Small Business Adoption of Information Technology:Unique Challenges

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ABSTRACT

This research project investigated the unique aspects of small business adoption of Information Technology (IT). Other research that has been conducted in this area has mainly applied large business models to small businesses. In this case, then, a qualitative approach was taken in order to identify emerging themes. Further, McCracken's (1988) long interview technique was employed to gather data from 10 small businesses in the Canadian Province of Nova Scotia. Emerging themes were identified regarding dependency and efficiency. Dependency relates to the necessity for small business managers to rely upon competitors, customers, suppliers, or consultants for input into decisions regarding the adoption of IT. Efficiency relates to the use of IT to support daily operations of the small business. Within the context of the identification of unique challenges for small business adoption of IT, recommendations are proposed for stakeholders including consultants, small business managers, vendors and government.

INTRODUCTION

The global nature of product and service markets, technology, and competition has increased business requirements for flexibility, quality, cost-effectiveness and timeliness. As a key resource for meeting these requirements, information technology (IT) has been revolutionizing business practice. While there has been considerable research into the way in which large businesses use this technology, there has been far less attention paid to the adoption of information technology among small businesses. This is surprising considering that the innovative capacity of a nation's economy to meet changing demands in the global economy has been linked to the flexibility and responsiveness of small businesses. According to Berman (1997), improvements in both IT and communication equipment have been a major contributor to the growth of small businesses. Indeed, the small business sector represents an important component in the Canadian economy. For example, there are over 2.3 million small businesses with fewer than 100 employees, accounting for over 50% of the private sector employment and for 43% of total economic output (Industry Canada, 1997).

If research is to contribute to a better understanding of the role of IT, then it is important to recognize the differences in business practice between small and large firms. Evidence suggests that some of these key differences often get overlooked when it comes to IT research. For example, Cragg and King (1993) note that much of the research into the use of IT among small firms aims to confirm findings from studies set in large firms. Arguably, if the IT needs of small businesses are to be better understood and served, it is important to explore how the unique aspects of small business practice might impact on this sector's use of IT.

This issue is important to several stakeholders. Firstly, it is important to small businesses themselves who aim to use IT to gain a competitive advantage. Secondly, it is important to IT consultants whose aim it is to help small businesses add value through the use of IT. Thirdly, it is important to vendors who aim to target this burgeoning market by being better able to service its needs. Finally, it is important to government policymakers in their effort to support the growth of the small business sector through use of IT.

By exploring the adoption and use of IT by small businesses, the objective of the research reported here is to further our understanding of the issues small businesses face in attempting to use IT in creating a sustainable advantage. The article begins by discussing how business practice differs among small and large businesses with regard to their use of resources, generally, and the use of IT, specifically, in order to situate the role that IT may play in creating a sustainable advantage within small firms. It then describes the qualitative methods used to study the use of IT in small businesses. The themes that emerge from data analysis are then discussed. Based upon the results of the investigation, recommendations are provided relative to various stakeholders. Finally, conclusions are drawn about this research project and the subject area in general.

THE USE OF RESOURCES IN SMALL AND LARGE BUSINESSES: KEY DIFFERENCES IN BUSINESS PRACTICE

In aiming to better understand the unique aspects of small businesses in relation to the adoption of IT, it is useful to first consider how this sector differs from the large corporate sector in the use of resources. Stevenson (1999) describes the commitment and control of resources as key dimensions of business practice. In defining these dimensions, he argues that they can best be understood by examining a range of behavior along a continuum. At one end is the 'promoter' – an individual who is confident in his or her capacity to capitalize on an opportunity, without regard to the resources currently controlled. At the other end of the spectrum is the 'trustee' who focuses on the efficient use of existing resources. Typically, small businesses tend to be at the 'promoter' end of the spectrum while large businesses usually fall at the trustee end.

Underpinned by a strategic orientation that is driven by an individual's perception of the opportunities that exist in the environment, the 'promoter' does not feel constrained by the resources currently controlled. Moreover, he or she is willing to act within a very short time frame. In contrast, a 'trustee's' strategic orienta-

tion is resource driven and tends to focus on deciding how resources currently controlled may be best used. This decision typically takes a long time to make and carries with it, long-term implications.

For the 'promoter', resource commitments tend to be multistaged, with a minimum commitment at each stage. In a rapidly changing environment, this type of stepped commitment enables a firm to respond faster to changes in competition, the market and technology (Stevenson 1999). In contrast, the 'trustee' tends to engage in a systematic analysis to determine what needs to be done to get the greatest return on the resources currently controlled. This process ultimately results in a large-scale commitment of resources at one point in time. To some extent, the formal systems adopted by large firms, such as capital allocation systems, tend to encourage up front resource commitments.

According to Stevenson (1999), when it comes to the control of resources, the 'promoter' is mainly concerned with *using* rather than *owning* a resource. For the most part, small business people tend to represent 'promoter' behavior. In doing so they become very adept at learning how to use other people's resources well and for deciding, over time, what resources they need to own. On the other hand, large businesses typically equate control of a resource with ownership.

THE SMALL BUSINESS SECTOR'S USE OF INFORMATION TECHNOLOGY

The small business sector's current interest in the use of IT is a fairly recent phenomenon. For example, in the mid 1980's Malone (1985) found that small businesses were not capitalizing on IT. He attributed small businesses' failure to widely incorporate IT into the firm to a lack of financial resources, an emphasis on a short-term decision making time frame, and a lack of formalized systems. Yet, if these factors are inherent aspects of small business practice as suggested in the previous section, they would not adequately explain the small business sector's current interest and momentum for taking advantage of IT.

In noting a growing interest among small businesses in adopting IT into operations during the early 1990's, research (Lin et al., 1993; Berman 1997; Canadian Federation of Independent Business 1999) indicated that the momentum for IT has come from various sources. Firstly, small businesses were becoming concerned about the adoption of IT by competition. Secondly, small businesses were considering the adoption of IT because it was becoming more affordable, reliable and powerful. Thirdly, it was being perceived as a way to increase a firm's capacity to compete with large firms (Timmons 1999). For example, Lin et al. (1993) reported that small business leaders felt that the deregulation of the telecommunications industry would enable small businesses to mask their size from external parties, thereby allowing them to compete on a level playing field with larger businesses. Finally, the recent widespread availability of the Internet has made e-commerce opportunities more attractive and viable.

 In examining the use of IT among small businesses, earlier research (Nickell & Seado, 1986) indicates that information technology mainly was being employed for accounting and administrative purposes. While small businesses seem to be well positioned to potentially capitalize on opportunities to use technology in responding to market changes in a timely and effective way (Berman 1997), there has been little research to determine the extent to which IT is being used strategically. Although El Louadi (1998) found that small businesses are prepared to invest more resources in IT, whether the role of IT has shifted from that of supporting operational and administrative functions (Fuller, 1996) to a more strate-

gic role in searching for and capitalizing on opportunities has yet to be determined. With the small business sector now recognized as being one of the fastest growing segments of the economy (Bennett and McCoshan 1993), and responsible for much of the innovation that now assumes such a strategic role in the global economy (Van de Ven, 1993; Timmons, 1999), it is important to determine the extent to which the small business sector is utilizing IT for strategic purposes.

The investigation described below adopts the premise that the use of IT among small businesses will be influenced by the nature of business practice adopted. The focus is on how IT, as a specific resource, is being used in order to understand how its strategic use may be encouraged.

RESEARCH METHOD

To gain an understanding of how small businesses use IT in general, and how it might be used strategically in particular, it is necessary to adopt methods that allow research participants to talk about their perceptions and processes and what their experiences mean to them (Gartner et al. 1992). This study therefore employed an interpretive approach based upon a qualitative research methodology. Where quantitative approaches traditionally isolate, define, and determine the relationship of variables to each other prior to collecting the data, qualitative approaches serve to isolate and define categories during the data collection process. Since a qualitative approach allows the researcher to examine a much wider range of relationships than would be practical using a quantitative approach (Bryman, 1988), it was judged the most appropriate, given the exploratory nature of the area under investigation. Specifically, we adopted grounded theory as a theoretical guide. Grounded theory was developed as a data-driven analysis method to support the gathering of research participants' interpretation of reality in social situations (Glaser and Strauss, 1967).

Data Collection

Respondents were selected from a list provided by regional small business consultants in the Canadian Province of Nova Scotia. These consultants were asked to prepare a list of small businesses who had been in operation for at least five years and who were actively using IT. From this list we selected a "purposeful sample" of 10 (Lincoln and Guba, 1985) to ensure that we had respondents from different organizations, business sectors, and geographical regions (within Nova Scotia). This allowed us to compare and contrast patterns. Each business owner was contacted by phone and we asked if we could interview the individual who was most familiar with his or her IT operations. All organizations and individuals approached agreed to participate in the research project.

Each research participant was interviewed using McCracken's (1988) "long interview technique". This technique allows research participants to reflect upon the domain of discourse in a relatively unbiased and free-flowing manner. McCracken suggests two main types of questions for the interview technique. First, "grand tour" questions are asked, which are general and non-directive and allow the research participant to specify the substance of the response. Second, "planned prompt" questions may be asked near the end of the interview, which allows the researcher to delve into subjects gleaned from the literature. On average the interviews lasted about 40 minutes. Each interview was taped with the permission of the research participant and the guarantee that the firm's identity would not be revealed. The interviews were transcribed and the transcriptions were analyzed to identify emerging themes.

Data Analysis

All authors participated in the data analysis process which involved searching for thematic patterns, first within an interview and then across cases. The search for thematic patterns is common practice in qualitative research (Miles and Huberman 1994) and involves interplay between the data and emerging patterns. The process begins with a careful reading of the text, where noteworthy phrases or sentences are highlighted. Passages that seem conceptually linked are then considered together and descriptions of the theme or pattern that the groupings share are developed. Subsequently, the data is reread to identify evidence that supports or challenges the themes. This can lead to the development of new themes, new classifications or reclassifications. Following discussion and reflection among the researchers a collective interpretation of the data is achieved.

RESULTS

In this section, we discuss the findings of our investigation, which suggests that the use of IT in a small business setting presents many challenges. We present our results in the context of the two themes that emerged to characterize the way in which IT was adopted. These themes are not presented in order of importance. Indeed, in some instances the themes are interrelated. Direct quotations are used to more clearly communicate the interviewees' responses. In discussing the findings, research participants are identified as R-1 through R-10.

Theme 1: Dependency

The adoption of IT was found to increase the small business's level of dependency in almost every instance. This dependency arose in terms of either reliance on an internal individual (network administrator or IT champion) or an external entity (consultants, customers, suppliers, competitors). Although this did not necessarily have a negative impact on the firm's performance, the increase in dependency tends to increase the risk to the firm as noted in the discussion of the findings, which follow.

'Internal' Dependency

In most of the firms interviewed, an internal 'champion' or key IT employee was responsible for the majority of IT usage, upgrades and maintenance. Previous research (Thong et al., 1994; Montazemi, 1988) has shown that internal expertise in IT is preferred to external for small firms. However, respondents in the current study noted inhibitors such as high salaries and limited need for internal expertise to be problems. In the majority of the firms interviewed, the internal 'champion' tended to be an individual who took on the role as an ancillary task since a full time individual could not be justified. In one instance, an administrative assistant had taken some upgrading courses to allow performance of basic network administration while in another firm a full-time engineer would spend a day or more a week dealing with IT issues and administration. It may be surmised that an ancillary task (IT decisions/administration) may receive sub-optimal treatment in a busy work environment and this organizational structure may reduce the effectiveness of IT in the firm. In addition, the typical reliance on one individual (in our findings this was rarely the owner/manager) increases the risk to the firm if that individual were to leave.

'External' Dependency

In most instances, the decision regarding hardware or software applications tended to be based upon the advice or influence of a competitor, customer, and supplier or outside consultant. There was little evidence to indicate that a systematic assessment was made of how well the available offerings could meet the business's specific needs as described by R-1 and R-6 respectively:

"*We had some learning curves. We went to a co-ax system... and discovered that it didn't work the best... There was some software that we probably had bought that we thought we would use and we didn't use it either because it wasn't the application we thought it was or was hard to use, for whatever reason.*"

"*If somebody comes in with something and really proves to us that it's going to really make changes or pay for itself or we can justify it, it's pretty well instantly approved.*"

The use of a particular IT application by a major competitor often made it necessary, as interpreted by the manager, for the small business to follow suit in order to retain the current customer base or potentially attract new business as explained by R-2 and R-3 respectively.

"One of our major customers adopted [ABC] software on a trial basis. The cost was $15,000 for us so we hoped to put off the investment until [Client C] had finalized their decision. Soon after we found out that [Competitor A who did similar work for the client] had purchased the software and was in the process of training. We didn't have much choice unless we wanted to risk losing [Client C]."

"*Our competitors are doing the same thing. They were starting to do it [using the software for remote sales demonstrations] and we started doing it a lot more.*"

This illustrates a dependency on IT, which can result in risky expenditures. Previous research has concluded that competitive forces had little effect on the adoption or extent of use of IT in small firms (Thong et al., 1994). However, our research suggests that in at least some small firms competition is driving IT adoption.

Similarly, pressure from customers often resulted in a similar situation as R1 describes. *We're pretty much following what they [customers] need. Our software typically matches theirs, maybe one step ahead... Certainly sometimes the decisions are made for us. Like when [Client A] said, we're now using [X] as software... and we suggest you use it as well. As they're an important client, we would hear them. We would buy that...*

For many small firms, the adoption of IT is perceived to be a necessity in order to maintain relations with suppliers as explained by R6 and R7:

"*… they [suppliers] really depend on the internet for delivering service. We're missing out on that right now...I think the internet's going to help us an awful lot...*"

"*our suppliers required us to do it.*"

In several instances the firms had made significant capital expenditures in order to maintain supply chain relationships and not risk the loss of major customers.

Previous research has suggested that IT provides the ability to "compete on a more equal footing with large organizations through leveraging gains IT offers" (Pollard and Hayne, 1998). However, our research identified only one firm – R-3 that was capitalizing on this opportunity: *it levels the playing field for us...But now with IT we can send out our message with email and design just as nice a web page [as a large company can...] We can look like a large multi-site location and still operate on the size of our budget...Sometimes it's hard to believe where we win some of the jobs because five or ten years ago we would have never gotten in touch with those people.*

Generally, there was little evidence that the key decision-makers were fully aware of the scope of products available and the extent to which product performance might vary in meeting a specific business need. Moreover, in no case was there any long-term

IT strategy. On the one hand, this could be viewed as a weakness but on the other it could be viewed, as a way to increase the firm's capacity to respond to customer needs. Since small business owner/managers were found to either contract out or delegate responsibility for maintaining the IT system or determining future requirements, they are very dependent upon the quality of the advice they receive from others. In some instances this advice may not lead to the optimal decision for the business. For example, respondent R 9 describes his choice of accounting package:

Our accountant recommended [X] accounting package a few years ago because that is what he used. We thought it would be easiest if we went with the same package so we had it installed a short while later. ...It works pretty well for us although it has some limitations that we weren't aware of and [our secretary] does a lot of extra work on spreadsheets to keep track of all of the information we need.

The limitations of the software in this example are the lack of a job-costing module in the software for an engineering firm that has hundreds of jobs in progress at any given time. A number of suitable alternative software packages are available within the price range but the owner was not aware of a single alternative software package. This example is consistent with the findings of Thong et al. (1994) that small businesses tend to overestimate external consultants' ability to achieve IT success and underestimate the requirement for IT awareness by key decision makers within the firm.

Overall, dependency of small firms in relation to IT seems to be widespread as discussed in this section. As stated, the dependency itself is not completely negative as it allows the small business to focus on its niche. However, failure to ensure adequate knowledge of IT and at least some strategic vision does cause the risks inherent in these dependency relationships to become greater.

Theme 2: Efficiency

Despite all the technological advances and calls for the strategic use of IT by small business (Pollard and Hayne, 1998) IT is still being employed primarily at the transactional/operational level. The findings of this research project suggest very little strategic use of IT, as small business managers were primarily interested in using IT as an operational tool. We refer to this theme as efficiency indicating that small businesses are still focused on getting things done as opposed to effectiveness or doing the right things. IT effectiveness is defined as the extent to which a given information system contributes to the achievement of organizational goals (Thong at al., 1994; Bridge and Peel, 1999).

For the majority of small businesses, the key benefit from IT is the reduction of resources required to perform operational tasks – accounting, design, inventory management, invoicing, estimating and marketing/sales.

" *... the accounting... It would take two of us the whole weekend and until Wednesday of the next week to do that. Now, its there all the time. Two people, five days work is freed up."* R-4

"Our invoicing and time-keeping and inventory and all that are done by computer." R-6

"There are two main areas of [IT use]. One would be production [drafting] and the other is the communications area [email]." R-1

Overall, the research participants reported obtaining considerable time and cost savings as reported by R-6.

"It could take you a day or two or more by hand... this way, you can get up and running very quickly, its cheaper for the customer and you can get more work out and get the job done quicker."

Generally, these efficiencies have been gained in response

to specific needs or problems encountered in daily operations and not as a result of a deliberate search for an IT system that could integrate all facets of the business. R-6 describes the firm's IT decision-making as follows:

"I would think any upgrades are going to be on an as needed basis... It was a situation where our old software was no longer going to be upgraded. And this new software came along with a very good deal to switch and that's what we did."

Interestingly, while Pollard and Hayne (1998) reported that the number one issue facing Canadian small businesses was 'using IT for competitive advantage', our findings suggest that the small business view of employing IT is different from what is transpiring. Although the majority of respondents indicated they were pleased with the results of their IT expenditures, there was no indication of plans to capitalize on the benefits of IT more broadly in other areas of the firm. It could be, as suggested by others (Thong et al., 1994) that 'resource poverty' (Thong et al., 1994) is the overriding factor in this situation. Resource poverty refers to a lack of financial and human resources in small businesses. Resource poverty combined with the action-oriented nature of small business owners would result in focusing on the most critical areas first (transactional and operational to capture data) and not having the resources or desire to take the project further. Craig and King (1993) found these parameters tend to limit the rate of computerization in small businesses.

Alternatively, the general absence of strategic IT deployment might be explained by the nature of resource commitments made in small firms. Arguably, if IT were to be deployed to all functional areas of a firm, this would involve a large one-time commitment of financial and other resources (for example, training of personnel). While such an investment is consistent with the business practices of large firms, it is not characteristic of the way in which resource commitments are made by small firms. As indicated previously, small businesses tend to make minimal and multistaged commitments. Such an approach may make it difficult to use IT strategically as the rapid changes in hardware and software applications could render incremental implementation virtually impossible. Moreover, it is possible that the current under utilization of IT for strategic advantage may result from owner/managers not having the experience or knowledge base to be able to fully recognize opportunities for doing so. Clearly, in order to shift from a focus on efficiency to that of effectiveness, the challenges associated with committing resources to IT will need to be dealt with. The next section contains suggestions that attempt to address this situation.

RECOMMENDED STAKEHOLDER RESPONSES

In light of the emerging themes identified above, it is evident that the nature of small business practice presents some unique challenges in regard to the adoption of IT. This section presents a number of recommendations for various stakeholders – small business managers, consultants, vendors, and government – intent on increasing the strategic use of IT within the small business sector. These suggestions take into consideration the themes identified in this research project and data gleaned from other sources.

Small business manager

In light of the characteristics of small business practice the following suggestions relate to making decisions and obtaining advice.

First, decision-making needs to be related to a long-term strategy. It is recognized that while small business managers tend not to engage in a formal strategic planning process, they usually have a future vision of what they want to accomplish. Therefore,

the manager should at least be aware that quick decisions, made perhaps on a sales presentation, may not be in the best interests of achieving the long-term vision the owner/manager has for the firm. Thus due consideration should be given to decisions, especially those relating to the acquisition of IT.

Second, the small business manager should establish a relationship with a specific individual regarding a source for advice. The following steps are suggested. To begin, the manager should "shop around' to find an individual with whom they may feel comfortable in working with and taking advice. In order to find this person the manager should rely upon his or her informal network. Thus individuals could be contacted who are in a similar business sector or who may be using the same technology. Then, it is important to ensure that those contacted in both the informal network and those who will provide the advice, do not have a vested interest in a particular product. That is, the small business manager should not rely upon hardware or software vendors for advice. The recommendation is for the manager to establish a relationship with someone who is independent of a specific solution and who will be prepared to play a strategic role taking a long-term perspective. Further, the small business manager must reassess this relationship periodically. It is incumbent upon the manager to review the relationship to ensure that the recommendations being proffered are appropriately contributing to the long-term success of the firm. This advice is consistent with that of Stevenson and Sahlman (in Timmons 1999) who suggest doing two seemingly contradictory things when seeking to hire a consultant: seek out the best advisors, involving them early and more thoroughly than in the past. At the same time, be more sceptical of their credentials and their advice.

Consultant

In facing issues where expertise is lacking, such as those relating to the use of IT, hiring a consultant is a common practice (Timmons, 1999). However, currently there is little evidence to suggest that consultants fully understand and consider the implications of how business practices vary between small and large firms. For example, Atlantic Progress (Strowbridge, 1999) prepared a feature article where two major consulting firms were commissioned to analyze the operations of two Atlantic Canadian small businesses and recommend technologies that could help the firms accomplish key business objectives. Indeed, their recommendations would require a large-scale commitment of resources at one point in time, which is akin to the resource commitments of corporations.

Clearly, it is important for consultants to recognize that in regard to the nature, timing and acquisition of resources, the small businessperson generally aims to minimize the amount of resources used at each stage of the firm's growth. As our findings indicate, the resources allocated for IT are consistent with this practice. Since small business people are concerned with being able to use a resource rather than owning it, this suggests that there may be opportunities for expanding currently available leasing options. Such an approach could reduce some of the risk in pursuing opportunities. For example, if less capital is required, the financial exposure and risk is reduced. Moreover, it could increase flexibility since commitment and decommitment can be achieved quickly when a resource is not owned.

In aiming to meet the needs of the small business sector Timmons (1999, p 331) provides the following advice concerning the desirable qualities in a consultant: "a shirtsleeve approach to the problems, an understanding attitude toward the feelings of managers, a modest and truthful offer of services and an ability to produce results, a reasonable and realistic charge for services, and a willingness to maintain a continuous relationship".

Vendors

In this context, vendors are regarded as those entities, which supply hardware and software to small businesses. The recommendations for this stakeholder group relate to commitment, functionality, and decisions.

The first suggestion is that vendors make a visible commitment to small business. Far too often vendors provide products or services based upon a geographic distribution. Vendors should consider the establishment of a more sector-oriented approach. Thus, the establishment of a division or even a separate entity specifically directed at small business is recommended. This act would address, to some extent, the concerns of the small business manager, regarding priority of service.

Second, vendors should develop solutions with the functionality of small business in mind. Software vendors must ensure that an application performs the necessary functions for small business. This requires the identification of what the small business does and the interpretation of that into the appropriate functionality of the application. Again, the important word here is "appropriate". Thus, it is incumbent upon the vendor to ensure the hardware or software addresses the appropriate functionality of the small business. A solution with too much capacity will not be helpful. A solution, which provides an unrequired capability, will also not be helpful.

Finally, the vendor representative should investigate who makes, or helps make the decisions in the small business. There will be, usually, one individual within the small business who has responsibility for IT decisions. But, as suggested above, there should also be an advisor (or consultant) who will provide input. Information about proposed solutions should also be supplied to this second individual. In deed in some cases this person may be the more important decision-maker.

Government

There are a number of services, which have been established to provide support to small business. The majority of these services seems to be quite bureaucratic and do not address the characteristics of small business. It is recommended that government services be provided on a more pro-active basis. Individuals representing government services should initiate contact with small business managers. They should realize that these managers rely upon informal networks for information. The facilitation of the exchange of information should be emphasized.

The findings of this exploratory investigation indicate that if government aims to encourage the growth of the small business sector through the use of IT, they cannot ignore the financial constraints of small business. When faced with competing operational needs, tradeoffs are invariably required. If IT is not perceived to be essential, it is unlikely opportunities to use IT will be explored. Fundamentally, if government aims to encourage the growth and development of the small business sector through the use of IT, the role of tax and other financial incentives may need to be considered in encouraging both the use of IT to improve how things are done (efficiency) and what things are done (effectiveness).

CONCLUSIONS

While the findings of this research project indicate that IT has increased the efficiency of various aspects of daily operations, the effectiveness of IT could be enhanced if the criteria used in making IT decisions were linked to the overall aims of small business managers. Developing an IT strategy, which contributes to

the manager's aspirations for the firm may increase the likelihood that IT investments will be more effectively focused. In effect requiring IT expenditure to be justified according to the contribution it can make to the overall goals of the business provides a way to prioritize options and actions. As all small businesses face a barrage of IT offerings that, could be considered a justifiable expenditure, it will become increasingly important to establish and follow guidelines for decision-making. Basing these decisions on goals of the small business will help ensure that IT will contribute to both efficiency and effectiveness.

To fully capitalize on IT, small business managers' commitment is critical. According to the majority of those research participants interviewed, the pending IT challenge is to fully capitalize on the Internet once they are assured any new hardware and software are implemented and running smoothly. Without a strategic focus, it will be more difficult to determine how the Internet can be used most effectively.

Generally, the evidence suggests that IT expenditures are being made in reaction to needs or problems. However, if the small business manager is pro-actively committed to capitalizing on IT, he or she will be more likely to seek out opportunities for strategic impact. For example, by keeping abreast of IT developments, managers can use this knowledge to determine ways of using IT to add value by creating unique products or services. If multiple sources of reliable, objective IT information are used as a basis for decision-making, there is a greater likelihood that the IT adopted will be more suited to the needs of the firm. At a minimum, greater knowledge of IT among small business managers will increase their ability to assess the quality of the advice or proposals they receive.

Finally, this research project has attempted to identify those aspects of IT adoption, which are unique to small business. While the research participants involved in this project were limited by size and geographic region, the data gathered in the interviews has allowed for the generation of conclusions, in the form of recommended responses to challenges faced by various stakeholders. Subsequent research will expand both the number of research participants and the geographic representation. This preliminary investigation has identified challenges unique to small business. Within this context suggestions have been proposed regarding support for small business managers deciding about the adoption of IT. In general, while it has been shown that it is important for small business to keep pace with technological change, the research conducted here suggests that small businesses mainly adopt IT to support operational activities. There are other unique challenges, which have been identified here. Suggestions have been proposed regarding a pro-active response by a number of stakeholders.

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