the original

**Rating Scale: 1 = Very Important, 2 = Somewhat Important, 3= Minor, 4= Trivial, 5=Irrelevant/Distracting

**Table 8:
Factor Loadings of the Importance Questions on the Seven Factors**

	Pricing and Purchasing	Transactions	Fun	Privacy	Ease of Use	Seller Focus	Links
4. On this site, it is easy to compare prices between alternative suppliers	0.819						
3. The site provides alternate ways to determine prices of the products it sells, allowing me to optimize my transaction	0.724						
5. This site provides useful purchasing options through online events such as bidding or reverse auctions	0.488						
27. The site is reliable when quoting costs, compared to actual and transaction costs after delivery		0.864					
24. This site is primarily oriented towards helping me execute purchase transactions as efficiently as possible		0.634					
30. This website facilitates collaborative activities among companies in terms of ordering, shipping, marketing and/or others		0.587					
18. This site is fun to use			0.991				
17. The site is visually attractive			0.638				
14. This site requires a lot of non-financial information in order to register and use the site				0.972			
21. They had my needs as a customer in mind when designing this site					0.802		
16. The site is easy to use					0.554		
22. They had the sellers needs in mind when designing this site						0.544	
7. It is possible to use this site to access services that may be of personal interest to me (e.g. training opportunities, job listings, online shopping)							0.601

**Table 9:
Discriminant Validity of the Seven Factors**

	Pricing and Purchasing	Transactions	Fun	Privacy	Ease of Use	Seller Focus
Transactions	(.20, 0.30)					
Fun	(0.08, 0.18)	(0.13, 0.23)				
Privacy	(0.21, 0.35)	(0.46, 0.62)	(0.13, 0.27)			
Ease of Use	(0.03, 0.05)	(0.03, 0.05)	(0.03, 0.10)	(0.07, 0.11)		
Seller Focus	(0.13, 0.21)	(0.11, 0.21)	(0.30, 0.40)	(-0.03, 0.11)	(0.04,0.06)	
Links	(0.16, 0.26)	(0.06, 0.18)	(0.18, 0.30)	(0.30, 0.48)	(0.02, 0.04)	(0.10, 0.20)

*Confidence intervals show that “1” not included. Therefore, there is good discriminant validity.

**Table 10:
Results of Standardized Regressions on Information Search and Purchasing**

	Dependent Variable Factor	
	Information Search	Purchasing
Intercept	4.07* 36.5 ** 0.00***	7.80 37.8 0.00
1.Pricing and Purchasing	0.04 0.29 0.77	0.20 0.87 0.38
2. Transactions	-0.58 4.57 0.00	2.85 12.1 0.00
3. Fun	0.25 1.83 0.07	-0.16 0.65 0.52
4. Privacy	0.10 0.83 0.41	-0.40 1.82 0.07
5. Ease of Use	-0.06 0.44 0.66	-0.07 0.30 0.77
6. Seller Focus	-0.06 0.50 0.61	0.39 1.77 0.08
7. Links	0.47 4.09 0.00	0.22 1.05 0.30
Adjusted R-square	0.13	0.42

*Coefficient of the standardized regression

**Absolute value of the t-value

***p-value of the coefficient

Note: shaded coefficients are significant at least $p < .10$

Table 11
Hypotheses and Results from Empirical Analyses

Hypothesis		Hypothesis Confirmation	
H1	<u>Information Search and Purchasing</u> Information search and purchasing on the web are separate constructs.	Yes	
Hypotheses 2 – 8		Result for Information Search from Regression Analysis	Result for Purchasing from Regression Analysis
H2	<u>Price Information</u> Ability to search price information increases satisfaction with the experience and improves intentions to visit and purchase.	No*	No
H3	<u>Information Availability</u> Availability of information will improve intentions to search for information but not necessarily to purchase.	Yes	Yes
H4	<u>Site Design</u> Ease of use (site design) will increase the likelihood of visiting a site for both information search and purchasing. a. Ease of use factor b. Transactions factor	a. No b. No	a. No b. Yes
H5	<u>Privacy</u> Having to share personal information with a site will decrease the likelihood of purchasing but will have no effect on information search	No	Yes
H6	<u>Customer Service</u> Customer service on the website will increase purchase behavior but not increase information search tendencies.	Inconclusive**	Inconclusive
H7	<u>Personalization</u> Personalization will positively influence information search but not purchasing.	Inconclusive	Inconclusive
H8	<u>Fun</u> Fun or entertaining sites will not increase information search or purchasing by B2B users.	No***	Yes

* No = No Significant Impact on the Information Search or Purchasing dependent variables

**Inconclusive = No factor emerged; therefore no regression analysis was possible

*** The positive coefficient on the Fun factor is significant at $p=0.07$

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