Understanding SME Intention to Use the Internet for Managing Supplier Information

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There is strong consensus that the Internet has the potential to positively impact firms, and SMEs in particular; however, not all firms have realized benefits from adoption. The present study extends research in the area by addressing the need to examine the "chain" of variables explaining Internet adoption. We do this by exploring SME owner/manager Internet-related usefulness and ease-of-use cognitions and intention to use the Internet for supplier information management. We also explore the influence of behavioral norms and two broader strategic perspectives, market and learning orientation, on the Internet-related cognitions. Findings have implications for researchers and practitioners by identifying factors that contribute to effectively leveraging the Internet in an important area for SMEs.

Keywords: Internet use; supplier information; normative influence, strategic issues

The Internet has changed today's business landscape. With compound annual growth rates for U.S. users of 5 to 6 percent between 2005 and 2010 and growth rates for global users of 10 to 11 percent over the same time period, predictions place the impact of the Internet as greater than the combined influence of the phone, TV, and PC over the next 10 to 15 years (eTForecasts, 2009). As a further testament to the potential of this business tool, 99 percent of medium to large companies and 85 percent of small firms are connected to the Internet (Internet retailer, 2009). Indeed, internationally, across industries, small to medium size enterprise (SME) Internet adoption has been linked to financial benefits (Johnston et al., 2007). With the total worldwide value of goods and services of business-to-business (B2B) e-commerce well into the trillions of dollars, it is procurement that is driving the vast majority of transactions in this sector with between 80 to 90 percent of U.S. companies expecting to purchase online (Internet retailer, 2009).

Research on SME adoption of IT and, by extension, Internet adoption has been relatively clear as to the ultimate reasons why SMEs use the Internet. For example, SMEs have generally acknowledged the potential importance of information sharing and relationship building in order to improve supply chain performance (c.f., Robeiro and Love, 2003). With respect to SME use of the Internet for supply chain management, some evidence suggests that SMEs rely on the Internet primarily for communication purposes while very small firms (i.e., 10 or less employees) rely on the Internet primarily for research purposes (Levenburg, 2005). Indeed, some support has been found for the idea that SME Internet use related to obtaining and communicating information can enhance market knowledge and relationships throughout the supply chain from suppliers to customers (Caskey et al., 2001; Robeiro and Love, 2003; Nieto and Fernandez, 2005; Servais et al., 2007).

Despite fairly strong convergence as to the ultimate purpose of Internet usage, less clarity exists as to the *specific factors that determine* usage. Factors that have been identified in the literature as significantly influencing SME IT adoption, with particular focus on Internet adoption, include owner perception of benefits, organizational readiness, owner innovativeness, organization size, customer pressure, competitive pressure, supplier pressure, support from IT vendors, information intensity of products, and low business volumes (Mehrtens et al., 2001; Belussi, 2005; Al-Qirim, 2005; 2007; Beckinsale et al., 2006; Archer et al., 2008). However, some of these same studies find few significant differences between SME adopters and nonadopters (Belussi, 2005) as well as no support for the influence of suppliers, competition, IT vendor support, and size (Al-Qirim, 2007; Beckinsale et al., 2006; Archer et al., 2008). Clearly, there is a need for continued development of our understanding of the factors affecting SME Internet usage.

Potential benefits of Internet adoption notwithstanding, SMEs are left with significant questions that point to the importance for examining Internet use. First, not all firms have realized benefits from IT adoption (Dehning and Richardson, 2002; Santhanam and Hartono, 2003). This is particularly critical for small firms as, relative to larger firms, they do not possess slack resources that allow them to over invest in technologies (Celuch et al., 2007a). Second, many SME owner/managers have relied heavily on traditional brick-and-mortar "mental models" in developing and maintaining supplier relations. Further, SME owner/managers often engage in "implicit strategizing" that is less formal and structured than

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managers' decision-making in larger firms (Carson, 1993), which makes it difficult to identify and understand issues related to SME Internet use. As such, firms may not effectively align information technology with organizational strategies, thereby negating potential benefits (c.f., Khan and Kahn, 1992; Malhotra, 1998).

The present study extends research in the area in several ways. First, we address the need to examine the "chain" of variables explaining IT adoption in general and Internet adoption specifically (c.f., Bharadwaj, 2000; Ray et. al, 2005). In doing so, we echo Bobbitt and Dabholkar's (2001) admonition related to the need for theory-based technology-related research as a growing body of "disconnected" research is not as likely to provide a foundation for understanding Internet adoption and the conditions under which benefits are realized. To this end we examine an adaptation of the Technology Acceptance Model (TAM) as a means of exploring SME owner/manager Internet-related cognitions and intention to use the Internet for supplier information management.

In addition, we also explore the influence of behavioral norms on Internet-related cognitions. The inclusion of this construct is in keeping with Eagly and Chaiken's (1993) caution regarding sufficient consideration of the social context of intentions as well as with reviews highlighting the need for consideration of alternative types of normative influence in intention models (Sheppard et al., 1988; Godin and Kok, 1996). Along with normative influence, we also examine the influence of two broader strategic perspectives, market and learning orientation, on Internet-related cognitions. While information technology has long been recognized for its potential to contribute to sustained competitive advantage for firms (Feeny and Ives, 1990; Barney, 1991; Vargas et al., 2003; Swierczek and Shrestha, 2003), its potential is only realized when IT is effectively aligned with organizational strategy (Zahra and Covin, 1993; Malhotra, 1998; Chang et al., 2002).

We further extend research in the area by examining the above relationships for an important real-world context that has received limited attention—SME intention to use the Internet for supplier information management. In the context of the present research, supplier information management relates to SME use of supplier cost, order, delivery, storage, and performance information. Given the importance of information sharing as part of relationship-building activities in the supply chain this would appear to be an important area for SME researchers to systematically explore. Prior research related to intention models has relied heavily on consumer and academic settings (c.f., Eagly and Chaiken, 1993; Taylor and Todd, 1995; Dabholkar and Bagozzi, 2002).

The present research has implications for researchers and practitioners. For researchers, the relationships explored suggest the types of variables and relationships that can be included in future studies. For practitioners, identified relationships help make explicit what factors contribute to effectively leveraging the Internet in an important area for SMEs.

In the next section of the paper, we discuss how key Internet-related cognitions influence intention to use the Internet for supplier information management, followed by how normative influence and market and learning orientations impact the Internet-related cognitions. We next provide an overview of the methodology of the study and then present the findings. The last section of the paper discusses results and addresses research and managerial implications.

The Determinants of Intention to Use the Internet

Frameworks for understanding information technology use have included macroeconomic approaches (c.f., Panko, 1991), firm-level approaches examining relationships between information technology expenditures and firm performance (c.f., Banker et al., 1993), and approaches examining determinants of usage at the individual level (c.f., Davis, 1989; Davis et al., 1989; Taylor and Todd, 1995; Bobbitt and Dabholkar, 2001; Dabholkar and Bagozzi, 2002). We believe the latter approach is particularly relevant given the nature and scope of the present research as this perspective recognizes SME decision-making as the province of an individual decision maker, typically the owner/manager of the firm (Sheth et al., 1999; Carson and Gilmore, 2000).

Over the last 20 years an important stream of research has emerged that provides understanding of individual-level technology use. The approach employs intention-based models to identify the determinants of usage to predict behavioral intention and subsequent usage. The work is grounded in frameworks from the social psychology literature (c.f., Ajzen and Fishbein, 1980; Ajzen, 1985; 1991). Based on this research, the Technology Acceptance Model (TAM) was developed as a parsimonious approach to represent the important antecedents of intention and use of technology (Davis, 1989; 1993; Davis et al., 1989; 1992). The model posits two antecedents, perceived usefulness and perceived ease of use, as determinants of attitude and intention toward usage. In this perspective, perceived ease of use is a determinant of perceived usefulness. Attitude, in turn, is determined by usefulness and ease-of-use perceptions. Intention is viewed as determined by perceived usefulness and attitude. Lastly, consistent with longstanding social psychological theory and research, intention is conceived as the immediate determinant of usage. The strengths of the TAM are that it is specific, easy to understand, and generalizable across various technology contexts. Further, its components hold pragmatic implications for addressing technology usage. The model has been found to have relatively strong explanatory power in explain-

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ing technology usage (e.g., R^2 ranges between .4–.7; Davis et al., 1989; Mathieson, 1991; Taylor and Todd, 1995).

Despite strong predictive power, tests of model variables have not produced consistent results raising questions about specific relationships. For example, the role of perceived ease of use has been somewhat equivocal and largely mediated by perceived usefulness. In a study of computer resource center usage, attitude was not found to be significantly related to intention with usefulness and ease of use explaining intention (Taylor and Todd, 1995). As noted by Davis et al. (1989), attitude may not be an important determinant of intention in workplace contexts when factors such as usefulness are taken into account. Further, perceived benefits and organizational readiness, have been found to be significant in impacting SME e-business adoption (c.f., Mehrtens et al., 2001). Thus, based on work in the area that converges on the saliency of perceived usefulness- and ease-of-use–related factors, we propose that for SME owner/managers:

Hypothesis 1: The perceived usefulness of using the Internet for managing supplier information will mediate the relationship between perceived ease of using the Internet for supplier communication and intention to increase use of the Internet for managing supplier information. Perceived ease of use will be significantly positively related to usefulness which will, in turn, be significantly positively related to intention.

The Determinants of Usefulness and Perceived Ease of Use

Given that an objective of this study is to extend research in the area, we now address rationales for additional antecedent constructs that might explain usefulness and ease-of-use Internet perceptions for SMEs. Beyond perceived benefits and organizational readiness, SME e-business adoption research also highlights, external pressure, as a potentially significant factor (c.f., Mehrtens et al., 2001; Al-Qirim, 2005; 2007). Indeed, referential comparisons with others can serve to create norms relating to particular activities (Bandura, 1997). Thus, behavioral norms, beliefs about what stakeholders in one's environment are doing, is another concept that might contribute to our understanding of SME Internet usage. Firm monitoring of Internet usage by its stakeholders can help determine behavioral norms relating to Internet usage. Research on the adoption of e-business has found evidence for normative pressures from stakeholder groups such as customers and suppliers (Wu et al., 2003). Further, normative beliefs have been featured prominently in intention-based models in general and in models related to information technology use in particular (c.f., Celuch et al., 2004; 2007b). The concept of behavioral norms is particularly relevant to understanding information technology behavior for SMEs as, given their limited resources they are likely to look to the behavior of others in their environment for direction.

Blank et al. (1985) argue that preferences (or beliefs that can relate to preferences) are more likely than norms to affect behaviors that are consumatory in nature (i.e., actions that provide more immediate gratification such as interaction related to information sharing and communication) whereas norms are more likely to influence instrumental behaviors (i.e., actions that lead to delayed gratification). While Internet usage, like many behaviors, can include both consumatory and instrumental aspects, with the majority of SMEs connected to the Internet we believe it is the more immediate benefits such as information sharing and purchasing with suppliers that are most salient in the current business environment. By extension, we posit that, in the context of SME usage of the Internet for supplier contact, perceived usefulness and ease of use should be the more immediate determinants of intention whereas normative influence (beliefs associated with the behavior of significant stakeholders) should be an antecedent of usefulness and ease-of-use perceptions (Hypotheses 2 and 3).

Further support for the proposition that norms might be significant determinants of usefulness and ease-of-use perceptions can be found in literature that notes the power of normative influence is in part linked to a reduction in risk or uncertainty associated with decisions (cf., Bearden et al., 1989; Cannon et al., 2000). Risk reduction associated with normative influence has been conceived as a process consisting of considering perceived benefits and developing expectations (Homans, 1961; Cannon et al., 2000). The work of Bandura (1997) has found vicarious experience, implicated in normative influence, to be one of the most important sources of perceived efficacy, which can be viewed as closely related to perceived ease of use. Based on the above discussion, we expect that the perception of a behavioral norm for Internet usage will positively influence usefulness and ease-of-use perceptions related to SMEs using the Internet for supplier information management.

Owing to the need to examine strategic orientations in the technology-related behavior of SMEs (Carson, 1993; Levy and Powell, 2003), two complementary yet distinct concepts, market and learning orientation, are also examined for their impact on usefulness and ease-of-use perceptions. One of the most important topics in the marketing literature has been the concept of market orientation (Deshpande, 1999). Definitions of market orientation focus on information use related to customers and competitors which serve to coordinate firm behavior (Kohli and Jaworski, 1990; Narver and Slater, 1990; Deshpande et al., 1993; Day, 1994). Market orientation has been linked to competitive advantage and profitability in large firms (Narver and Slater, 1990; Pelham and Wilson, 1996) and product innovation and firm performance

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in both large and small firms (Jaworski and Kohli, 1993; Slater and Narver, 1994; Barrett and Weinstein, 1998; Pelham, 2000; Lukas and Ferrell, 2000; Becherer et al., 2003; Verhees and Meulenberg, 2004).

How might market orientation be implicated in factors affecting Internet use? Effective information management is at the heart of market orientation (Narver and Slater, 1990; Jaworski and Kohli, 1993). Day (1994) conceives of a market orientation as the degree to which firms obtain and respond to customer and competitor information—the so-called "outside-in" perspective. Similarly, Baker and Sinkula (1999) view market orientation as an organizational characteristic that determines the priority placed on market information processing activity. Given the Internet's potential for information acquisition and use with internal and external stakeholders, SME monitoring of the customer (e.g., needs and product/service feedback) and the competitor (e.g., benchmarking) is likely to positively influence perceptions related to Internet usefulness. Particularly in the context of managing supplier information, this area holds the potential to benefit SMEs by improving market competitiveness (i.e., improved product, service, and operational competitiveness).

Learning orientation focuses on an organization's ability to adapt and change (Argyris and Schon, 1978; Fiol and Lyles, 1985). This orientation implies organizational openness to higher order, proactive learning, a sense of purpose that motivates learning, and intraorganizational knowledge sharing (Rattanaphaphtham and Ussahawanitchakit, 2008). Learning orientation has also been linked to sustainable competitive advantage and organizational performance (DeGeus, 1988; Baker and Sinkula, 1999).

How might a learning orientation be related to factors affecting Internet use? Baker and Sinkula (1999) implicate learning orientation in the information processing activities of firms. A commitment to learning combined with internal information sharing behavior is likely to drive the development of information system capabilities. Firms may benefit from external learning from customers, competitors, and sources outside their industry (Bierly and Chakrabarti, 1996). This external learning brings information into the firm to facilitate internal learning. Such a process is implicated in the development of IT capabilities that better match environmental demands. Indeed, learning orientation has been found to be positively related to information system capability (Celuch et al., 2002). Further, Rattanaphaphtham and Ussahawanitchakit (2008) also found a positive association between aspects of a learning orientation and IT capability. Therefore, in contrast to market orientation, which we view as a likely driver of Internet-related usefulness perceptions, learning orientation with its connection to capability development is a likely driver of Internet-related capability perceptions (i.e., perceived ease of use). Thus, consistent with related literature, we view the affects of market and learning orientation as complementary as both are implicated in SME Internet perceptions that significantly impact intention and subsequent usage. However, the orientations have distinct effects in that they are viewed as relating to different determinants of Internet intention, perceived usefulness for market orientation and perceived ease of use for learning orientation.

In summary, based on the literature related to TAM, normative influence, and market and learning orientation, we hypothesize that for SMEs:

Hypothesis 2: Perceived ease of use, behavioral norm, and market orientation will be significantly positively related to the perceived usefulness of using the Internet for managing supplier information. Learning orientation will not be significantly related to the perceived usefulness of using the Internet for managing supplier information.

Hypothesis 3: Behavioral norm and learning orientation will be significantly positively related to the perceived ease of using the Internet for supplier communication. Market orientation will not be significantly related to the perceived ease of using the Internet for supplier communication.

Method

Sample and Procedure

The sample frame for this study consisted of a current list of 910 small to mid-sized (that is, less than 1,500 employees) companies in a tri-state region of the Midwest including Indiana, Illinois, and Kentucky. Each company was mailed a letter explaining the purpose of the research, a questionnaire, and a postage-paid return envelope. The letter was addressed to an individual representing top management in each company, with an offer to send a summary of the study's results if requested.

One hundred and thirty-nine surveys were returned, representing a response rate of 15 percent. Questionnaires were received from a variety of companies with the majority representing the retail, construction, and financial services sectors. Respondents were predominantly middle-aged, male, college educated, and, as targeted, members of upper management. Companies represented in the sample ranged in size from 1 to 1,400 employees with a mean of 100 employees (standard deviation = 213) and a median of 25 employees. Approximately three-fourths of the firms produced annual total revenues of less than $10 million. Firms with 15 or less employees and revenues of less than $2 million accounted for 30 percent of responding firms and firms with

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between 16 and 300 employees and revenues between $2 and less than $10 million in revenues accounted for another 30 percent of the responding firms. Comparison of the sample statistics for number of employees (92% of responding firms with less than 500 employees) to regional statistics (90.5% of existing firms with less than 500 employees) show close representation of sample firms to area firms on firm size (SBA Statistics, 2006).

The response rate of this study is comparable to response rates typically found in small business sector research. Dennis (2003) reports variable results examining response rates for surveys of small business owners with results ranging from 16.9 to more than 30 percent. He concludes that response rates are often low and appear to be declining among small business populations. In addition, discussion with managers at area firms suggests that such response rates are typical for the specific geographic area surveyed. Further, the potential for nonresponse bias was assessed by testing for differences between early and late respondents on the variables used in this research. No statistically significant differences were found between these two groups for any of the theoretical variables, thus providing some assurance that the impact of nonresponse bias would be minimal.

Questionnaire

Measures employed in this questionnaire consisted of scales relevant to the constructs included in this research. The authors relied on literature reviews as well as knowledge of area firms in this process. Recall that supplier information management can relate to a range of issues (e.g., cost, order, delivery, storage, and performance) which will vary by the nature of the industry and company. As such, respondents were instructed to interpret supplier information within the context of their current business. Early drafts of the questionnaire were reviewed and pretested for readability and understandability by area company representatives. The final questionnaire included the following measures: company market and learning orientations and Internet-related behavioral norms, perceived usefulness, perceived ease of use, and intentions. Recall that measures are oriented toward capturing the perceptions of top management regarding aspects of their companies under the assumption that these cognitions define the reality of their organizations. The concluding portion of this survey consisted of individual respondent and company descriptors.

Measures

Market Orientation. Market orientation was operationalized via four items asking respondents their views regarding their companies' use of customer and competitor information, orientation to customer needs, and ability to anticipate competitor responses. All items utilized seven-point scales. Such aspects of market orientation are consistent with conceptions that include customer and competitor focus (Day and Nedungadi, 1994; Kohli and Jaworski, 1990).

Learning Orientation. Learning orientation was assessed via two seven-point items related to respondent perceptions of their company's ability to learn and adapt to change. These items are consistent with conceptions of organizational learning (Senge, 1990; Shaw and Perkins, 1991; Day, 1991).

Behavioral Norms. The behavioral norms consisted of three seven-point items, with respondents providing perceptions relating to use of the Internet for business communications by their companies' important customers, suppliers/vendors, and competitors. This approach is consistent with the conceptualization and assessment of behavioral norms in the intention-based literature (c.f., Kashima and Gallois, 1993; Nucifora et al., 1993).

Perceived Usefulness. The usefulness measure consisted of three seven-point items, with respondents providing perceptions relating to their company's likelihood of improving its ability to share, manage, and respond to supplier information by using the Internet. This measure is consistent with approaches used in technology-related intention-based models (c.f., Taylor and Todd, 1995; Ha and Stoel, 2009).

Perceived Ease of Use. Ease of use consisted of two seven-point items, with respondents providing perceptions relating to their companies' difficulty using and confidence in ability to use the Internet for supplier communications. As with perceived usefulness, the measure is consistent with approaches used in technology-related intention-based models (c.f., Taylor and Todd, 1995; Ha and Stoel, 2009).

Behavioral Intention. Behavioral intention measures consisted of three seven-point items, with respondents providing perceptions relating to their company's intent to increase its use of the Internet within the next 12 months to manage supplier information. This measure was also adapted from Celuch, et al. (2007b).

Analysis and Results

Table 1 reports descriptive statistics, correlations, and reliabilities for the constructs used in this study. To test the influence of Internet usefulness and ease-of-use perceptions on intention to use the Internet for supplier information management (a variation of the TAM), as well as examine the impact of normative influence and strategic orientations on usefulness and ease-of-use perceptions, we ran three sets of regressions using ordinary least squares regression. Table 2 includes the standardized coefficients, model R^2 and F value for the tested relationships.

To determine whether perceived usefulness mediates the effect of perceived ease of use on intention to use the Internet for managing supplier information (H1), we ran three regressions. To find evidence for mediation, the follow-

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ing three conditions must be met: (1) ease of use must be significantly related to usefulness; (2) ease of use must also be significantly related to intention; and (3) ease of use and usefulness are significantly related to intention, such that the impact of ease of use on intention is significantly diminished when usefulness is included in the regression model with ease of use predicting intention (Baron and Kenny, 1986).

Consistent with expectations, ease of use was significantly positively related to usefulness, meeting condition 1. Ease of use was also significantly related to intention, meeting condition 2. Although the influence of ease of use was diminished (with the standardized coefficient for ease of use decreasing from .49 to .21) when usefulness was included in the model predicting intention, the effect of ease of use was still significant. Thus, this condition's requirements was not fully met, however there is evidence of partial mediation and partial support for H1.

Consistent with predictions, ease of use and behavioral norm were significantly positively related to perceived usefulness while learning orientation was not found to be significantly related. However, contrary to expectations, market orientation did not have a significant effect on perceived usefulness for Internet usage for supplier information management. Consequently, H2 is partially supported with three of four variables related as anticipated.

Finally, consistent with predictions, behavioral norm and learning orientation were significantly positively related to perceived ease of use while market orientation was not found to have a significant effect. Thus, H3 is supported.

Considering the findings for H2 and H3, post hoc analyses testing for mediation were also performed. Specifically, the strong influence for behavioral norm combined with the lack of effects for market orientation in both models point to the possibility that the affect of market orientation may work through behavioral norm. As such the effects of market orientation on perceived usefulness may be less direct than hypothesized. Following the three-step approach outlined for H1, we test whether behavioral norm mediates the effect of market orientation on perceived usefulness and ease of use. Table 3 reports the results of these analyses. With respect to the prediction of usefulness, market orientation was significantly positively related to behavioral norm, meeting condition 1. Market orientation was also significantly related to usefulness, meeting condition 2. Further, the influence of market orientation was significantly diminished (with the standardized coefficient decreasing from .17 and significant to .04 and nonsignificant) when behavioral norm was included in the regression model predicting usefulness. Therefore, there is support for mediation and an indirect relationship between market orientation and usefulness.

With respect to the prediction of ease of use, market orientation was significantly positively related to behavioral norm, meeting condition 1. Market orientation was not significantly related to usefulness, failing to meet condition 2. In addition, the influence of market orientation was not significantly diminished (with standardized coefficients not significantly related to ease of use) when behavioral norm was included in the regression model predicting ease of use. Therefore, there was no support for mediation and an indirect relationship between market orientation and ease of use.

As a precaution, variance inflation factors (VIFs) were examined to assess the effects of multicollinearity among the

Table 1. Descriptive Statistics, Correlations, and Reliabilities for Marketing Orientation, Learning Orientation, and Internet-Related Cognitions

	Mean	*Standard Deviation*	*X1*	*X2*	*X3*	*X4*	*X5*	*X6*
X1 Market Orientation	5.39	1.05	**.68**					
X2 Learning Orientation	5.57	1.01	.43**	**.85**[a]				
X3 Behavioral Norms	4.76	1.53	.26**	.12	**.85**			
X4 Usefulness	4.85	1.68	.17*	.13	.52**	**.93**		
X5 Ease of Use	5.89	1.34	.10	.24**	.32**	.40**	**.77***	
X6 Intention	5.15	1.65	.19*	.06	.51**	.78**	.49**	**.94**

* Correlation is significant at the .05 level.
** Correlation is significant at the .01 level.
Reliabilities are shown on the diagonal.
a. These diagonal statistics represent correlations as they are two-item scales.
N = 139

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independent variables used in the regression analyses. Hair et. al. (1998) consider high variance inflation factors to indicate unacceptable levels of collinearity which can inhibit interpretation of the contribution of independent variables. No instances of VIFs greater than 1.4 were observed, indicating that the impact of multicollinearity was relatively small in the present study.

In summary, one hypothesis was fully supported and two hypotheses received partial support. As expected, SME owner/managers' perceptions related to Internet ease of use and usefulness strongly influenced intention to increase use of the Internet for supplier information management, albeit with evidence that usefulness partially mediates the influence of ease of use. Further, as anticipated, ease of use and behavioral norm related to Internet usage were strong predictors of perceived Internet usefulness while learning orientation was not. Contrary to expectations, firm market orientation did not a have direct effect on usefulness but some evidence was found for an indirect effect of market orientation working through behavioral norm to impact usefulness perceptions. Lastly, as expected, behavioral norm and learning orientation were found to influence ease-of-use Internet perceptions while market orientation was not.

Discussion

The informal nature of SME strategy, questions regarding the benefits from Internet use, and uneven SME Internet adoption have been recognized (Levy and Powell, 2003), which points to the importance of the context of the current research. Ultimately, efforts to enhance SME-supplier Internet information management can pay more immediate and longer-term dividends as suppliers can provide access to resources and the opportunity for learning (Chung et al., 2000; Lane and Lubatkin, 1998). Suppliers as a source of information are particularly critical for small firms given their lack of R&D and marketing research resources. As such, suppliers can serve in these roles as valued sources of information regarding products, markets, industries, and competitors for both long-term and operational decision-making (Dollinger and Kolchin, 1986; Fann and Smeltzer, 1989; Jarillo, 1989; Smeltzer et al., 1988).

The present study extends our understanding of SME Internet use by exploring relationships among usefulness and ease-of-use cognitions and intention to use the Internet for supplier information management. We also explore the influence of behavioral norms and two strategic perspectives, market and learning orientation, on the Internet-related cognitions. To the best of the authors' knowledge, these relationships have not been examined together in the literature.

As noted previously, decisions that drive competitive advantage are rooted in managers' perceptions of their business environment. In the context of the present study, exploring the "chain" of variables explaining Internet adoption helps identify relationships that clarify what factors contribute to effectively leveraging the Internet in an important area for SMEs.

We now summarize contributions of the research. As expected, SME owner/managers' perceptions related to Internet ease of use and usefulness strongly influenced intention to increase use of the Internet for supplier information

Table 2. Regression Analyses Testing Hypothesized Relationships

	Model R^2	*Results F value*
H1: Usefulness = (.40**) Ease of Use	.16	26.67**
Intention = (.49**) Ease of Use	.24	44.42**
Intention = (.21**) Ease of Use + (.69**) Usefulness	.64	116.52**
H2: Usefulness = (.25**) Ease of Use + (.45**) Behavioral Norms + (.01) Market Orientation + (.03) Learning Orientation	.33	16.08**
H3: Ease of Use = (.30**) Behavioral Norms + (-.10) Market Orientation + (.26**) Learning Orientation	.15	7.83**

Note: Standardized coefficients appear in parentheses.
** significant at the .01 level.

Table 3. Post Hoc Regression Analyses Testing the Mediating Effects of Behavioral Norms on Market Orientation and Perceived Usefulness and Ease of Use

	Model R^2	*Results F value*
Usefulness		
Behavioral Norms = (.26**) Market Orientation	.07	10.03**
Usefulness = (.17*) Market Orientation	.03	4.12*
Usefulness = (.04) Market Orientation + (.51**) Behavioral Norms	.27	24.56**
Ease of Use		
Behavioral Norms = (.26**) Market Orientation	.07	10.03**
Ease of Use = (.10) Market Orientation	.01	1.29
Ease of Use = (.02) Market Orientation + (.31**) Behavioral Norms	.10	7.40**

Note: Standardized coefficients appear in parentheses.
* significant at the .05 level.
** significant at the .01 level.

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management, with evidence that usefulness partially mediates the influence of ease of use. Thus, strong support is found for this adaptation of the TAM as ease of use and usefulness explained a majority of the variability in intention (R^2 = .64). This magnitude of explanatory power compares favorably with results reported in related research (Davis et al., 1989; Taylor and Todd, 1995). Clearly, the use of these variables in future Internet-related research in the small business sector is warranted.

In addition, we also explored possible determinants of the Internet-related perceptions—usefulness and ease of use. As predicted, in addition to ease of use, behavioral norms related to Internet usage were also a strong predictor of perceived Internet usefulness. Contrary to expectations, firm market orientation did not a have direct effect on usefulness. However, evidence was found for an indirect effect of market orientation working through behavioral norm to impact usefulness perceptions. Future research could examine the influence of market orientation in more detail. For example, would more direct effects be found for different Internet applications or different technology applications?

With respect to the determinants of ease-of-use perceptions, as expected, behavioral norms and learning orientation were found to influence ease-of-use Internet perceptions. Although highly significant, these variables accounted for the least amount of explained variability in intention of all of the hypothesized models (R^2 = .15). Future research should continue to conceptualize and test additional variables that might contribute to this important determinant of intention to use the Internet.

The behavioral norm concept would appear to be particularly relevant to understanding information technology behavior for SMEs as it was found to be significant in models explaining perceived usefulness and ease of use. This finding is consistent with related research that found external pressure implicated in SME e-business adoption (Mehrtens et al., 2001) as well as the significance of normative beliefs in intention-based models related to information technology use (c.f., Celuch et al., 2004; Celuch et al., 2007b). While much of the research utilizing intention-based models have incorporated a subjective norm (i.e., an individual's view about what significant others think the individual should do in a given context), the present study used a behavioral norm (i.e., an individual's belief about what others are doing in a given context) as an independent predictor of Internet perceptions. We believe the behavioral norm concept may be particularly relevant to understanding SME technology-related behavior as owner/managers are likely to look to the behavior of other SMEs in their environment for input regarding technology adoption. Note that findings of the present study may help explain the equivocal findings for external pressure in the SME Internet adoption literature as normative influence strongly explained owner cognitions which are antecedents to intention.

Findings of the present study related to the strategic orientations parallel findings in the small business literature that found strategy impacted technological scanning activities (Raymond et al., 2001) and market orientation, in particular, drove imitative behavior of successful innovations (Verhees and Meulenberg, 2004). Current findings move beyond prior findings by adding depth to what is known about the intermediate processes that translate strategic orientations into important related outcomes—Internet-related perceptions that strongly influence intention to use the Internet. As such we make explicit the complementary yet distinct effects of market and learning orientation as both impact SME Internet perceptions yet in distinctly different ways, with market orientation indirectly influencing perceived usefulness through behavioral norm and learning orientation directly influencing perceived ease of use. As noted earlier in the article, making these cognitive linkages explicit is particularly useful in the small business realm given owners/managers often engage in strategic planning that is less formal and structured than managers' strategizing in larger firms (Carson, 1993).

Future research could also integrate and explore other strategy-related variables. For example, Barrett and Weinstein (1998) found interactive effects for market orientation and strategic flexibility such that the effect of market orientation was stronger for firms with less flexibility. How might strategic flexibility effects relate to learning orientation effects? In addition, environmental dynamism might also moderate relationships among variables at the interface of strategy implementation and technology use (c.f., Johnson et al., 2003; Tallon and Kraemer 2003; Murphy et al., 2007).

The present study should be viewed from the perspective of a cross-sectional study employing small business owner/manager self-report data. Future research could extend findings of the present research by incorporating actual Internet usage data rather than intention-to-use measures. While the study is multiindustry and multicompany in nature, respondent firms are predominantly from retail, construction, and financial services contexts. Would different information requirements or different operational dynamics associated with different industries (e.g., manufacturing firms) alter the observed relationships?

Findings of this research also hold managerial implications for effectively leveraging the Internet as the strategic orientations and behavioral norms are implicated in the important drivers of SME Internet usage. SMEs with weak market orientations are likely to have a low sense of urgency regarding Internet usage for supplier information management. Without a strong market orientation, they fail to develop the motivating normative influence which, in turn, negatively affects the perceived usefulness of the Internet. Further, nor-

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mative influence and learning orientation contribute to Internet ease-of-use perceptions which, in turn, impacts usefulness perceptions. Given the significance of normative influence on Internet-related cognitions, the use of benchmarking relative to major stakeholders could pay dividends in terms of increasing managerial perceptions associated with Internet ease of use and usefulness for supplier information management. Extending the above notion throughout an organization would suggest that top management sharing normative information with employees could help strengthen employees' ease-of-use and usefulness perceptions related to using the Internet to manage supplier information.

In addition, ease-of-use perceptions are particularly important in that they have direct as well as indirect (through usefulness) effects on Internet intention. The potential similarity between the perceived ease-of-use and perceived efficacy constructs has been noted by researchers as both relate to domain-specific perceptions of capabilities (c f., Taylor and Todd, 1995). Bandura (1997) details sources of an individual's efficacy perceptions with two of the most powerful sources being direct and vicarious experience. Thus, the provision of direct experience through government- or foundation-sponsored training programs related to Internet information management would likely enhance ease-of-use perceptions related to Internet usage. Such programs could be aimed at achieving the goal of enhancing SME-supplier relationships through integrated information management. In addition, efficacy development interventions focused on allowing participants to directly observe other SMEs engaging in positive supply-side Internet-related usage could also prove beneficial in enhancing ease-of-use and usefulness perceptions and subsequent intention and behavior.

In conclusion, understanding information technology-related motivation and behavior of SMEs will continue to be a significant topic for researchers and practitioners. It is hoped that this theory-driven approach related to supplier information management will contribute to future empirical efforts aimed at increasing our understanding of Internet usage by SME owner/managers.

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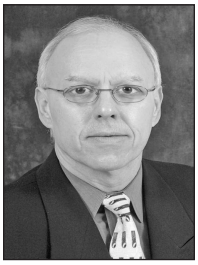

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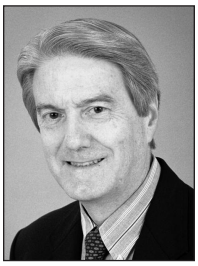

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