

# More bang for your buck: Small firms and the importance of aligned information technology capabilities and strategic flexibility

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## Abstract

Information technology (IT) has been recognized for its potential to contribute to sustained competitive advantage for firms, however, research on the relationship between information technology spending and firm performance has produced inconsistent results, leading many to note an apparent “productivity paradox.” This potential hazard is particularly acute for small businesses that do not have sufficient slack resources to absorb unproductive spending. To address this issue, we suggest that a small firm’s ability to develop aligned information technology capabilities will affect its ability to use strategic flexibility to proactively anticipate and react to needed changes, thereby improving firm performance. Results of the study, based on a sample of 160 small firms, largely support the proposed model. The work holds important implications for future research and management related to the dynamics of how firm IT capabilities are translated into firm performance.

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## 1. Introduction

Over the past twenty five years, understanding the sources of sustained competitive advantage has emerged as a strategic imperative for researchers as well as managers (Porter, 1980; Porter, 1985). Information technology (IT) has long been recognized for its potential role in contributing to sustained competitive advantage for firms (Barney, 1991; Feeny & Ives, 1990; Swierczek & Shrestha, 2003; Vargus, Hernandez, & Bruque, 2003). Potential benefits notwithstanding, questions have been raised as to the realized benefits to IT adoption, particularly for small firms (Fuller, 1996).

Much has been written of an IT paradox (Bharadwaj, 2000; Dehning & Richardson, 2002; Santhanam & Hartono, 2003) suggesting that, in many cases, increased investments in information technology have not resulted in improved firm performance. This possibility is particularly disturbing to small businesses that do not have the slack resources required to absorb what may be large, unproductive investments. This increased risk may partly explain why small businesses are not using information technology to the same extent as larger businesses (Sandberg & Vinberg, 2000).

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One possible explanation for the paradox is that many of the existing studies have failed to capture the value of IT investments. Several authors have argued that IT investments have their primary effects on customer value (Johnson, Lee, Saini, & Grohmann, 2003; Lederer, Mirchandani, & Sims, 2001; Lee & Bose, 2002). Some research supports this belief by finding significant positive relationships between measures of IT investment and market-based measures of firm performance (Dehning & Richardson, 2002; Neill, Pfeiffer, & Young-Ybarra, 2001).

A second and more commonly mentioned reason for the paradox is that IT investments have not always been effectively tied to or aligned with organizational goals, strategies, resources or capabilities. Without such a connection, IT investments may indeed represent little more than expensive paperweights (Malhotra, 1998) or paving the existing cow paths (Hammer & Champy, 1993). Coff and Laverty (2001) note that strategic assets are often not appreciated because the benefits they provide are unclear or uncertain. As a result, increased attention needs to be focused on clarifying the linkages among intervening variables between IT investment and firm performance (Bharadwaj, 2000; Zahra & Covin, 1993). The few studies that have examined such linkages have almost exclusively focused on large firms. In order to better understand IT's role in competitive advantage, more research is clearly needed to connect the "chain" of variables between IT investments and firm performance (Bharadwaj, 2000; Ray, Muhanna, & Barney, 2005), particularly for small firms.

It is important for research in this area to examine small firms for several reasons. First, existing literature indicates that the strategies and responses of small firms may well be distinct from those of larger firms. For example, large firms possess slack resources allowing them to cover their bases (invest in several different technologies allowing for different environmental contingencies), an ability smaller firms do not have. Second, studies have shown that IT spending has not benefited smaller firms as it has larger firms, often demonstrating neutral or negative effects (Fuller, 1996). A possible explanation for the lack of return for IT spending by small businesses is that smaller firms, compared to larger firms, may lack a strategic decision-making perspective in approaching IT investments (c.f., Khan & Khan, 1992).

The purpose of this paper is to shed some light on the chain of variables between IT investment and firm performance for small companies. Extant research has separately investigated IT expenditures and firm performance, strategic alignment and performance, or strategic flexibility and performance, almost exclusively for large corporations. The present research connects some gaps by using structural equations modeling to test a model that more completely explains how IT expenditures are likely to be positively related to firm performance. It is proposed that IT spending aligned with IT capabilities (i.e., capabilities that help a firm manage information from key external and internal stakeholders) will result in strategic flexibility. Further, strategic flexibility should be related to firm performance. Fig. 1 presents the proposed chain of variables linking IT investments to performance.

The model developed in this research has implications for researchers and practitioners. For researchers, the model suggests the types of variables and relationships that can be included in future studies in an important area, the role of

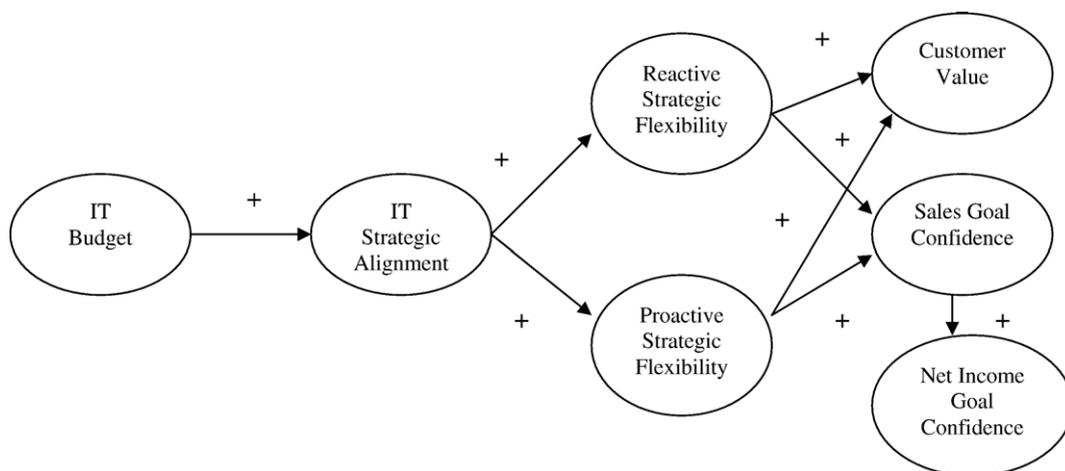


Fig. 1. A proposed model of the relationships among IT budget, IT strategic alignment, strategic flexibility, and confidence in company performance.

IT in competitive advantage. For practitioners, the model helps make explicit how and what IT investments and capabilities contribute to sustained competitive advantage.

## 2. Aligned information technology capabilities

The resource based view of the firm has now been extensively used to link IT investments and firm performance. According to this view, firms use idiosyncratic, strategic resources (Coff & Lavery, 2001) that are valuable, rare, costly or difficult to imitate, and that are effectively and efficiently used to develop capabilities that can be leveraged to build and sustain a competitive advantage (Barney, 1991; Peteraf, 1993). Firms use entrepreneurial abilities to develop new asset combinations that are valuable and unique while using market and organizational capabilities to protect these new combinations (Godfrey & Gregersen, 1999). Using this theoretical framework, authors have shown IT investments to be related to the development of important capabilities that in turn have been shown to improve firm performance (Bharadwaj, 2000; Powell & Dent-Metcalf, 1997; Santhanam & Hartono, 2003).

Note that while there is considerable evidence that IT can add value to a firm, this is not necessarily the same as IT serving as a source of sustained competitive advantage (Mata, Fuerst, & Barney, 1995). There are considerable differences in the abilities of large versus small firms to capitalize on IT capabilities. Specifically, large firms often spend a formidable amount to develop specific, idiosyncratic IT competencies that they believe will increase efficiency (Watcharasriroj & Tang, 2004) and be costly or difficult to imitate (Tallon & Kraemer, 2003; Tippins & Sohi, 2003). Powell and Dent-Metcalf (1997) provide useful examples of this point, including Federal Express drivers using customized hand-held computers coupled with a sophisticated data management system, and Wal-Mart and Toys-R-Us' use of sophisticated inventory management technologies. Small businesses are not using information technology to the same extent as larger firms (Sandberg & Vinberg, 2000), nor are they investing as much in embedded systems and processes (Hatch & Zweig, 2001). Two related reasons likely explain this difference. First, elaborate systems such as those used by larger firms may be too costly for smaller firms to acquire and implement. Second, such investments entail a strong commitment to a specific technology that may or may not fit environments in the future. Larger firms are more likely than smaller firms to possess sufficient slack resources to allow this level of risk.

Another complicating factor is that in recent years, IT has become relatively generic and available to most firms. In fact, as noted by Mata et al. (1995), IT technical skills, while essential in IT use and application, are not likely to be sources of sustained competitive advantage due to their availability and mobility. In addition to IT technical skills, another set of skills required to realize benefits from IT applications include managerial skills related to IT. These skills involve management's ability to develop and leverage IT applications to support and contribute to other business functions. Such skills hold the potential to serve as sources of sustainable competitive advantage owing to their nature and development (i.e., based on more complex coordination across the IT function, other business functions, customers, and suppliers developed over time) (Mata et al., 1995).

Thus, aligning or fitting IT resources (particularly managerial skills) with each other and with other important organizational resources is an important step in attaining effective IT capabilities. Tippins and Sohi (2003) refer to instances wherein resources may be complementary; when the value of one resource enhances another, and to instances wherein resources may be co-specialized; when one resource has little or no value without another. Powell and Dent-Metcalf (1997) note that any advantage based on IT depends heavily on business leaders' ability to fit pieces together and exploit complementary relationships. Hammer and Champy (1993) and Zahra and Covin (1993) warn that a lack of alignment of technology resources may actually block progress on organizational objectives, regardless of how much is spent.

There appear to be differences between large and small firms in patterns of resource alignment. Specifically, Tallon and Kraemer (2003) found an alignment paradox, or a curvilinear relationship between strategic alignment and IT payoffs, in which increased investments resulted in lower payoffs. The authors noted that many large firms in their sample invested heavily in IT resources designed to build static capabilities, usually to reduce operating costs. The more tightly organizational IT resources were aligned to achieve these efficiency gains, the more vulnerable they were to environmental dynamism.

As industries are becoming increasingly complex and unpredictable, researchers are now proposing that firms should focus their efforts on developing aligned IT capabilities that will enhance, rather than limit strategic flexibility (Bierly & Chakrabarti, 1996; Hatch & Zweig, 2001). Implied in this perspective is that aligned IT resources can be directed externally to take advantage of changes in the competitive environment (Li & Ye, 1999; Yu, 2001). Bierly and

Chakrabarti (1996) discuss the benefits of external learning from customers, competitors and sources outside the industry in building important IT capabilities. External learning brings this information into the firm to facilitate internal learning, or sharing of information throughout the organization. This process allows the organization to develop IT capabilities that better match environmental demands. Johnson et al. (2003) noted the importance of market sensing capabilities in developing higher order capabilities. Lederer et al. (2001) noted the importance of using IT resources to improve customer relations in a web shopping mall environment, a task that clearly requires an external orientation. Our model is consistent with this line of thinking in proposing that IT expenditures will contribute to firm performance when IT spending is oriented toward capturing and managing relevant information from external stakeholders such as customers and competitors in order to better coordinate internal activities. Therefore, according to our model explaining how IT expenditures contribute to firm performance, the IT budget must be positively related to aligned IT capabilities:

**H1.** The IT budget will be positively associated with aligned IT capabilities (i.e., IT capabilities that help the firm manage customer, competitor, supply chain information and internal activities).

### 3. Strategic flexibility

Strategic flexibility has been defined as the ability to precipitate and adapt to external and internal environmental changes by altering strategies (Bierly & Chakrabarti, 1996; Nadkarni & Narayanan, 2004). Strategic flexibility helps firms better manage risks by quickly responding in a proactive or reactive manner (Grewal & Tansuhaj, 2001).

Grewal and Tansuhaj (2001) consider strategic flexibility a polymorphous construct. A review of the literature suggests that strategic flexibility is likely achieved by small firms in a different way than it is in large firms. Large firms attain strategic flexibility through over-investment in strategic options that are not presently being fully exploited by the organization (Bierly & Chakrabarti, 1996; Broadbent & Weill, 1997; Grewal & Tansuhaj, 2001). Small firms, relative to larger firms, are more likely to achieve strategic flexibility as a result of entrepreneurial alertness and faster response and implementation times (Hatch & Zweig, 2001; Yu, 2001). Aligned IT capabilities (i.e., capabilities that help the firm manage customer, competitor, supply chain information and internal activities) should assist the entrepreneurial venture in attaining these important attributes, thereby improving their ability to capitalize on strategic flexibility. Hatch and Zweig (2001) noted that the ability of small firms to survive and flourish is defined by their “ability to quickly adapt by modifying their competitive positioning, adjusting their value propositions and targeting different customer segments,” and to “quickly perceive the need for change and make it happen” (p. 45).

Johnson et al. (2003) make the important distinction between proactive or anticipatory flexibility and reactive flexibility. Proactive flexibility entails the ability to anticipate changes in the future environment while reactive flexibility indicates an ability to rapidly and effectively respond to changes in the current environment once they become evident. This perspective is consistent with views identified in the IT literature which notes infrastructures oriented primarily toward known, specific conditions versus infrastructures oriented beyond the current requirements of the business (Broadbent & Weill, 1997). Aligned IT capabilities that improve a firm’s information flow, knowledge flow, and organizational learning should help the firm proactively anticipate salient future changes. The resulting improved monitoring and coordination should also help the firm effectively react to environmental changes. Our model incorporates strategic flexibility constructs in proposing that aligned IT capabilities (i.e., IT capabilities oriented toward capturing and managing relevant information from external stakeholders in order to better coordinate internal activities) will be better able to anticipate future environmental changes as well as adjust in real time to current external requirements. Thus, in our framework explaining how IT expenditures will contribute to firm performance:

**H2.** Aligned IT capabilities will be positively related to proactive strategic flexibility.

**H3.** Aligned IT capabilities will be positively related to reactive strategic flexibility.

### 4. Firm performance

The customer value concept considers what a firm’s customers want and believe they obtain in buying and utilizing the firm’s product or service. Product/service value perceptions typically include the notion of tradeoffs between perceived benefits (e.g., what the customer receives) and costs (e.g., what the customer gives up) through purchase and

use (Woodruff, 1997). Several authors have suggested that IT capabilities have their largest effect on a firm's ability to deliver customer value (Johnson et al., 2003; Lederer et al., 2001; Lee & Bose, 2002). Firms that use aligned IT capabilities to improve their strategic flexibility should be better able to respond to and anticipate environmental changes, thereby improving the firm's ability to offer competitive products and services that customers want; when and where they want them.

Two commonly used indicators of financial performance include sales revenue, associated with top line performance, and net income (i.e., sales revenue minus expenses) associated with bottom line performance. Improved near term customer value (i.e., market offerings that better satisfy customer needs through the provision of desired benefits relative to costs) will translate into longer-term firm financial performance (Collins & Porras, 1994). Hatch and Zweig (2001) argue that strategic flexibility is the key to growth for entrepreneurial firms. Using strategic flexibility to better meet customer needs, thereby offering improved customer value, may allow the firm to develop a competitive advantage that ultimately results in improved financial performance. However, even if the use of strategic flexibility does not result in a clear competitive advantage, it should improve the firm's ability to proactively anticipate developing high growth, profitable markets. Accordingly, even if strategic flexibility does not directly result in a clear competitive advantage, it can help put the firm in the right high growth industries (Hatch & Zweig, 2001) that are more likely to experience financial success.

However, as noted earlier there are two components to strategic flexibility. Recall that reactive flexibility indicates an ability to rapidly and effectively respond to changes in the current environment while proactive flexibility entails the ability to anticipate changes in the future environment. As noted by Johnson et al. (2003), reactive flexibility is more likely to be tied to an established market structure. As such, it should be characterized by greater market responsiveness. Given the nature of reactive flexibility, we expect it to be more strongly associated with a customer value measure (i.e., an intermediate outcome that leads to longer-term sales and net income outcomes) of firm performance than proactive flexibility. In contrast, proactive flexibility is more likely to be associated with preemptive approaches that move beyond existing market structures and shape how markets evolve. Proactive flexibility has been posited to play a more important role in longer-term firm performance (Johnson et al., 2003). Given the nature of proactive flexibility, we expect it to be more strongly associated with sales and net income measures (i.e., longer-term outcomes vs. an intermediate customer value outcome) of firm performance than reactive flexibility. Therefore:

#### **H4. a and b**

Reactive strategic flexibility should be more strongly positively related to the firm's perceived ability to offer customer value than proactive strategic flexibility.

#### **H5. a and b**

Proactive strategic flexibility should be more strongly positively related to the firm's ability to reach its financial goals (confidence in achieving sales and net income goals) than reactive strategic flexibility.

## **5. Method**

### *5.1. Sample and procedure*

The sample frame for this study consisted of a relatively current and accurate list of 1300 small to mid-sized companies in the Midwest (that is, 500 employees or less, following the accepted standard used by the SBA, cf., Gilley, McGee, & Rasheed, 2004). 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 sixty surveys were returned representing a response rate of 12.3%. Questionnaires were received from a variety of companies representing such sectors as retail, construction, and financial services. Respondents were predominantly male, and, as targeted, owner/upper management. Thirty six percent of the companies represented in the sample had between 20–49 employees and 33% had between 50–99 employees. Typical ranges for sales for the companies in this sample were \$2.5–5 million, >\$5–10million, and >\$10–20 million each with approximately 21% of the firms. Most companies represented in the sample reported no international sales (77%). Approximately half of the

sample reported that some portion of their IT function was outsourced, of these firms, the vast majority reported domestic outsourcing (96%).

The response rate of this study is comparable to response rates typically found in business sector research. In addition, discussion with managers at area firms suggests that such response rates are typical for the specific geographic area surveyed. Further, non-response 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 variables in the proposed framework.

## 5.2. Questionnaire

Measures employed in this questionnaire consisted of scales developed specifically for constructs relevant to this research. The authors relied on literature reviews as well as knowledge of regional firms in this process. Early drafts of the questionnaire were reviewed for readability and understandability. The final questionnaire included measures related to the following constructs: IT budget, IT strategic alignment, strategic flexibility, customer value, and confidence in sales and net income goals. Recall that measures are oriented towards capturing the perceptions of top management regarding aspects of their companies under the assumption that these cognitions define the reality of their organizations, particularly in the small business context. Such an approach is consistent with the work of Day and Nedungadi (1994), among others, who note the significance of perceptual aspects of managerial decision-making in the competitive strategy domain.

## 5.3. Measures

### 5.3.1. IT budget

IT budget was operationalized via a measure asking respondents to indicate the percentage of their firm's total budget spent on information technology. The scale consisted of six categories: 0–5%; 6–10%; 11–15%; 16–20%; 21–25%; and over 25%. This measure is consistent with approaches used in the IT literature that examine the proportion of a larger budget accounted for by IT (c.f., Lee & Bose, 2002).

### 5.3.2. IT strategic alignment

IT strategic alignment consisted of four seven-point items, with respondents providing perceptions relating to the extent to which information technology capabilities help the firm manage: customer information; competitor information; internal activities; and the supply chain network to achieve competitive advantage (scaled: very small extent/very great extent). Such aspects of strategic alignment are consistent with conceptions delineated in the management, marketing, and IT strategy literature. (c.f., Day & Nedungadi, 1994; Kohli & Jaworski, 1990).

### 5.3.3. Strategic flexibility

Consistent with current conceptualizations in the strategy literature, strategic flexibility was operationalized as two facets – reactive and proactive – via five seven-point items. For *reactive* strategic flexibility, respondents provided perceptions relating to their companies' overall organizational capability with respect to *reacting/responding to* five strategic imperatives. For *proactive* strategic flexibility, respondents provided perceptions relating to their companies' overall organizational capability with respect to *proactively anticipating* five strategic imperatives. For each facet the five strategic imperatives used consisted of: resource reallocation needs; the need to modify business partnerships; emerging market opportunities; changing environmental conditions; and changing organizational technology needs. Strategic flexibility items were scaled much worse than competitors/much better than competitors. This approach is consistent with conceptualizations of strategic flexibility in the management and marketing literature (c.f., Eisenhardt & Martin, 2000; Grewal & Tansuhaj, 2001; Johnson et al., 2003; Sanchez, 1995; Teece, Pisano, & Shuen, 1997).

### 5.3.4. Customer value

Customer value was utilized as a key outcome variable given that Johnson et al. (2003), among others, explicitly include customer value as a key outcome of flexibility, in addition to its prominence in the IT literature as a potential consequence of IT investments (c.f., Bharadwaj, Bharadwaj, & Konsynski, 1999). The customer value measure

consisted of two seven-point items, with respondents providing perceptions relating to confidence in their company's current and future ability to deliver value to customers (scaled: not at all confident/extremely confident).

### 5.3.5. Sales goal and net income goal confidence

Sales goal and net income goal confidence measures utilized seven-point scales to assess a respondent's confidence in their firm's future ability to achieve its sales or net income goal, respectively (scaled: not at all confident/extremely confident). These subjective measures are consistent with approaches that have been widely used in management research (c.f., Lawrence & Lorsch, 1967) as well as in IT research (c.f., Powell & Dent-Metcalf, 1997) that are designed to capture managers' perceptions of variables that impact financial performance. Such measures have been found to strongly correlate with objective measures (Venkatraman & Ramanujam, 1987) and address financial statement data limitations including the use of varying accounting conventions and availability of privately held firm financial performance data (Powell & Dent-Metcalf, 1997).

## 6. Results

The objective of the present research was to test the model examining relationships among information technology, strategic flexibility, and perceived company performance constructs. Structural equation modeling was employed for model evaluation. As recommended, confirmatory factor analysis was used to assess the convergent and discriminant validity of multi-item measures before testing structural relationships (Gerbing & Anderson, 1992). Observed indicators were statistically significant ( $p < .05$ ) and evidenced large loadings on their corresponding latent factors. Although the chi-square for the measurement model was significant, ( $\chi^2(68) = 107.40, p = .002$ ), fit statistics suggested that the observed indicators are representative of the latent constructs (GFI = .912, AGFI = .865, RMSEA = .062, CFI = .970, NFI = .923).

A series of pair-wise confirmatory factor analyses was conducted to assess discriminant validity of the measures using chi-square difference tests. For each pair of measures, the chi-square difference tests produced a significant result. Therefore, trying to force measures of different constructs into a single underlying factor led to a significant deterioration of model fit in comparison to the two-factor model. These results provide support for the discriminant validity of the measures (Anderson & Gerbing, 1988). Based on these results, the indicators were combined into single index measures equal to the mean of the items' scores. Table 1 provides the means, standard deviations, correlations, and reliabilities among the measures used in this study.

As noted previously, structural equation modeling was employed for model evaluation. Given the nature of reactive and proactive flexibility constructs, their error terms were correlated in the model that was tested. The results of estimating the hypothesized model are presented in Table 2. Estimation of the model resulted in a very good fit of the model to the data ( $\chi^2(12) = 14.77, p = .250$ , GFI = .973, AGFI = .937, RMSEA = .039, CFI = .933, NFI = .967). In addition, five of seven hypothesized paths were statistically significant.

Consistent with expectations, IT budget was found to be positively related to IT strategic alignment (see Fig. 2). The IT strategic alignment construct, in turn, was found to mediate the relationship between IT budget and strategic flexibility with alignment positively related to both reactive and proactive flexibility. Further, strategic flexibility mediated the relationship between IT alignment and perceived firm performance with reactive flexibility positively

Table 1  
Descriptive statistics, correlations, and reliabilities for model constructs

	Mean	Standard Deviation	X1	X2	X3	X4	X5	X6	X7
X1 IT budget	1.81	1.18	–						
X2 IT strategic alignment	4.12	1.39	.34	.79					
X3 Reactive strategic flex.	4.76	.98	.04	.36	.84				
X4 Proactive strategic flex.	4.58	1.07	.02	.39	.85	.89			
X5 Customer value	6.06	.87	–.06	.17	.41	.39	.81		
X6 Sales goal confidence	5.36	1.12	.07	.17	.38	.40	.33	–	
X7 Net income goal confidence	5.19	1.18	.03	.16	.41	.40	.30	.77	–

Reliabilities of multi-item measures are shown on the diagonal with the exception of a correlation shown for customer value as it is a two item measure.

Table 2  
Standardized path coefficients and *t* values for model relationships and overall model fit statistics

Path	Standard coefficients	<i>t</i> values
IT budget to IT strategic alignment	.34	4.45
IT strategic alignment to reactive strategic flex.	.36	4.67
IT strategic alignment to proactive strategic flex.	.39	5.16
Reactive strategic flex. to customer value	.32	2.32
Reactive strategic flex. to sales goal confidence	.11	0.87
Proactive strategic flex. to customer value	.12	0.76
Proactive strategic flex. to sales goal confidence	.29	2.10
Sales goal confidence to net income goal confidence	.79	15.55

$\chi^2(12, N=151)=14.77$

$p=.25$

GFI=.973

AGFI=.937

RMSEA=.039

CFI=.993

NFI=.967

related to confidence in firm ability to deliver customer value and proactive flexibility positively related to confidence in firm achieving its sales goal and, by extension, net income goal. Consistent with expectations, reactive flexibility was more strongly related to customer value than proactive flexibility and proactive flexibility was more strongly related to sales goal confidence than reactive flexibility. However, contrary to expectations, reactive flexibility was not significantly related to sales goal confidence and proactive flexibility was not significantly related to confidence in firm ability to deliver customer value.

**7. Discussion**

The present study extends prior research in the area by exploring linkages among the IT budget, the strategic alignment of information technology, strategic flexibility, and firm performance within the small business sector. To our knowledge, this is the first study to do so. Thus, we attempt to “connect the dots” among research that has separately investigated IT expenditures and firm performance, strategic alignment and performance, or strategic flexibility and performance, almost exclusively for large corporations. As a consequence, this research addresses calls within the literature to examine intermediate processes which link IT investment and firm performance (c.f., Bharadwaj, 2000; Ray et al., 2005).

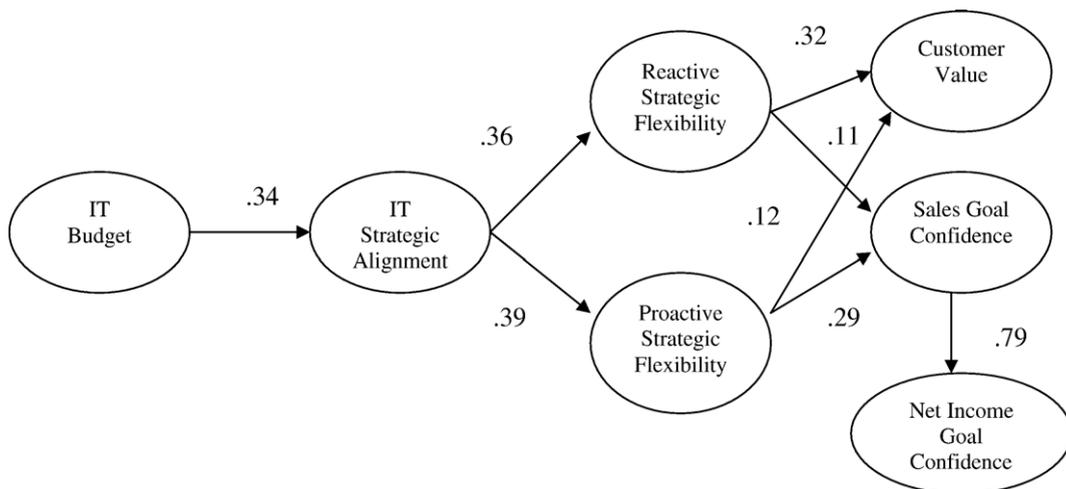


Fig. 2. An estimated model of the proposed relationships.

Summarizing significant findings, the effect of IT expenditures on firm performance appears to work through two intervening processes. When expenditures are positively related to the strategic alignment of IT capabilities, these in turn positively affect two types of strategic flexibility. The two types of flexibility appear to have differential effects on firm performance. Reactive flexibility is positively related to the ability to deliver customer value while proactive flexibility is positively related to confidence in meeting financial goals.

As an example of the model concepts in action, a bank may invest in a new IT system that allows for better management and use of customer information. The system allows for the capture of customer information related to a maturing Certificate of Deposit. This information is shared with a teller that is serving this particular customer during a transaction. The system also provides the teller with information regarding the bank's wealth management services along with relevant contact information that the teller can share with the customer. Thus, through the use of this type of IT system, the bank is able to help frontline workers better serve customers with meaningful real time information that can increase the value of the bank's service to customers.

In another scenario, a medium sized construction company invests in an IT system that allows for comprehensive tracking of down stream customer demand for various projects as well as monitoring up stream costs and delivery schedules for products and services from various suppliers. Through the use of this system, the busy owner is better able to track trends in consumer demand for various building options so that he may proactively adjust future building plans in the anticipation of market desires. Further, the owner is better able to manage supplier costs and coordinate work flow with supplier delivery thereby decreasing project expenses. Through this process the construction company owner reaps sales as well as net income performance improvements.

These findings contribute to the extant literature in several ways. First, the notion that IT investments can impact customer value receives support as well as elaboration in that it is through aligning IT with strategic stakeholders and reactive flexibility gains that IT expenditures influence firm ability to deliver customer value. Further, resource based views regarding the IT-performance connection also receive support and clarification. That is, IT investments that build micro capabilities related to more effectively managing information tied to important stakeholders appear to be related to the more macro capabilities of responding to and anticipating changes in the firm's environment. These types of strategic flexibility affect firm performance. This finding is also consistent with recent work that highlights the importance of market sensing capabilities in the development of higher order capabilities (Johnson et al., 2003).

### *7.1. Research implications*

This research should be viewed from the perspective of a cross-sectional study employing small business owner/manager self-report perceptions related to IT, flexibility, and performance constructs. Future research should assess the generalizability of findings for large corporations. Would different dynamics associated with large firms in particular industries alter the results observed in the present study? In addition, given reactive flexibility was found to be positively related to the ability to deliver customer value while proactive flexibility was found to be positively related to confidence in meeting financial goals, future research could focus on the differential effects of the two types of flexibility.

Future research can also explore IT alignment, flexibility, and performance linkages with more objective indicators of firm performance as well as self-report indicators. Further, an exploration of alignment and flexibility constructs as they relate to different capability domains beyond IT would prove interesting. Lastly, could more finely grained alignment measures be developed which would shed additional light on the antecedents of reactive and proactive flexibility?

Finally, the addition of potential moderators that can influence the impact of IT investments to the variables examined in the present research would prove useful. Tallon and Kraemer (2003), Johnson et al. (2003) among others have noted the potential significance of environmental dynamism or turbulence as influencing the effects of IT alignment and strategic flexibility.

### *7.2. Managerial implications*

Given the significance of the owner/manager in the strategic decisions of small firms, these findings "open the window" to managerial thinking that suggests that a clear imperative for small businesses is that flexibility matters and that the lack of connectedness between IT and the management of information from relevant stakeholder groups could

prove to detract from their competitive agility to the detriment of firm performance. These findings are particularly relevant given strong normative influence businesses are likely to experience with the volume and intensity of the hype relating to the “IT revolution” in the popular press (c.f., Wu, Mahajan, & Balasubramanian, 2003). While normative pressures may spur IT adoption, without the aforementioned strategic connectedness, benefits may be limited or nonexistent. Such concerns are likely to be magnified in the small business sector.

The findings of this study also help elaborate the cognitive connections managers are making in implementing Day's (1994) “outside-in” orientation thereby clarifying what stakeholders a firm needs to connect with and what type of information needs to be shared within the firm. Making these cognitive linkages explicit is particularly useful in the small business realm given owners/managers often engage in “implicit strategizing” that is less formal and structured than managers' strategizing in larger firms (Carson, 1993). As noted by Broadbent and Weill (1997), when managers are not clear in their strategic alignment choices or, even when clarity exists within their own minds, if they do not articulate their strategic intent with employees, the lack of strategic clarity is likely to create barriers to effectively leveraging IT resources. In contrast, when the strategic alignment choices implied in this research are clearly articulated, an “enabling view” is more likely to be adopted within the firm, that is, an important function of IT infrastructure is viewed as providing flexibility to better achieve firm goals.

In conclusion, understanding the effects of developing capabilities on firm performance will continue to be a significant topic for small and large companies as well as the strategic management literature. It is hoped that this research which links IT expenditure, strategic alignment, flexibility, and firm performance will contribute to future efforts aimed at increasing our understanding of competitive advantage dynamics.

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