

**STATE of INFORMATION TECHNOLOGY
IN SMALL RETAIL and SERVICE BUSINESSES:
AN EXPLORATORY STUDY**

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ABSTRACT

During the recent years, there have been major changes in the availability and use of information technology by large businesses to gain efficiencies and competitive advantage over rivals. Some of the earlier research shows that this is not necessarily the case in small businesses. This study tries to identify the degree and the type of information technologies currently accepted and used by the small retail and service businesses.

INTRODUCTION

The Role of IT in Strategic Pursuits

In recent years, there has been an increasing implementation of new computerized technologies in all sizes of organizations. These trends have been accelerated by international competition and changes in the local business conditions that demand a higher degree of efficiency of operations, and attempts by businesses to gain competitive advantage over rivals. The incredible growth of Internet (both access to and usage of by a sophisticated group of consumers) have made incorporation of information technology (IT) into daily operations a necessity. Large organizations have recognized this for a long time and have made extensive use of IT in their activities and decision processes and there are many excellent examples of this (Adcock, et al, 1993; McFarlan, 1984; Porter and Miller, 1985; Donnelly, 1994). The benefits of IT for small businesses have also been recognized and demonstrated, both through studies and examples in the popular press. In fact, examples of companies such as Amazon's (a privately owned book retailer) successful competition against Barnes & Noble, a megastore chain, (Martin, 1996) and Hot Hot Hot's (a retailer of hot sauces and recipes) successful generation of 25% of their sales, and Franklin Square (NY) Italian Market's (a privately owned deli) successful expansion into mail order delivery system are powerful examples of possibilities of IT for small businesses that cannot otherwise easily expand their operations or compete against well established large competitors (Rebello, 1996). Even the United States government has recognized the possibilities. The U.S. House of Representatives introduced H.R. 820 on May 24, 1993 with the purpose of improving the competitiveness of small businesses through a nationwide technology outreach program aimed at improving access to information, expertise, technology and management practices.

Acquisition and Use of IT in Small Businesses

In most cases, small businesses have met some of their IT needs through outsourcing. This outsourcing has provided them opportunities and advantages in meeting regulatory requirements, increasing their efficiency, avoiding incurring high costs associated with technology and IT skill requirements. Most of the IT activities that have been outsourced by small companies have primarily been specific applications such as payroll or credit card processing. The vendors who have provided these services have been able to develop skills and achieve production cost advantages (hardware and software) that would otherwise not be available to the small business and the small businesses have benefited from the vendors' economies of scale, smoother production runs, and access to and investment in the new technology. In fact, in most cases, these businesses have never started their internal data processing for the outsourced application(s) and never developed the expertise internally.

Recently, some significant changes took place that might change the previous approaches in acquisition and use of IT by small businesses. In fact research indicates that, small manufacturing enterprises have been implementing new computerized technologies at an increasing rate (Acs and Audretsch, 1990). However, the same urgency was not observed among the small retailers and service providers. There have been some possible reasons as to why this was the case. Prevalent among these reasons is the retailers' belief that they have a profound and accurate understanding of their products and services, their customers, and customers' needs and expectations (Julien and Raymond, 1994). If this is the primary reason, this lack of urgency might even be more acute among the independent retailers that have an advantage in terms of location, a true knowledge of their clients and their merchandise, or niches created by high market segmentation (e.g. specialty stores, high fashion clothing stores, gourmet food stores, etc.).

Even though some small businesses might have felt, with or without a thorough understanding of the possibilities of IT, that the new information technologies are not very useful, many other small retailers, whose ability to differentiate themselves from their competitors is limited, might have been more aggressive in embracing the new technologies. Two additional trends also have a bearing on this issue. First one is an increased growth of chains and warehouse stores which have limited most of the smaller retailers' ability to differentiate themselves and have forced them to operate in an increasingly competitive environment. Second one is the changes associated with IT, among which are: a significant decrease in the cost of acquisition of IT assets (hardware and software), ease of use of these assets (plug & play systems, friendly hardware and software), and increased exposure and familiarity of the managers and employees with computers and computer based systems (computerized phone answering systems, automated teller machines, extensive exposure to technology during college, continuing news stories on technology and associated issues, etc.).

One would expect to find that these changing conditions, increasingly competitive business environments, decreasing costs of IT assets, and familiarity with technology and its various uses, would prompt a greater degree of acquisition and assimilation of IT in the small retail and service establishments. Therefore, this study is designed to determine whether this

is the case and to what extent the changes above have impacted the acquisition and use of IT in these organizations.

There are two easily identifiable benefits of institutionalizing IT in small businesses. They are:

- *Improving service quality* -- IT is critical in creating better customized or individualized services (personalized shopping or insurance services), improving reliability of the service provided (delivery services), ensuring consistency of delivered product (fast food), and freeing store personnel to increase their contact with customers (retail checkout). Generally, the benefits should show up as improved customer loyalty and lower marketing costs. These are the pillars of "customer intimacy" strategy.
- *Increasing predictability and decreasing the cost of operations* --- IT is essential in predicting sales, controlling inventories, and reducing fluctuations in revenues, profitability and cash flows. These are the pillars of "operational excellence" strategy.

Two studies have thoroughly discussed how small businesses can attain these benefits in small retail and service organizations. According to Quinn and Baily, there are benefits from IT that increase productivity in service organizations that cannot be associated with tangible monetary benefits but, never the less, contribute to the overall success of these firms (Quinn and Baily, 1994). In another study by Raymond and Bergeron (1996), the authors discuss significant benefits of electronic data interchange (EDI) use in small businesses that lead to decreased administrative costs, increased transaction speed and information quality. They further state that, the small businesses have been reluctant in implementing the EDI and most have been forced to do so by their business partners (Raymond and Bergeron, 1996; Blili and Raymond, 1993). Are the small retail and service organizations aware of these benefits? Have they done anything to take advantage of this knowledge and understanding?

According to Thom Blischok, vice president of the AT&T Global Information Solutions (a retail industry consulting group), there are 10 technologies that, in one way or another, will change the retailers relationships with their customers and help create "customer intimacy". He identifies these technologies as virtual retailing, retail as entertainment, shopper ID systems, advanced checkout, personal shopping assistant, relational retailing, intelligent labeling, supply chain reinvention, electronic wallet, and decision transformation (Robins, 1994). Even though, some of these technologies may not be appropriate or feasible for the small retail operations others, however, are.

However, unless small businesses acquire and use IT, they neither can attain "customer intimacy" nor decrease their operational costs. In an earlier study, Greek (1996) found out that only 25% of the small firms in United Kingdom (UK) had PCs and those that did very few used the Internet and its associated services and facilities. Is this also the case in United States? Another study tried to identify the trends associated with computerization in small businesses in Greece over a five year period (pre-and post-studies) (Doukidis, and et al, 1994). What are these trends in the United States? Once again, no similar survey was done to identify the trends in small businesses in the United States.

RESEARCH METHODOLOGY and FINDINGS

Research Design and Methodology

This study examines the application of the microcomputer based information systems, in small retail and service businesses. The details of the companies' systems and the way they utilize IT were collected through interviews with the owner-manager or manager (if owner is not actively involved in operations). The interviews concentrated on the various components (types) of information technology that is currently in use in the establishment. The primary objective of the study was to develop a base line to determine how pervasive the IT is, how widely it is used in small retail and service businesses, and to see how much and what kind of computerization exists in these businesses. The study was conducted through individual interviews of 65 small businesses in the city of San Francisco. Because of the proximity of the area to the world famous "Silicon Valley" and the extensive urbanization, it was expected that there will be a significant amount of acceptance of IT in these businesses.

The businesses in the study were randomly selected through a two stage selection process. At the first level, three geographic locations were selected from the multiple small business clusters (there are eight such clusters in the city) in different neighborhoods of the city of San Francisco. At the second level, twenty-five business establishments were randomly selected from each selected cluster and targeted for interviews. Ten of the selected businesses declined to participate in the study and the total sample size was reduced to 65. 82% of these businesses (53 out of 65) were owner operated and they had an average of 5 employees. 86% of the businesses (56 out of 65) employed additional non-owner managers and 11% (7 out of 65) had management committees. Some of the businesses in the study had stores in different locations of the city or different parts of the country. Of these types of businesses, only one of the store locations was included in the study. A summary of organizational characteristics can be found in Table 1.

Table 1
Company Characteristics (n = 65)

	Owner operated	Franchise	Years in business?	Number of stores/locations (1)	Number of employees? (2)	Number of non-owner managers (3)	Management committee
<i>NUMBER in SAMPLE</i>	53	12		175	299	56	7
<i>PERCENT of SAMPLE</i>	82%	18%				86%	11%
<i>AVERAGE</i>			16	2.69	4.60		

- (1) Some businesses had more than one store (business location). Only one was included in the study.
- (2) Indicates total number employees in all locations.
- (3) Some businesses employed non-owner managers to manage during different hours of operation or different business locations.

Table 2

Types of Businesses (n = 65)

	Retail Business Establishments (1)	Repair Service Establishments (2)	Other Service Establishments (3)	Food/Restaurant Establishments	Total
<i>Number in the Sample</i>	38	3	16	8	65

- (1) Retail business establishments included apparel, auto parts, bakeries, bookstores, cigar store, department store, drapery, drug store, electronics, florist, gift shops, hardware store, home decoration, liquor stores, office products, opticians, pet supplies, shoe store, sports, and toy store.
- (2) Repair service establishments included shore repair and vacuum repair.
- (3) Other service establishments included beauty salons, film processing, fitness and health, laundries, real estate, and travel agent.

Research Findings

First set of questions looked at the availability and usage of traditional methods of communication. As can be seen from Table 3, only a fraction of the businesses take advantage of some of the extended services associated with a telephone (e.g. caller ID, 800 number, etc.) and use it in their business. These are the characteristics that can be used for various marketing activities and to build a client base.

Table 3

Availability and Usage of Traditional Methods of Communication (n=65)

	Telephone Lines	Caller ID	800 number	Fax Machine	Call waiting
<i>NUMBER in SAMPLE</i>	148	2	10	30	12
<i>PERCENT of SAMPLE</i>	100%	3%	15%	46%	18%
<i>AVERAGE</i>	2.28				

Over the past few years there has been a significant decrease in the cost of hardware. This has caused a proliferation of computers in business and even home environments. However, as can be seen from Table 4, this is not the case in small retail and service establishments. A total of 39 (60%) of the sample businesses had computers and 15 (23%) of them had more than one computer. In the businesses where there was more than one computer, the average number of computers were 5, they were all networked, and 38% had their registers linked to the computer system. 77 percent of the businesses with computers had modems connected to their computers. It was also interesting to see that 97.3% of the computers were PCs (DOS/Windows based).

Table 4

Availability and Types of Computer Hardware and Peripherals (n = 65)

	Computer cash registers	Registers linked (central register)	Registers linked (computer system)	Total Number of Computers	Macintosh	DOS/Windows (PCs)	Net-worked	Modems /fax modems
<i>NUMBER in SAMPLE</i>	18	6	15	74	2	72	15	30
<i>PERCENT of SAMPLE</i>	28%	9%						

Table 5 shows the usage of various software among the businesses that had computers. The most widely used software was database software (95%). Accounting (85%) and inventory management (82%) packages followed closely behind. There was also significant usage of word processing and approximately one-half of the businesses did their own payroll. There was minimal use of communication, spreadsheet, and sales forecasting packages.

Table 5

Availability and Usage of Computer Software (n=65)

	General Usage Applications:					Special Usage Applications:				
	Comm.	Word Processing	Spreadsheet	Present.	Data-base	Acct.	Inventory Mgmt.	Payroll	Sales Forecast	Other
<i>NUMBER</i>	6	26	8	5	37	33	32	19	14	1
<i>PERCENT of Businesses with Computers</i>	15%	67%	21%	13%	95%	85%	82%	49%	36%	3%

As can be seen from Table 6, the Internet revolution has not yet reached the businesses in the sample. Given the geographical area where the study was conducted and the daily barrage of news and promotion about "the Net" and "the World Wide Web", this was a very surprising finding. The home pages were associated with the franchised businesses and the Internet usage was not institutional but individual. Unfortunately, there was no inquiry as to whether the individuals interviewed had heard about the Internet, what their thoughts were on the matter, or why they were not a part of this "revolution". These questions will be a part of the follow-up study that is intended to broaden the sample size, the geographical area, and the scope of the questions.

Table 6

Usage of and Access to Internet and World Wide Web Related Services (n = 65)

	Use the Internet	Home page	Employee accounts	Manager's account	CompuServe	AOL	Prodigy	Other
<i>NUMBER</i>	6	4	2	0	0	1	0	0
<i>PERCENT of Businesses with Computers</i>	15%	10%	5%	0%	0%	3%	0%	0%

Electronic Data Interchange (EDI) is required by some large businesses as a condition of doing business with them (primarily required of businesses supplying to large businesses) and is considered to be a very efficient way of conducting supplier/customer communications. It is also considered to decrease operational costs. The study by Raymond and Bergeron (1996), showed that there were significant benefits of electronic data interchange (EDI) use in small businesses they were realized in the form of decreased administrative costs, increased transaction speed and information quality. This study was designed to determine whether the small businesses' were aware of these benefits or whether they had installed EDI to realize these benefits. As can be seen from Table 7, the businesses in my sample do not seem to be aware of these benefits or at least, they have not overwhelmingly instituted EDI in their businesses (only 15% all businesses in the study and 26% of the businesses that had computers had EDI). Raymond and Bergeron (1996) further state that, the small businesses have been reluctant in implementing the EDI and most have been forced to do so by their business partners. In this study, only 40% of the businesses that had EDI had done so because their suppliers required EDI.

Table 7

Means of Communication With Suppliers (n = 65)

	EDI	Supplier required	E-Mail	Telephone	Fax	Regular Mail	Supplier Visit
<i>NUMBER</i>	10	4	1	56	21	14	31
<i>PERCENT of Businesses with Computers</i>	26%		3%				
<i>PERCENT of TOTAL</i>	15%	40.0%		86%	32%	22%	48%

Success of most small service and retail businesses depend on their ability to provide superior customer service and maintain reasonable cost containment. Information technology (IT) can help and play an important role in attainment of both of these objectives. However, as the tables above showed, the businesses in the sample did use IT for attaining some operational efficiencies (82% of businesses with computers used inventory management software). The following table (Table 8) shows that the small retail and service businesses that were interviewed did not use IT to its fullest capabilities to attain superior customer service.

Only 36% of the businesses with computers used sales forecasting software (see Table 5) and 5% had an Internet Home Page. However, a significant number of the businesses with computers (56%) have computerized customer lists and use them for mailers. This is only 34% of the total sample of businesses. Most of the businesses in the sample still relied on printed advertisements (86%) and signs (78%). These signs were being prepared outside the business and not by using the in-house technology, even in the businesses that had this capability. Only 13% of the businesses with computers used presentations packages (see Table 5). We also have to remind ourselves that, 40% of the sample businesses did not even have any computers on the premises.

Table 8
Means of Communication With Customers (n = 65)

	Electron-ically	Internet Home Page	Computerized Customer List	E-Mail	Telephone	Printed Ads.	Mailers (purchased lists)	Signs	Walk in only
NUMBER	0	2	22	1	52	56	26	51	1
PERCENT of Businesses with Computers		5%	56%	3%					
PERCENT of TOTAL	0%	3%	34%	2%	80%	86%	40%	78%	2%

Discussion of Research Findings and Conclusions

This was an exploratory study, conducted in a specific market and had a sample size of 65. Therefore, the findings are suggestive and major conclusions cannot be drawn. However, these preliminary findings shows that, in spite of the significant decreases in the cost of IT and all the publicity surrounding its prevalence in large businesses, small retail and service businesses have not jumped on to the band wagon and are still somewhat reluctant to use technology in their business operations. In fact, majority of the technology was found to be used primarily by the franchise businesses in the sample. This is somewhat disturbing and have significant implications for the long term survival of small retail and service organizations. When one realizes the degree of increased competition in the market place and further infringement of large businesses into providing services and products typically that were in the domain of small retail and service businesses, and identified benefits of institutionalizing IT, one can see how significant these implications are. The previous fragmented research (see earlier discussions) and popularized anecdotal evidence have consistently shown that small businesses can become very efficient and effective through the use of IT. A case in point is the cyber bookstore named Amazon.com. This company, within two years, have grown to employ 300 people and boasts 2.5 million book titles in its catalog. It is one of the World Wide Web's most successful small businesses and would not have existed or succeeded if not for the opportunities created by changes in IT and this company's willingness to incorporate these changes into their business operations.

IMPLICATIONS for SMALL BUSINESS

Long-time survival and success of any organization depends on the appropriateness of its strategy and the design and performance of its business processes in achieving its strategic intent. There are three primary strategic options that can be pursued by organizations: product leadership, customer service, or operational excellence (Treacy and Wiersema, 1995). Because of their size and limited resources, it is very hard for small businesses to develop and pursue a "product leadership" strategy. However, they can easily pursue effective "customer service" (customer intimacy) and "operational excellence" strategies. IT can play a key role in both of these strategic pursuits by streamlining all communications with customers, collecting and distributing valuable information on customers' preferences and buying patterns. IT assets can enable the organization to obtain the information it needs for its operational and management requirements and compress time in its business processes.

The findings of the study have significant implications that primarily revolve around the missed opportunities in attaining "operational excellence" (opportunity to decrease operating costs and gain efficiencies, and enhancing business skills of the managers and employees by accessing valuable public and private information) and/or "customer intimacy" (opportunities to broaden market coverage and extend customer base, and provide new services and products). These opportunities are missed because small businesses have been reluctant to acquire and utilize IT in their business operations. If the small retail and service establishments hope to survive and prosper in these increasingly competitive times, they cannot afford to miss any opportunities to enhance the efficiency and effectiveness of their operations. It is also important to note that a fairly effective computer based information system, given the current cost of technology and associated services, can be attained for an approximate initial investment of \$3,000 - \$4,000 (including the hardware, software and basic training) and an average monthly cost of \$100 (including charges associated with Internet services and communication charges). This is a relatively small price to pay for increased profitability and business survival rates. Even though this study did not address the question of relationships between IT usage and profitability of the business (this will be addressed in a follow-up study), a positive correlation is expected to exist between the two. This observation is based on the inherent inefficiencies associated with small businesses, and the experiences of the author while consulting with small retail and service establishments.

Opportunities to Decrease Costs

First implication of the findings of this study is that these companies are missing the operational benefits of IT in managing their businesses. Among these benefits are managing cash and finances, inventory management and stocking (including inventory turn and sales analysis), customer tracking and analysis, and more efficient and effective communication with their customers and suppliers while decreasing communication costs and mistakes. These are significant operational issues and IT can provide major cost saving benefits.

Opportunities to Extend Customer Base and Provide New Services and Products

The second implication is associated with market coverage and extending the customer base, and taking advantage of opportunities to provide new products and services. Quite a few number of small businesses have either extended their market coverage (customer base), or expanded their businesses into new areas, or have started brand new businesses using IT. There are many success stories. Some of these were discussed in earlier sections of this paper. Other examples include Northern Digital Classics (www.ndcnorth.com), a one-stop shop for discussion, buying and selling cars by car enthusiasts; J&D Resources (www.jdresources.com) a temporary employment and permanent placement personnel services company; All One Tribe (www.allonetribe.com), a retailer of drums, decorative drum hangers, etc.. The primary issues here are the missed opportunities to make the most of marketing and advertising dollars, maintaining top-rate customers service, and exploiting some opportunities before others take advantage of them. It is estimated that by year 2000, some 80 million people will be spending more than \$4 billion a year on buying goods and services using Internet and IT (Hogan, 1997). Given this estimation, it is easy to imagine the extent of opportunities that can be exploited and the benefits that can be attained by using IT in small businesses.

Opportunities to Access Public and Private Information

Finally, the lack of acquisition and use of IT by small business establishments prohibits them from using numerous valuable resources available for small business. Various private and public organizations provide significant amount information free of charge. However, most of this information is not available or accessible unless the organization uses IT, has computers, modems, and account at an ISP (Internet Service Provider). Some examples of the types of services available are Idea Café (www.ideacafe.com), a cyber coffeehouse for aspiring business people; Austin Publishing Co. (www.virtualplex.com/vplex/austinpul/), a virtual bookstore offering small business and legal guides; Bureau of National Affairs (www.bna.com), providing information on tax management and human resources; Entrepreneurs on the Web (www.eotw.com), a collection of links to national and regional small-business organizations; and Inc. Magazine (www.inc.com). There are also numerous governmental agencies that provide information and act as resource centers, among which are Census Bureau (www.census.gov), providing demographic and economic information; export information (www.stat-usa.gov/itabems.htm); Small Business Administration (www.sbaonline.sba.gov); and Small Business Resource (www.business.gov/howto.html). Therefore, small businesses that have not joined the technological age and that are not utilizing IT in their operations are missing out on these valuable resources.

FURTHER RESEARCH

As indicated earlier, this was an exploratory study and the primary objective was to determine the degree of acquisition and assimilation of IT in the small retail and service establishments. As a result, there are still many unanswered questions. To develop a more comprehensive understanding of the role of IT in small retail and service businesses, more studies that deal with the role of IT in small businesses are needed. By surveying the small retail and service organizations, we can find out the answers to questions such as

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- whether any of the above technologies is currently being used,
 - if so, for how long has it been in use,
 - circumstances associated with acquisition,
 - problems associated with implementation and continued use, and
 - other issues related to IT in these establishments.

The answers to these and other related questions will provide us with a better understanding of the pervasiveness of IT in small retail and service establishments.

The author intends to conduct follow-up studies that will address these questions and focus on two major areas. One, is to find out if there are any regional differences (broaden the sample size and the geographic coverage) and two, if there are any profitability differences among the businesses that have incorporated IT into their operations vs. the ones that have not. A preliminary study done on large businesses has shown no significant relationship between the IT expenditures/employee and company profitability (ROI) (Strassmann, 1997). However, the focus of the study was large businesses in the banking and the food industries. Since these large businesses might already have other systems in place that improve their efficiencies and effectiveness, findings of these studies might not be applicable to small retail and service businesses. Further, the follow-up study will also explore the underlying forces and connections between variables such as company history, major products, market factors (including whether the enterprise is located on a shopping strip or in a shopping mall), company performance, owner's background (innovativeness, attitude towards technology, IT knowledge, advice received, and staff involvement in information systems development), and computer use and impacts (whether the benefits identified above has been also identified and accepted by the establishment, and the ways which technology is used, expected and realized benefits associated with acquisition and implementation).

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