

SMALL BUSINESS BRIEF

**THE INTEGRATION OF COMPUTER TECHNOLOGY
IN SMALL BUSINESSES**

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ABSTRACT

In an effort to more fully understand the use of computers and information technology in the small business sector, a survey was conducted of small business owners in the state of South Carolina. Based on this survey, the present study investigates the extent of computer and information technology integration in small businesses, identifies the major computer applications used by small business, and explores the use of e-mail and Internet technology by small businesses. The authors conclude that small business owners do not sufficiently take advantage of computers and information technology for either operational or strategic assistance, or for communications and promotion.

INTRODUCTION

Computers are becoming much more powerful all the time. In fact, each new generation is incredibly more powerful, faster, and has an increasingly larger capacity than the last. Kids' games have more computing power than the most powerful mainframe computers had 20 years ago, and some greeting cards today have more computing power than existed on earth before 1950 (Pilarski, 1997). It is not surprising then that numerous surveys on small business all point to the same conclusion, "small firms have to keep pace with technological changes if they want to keep a competitive edge" (Bridge & Peel, 1999). Moreover, "small business has a reputation for moving quickly and taking risks" (Hise, 1996). Consequently, conventional wisdom would suggest that small businesses should be ardent users of computers and information technology. Nevertheless, research on small business and anecdotal evidence both seem to suggest that this is not the case (Howard, 1997).

In an effort to more fully understand the use of computers and information technology in the small business sector, a survey was conducted of small business owners in the state of South Carolina. Based on this survey, the present study investigates the extent of computer and

information technology integration in small businesses, identifies the major computer applications used by small business, explores the use of e-mail and Internet technology by small businesses and concludes with a set of managerial implications and recommendations.

INFORMATION TECHNOLOGY AND SMALL BUSINESS

Traditionally, information technology has been used most extensively for administration and operational tasks. In this administrative support role, computer aided systems were commonly used to support accounting, budgeting, inventory control, word processing, and spreadsheet analysis (Farhoomand & Hrycyk, 1985; Nickell & Seado, 1986). However, with the increasing sophistication of current information technology, many believe that information technology has transcended beyond its traditional administrative support role to be used as a strategic weapon to gain sustainable advantages and support the competitive position of the firm (Pollard & Hayne, 1998).

Rather than being confined to operational matters, information technology has moved from simple record keeping to decision-making. Computers are now used to assist with such strategic planning issues as financial modeling, forecasting, production planning, and sales planning (Bridge & Peel, 1999). When applied to small businesses, such applications have the potential to provide smaller firms with a competitive advantage and to allow them to compete on a more equal footing with larger organizations (Fuller, 1996; Pollard & Hayne, 1998).

One striking example of this potential is the ability of small firms to compete directly with large firms through an electronic presence on the Internet (Pollard & Hayne, 1998). Although the U.S. Small Business Administration estimates that 47 percent of small businesses have access to the Internet, only 35 percent actually maintain a web site (U.S. Small Business Administration, 1999a). The percentage of small businesses with web sites is even smaller in some markets. For example, one recent study in the Houston area indicated that only 25 percent of small businesses had a Web site (Houston Business Journal, 2000). Moreover, only 16 percent of small businesses that use the Internet are selling products or taking sales leads over the Internet (Computer Industry Report, 1998). According to Pollard and Hayne (1998), the majority of small businesses do not take advantage of the tremendous power afforded by current information technology largely because they do not have the resources to take advantage of information technology. In addition, many small businesses still have a low level of information technology expertise.

THE PRESENT STUDY

In order to further explore the use of information technology among small businesses, a survey of small business owners in the state of South Carolina was conducted. For the purpose of this study, a small business was defined as a business having 50 or fewer employees. In conjunction with the Small Business Development Center of South Carolina, a sample consisting of 455 businesses was obtained from an initial mailing of 4052. The resulting 11.23 percent response rate is about par for a "cold" mail survey of this type (Dillon, Madden, & Firtle, 1987).

In aggregate, 55.1 percent of the small businesses in this sample had two to nine employees; 17.1 percent had ten to nineteen employees; and 16.9 percent had one employee. Retailers comprised 31.2 percent of the sample, the largest single group, followed by firms in the services category, including personal services (21.6%) and business services (16.2%). The gender of the majority of the responding owners was male (73%), and the average age of all owners was 50.

According to the U.S. Small Business Administration (1999b), there were approximately 82,250 businesses with fewer than 500 employees operating in the state of South Carolina in 1998. Of this total, approximately 32.3 percent were women-owned businesses. By comparison, women owned only 27 percent of our sampled businesses. In addition, retailers comprise approximately 24 percent of all businesses in South Carolina with fewer than 20 employees, compared with just over 31 percent for our sample. Consequently, given that the sample is not entirely representative of South Carolina small businesses in terms of the gender of owners and the line of trade, caution must be taken when generalizing our findings.

FINDINGS

The first issue of interest was the extent of computer and information technology integration in small businesses. Businesses in the present sample reported that an average of 43 percent of employees use computers on a regular basis in their work, while only 10.1 percent of employees use a computer 50 percent of the time or more at work. Furthermore, 25.7 percent of respondents said that their employees do not use a computer at all in their work.

As one writer concludes, most people who use computers use them as enjoyment, not as tools (Pilarski, 1997). However, if used effectively, computers and information technology can be expected to result in substantial productivity increases for small businesses. In fact, according to the U.S. Small Business Administration, small businesses that use the Internet have higher revenues, averaging \$3.79 million in 1998 compared to \$2.72 million overall (U.S. Small Business Administration, 1999a).

The second objective of the study was to identify the major computer applications used by small businesses. The results are reported in Table 1. Respondents were instructed to check as many categories as apply.

TABLE 1: Small Business Computer Applications

Word Processing	63.3 %
Accounts Receivable	59.1 %
Accounts Payable	51.8 %
Payroll	49.5 %
General Ledger	46.9 %
Spreadsheets	41.4 %
Inventory	38.5 %
Tax Preparation Programs	34.9 %
Graphics Applications	30.2 %
Data Base Management	28.9 %
Management	8.8 %

An "other" category was also provided for open-ended responses and resulted in 74 replies. Those replies listed with a frequency of between five and ten were cash register, industry specific software, engineering, and estimations. Mentioned only once, even though approximately one-third of the small businesses were in the retailing sector, were customer profile, mailing programs, and appointments.

Our final objective was to explore the use of e-mail and Internet technology by small businesses. Specifically, owners were asked whether their small business provided e-mail for

employees. Only 20.4 percent answered affirmatively, while a resounding 79.6 percent responded "no." The percentages for utilization were slightly higher when owners were asked if they personally used e-mail to conduct business. These results were 29.3 percent stating "yes" and 70.7 percent stating "no."

The ways in which small businesses use the Internet were also investigated. Responses are included in Table 2, with respondents instructed again to check as many categories as apply.

TABLE 2: Ways That Small Businesses Use The Internet

Obtain Information	31.9 %
Sell Own Products	12.0 %
Develop Leads	11.3 %
Purchase Equipment	8.4 %
Follow Economic Trends	7.9 %
Qualify Clients For Credit	2.9 %

Clearly the largest percentage of those responding used the Internet to obtain information. Following far behind were to sell products and to develop leads. Twenty-three responses were gathered in the "other" category provided. Those listed with a frequency of between two and six in descending order were: for ads, to communicate with clients/suppliers, and to find vendors. To place orders and to post job openings tied for last place.

Whether the small business had its own web site was also questioned. Only 18.8 percent answered "yes" to a web site while 81.2 percent indicated that they did not have a web site. Of these, it was further asked when their small businesses were planning to have a web site. The responses of those that replied to this additional question included 17.2 percent answering "soon," 13.8 percent indicating "next year", 20.7 percent indicating "this year", 20.7 percent answering "don't plan/not in the near future/not soon", and 14.9 percent replying "never."

In order to understand the potential benefits for small businesses afforded by information technology, another question asked the owners to identify the top five challenges for strategic planning that their small business was currently facing. In order, they were: cash flow (39%), competition (32.6%), taxes (32.4%), controlling costs (29.7%), management (28.6%), and employee productivity (28.2%). Following closely behind these were health insurance, quality of labor, regulations/red tape, advertising/promotion, and government regulations, all above 20 percent. Only 13.2 percent of small businesses selected technology applications/use of computers as one of the top five challenges facing their business. A complete reporting of challenges and their respective percentages in descending order are in Table 3.

Supplementary to the challenges issue was a question concerning whether the respective small businesses plan to increase emphasis on the company's technological capabilities within the next two years in order to increase their competitiveness. A four point Likert scale ranging from responses of "none" to "a lot of emphasis" was used. Results are in Table 4. Just over two-thirds at 69 percent showed "some" or "a lot of" planned emphasis on technology while almost 13 percent planned "no" emphasis in this category.

TABLE 3: Strategic Planning Challenges Facing Small Businesses

Cash Flow	39.0 %
Competition	32.6 %
Taxes	32.4 %
Controlling Costs	29.7 %
Management	28.6 %
Employee Productivity	28.2 %
Health Insurance	26.9 %
Quality of Labor	25.3 %
Regulations/Red Tape	24.9 %
Advertising/Promotion	22.0 %
Government Regulations	21.1 %
Employee Skills	20.0 %
Customer Service	16.3 %
Labor Costs	15.4 %
Technology Applications/ Use of Computers	13.2 %
Accounts Receivable	13.0 %
Accounting/Bookkeeping	12.8 %
Inventory Management	12.6 %
Employee Benefits	12.1 %
Long Range Planning	11.7 %
Competing Strategies	11.0 %
Financing	10.4 %
Inflation	7.7 %
Worker's Compensation	7.0 %
Weak Demand	6.2 %
Supplier Relationships	5.7 %
Compensation	5.5 %
Creditor/Bank Relationships	4.6 %
How to Export	0.9 %
How to Import	0.9 %
Procurement	0.9 %

TABLE 4: Emphasis on Increase in Firm's Technological Capabilities

A lot of emphasis	24.5 %
Some emphasis	44.5 %
Not very much emphasis	18.5 %
None	12.5 %

A perception question of how important the small business owners viewed technology to the operation of their small business was also posed. The results are reported in Table 5.

TABLE 5: Importance of Technology to Operation of Small Business

Very Important	40.5 %
Somewhat Important	36.7 %
Somewhat Unimportant	11.2 %
Not Important At All	11.6 %

Overall, 77.2 percent of owners felt that technology was "very important" or "somewhat important" to the running of their small business. Just over one-fifth of owners did not share this view of the importance of technology to their business operations. The cross tabulation between "the importance of technology to the operation of the small business" and the "planned emphasis on technology" is presented in Table 6. A Chi-squared test revealed that cell sizes in the cross tabulation were significantly different ($\chi^2 = 140$, d.f. = 9, $p < .0001$). In addition, Table 7 shows the cross tabulation between "the importance of technology to the operation of the small business" and whether or not the company has a web site. Once again, a Chi-squared test revealed that cell sizes in the cross tabulation were significantly different ($\chi^2 = 48$, d.f. = 3, $p < .0001$).

TABLE 6: Planned Emphasis on Increase in Firm's Technological Capabilities by Importance of Technology to the Operation of Business

Planned emphasis on increase in firm's technological capabilities	Importance of technology to the operation of business				
	Not important at all	Somewhat unimportant	Somewhat important	Very important	Total
None	22	7	15	9	53
Not Very Much Emphasis	16	20	28	15	79
Some Emphasis	10	21	87	76	194
A Lot of Emphasis	1	1	28	78	108
Total	49	49	158	178	434

TABLE 7: Company Has Web Site by Importance of Technology to Business Operation

		Importance of technology to the operation of business				
		Not important at all	Somewhat unimportant	Somewhat important	Very important	Total
Company has Web Site	No	49	48	140	117	354
	Yes	2	1	20	61	84
Total		51	49	160	178	438

DISCUSSION

This exploratory research identifies that not many small businesses (13.2%) are putting technology applications and computer usage as a top strategic planning issue. Interestingly, in four of the top challenges that are identified, specifically cash flow, competition, controlling costs, and management, the utilization of computer technology has tremendous potential to help. However, slightly over one-fourth of small businesses report "no" computer usage by employees on a regular basis, and only about 10 percent of employees use a computer 50 percent of the time.

Of those employees using the computer on a regular basis as reported in Table 1, a relatively low percentage uses each of the most critical applications. Most users report the use of computers for word processing, but considerably fewer use them for areas with great potential impact on managing the business (i.e. general ledger, spreadsheets, inventory management, and database management). Spreadsheets to track cash flow and control costs are used by only 41.4 percent of the small businesses, roughly equivalent to the percentage listing cash flow as an important challenge. Data base management that could be employed to track customers and maximize marketing efforts is utilized by only 28.9 percent of small businesses. Lagging in last place is the general management category at 8.8 percent. Surely management is the primary concern of every small business. Nevertheless, the use of technology applications and computer programs for small business management is apparently being shortchanged.

Connecting to the Internet is becoming increasingly essential for business today. Large companies are leading the way in this explosive technological area. In querying small businesses about the ways they use the Internet, 31.9 percent report obtaining information as their reason for access rather than business development and promotion. Selling their products on the Internet is listed by 12 percent even though 31.2 percent of the small businesses surveyed are in retailing. Also only 18.8 percent of the small businesses indicate that they have their own web site to promote their business and reach a large audience.

Overall, the results appear to demonstrate an inconsistency on the part of small business owners. As revealed in Table 7, although 41 percent of business owners surveyed indicated that technology was "very important" to the operation of their business, only 34 percent of those firms actually have a web site. Small businesses, especially retailers, are missing an opportunity and will soon be too far behind to catch the leaders.

Moreover, even for the more basic computer application of using e-mail, only 20.4 percent of small businesses provide it for their employees and only 29.3 percent of owners use e-mail to actually conduct their business. Consequently, approximately 70 percent of small businesses surveyed are missing the opportunity for continual and instant communication with current and potential customers and suppliers. More alarming is the fact that small businesses do not appear to be moving to correct this technological timidity. As revealed in Table 6, only 44 percent of those firms who view technology as "very important" actually plan to place "a lot of emphasis" on increasing the firm's technological capabilities.

If an issue is important to a small business, then clearly emphasis should be focused in that area. It simply must be addressed. For example, in the human resources areas of employment benefits, insurance, and payroll/relevant taxes, computerization would allow faster, easier, and more accurate tracking and controlling of costs and benefits. In health and safety areas, compliance with governmental guidelines, regulations, and red tape can reduce exposure and preclude legal ramifications. Integrating the use of technology to help with the pressing day to day issues, such as cash flow for small business owners, would certainly be valuable and in

the end would help to alleviate some of the day to day cash squeeze commonly faced by small business owners.

This research clearly shows the need for and acknowledges the importance of technology application and computer usage in small businesses. It should serve as an alert for all small business owners. If small businesses are to compete effectively with larger enterprises, then they must begin to take advantage of both the operational and strategic benefits afforded by modern information technology.

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