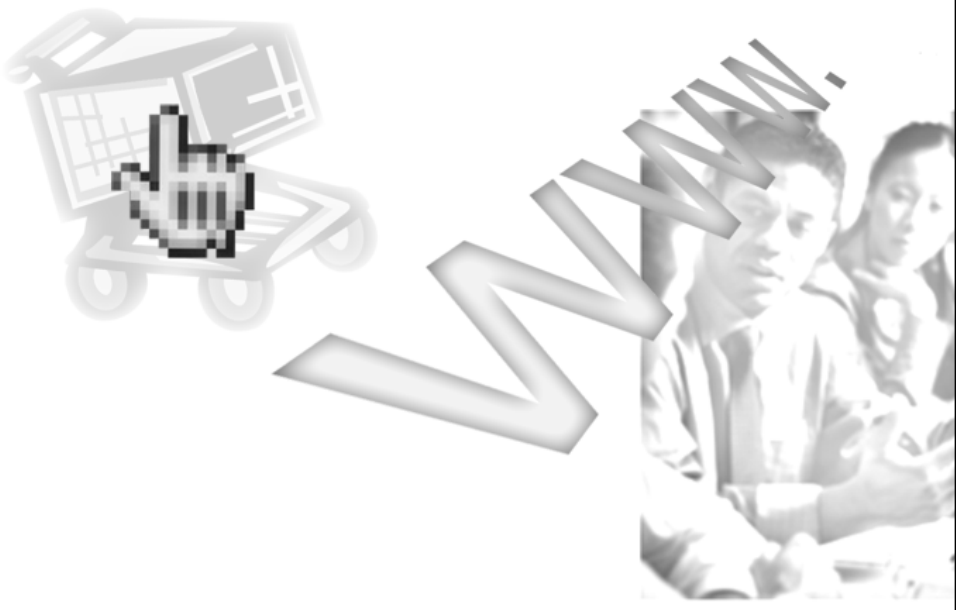
MINORITY BUSINESSES' USE OF INTERNET TECHNOLOGY:

A PRELIMINARY CASE STUDY OF LARGE FIRMS



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Waldo Lopez-Aqueres, Ph.D.
TRPI Director of Economic Research

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INTRODUCTION

The use of the Internet for business transactions has grown dramatically over the past few years. Approximately three out of five companies are using e-commerce to some extent and an additional one-fifth say they intend to participate in the future. Although estimates vary, there is strong consensus about continued growth, with optimistic projections of B2B e-commerce sales ranging from $634 billion to $3.9 trillion for 2003. Further, as many as 80% of business transactions could occur online by 2003 (Report of the U.S. Government Working Group on Electronic Commerce, 2000). While there is no doubt that e-business transactions will continue to increase, the rate of expansion may decrease given the current economic slowdown and the contraction experienced by the high tech sector.

Despite growing Internet use by all businesses, there have been virtually no comprehensive studies on the use of e-commerce by minority-owned businesses. Minority business enterprises (MBEs) are an increasingly critical component of the U.S. economy. African-American, Asian-American, Latino and Native-American businesses are growing at a rate of 30%, four times faster than the growth rate of majority–owned U.S. firms; MBE revenues rose 60% to $335.3 billion in 1997 compared with a 40% increase for all U.S. firms over the same period (U.S. Bureau of the Census. 1997 Survey of Minority-Owned Businesses). Minority businesses are a significant growth sector of the market and, as such, it is important to understand how these businesses are participating, or are positioned to participate, in the Digital Economy.

This study constitutes the first attempt to assess the use of Internet technology for e-commerce among the larger minority-owned businesses, i.e., those with annual sales of at least $500,000. While this group includes only a small segment (5.58%) of the entire universe of MBEs, it was selected because of its economic importance. This particular subset generates about 76% of the output produced by minority-owned firms and provides about 70% of their total employment. In addition, these firms are more viable, easier to contact, more stable and have greater longevity than smaller firms.

The Minority Business Development Agency's (MBDA's) Phoenix database was used to develop a national sampling frame of 39,098 minority-owned businesses. The MBDA uses the Phoenix database in its electronic contract matching-system. The database is constructed using the Dun's Market Identifiers (DMI) compiled by Dun & Bradstreet Corporation (D&B). Because companies included in the database have a good-to-excellent credit rating and sound credit history, the sampling frame used for the study is imperfect, at best, which limits the generalization of the research findings. On average, these companies had annual sales between $3.3 million and $4.9 million and employed between 22 and 34 persons full time. Interviews were conducted with 1,673 business executives from 500 Latino, 406 African-American, 480 Asian-American, and 287 Native-American firms.

In general, the study addressed the following questions:

- To what extent do minority businesses use Internet technology to sell goods and services?
- What are the impediments to greater use of e-business strategies?
- What challenges do minority businesses face when engaging in e-commerce?
- What are some possible strategies for increasing e-commerce usage?

Conclusions

In general, the survey indicates that minority entrepreneurs interviewed understand the benefits of Internet technology in their business strategies, but may perceive market-based challenges to increased use of e-business strategies. This segment of MBEs uses computers in their businesses at levels similar to non-minority businesses of roughly similar size. These businesses are connected to the Internet and have websites at rates comparable to those of non-minority businesses. This, along with other survey data, suggests that large minority businesses appreciate how e-commerce can be useful to their business and are positioned to increase their usage of e-business.

However, for many minority entrepreneurs, there are market-based challenges that must be overcome. While a significant percentage of the large businesses surveyed have access to technology, a much smaller number use e-commerce to sell online. Although there are various reasons for this, many entrepreneurs do not see the potential return for further investment in the technology, given their customer base. For example, many of these businesses sell to minority consumers, who may not have the technology to purchase online. In addition, between 20-24% of the entrepreneurs indicated that the product or service did not lend itself to e-commerce. The study suggests that, in order for these entrepreneurs to participate more fully in e-commerce, they must perceive that there are increased market opportunities justifying further investment.

Findings

E-commerce Awareness: More than 60% of the surveyed businesses recognized and understood the benefits of e-commerce (e.g., bigger markets, higher profits, lower costs, remaining competitive, etc.). With the exception of Native-Americans, these companies had a greater likelihood of having a website after controlling for the business executive's years of managerial experience, education, birthplace, age, perceptions and personal use of e-commerce, and for company characteristics (e.g., proportion of minority customers served, profitability, longevity of the firm, and annual sales) as well.

Computer Use: Approximately 90% of minority businesses relied on information technology and computers to do their work. On average, employees in African-American businesses had the highest rate of computer usage (71%) and those in Latino businesses had the lowest (52%). This is somewhat comparable to computer usage by all small businesses, which two recent studies have placed at 85% (IDC, 1999) and 66% (D&B, 2000).

Internet Connectivity: The survey estimates that between 91% and 79% of minority businesses were connected to the Internet, depending upon the ethnicity of the owner. These figures are comparable to 1999 Dun & Bradstreet research indicating that 93% of firms with 26-100 employees had Internet connectivity, as well as 70% of all firms (D&B, 2000).

Website Availability: These minority businesses had websites at a rate comparable to that of non-minority businesses of roughly similar size. Between 56% and 42% (varied by ethnic group) of minority businesses had websites. Research on overall small and medium size businesses indicates that 53% of small businesses and 47% of medium size businesses have web capability (see Arthur Andersen and Associates, 1999, and Dun & Bradstreet, 1999). Minority businesses of a larger size (as measured by annual sales) and with higher use of e-mail were more likely to have a website after controlling for other factors. In addition, the larger the proportion of minority customers, the lower the likelihood of having a website. On average, minority firms with websites had such sites for approximately two years.

Selling Online: While a significant number of the firms surveyed had websites, a much smaller percentage were selling goods and services online. Depending on the race or ethnicity of the owner, between 10% and 13% of minority businesses were engaging in electronic commerce. With the exception of Native-Americans, the longer a firm had a website, the greater the likelihood that it was selling online after controlling for the business executive's years of managerial experience, education, age, perceptions and personal use of e-commerce, and company characteristics (e.g., longevity of the firm).

B2C Sales: Most minority firms involved in e-commerce participated in business to consumer (B2C) transactions rather than business to business (B2B) sales. As many as 59% of Native-American firms were operating in the B2C market, followed by Latino businesses (50%) and African-American businesses (47%). A sizeable number of these consumers were people of color; the proportion of minority customers varied from 46% to 31%, depending upon the ethnic group of the business owner.

B2B and B2G Sales: Relative to other minority businesses, Asian-American and Native-American firms were more involved in B2B commerce and African-American firms were more active in the business to government (B2G) sector.

Services and Products Sold: In general, the businesses surveyed sold services, rather than products, over the Internet. With the exception of new and used cars and industrial supplies, the bulk of online sales by minority firms consisted of services such as travel agencies, hotel and motels and business services. Of lesser importance were popular e-business products such as electronic parts, home furnishings, jewelry, office equipment and insurance.

Online Revenues: With the exception of Latinos, over one-half of minority firms reported to be generating sufficient online revenues to cover the cost of promoting and operating the site or to break even. Asian-Americans were the most likely (35%) to have revenues in excess of costs and African-Americans were the least likely (14%). In addition, at this point, sales generated by online transactions are relatively low and the data suggest that there is untapped opportunity to increase them. The estimated median sales obtained from online transactions varied from $131,000 to $76,000, depending upon the group.

Investment in Technology: MBE investment in e-commerce technology was relatively small. With the exception of Latino businesses, the median initial cost was approximately $2,000. Latino businesses reported a median start-up cost of $1,169. However, the average start-up costs ($67,000) for Latinos far outdistanced that for other firms, suggesting that Latino firms are on average investing more capital to acquire the technology.

Technology Operating Costs: The median operating costs ranged from $1,299 per year to $750 per year. In general, the minimal investment in technology suggests that these companies had not integrated their backend functions (e.g. accounting, inventory management, shipping and delivery) with their sites.

Perceived Benefits of E-commerce: Less than one-third of the firms surveyed indicated that there were no benefits to e-commerce or that they did not understand the benefits. While the majority of business executives viewed e-commerce as an important tool to remain competitive in the new economy, one-third expressed doubt, disagreed with the idea, or did not understand its potential. These companies were less likely to have a website, especially Native-Americans, and, in the case of Latino firms, less likely to be engaged in e-commerce.

Market-Based Challenges to E-commerce: Minority businesses indicated that the primary reasons for not having an e-commerce site included the following: the product or service offered by the company does not lend itself to e-commerce (20%-24%); there is no need for e-commerce; or the company does not want it (11%-15%). This suggests that while many companies may be correct in their decision to stay away from e-commerce based on the firms' customers and products, others may not enter this lucrative market due to ignorance, uncertainty, or simply apathy.

Primary Barriers to E-commerce: Primary barriers to greater use of e-business technology included: Absence of company infrastructure, e.g., software capabilities (10% to 17%), concern with too much competition (5% to 9%), a wait-and-see attitude (4% to 9%), lack of expertise (4% to 7%), too costly (3% to 6%), legal constraints (3% to 4%;), not feeling comfortable with the technology (1% to 3%), and security related issues (1% to 2%). In addition, over 50% of nonparticipants did not foresee getting involved in e-commerce any time soon. Further, those planning to implement e-commerce were going to wait an average of 1.5 years to do it. These two statistics denote caution as well as indecision in the part of many of these businesses.

Recommendations

The Internet market, e-commerce especially, is in a formative stage and will continue to grow and change rapidly. Thus, the following recommendations are tentative and reflect the information and challenges uncovered in this report.

- It is critical to educate minority-owned businesses on the benefits of e-commerce and to address concerns about its viability and application. In particular, the study indicates that the majority of businesses surveyed have computers, access to the Internet and websites at rates similar to those of majority-owned businesses of roughly similar size. However, a much smaller number currently are engaging in online sales and the low level of technology investment suggests a lack of technology integration into overall business operations.

- Solutions to this must be market-based, identifying the potential return on investment in technology. If investing is not viable for a business, these businesses should explore the opportunities of using third party providers of e-business services.

- Because the barriers uncovered in the report affect primarily companies without a website, attempts should be made to target these businesses with information and technical assistance on developing e-commerce.

- Additional research should be undertaken on e-commerce participation among businesses of all sizes by race and ethnicity. These data will be useful in tracking progress among small businesses, especially minority and women-owned business enterprises. While many Internet economy indicators monitor the dollar volume of online transactions, most of these estimates are the product of Internet consulting firms, and may require additional sampling. The research also should address the validity issue associated with imperfect sampling frames commercially available.

- The private sector, corporations and foundations should partner with government and become more active players in bridging the digital divide. As implied by the study, the digital divide may be discouraging minority-owned businesses with a large minority clientele from participating in e-commerce.

- Government should continue to pursue online government procurement, but it should ensure that minority-owned businesses share in the benefit of this promising e-government innovation.

- Because of similar race, ethnicity, culture or language, minority-owned businesses may have a competitive edge in serving emerging markets in the United States and abroad. If so, minority business enterprises should exploit their competitive advantage by using the Internet more aggressively to provide product exposure and increase business in these areas.

INTRODUCTION AND PURPOSE

One of the most significant technological developments of the 20th century is the Internet. The use of this technology has exploded in the last seven years. Fewer than three million people around the world were connected to the Internet in 1994, whereas today there are more than 300 million people online (U.S. DOC, 2000). All over the world, businesses are using the Internet to reduce costs, increase trade and expand market share. The number of web pages worldwide increased from 100 million in 1997 to one billion in January 2000 (U.S. DOC, 2000). While information on the size and growth of electronic commerce, or e-commerce for short, varies according to the reporting source, there seems to be a consensus that the market is large and expected to increase significantly (The Economist, 2000b; Cohan, 1999).

In the U.S. and Canada, business-to-consumer (B2C) online sales were estimated at $33.1 billion in 1999, and they were expected to rise to $61.0 billion in 2000 (Boston Consulting Group, 2000a; cited in U.S. SBA, 2000). A review of forecasts for the year 2003 places the dollar value of B2C transactions between $75 and $144 billion (The U.S. Government Working Group on Electronic Commerce, 2000). More conservative estimates prepared by the U.S. Bureau of the Census indicate that seasonally unadjusted retail e-commerce sales in the U.S. were $8.7 billion or about one percent of total retail sales during the fourth quarter of 2000. (U.S. DOC News, 2001).

More significant is the growth of business-to-business (B2B) transactions on the web. Revenues of B2B e-commerce among small U.S. businesses was expected to reach $184.0 billion in the year 2000 (The U.S. Government Working Group on Electronic Commerce, 2000). Further, more optimistic estimates of B2B sales over the Internet are projected to be between $634 billion and $3.9 trillion by 2003 (The U.S. Government Working Group, 2000). According to the National Association for Business Economics, three in five companies are using some form of e-commerce, and one in five is planning to do so in the future (NABE, 2000). However, the current economic downturn and the contraction of the high tech sector are expected to slow down the rapid pace of e-commerce transactions experienced during the last five years.

While many businesses have moved quickly to take advantage of the Internet for trade and commerce, a 1999 study conducted by the Los Angeles Times showed that minority businesses have generally been slower to embrace the new technology. For example, the Los Angeles Times poll revealed that the use of e-commerce among white-owned firms in Los Angeles county is twice as high as among Asian and Latino businesses and one-third higher than among African-American firms. To date, no studies have been conducted to determine the extent to which minority businesses are participating in e-commerce and understand the challenges that this segment of the business community face in competing in the Internet business environment.

Minority business enterprises (MBEs) are an increasingly critical component of the U.S. economy. African-American, Asian-American, Latino and Native-American businesses are growing at a rate of 30% annually, four times faster than the growth rate of majority–owned U.S. firms; MBE revenues grew at a rate of 60% compared with a 40% increase for all U.S. firms (U.S. Department of the Census, 2001). Minority businesses are a significant growth sector of the market and, as such, it is important to understand how these businesses are participating, or are positioned to participate, in the digital economy.

The purpose of this preliminary study is to identify variations in the use of Internet technology for trade and commerce among large Latino, African-American, Asian-American, and Native-American-owned businesses and investigate inhibiting and facilitating factors to participation. In this study, use of Internet technology refers specifically to having a web

presence and selling goods and services online. The main questions addressed in the study are as follows:

1. What benefits do minority-owned businesses associate with selling products and services online?

2. To what extent do they use Internet technology to sell goods and services?

3. What barriers do minority-owned businesses face in participating in e-commerce?

4. What challenges should they expect when engaging in e-commerce?

5. Are demographic factors (e.g., age and education) and years of managerial experience of the decision maker playing a role in the use of Internet technology for trade and commerce? What is the effect of business characteristics?

6. What are the possible strategies for increasing e-commerce usage?

While there is a limited number of studies that focus on the use of the Internet by small businesses, none of them discusses minority participation in e-commerce. Because the Internet is a relatively new tool, it is not surprising to find a gap in the current literature. Thus, one of the benefits of this study is to provide information on e-commerce participation by Latino, African-American, Asian-American and Native-American-owned businesses in the U.S. To the author's knowledge, this is the first study of its kind in the nation.

SCOPE AND METHODOLOGY

Sampling Design

The Minority Business Development Agency's (MBDA's) Phoenix database was used to develop a national sampling frame of 39,098 minority-owned businesses that conformed with the following criteria:

1. Annual sales of $500,000 or higher
2. At least 51% minority-owned
3. Good to excellent credit rating
4. No record of bankruptcies

MBDA uses the Phoenix database in its electronic contract matching-system. The database is constructed using the Dun's Market Identifiers (DMI) compiled by Dun & Bradstreet Corporation (D&B). Firms with annual sales of at least $500,000 were chosen because of their economic importance. While this particular subset constitutes only 5.58% of the entire universe of MBEs, it generates about 76% of the output produced by minority-owned firms and provides about 70% of their total employment (U.S. Bureau of the Census, 1997). In addition, these large firms were selected because they are more viable, easier to contact, more stable and generally have greater longevity than smaller firms.

The D&B relies on criterion (2) to define minority businesses. Ethnicity or race of the business is based on self-certification by each company owner. This information is, in turn, cross-referenced with minority certification programs sponsored by federal, state and local government agencies. The DMI file contains the name of the owner, chief executive officer, president or general manager, and the company's address and telephone number. However, it is not known how representative the DMI file is of the universe of large minority-owned businesses, i.e., those with annual sales in excess of $500,000. Any validation attempt is prevented by the lack of other MBE databases. Albeit imperfect, the DMI is the only comprehensive sampling frame of MBEs which is commercially available. It excludes Mexican or Asian companies doing business in the U.S.

The MBDA relies on criteria (3)-(4) to screen companies to be included into its data file. In addition, the Phoenix database excludes companies in certain Standard Industry Classification (SIC) categories: taxicabs (sic 4121), retail food stores (sic 5400), coin-operated laundries and cleaners (sic 7215), beauty shops (sic 7231), barber shops (sic 7241), shoe repairs (sic 7251), miscellaneous personal services (sic 7299), dance studios (sic 7911), and bowling centers (sic 7933). Most of the sectors excluded are likely to be small and to have annual sales below the $500,000 threshold used to select the sample. Nonetheless, this exclusion along with criteria (1), (3) and (4), and the uncertainty surrounding the validity of the D&B database make the sampling frame used in the study imperfect, at best, which limits the generalization of the research findings.

Haug International Consulting was retained to assist with the survey sampling procedures, develop the computer assisted telephone interview (CATI) format, pretest the questionnaire, conduct the telephone survey and prepare a clean data file that was used in the analysis. In addition, Anita Rosen, a well-known international e-commerce consultant, was retained to advise on questionnaire construction and to ensure that the instrument reflected the study objectives, was free from ambiguities, and was expertly designed.

Originally, the methodology called for conducting telephone interviews with 1,750 minority-owned businesses: 500 Latino, 500 Asian-American, 450 African-American and 300 Native-American. Due to the difficulty in contacting respondents, the number of interviews completed (1,673) fell slightly below the target. However, the sample size attained was sufficiently large to keep the survey margin of error relatively small and well within acceptable standards of reliability

(See Table 1). The margin of error was calculated assuming a simple random sampling method. Since the study relied on a stratified sampling, the margin of error is usually smaller for this type of sampling approach. From May 30 through July 7, 1999, a total of 19,131 random digit telephone calls were made to senior and technical executives of these firms. Based on the final sample disposition, the overall response rate attained in the survey was about 11% (See Appendix 1).

To obtain a representative sample, the universe of 39,098 minority-owned businesses was stratified into twelve categories according to the ethnicity of the owner and the firm's annual sales. Since there is no information regarding the proportion of minority business that have a website and participate in electronic commerce by race and ethnicity, a pilot test consisting of 400 random telephone calls was conducted to establish incidence levels among each ethnic group. Upon completion of the pilot study and based on the estimated incidence rates, final quotas were determined for each sampling stratum. After conducting 1,473 interviews, a decision was made to increase the number of interviews among firms with websites and those engaged in electronic commerce. In this way, proportionately more of the survey budget was spent collecting data from companies with websites and e-commerce participants than it would have been the case had the survey been conducted totally randomly among the universe of companies. This approach was carefully used in weighting the sample to correct for overrepresentation of companies with websites and e-commerce within each ethnic group.

To test whether the weighted sample was representative of the universe of minority-owned businesses as defined in the study and circumscribed by the sampling frame, a comparison was made between the sample and the population distribution on the following business characteristics: annual sales, location by region of the country and state, and industry. These comparisons were made within each ethnic group. A chi-square test was performed and the results indicated no statistically significant difference between the sample and universe distributions (Appendix 2).

Analytical Procedures

Because one of the objectives of the study is to compare minority-owned businesses (i.e., Latino, African-American, Asian-American and Native-American) in the use of Internet technology, experiences in operating an e-commerce site, and a range of other factors, the approach used is descriptive and analytical. Thus, it is divided into two parts. The first part focuses on bivariate relationships based on the survey data. An attempt is made to differentiate those outcomes which reveal statistical differences among these four groups of businesses from those differences which may have occurred by chance based on chi-square tests and analysis of variance (ANOVA). The standard 0.05 level of significance was employed in the analysis. These statistical tests were not performed in questions accepting multiple responses.

The second part of the analysis focuses on multivariate relationships. The goal here is to identify sociodemographic traits of the business executives interviewed and business characteristics that can facilitate or inhibit the use of Internet technology, i.e., website availability and e-commerce partic-

Table 1
Margin of Error for Sample Proportions

Business	Sample Size	Relative Error
Latino	500	4%
African-American	406	5%
Asian-American	480	4%
Native-American	287	5%
Total	1,673	2%

ipation. The multivariate analysis relies on logit regression models. These statistical models are used to estimate the independent effect of key variables. For example, had differences among Latino, African-American, Asian-American, and Native-American businesses in having an Internet website been noted, these models indicate whether ethnicity of the owner or other characteristics, such as education of the business executives interviewed, managerial experience, or annual sales inhibit or facilitate the use of the new technology.

Measuring Electronic Commerce

Electronic commerce is an elusive concept difficult to measure with survey data, and respondents often have different views on its meaning. Definition and interpretation problems, as well as limited data, have hindered the development of consistent measures. A broad definition of e-commerce includes business to consumer (B2C) and business to business (B2B) sales transactions over the Internet (Van Ketel and Nelson, 1998; cited in Williams, 1999). Forrester Research views e-commerce as the selling of goods and services online with the final payment taking place over the Internet (Forrester Research, 1998; cited in Williams, 1998). The U.S. Bureau of the Census defines e-commerce as a type of electronic business transaction involving the transfer of property ownership (Mesenbourg, 1999). The U.S. Census Bureau's definition is very precise and aimed at measuring on-line retail sales. Thus, it excludes B2B transactions.

The survey of minority-owned businesses uses a rather broad definition of electronic commerce: the selling of products or services directly from the business website, and it includes B2C, B2B, and business-to-government (B2G) transactions. For example, once the interviewer established that the company had a website, the respondent was asked: "Is your website an e-commerce site, i.e., do you sell any products or services directly from your website?" The survey probed this issue by investigating whether companies that self-identified as being engaged in e-commerce had the capability of accepting purchasing transactions online. In this case, the respondent was asked: "What kind of content do you have in your website?" The interviewer then read the following list of responses:

- Product information (e.g. brochures)
- Support information (e.g. e-mail and news groups)
- Company information (e.g. name of CEO, owner, etc.)
- Purchasing information, including online ordering

In this case, companies that had purchasing information, including on-line ordering, were checked against those that said that their website was also an e-commerce site. The responses to both questions were virtually identical and consistent with the e-commerce definition used in the project.

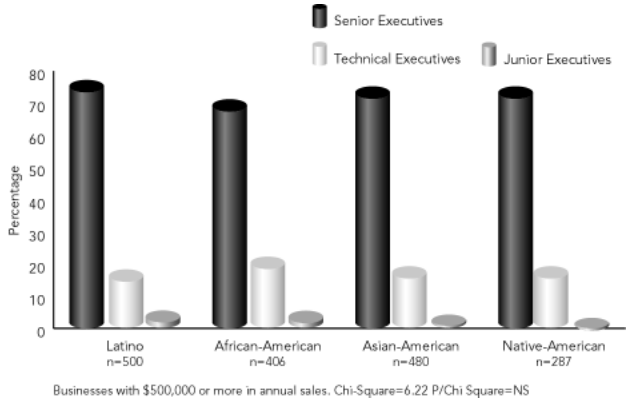
Profile of Business Executives Interviewed

This section presents a general profile of the business executives interviewed: the position they occupy within the company, demographic traits, and years of managerial experience. The four minority-owned business subgroups did not differ significantly in the position they occupy within the firm, gender, or age. They were different with respect to their place of birth, education attained, and years of managerial experience.

FIGURE 1 shows that regardless of the business race or ethnicity, over 70% of the respondents were senior executives (e.g., owner, chief executive officer, chief financial officer, president, principal partner, general partner, or vice-president). Between 23% and 19% were technical executives in charge of special business activity (e.g., finance, accounting, information technology, and web managing). Only a very small proportion were junior executives (e.g., customer services specialist, office manager, and those classified as "other"). These individuals were interviewed because they were identified as the most knowledgeable about the company's current or future website intentions, one of the criteria used to select respondents when companies were contacted by telephone. Judging by their titles, senior and technical executives had decisionmaking authority within the firm. While knowledgeable about the company website operations and plans, the majority of the technical and junior executives interviewed did not own the company.

Figure 1

Job Title of Respondents



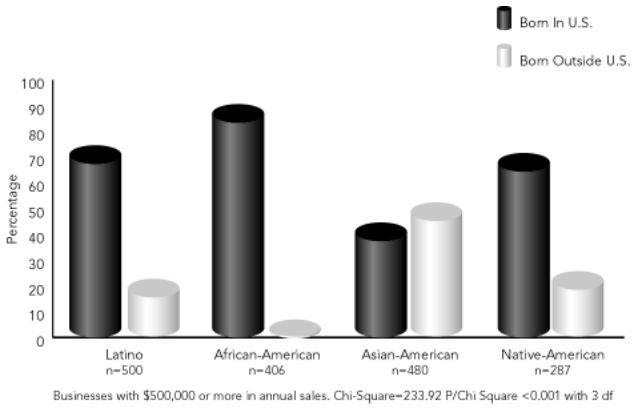
Businesses with $500,000 or more in annual sales. Chi-Square=6.22 P/Chi Square=NS

There were not significant differences among the business subgroups regarding the gender or age of the business executives interviewed. At least 65% were males and over one-third fell between the ages of 35 and 49, with only a few being younger than 25.

As shown in FIGURE 2, significant differences were found regarding the respondent's place of birth. Asian-American firms had the largest proportion of business executives born abroad (54%), followed by Native-American firms (27%), and Latino firms (24%). African-American businesses had the lowest proportion of business executives born in foreign soil. Further inquiry regarding the relatively high proportion of Native-American firms with business executives born outside the U.S. revealed that only 5% of those born outside the U.S. were also the business owner. Nonetheless, the unexpected proportion of respondents born abroad found among Native-American firms places some limitations on the results obtained for this ethnic group.

Figure 2

Birthplace of Respondents

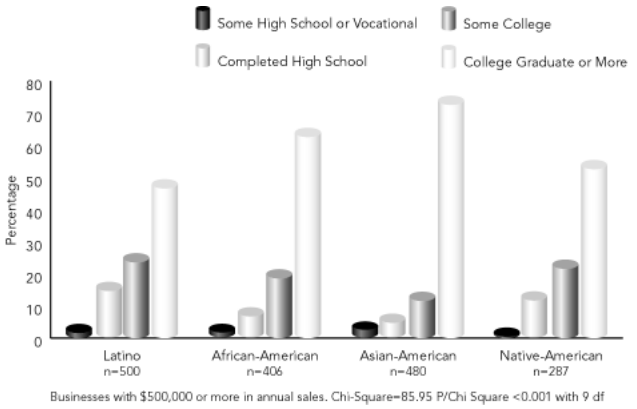


Businesses with $500,000 or more in annual sales. Chi-Square=233.92 P/Chi Square <0.001 with 3 df

Significant differences were also found on the educational level of respondents. Business executives in Asian-American firms were the most educated, with 76% having completed college (FIGURE 3). In contrast, only 50% of the executives interviewed among Latino businesses had graduated from college. These educational differences remain when senior executives were analyzed as a subset.

Figure 3

Education of Respondents



Businesses with $500,000 or more in annual sales. Chi-Square=85.95 P/Chi Square <0.001 with 9 df

In contrast with education, respondents in Latino firms had more years of managerial experience than the other subgroups. The differences were statistically significant and show that the average number of years of experience was higher among Latino firms' executives than among any of the other subgroups. The median number of years of managerial experience was 20 for Latinos, compared to 15 for the other three subgroups.

Business Characteristics

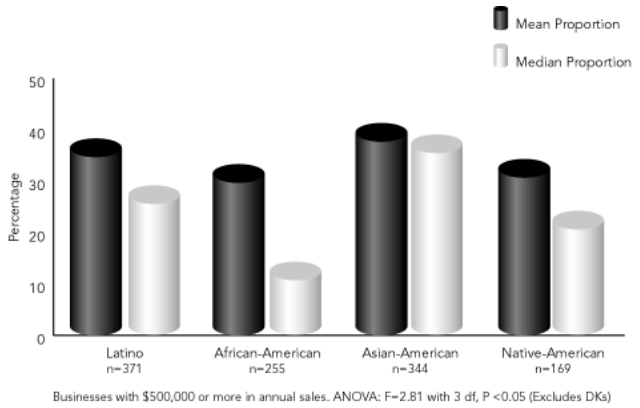
Information was also collected on business characteristics. Although firms included in the sample are the largest among minority-owned businesses, they are small when evaluated by the Small Business Administration (SBA) criterion, which classifies firms with fewer than 500 employees as small (U.S. SBA, 1998).

In terms of industry, annual sales volume and profitability in the previous year, minority-owned businesses did not differ significantly. Average annual sales ranged from $4.9 million among Latinos to $3.3 million for Asian-Americans; however, the analysis indicates that these differences were not statistically significant. When examining median instead of average annual sales, the median was much smaller than the mean and it ranged from $1.3 to $1.5 million. Similar results were obtained when estimating the mean and median number of full time employees working in these firms. The mean number of full time employees ranged from 34 among Latino firms to 22 for Asian-American firms, and the median varied from 14 among Latino firms to 10 for Asian-American owned businesses. These findings corroborate that these firms are rather small. The overwhelming majority of the companies made a profit the preceding year. The proportion of companies that reported to be making a profit ranged from 87% among Asian-Americans to 93% among African-Americans.

According to respondents, minority-owned firms differed significantly on the proportion of minority customers served (FIGURE 4). While on average they catered primarily to non-minority buyers, Asian-American firms had the largest average share (42%) of minority customers and African-American firms the lowest (34%). These differences were even larger when the median proportion of minority customers served was examined.

Figure 4

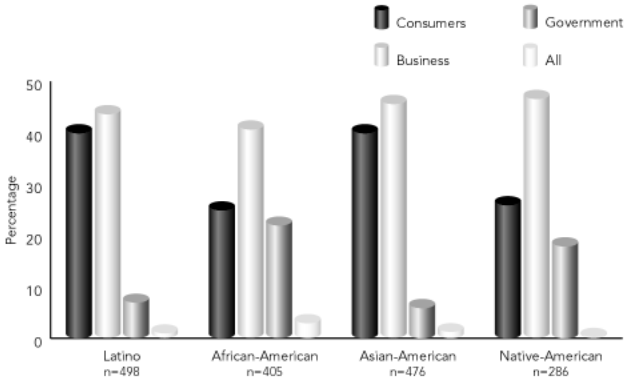
What Proportion of Your Customers are Minorities?



Businesses with $500,000 or more in annual sales. ANOVA: F=2.81 with 3 df, P <0.05 (Excludes DKs)

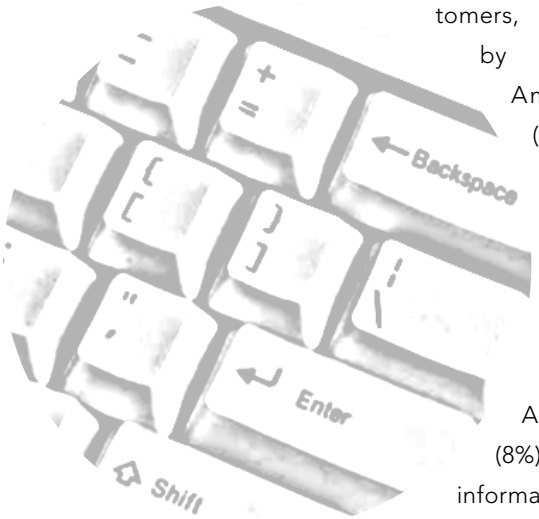
Figure 5

Are Your Customers Primarily Businesses, Consumers or Government?



Businesses with $500,000 or more in annual sales. Chi-Square=89.08 P/Chi Square <0.05

Another important piece of information collected was the primary economic sector in which these firms sell their goods and services. As displayed in FIGURE 5, Latino and Asian-American firms were more likely than African and Native-American firms to provide goods and services to consumers or the general public, and Asian and Native-Americans were more likely to serve the business sector. On average, African-Americans had the largest market share (24%) of government customers, followed by Native-Americans (20%), Latinos (9%), and Asian-Americans (8%). This information is used later in the report to estimate the segment of minority-owned businesses engaged in B2C, B2B, and B2G e-commerce.



Use of Information Technology

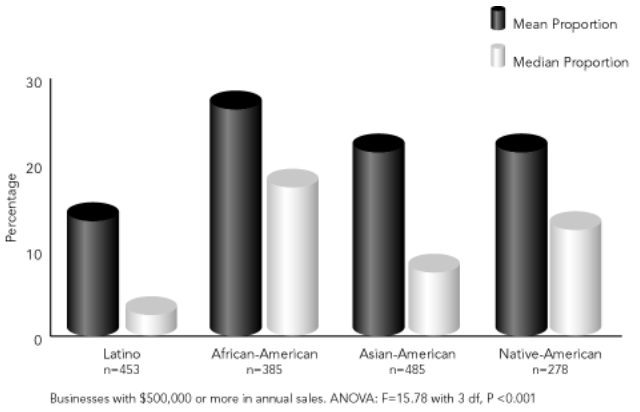
Information technology is changing the field of communication and it has revolutionized trade and commerce all over the world, but especially in the United States. In 1999, about 85% of businesses with fewer than 100 employees used computers (IDC, 1999). A more recent survey by Dun & Bradstreet (D&B) Corporation indicates that 68% of small businesses had personal computers (D&B, 2000). This proportion was 66% for minority-owned businesses. In the D&B survey, a small business was defined as a firm with 100 or fewer employees, and the sample of minority-owned businesses selected was rather small (111).

To determine to what extent large minority-owned businesses rely on information technology, questions were asked about employees' use of computers, the share of business communication done by e-mail, and the type of Internet connectivity. The data reveal that employees in over 90% of these businesses used computers to do their work. On average, employees of African-American firms had the highest

use of computers and those in Latino firms the lowest (71% vs. 52%). These differences were statistically significant. Further, the proportion of business communication via e-mail was significantly higher among African-American firms (29%), compared to 16% for Latino firms, and 24% for each of the two remaining subgroups (FIGURE 6).

Figure 6

What Proportion of Your Business Communication is Via E-Mail?

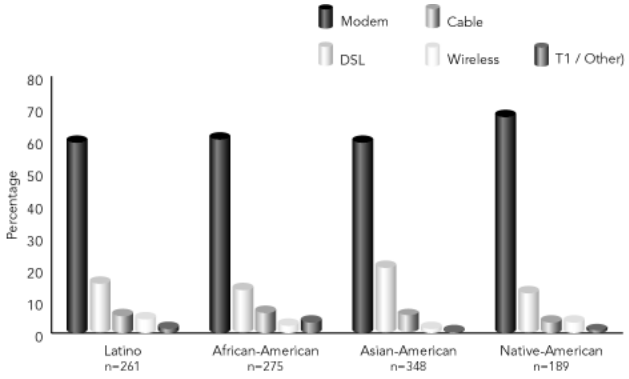


Businesses with $500,000 or more in annual sales. ANOVA: F=15.78 with 3 df, P <0.001

Respondents were also asked about the type of Internet connectivity the company had. A list was read to the respondents and multiple responses were recorded. Because this question was added to the survey after data collection had already started, information was obtained on only 955 companies or 61% of the sample. Over 60% of the firms responding to the question used a modem or telephone dialup to access the Internet, followed by digital subscriber line (DSL), cable and wireless technology (see FIGURE 7). Technologies such as DSL, cable, and wireless are capable of much faster connectivity and data transmission than the more conventional telephone dialup modem. The popularity of DSL, cable and wireless have increased over the last two years, but they remain more expensive than the conventional dialup connection and they are not always available.

Figure 7

What Kind of Internet Connection Do You Have?



Businesses with $500,000 or more in annual sales. Based on multiple responses.

While respondents were never queried to find out the proportion of firms that were connected to the Internet, answers to the questions on the company's use of computers and the type of Internet connectivity were used to approximate the proportion of companies with a link to the web. The calculations show that African-American firms had the highest Internet connectivity (91%), followed very closely by Native-American firms (90%). In contrast, Latino firms were the least likely (79%) to be connected to the web. These numbers compare favorably with a nationwide survey of 647 businesses with 100 or fewer employees conducted by Dun & Bradstreet early in 1999. The D&B data reveal that a smaller fraction (70%) of the firms were Internet connected. This fraction, however, was higher (93%) for businesses with 26-100 employees (D&B, 2000).

Respondents' Perceptions of Benefits, Use, and Expectations about E-commerce

Electronic commerce is a new technology that offers a great potential for businesses, especially for minority-owned firms, to sell products to customers world wide. The Internet is color blind, and regardless of the owner's ethnicity or race, firm's location, size, or time of the day, e-commerce enables minority-owned firms to obtain and transmit product and price information instantly to consumers, acquire detailed market data, and conduct sales transactions online.

To find out about specific advantages that minority business executives attribute to e-commerce, they were asked about the major benefits of selling products online. The question was posed to all respondents (except companies that did not have computers) and multiple responses were grouped into broad categories. The most important benefit mentioned had to do with bigger markets and expanding sales (TABLE 2). The second most important benefit was associated with increased profitability and reduced costs. Less prominent were reasons such as remaining competitive and protecting market share, customer satisfaction and convenience, and the opportunity for information and communication. Tax advantages, which have been largely debated by policymakers, were the least important benefit attributed to e-commerce.

Nonetheless, regardless of the ethnic or racial affiliation of the business, the proportion of responses indicating either no benefits to selling products online or an inability to identify any benefits was rather large. Between 27% of Latino firms and 17% of African-American firms saw no benefits associated with e-commerce. To learn more about these two particular responses, they were analyzed by website ownership. It was found that these responses were more likely to come from companies without a website by a 2 to 1 ratio. It was also found that the proportion of "don't know" responses to the question was comparatively high, ranging from 13% among Asian-Americans to 10% among Latinos.

Table 2
Perceived Benefits of Selling Products Online

	Latino	African-American	Asian-American	Native-American
Bigger markets and sales expansion	26%	29%	25%	25%
Increased profitability and reduced costs	14%	19%	17%	19%
Remain competitive and protect market share	6%	6%	4%	6%
Customer satisfaction and convenience	5%	7%	8%	6%
Information and communication	5%	4%	4%	6%
Accessibility and time savings	4%	3%	3%	2%
Tax advantages	0%	1%	0%	0%
None	27%	17%	22%	21%
Other	3%	3%	5%	4%
Don't know	10%	11%	13%	10%
Total respondents	459	394	438	279

As shown in FIGURE 8, there was little difference among the responses of minority-owned businesses in relation to the question "How often do you shop online?" This question was included to learn about the business executive's familiarity with and personal use of e-commerce. As can be observed from the data, 25% or fewer respondents shopped online every week. In addition, and depending on the race or ethnicity of the business subgroup, between 29% and 37% of the business executives never shopped online.

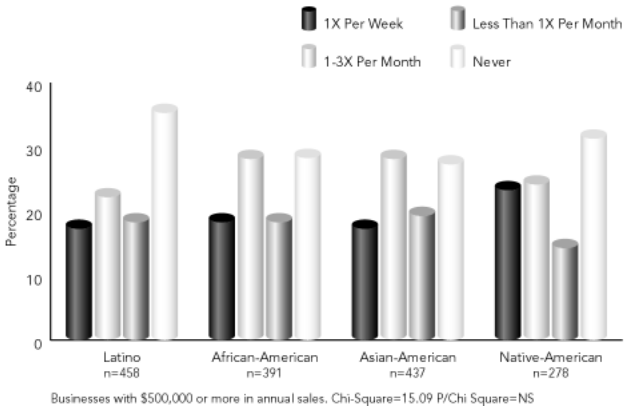


Figure 8

How Often Do You Shop On Line?

When asked how much they agree or disagree with the positive statement "Companies with an e-commerce site have a competitive advantage," the majority of business executives strongly agreed or simply agreed with the statement. Compared with 60% of Latino firms, the other three groups were more likely (66%) to strongly agree or just agree with the statement (TABLE 3). Respondents were also confronted with the question of whether they agree or disagree with the negative statement "E-commerce will never be able to compete with brick-and-mortar businesses." Relative to over 50% of African-Americans and Native-Americans, 45% of Latinos and 44% of Asian-Americans disagree or strongly

Table 3

How Much Do You Agree or Disagree With the Following Statement: Companies With an E-commerce Site Have a Competitive Advantage

	Latino	African-American	Asian-American	Native-American
Strongly agree	18%	24%	16%	22%
Agree	42%	42%	50%	44%
Neither agree nor disagree	19%	22%	15%	15%
Disagree	13%	7%	10%	10%
Strongly disagree	2%	1%	1%	3%
Don't know/refused	6%	5%	8%	7%
Total Respondents	458	394	440	279

Chi square = 37.13 P/Chi square <0.05

Table 4

How Much Do You Agree or Disagree With the Following Statement: E-commerce Will Never Be Able to Compete With Brick and Mortar Businesses

	Latino	African-American	Asian-American	Native-American
Strongly agree	6%	3%	5%	3%
Agree	16%	14%	21%	16%
Neither agree/nor disagree	21%	17%	17%	16%
Disagree	36%	44%	39%	42%
Strongly disagree	9%	13%	5%	10%
Don't know/refused	12%	9%	13%	11%
Total Respondents	458	394	440	280

Chi square = 36.85 P/Chi square <0.05

disagree with the statement (TABLE 4).

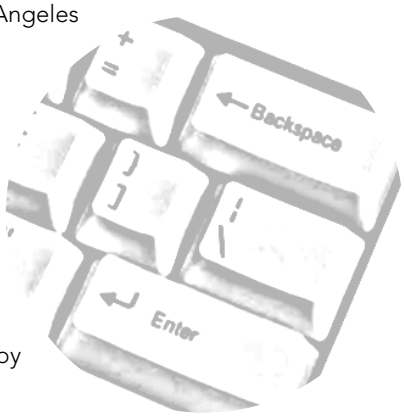
Web Presence and E-commerce Participation

Most research on business use of Internet technology has focused on small firms. In her review of the literature, Williams (1999) found that between 19% and 23% of small businesses had a website in 1998. Online ordering ranged from 19% to 37%, and online transactions were reported to be 22%. Based on a poll conducted by Arthur Andersen and Associates in 1999, 53% of small and medium size business enterprises had a website. Dun & Bradstreet's estimates of the proportion of small businesses with a home page in 1999 were as follows:

Total:	38%
1-5 employees	28%
6-25 employees	47%
26-100 employees	65%

The proportion of small businesses selling or marketing products online were about 26% in 1999 (D&B, 2000).

In the summer of 1999, the Los Angeles Times conducted a business survey of 2,000 minority-owned firms with fewer than 500 employees. The majority of these companies employed 25 or fewer workers, which roughly approximates the average size of minority-owned businesses included in our survey. The data indicate that minority businesses were lagging behind their non-minority counterparts in the use of Internet technology. About 44% of non-minority firms had a website, compared with only 23% of Latinos, 33% of African-Americans and 23% of Asians. Participation in electronic commerce also was lower among minorities, but the differences were smaller. About 15% of non-minority firms conducted sales transactions through the web, followed by African-American (12%), Asian-American (8%), and Latino (7%) businesses (Los Angeles Times, 1999).

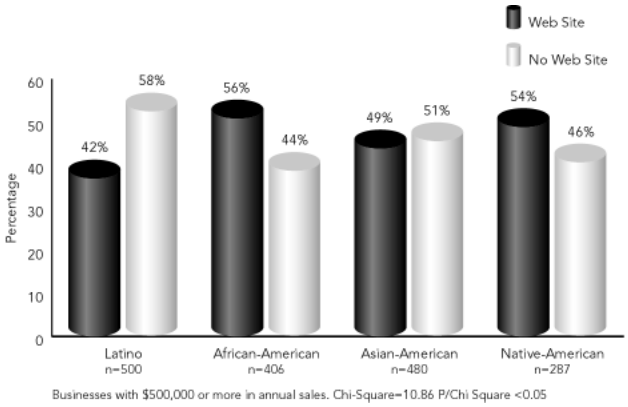


The results of our survey are presented in FIGURE 9. As many as 56% of African-American businesses had a website, followed very closely by

Native-American (54%) and Asian-American firms (49%). Latino businesses were the least likely to have a website (42%). In general, and while not strictly comparable, these estimates are higher than those obtained for Los Angeles in 1999. The differences between the two sets of estimates are too large to be ignored. In addition, our results are somewhat consistent with nationwide data collected in the year 1999, which shows that 40% of minority-owned firms (vs. 38% of all small firms) had a website (D&B, 2000). The survey data also show that the four minority business subgroups did not differ significantly on the time that their website had been in operation. On average, they have had a website for about 2 years.

Figure 9

Web Site Availability



Businesses with $500,000 or more in annual sales. Chi-Square=10.86 P/Chi Square <0.05

The number of minority-owned businesses selling products and services online was much lower than the number of web-enabled companies. FIGURE 10 shows that the differences among the four subgroups were very small and statistically not significant. Participation rates ranged from 13% among Latinos to 10% for Native-American firms. The proportion of Latino and Asian-American firms engaged in e-commerce was higher than those reported for Los Angeles. This is encouraging since one would expect higher e-commerce participation in highly urbanized areas, such as Los Angeles, than nationwide. Regardless of ethnicity or race of the business owner, minority-owned e-commerce sites were relatively new and had been around for only a short period of time, about 1.5 years on average. It is important to note that while incidence rates among minority-owned businesses were lower than the estimated 26% provided by D&B for 1999, the D&B number reflects a broader definition of e-commerce since it includes companies marketing or selling products online (D&B, 2000). Thus, in this case, a comparison of the two samples would not be justified.

Figure 10

E-commerce Participation

Table 5

What Type of Content Do You Have on Your Website?

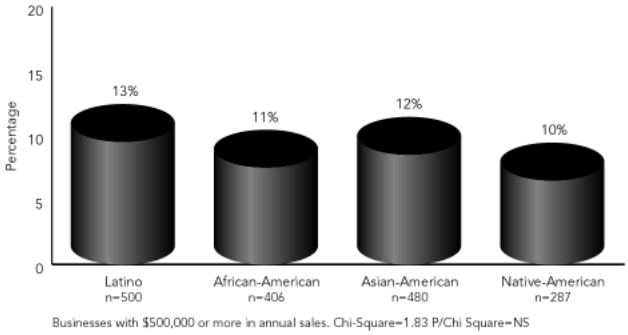
	Latino	African-American	Asian-American	Native-American
Company information (1)	34%	42%	37%	36%
Product information (2)	30%	29%	32%	30%
Support information (3)	15%	12%	15%	16%
Purchasing information (4)	4%	3%	4%	5%
All of the above	15%	12%	9%	10%
Don't know/refused	2%	2%	2%	3%
Total responses	100%	100%	100%	100%
Total respondents				

(1) Name of CEO, owner, other officers, and firm's background

(2) Company brochures

(3) E-mail and newsgroups

(4) Including on-line ordering



Businesses with $500,000 or more in annual sales. Chi-Square=1.83 P/Chi Square=NS

Capability of Existing Websites

Businesses usually move into e-commerce gradually by increasing the sophistication and technical capability of the website. They normally start implementing the most basic application and progressively incorporate more advanced tools. Developing an e-commerce site in stages is usually more manageable and economical. Most Internet experts agree that there are three or four stages in website evolution (Hagerty, 2000; Rosen, 2000; Cohan, 1999). In stage I, the website is used typically as a promotional device. Company and product information are the only two features usually displayed online. In stage II, the website is equipped with e-mail and support groups, in addition to company information. At this stage, sales can be transacted by telephone or mail. Stage III includes the technical tools necessary to handle online purchases. Stage IV is the most advanced phase in website evolution and it usually integrates online transactions with company operations such as bookkeeping and inventory management.

The survey data confirms that the adoption of e-commerce among these large minority-owned businesses proceeds in stages (TABLE 5). For example, over 60% of all businesses said to have company or product information on their website, placing them at stage I of e-commerce evolution. Between 15% and 12% offered support information, such as e-mail and newsgroups, suggesting that these firms are at stage II. Companies in the last two categories seem to be at

stage III. As expected, a small proportion had purchasing information only. Latino firms were most likely (15%) to have all types of contents and Asian-American companies the least likely (9%).

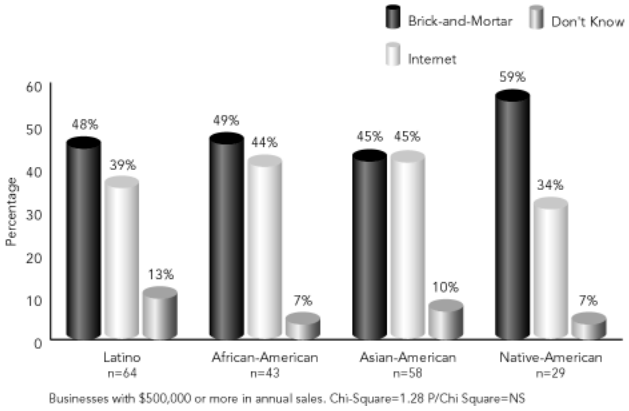
Brick-and-Mortar or Virtual Firms?

There is much controversy on the viability of brick-and-mortar firms vs. Internet firms. For further discussion, see Webber, T. (1999). Some experts have argued that Internet firms eventually will replace the more traditional retail stores. Presuming that Internet firms can run a business cheaper and more effectively, their market is somewhat limited since they can only sell to online customers. In contrast, brick-and-mortar companies can break easily into e-commerce because they already have the distribution channels and customer base in place. As The Economist magazine recently pointed out, the two models are likely to converge in the future and the most successful firms will have to rely on a combination of e-commerce and old-fashion brick-and-mortar buildings (The Economist, 2000). This point is being painfully confirmed by the recent dot-com debacle.

To find out whether companies engaged in e-commerce were extensions of brick-and-mortar businesses or just Internet firms, respondents were queried on the subject. According to FIGURE 11, the proportion of brick-and-mortar businesses was higher for Native-Americans (59% vs. 34%) and Latinos (48% vs. 39%) than for African-Americans (49% vs. 44%) and Asian-Americans (45% vs. 45%). Firms claiming to be strictly cyberfront ranged from 3% of the sample among Native-American businesses to 5% in the other subgroups. Further analysis of the data revealed that Internet companies were as likely as brick-and-mortar firms conducting e-commerce to make a profit last year.

Figure 11

Is Your E-commerce Site an Extension of a Brick-and-Mortar Business or is it Exclusively an Internet Business?



Businesses with $500,000 or more in annual sales. Chi-Square=1.28 P/Chi Square=NS

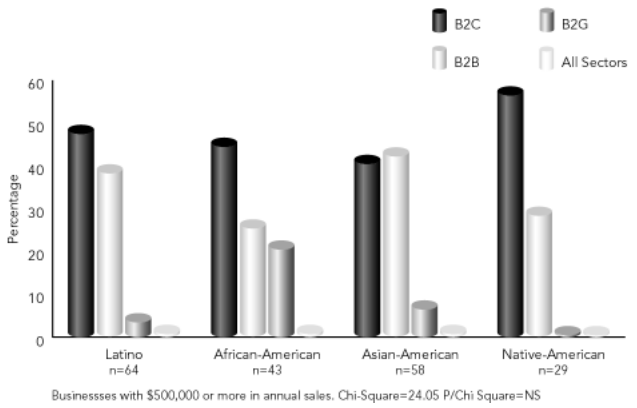
Economic Sector Served

Another important piece of information obtained from the survey was the primary economic sector served by companies engaged in electronic commerce. With the exception of Asian-American firms, more firms appeared to be involved in B2C transactions than in B2B sales (FIGURE 12). As high as 59% of the Native-American firms were operating in the B2C market, followed by Latinos (50%) and African-Americans (47%). Relative to the other subgroups, African-American businesses were more active in the B2G market. Minority-owned businesses conducting e-commerce appeared to be busy selling to people of color. For example, African-American firms engaged in B2C transactions had the largest average proportion (46%) of minority customers, followed by Asian-Americans (41%), Latinos (38%), and Native-Americans (31%).

Figure 12

Firms With E-commerce

by Type of Economic Sector Primarily Served



Products and Services Sold Online

According to Rosen (2000), the most viable products to market in cyberspace are those that can be easily identified. Popular commodities sold over the net include apparel, automotive parts, beauty supplies, books, flowers, music, electronics, jewelry, office supplies and equipment, recreational gears, and toys. Services easily transacted over the Internet are those that do not involve personal delivery (e.g., travel, financial, translation services, etc.).

The survey revealed that minority-owned businesses marketed a wide variety of products and services over the Internet. The different commodities and services offered by these firms were classified into 138 detailed industrial sectors and ranked in ascending order to identify the top 10 sectors whose products are sold online. The list is provided below:

Top ten sectors selling online:	Percent of total firms
New or used car dealers	8.1%
Commercial printing	2.5%
Engineering services	2.5%
Travel agencies	2.4%
Business services (nec)*	2.3%
Customized computer programs	2.2%
Repair services (nec)*	1.9%
General automotive repair services	1.8%
Industrial supplies	1.8%
Hotel and motels	1.6%

** not elsewhere classified*

Notice that eight of the ten listed sectors were involved in the provision of services. Only automobiles and industrial supplies are products. Other merchandise and services sold ranged from 0.5% to 1.5%, and included computer peripheral software, computer integrated systems, electronic parts, home furnishings, jewelry, nonresidential construction, office equipment, accounting and bookkeeping services, management consulting, freight transportation, insurance and so forth. Most of the popular products sold online were not part of the top ten sectors listed above, but this underrepresentation may be due in part to the small sample size of firms involved in e-commerce.

Table 6

What are the Major Reasons That Your Business Does Not have an E-commerce Site?

	Latino	African-American	Asian-American	Native-American
Product does not lend to e-commerce	20%	23%	21%	24%
Does not want to and does not need to	15%	11%	14%	13%
Company infrastructure is not ready	10%	14%	17%	12%
Too much competition, market is too small	6%	6%	5%	9%
Offer services, not products	5%	8%	4%	9%
Not a priority/waiting to see what happens	7%	9%	4%	4%
Lack of expertise	6%	7%	5%	4%
Too costly	6%	6%	5%	3%
Don't know/refused	6%	4%	5%	6%
Firm only sells to distributors	3%	0%	4%	3%
Other	2%	1%	4%	2%
Don't feel comfortable with technology	3%	2%	1%	3%
Company too small/can't handle workload	3%	1%	2%	2%
Starting soon	2%	3%	1%	1%
Security issues	2%	2%	2%	1%
It's a hassle to change	2%	1%	2%	2%
Not legal to sell product	2%	1%	1%	1%
Does not sell to the public	1%	1%	1%	1%
Total Responses	100%	100%	100%	100%
Total Respondents	357	311	337	21

Chi-Square test not performed because of multiple responses

Barriers to E-commerce Participation

Like many other small businesses, minority-owned firms face major obstacles to participate in electronic commerce. To find out why companies without e-commerce do not have it, business executives were asked "What are the major reasons your business does not have e-commerce?" There were multiple answers to the question and they are displayed in TABLE 6.

The most important reason was unrelated to any specific barrier. Depending on the business subgroup, between 20% and 24% of the responses reflected the business executives' perception that the product or service offered by the company is incompatible with e-commerce. The second most important reason involved between 11% and 15% of the respondents, who indicated that the company does not have e-commerce because it "does not need to or does not want to." In addition, between 4% and 6% of the responses

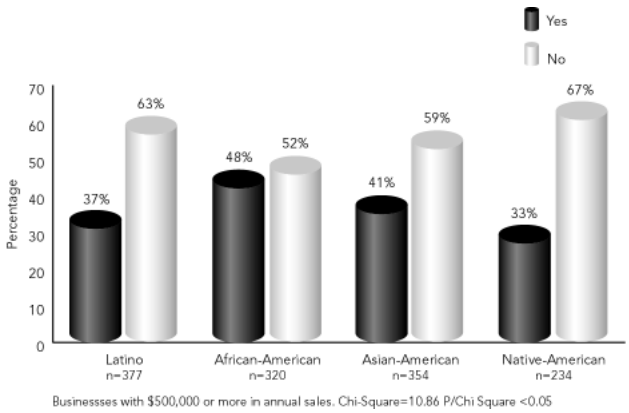
suggested that the business executives did not know what was preventing the company from participating in e-commerce.

Nonetheless, many of the responses pointed toward actual barriers, doubt or concern about the viability of e-commerce, and a guarded outlook about the market potential of the technology. For example, 17% of Asian-American businesses, followed by 14% of African-Americans, 13% of Native-Americans, and 10% of Latinos indicated that the company infrastructure is not ready. Since technically, everyone should be able to connect to the Internet, one can only speculate about the meaning of this response. Based on subsequent telephone calls made to three of the business executives, more specific reasons surfaced. For example: absence of special software required for credit card acceptance or encryption capability, inability to host the e-commerce site internally, and lack of faster connectivity (e.g., broadband). Thus, it seems that some of these companies do not realize that e-commerce solutions do not have to be hosted internally, and they can be outsourced or hosted at another site. Other reasons mentioned for not being engaged in e-commerce included a concern for too much competition, a wait and see attitude, not enough expertise, too costly, legal constraints to selling products online, not feeling comfortable with the technology, and security issues.

The watchful attitude and concerns of business executives echoed above are further mirrored in their plans to implement an e-commerce site in the near future (FIGURE 13). The majority of respondents in companies without e-commerce indicated that they had no plans to launch an e-commerce site soon. A significantly higher proportion of Native-American businesses (67%) did not foresee using the technology anytime soon, followed by Latinos (63%), Asian-Americans (59%), and African-Americans (52%). Those with plans to start an e-commerce site soon were asked "How soon do you expect to launch an e-commerce site." On average, these businesses did not see implementation of the technology happening immediately, but in approximately 1.5 years.

Figure 13

Do You Expect to Launch an E-commerce Site Soon?



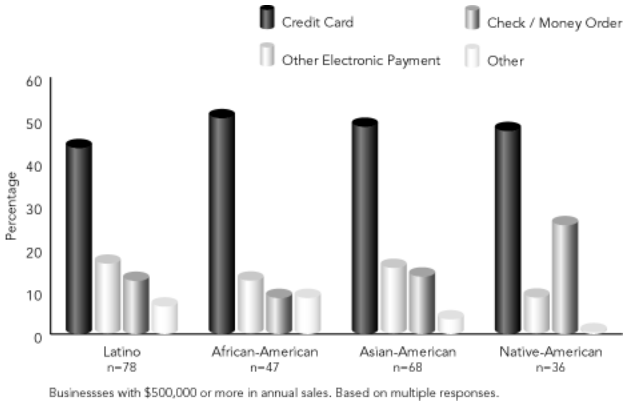
Lessons Learned

1
Site Characteristics

Responses to several questionnaire items were analyzed to identify key characteristics of the e-commerce sites operated by minority-owned businesses and to uncover their experiences in using the technology. A question related to payment for purchases made online was "How does your e-commerce site handle purchases from customers"? Since multiple responses were allowed, a company could have replied with more than one answer. As displayed in FIGURE 14, most online purchases were handled through credit card or other form of unspecified electronic payments, but check and money orders were used in some cases as well.

Figure 14

How Does Your E-commerce Site Handle Purchases from Customers?



Businessses with $500,000 or more in annual sales. Based on multiple responses.

2
Information and Services Provided

Respondents also were asked about information and services offered to site visitors and customers. Many of these features are important marketing tools which help enhance the customer's online experience and can ultimately affect the visitor's disposition to make a purchase or to return to the site. The business executives simply answered "yes" or "no" to the several questions raised. Some of these items were relatively more favored by one subgroup, but the differences were minor and not statistically significant. In addition to product and price data, and depending on the ethnicity or race classification of the business, companies provided the following information:

- Order confirmation by return e-mail (11%-20%)
- Description of product/service benefits (10%-21%)
- Answers to frequently asked questions (8%-15%)
- Product delivery time (8%-15%)
- Customer satisfaction statements (7%-18%), and
- Status of purchase order; (5%-10%)

Less prominent were price discounts and financial rewards such as free delivery, cash back coupons, free goodies, and sweepstakes. All these were offered by fewer than 8% of the businesses engaged in e-commerce.

3
Advertising Techniques Used

Respondents were also questioned on the most effective advertising and promotional techniques used to bring potential customers to the site. As the title of one recent newspaper article indicates "you can have the greatest e-commerce site on the web, but the trick is to get people to come to it" (Peterson, 1999). The most important marketing strategies employed to increase website traffic were:

- Web-banners (5%-6%)
- Newspapers and magazines (5%-6%)
- Search engines (3%-6%)
- Direct mailing/brochures (1%-5%)
- Television (0%-5%)
- Marketing to existing customers (0%-4%)

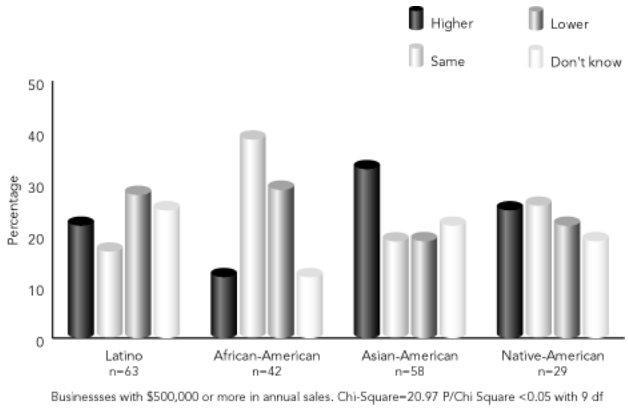
While web banners are one of the most popular tools used to advertise e-commerce sites, it has been suggested that this particular technique is more successful when changed frequently (Rosen, 2000). Only a small fraction of respondents used television, a tool considered to have a broader marketing appeal according to some experts (Petersen, 1999). Advertising on television, however, is rather expensive. Other marketing tactics mentioned were radio, online newsletters, e-mails to recent website visitors, e-mail to recent customers, trade journals, and e-mail to potential customers. Regardless of the ethnicity or race of the business owner, none of these responses exceeded 3%.

4
Perceived E-commerce Revenues and Costs

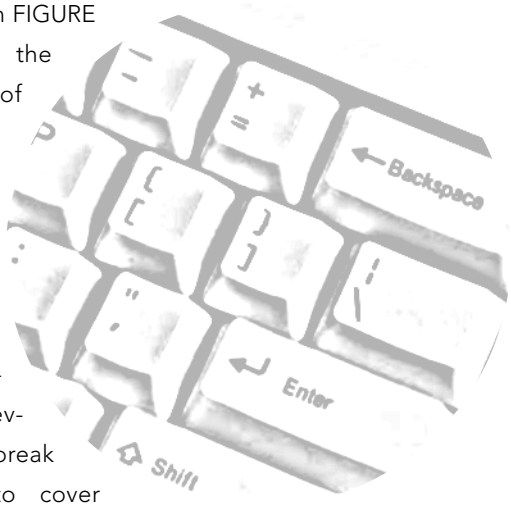
Whether the company is a brick-and-mortar or a virtual venture, the main objective of selling online is to make a profit. While many e-commerce businesses operate at a loss at the very beginning, the economic theory of the firm indicates that losses cannot go on indefinitely. The fate suffered by many dot-coms lately is a vivid reminder that profits do matter and ultimately determine the survival of e-businesses.

Figure 15

Are Revenues Generated Through your E-commerce Site Higher, Lower, or About the Same as the Cost of Promoting and Operating the Site?



To find out how well minority-owned businesses are doing in covering the e-commerce site operating costs, the survey asked the question: "On average, are the revenues generated through your e-commerce site higher, lower or about the same as the cost of promoting and operating the site?" Responses to the question are shown in FIGURE 15. With the exception of Latinos, over one-half of the companies reported to be generating revenues to break even or to cover operating costs. Asian-American businesses were the most likely (37%) to have revenues in excess of costs and African-American the least likely (14%). Consistent with this finding is that e-commerce sites run by Asian-American firms were the least likely (21%) to be experiencing losses and African-American firms the most likely (31%). This picture, however, can change overnight because e-business is a very dynamic market and changes can occur very rapidly. In addition, these minority business-operated e-commerce sites have been around only for a short period of time.



In terms of the proportion of total sales made online, the four subgroups of minority businesses did not differ significantly. Average online transactions as a percent of total sales ranged from 21% among Native-Americans to 9% among African-American firms. The median was much lower and it varied from 10% for Native-Americans to 5% for everyone else. When converted into dollars, median annual sales made online fared well relative to the cost of operating the site as discussed further below. However, it is not clear from the data whether these numbers represent additional sales or they simply replaced sales made through the more traditional nonelectronic channels. Median annual sales made online were as follows:

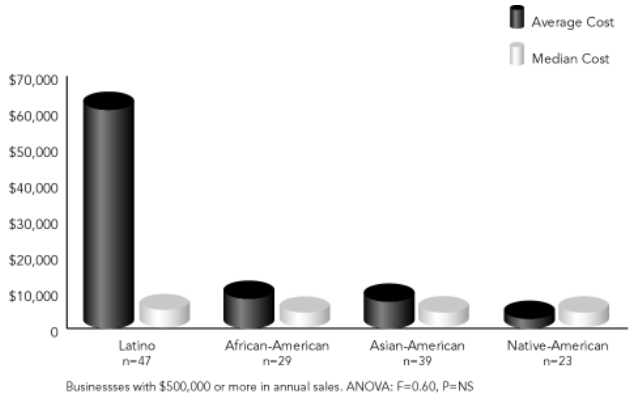
Latinos:	$90,000
African-Americans:	$76,000
Asian-Americans:	$103,000
Native-Americans:	$131,000

To throw some light on the capital resources required to launch an e-commerce site and the expense associated with its operation, respondents were asked to provide information on the subject. The reader is reminded that the numbers provided are based on the perception of the business executives interviewed. Thus, there is always the possibility that some cost items are not remembered by the respondent and that the information provided is not completely accurate. In general, cost data are seldom available and companies are hesitant to release them. In addition, these e-commerce sites are fairly new and companies are not likely to commit too many resources when initiating this activity. Average and median startup costs are reported in FIGURE 16.

Figure 16

What Were the Initial or

Startup Costs (Consulting, Equipment, Software, etc.) of Launching Your E-commerce Site?



The data indicate that the investment made by minority-owned businesses in e-commerce technology was very modest. The median startup costs tend to cluster around the $2,000 mark, with the exception of Latino businesses which reported a lower startup cost of $1,169. However, the average startup cost for Latinos ($67,000) far outdistanced that for other firms by a 5-to-1 margin, suggesting that some Latino firms are investing more capital in order to acquire the technology. It was also found that business size, as measured by annual sales, was not associated with the amount of capital initially invested to develop e-commerce.

As expected, median annual costs of operating an e-commerce site were lower than startup costs, and they ranged from a high of $1,200 for Asian-American firms to a low of $750 for African-Americans (FIGURE 17). Regardless of the race or ethnicity of the business owner, roughly two thirds of these companies rely on Internet services providers (ISPs) to host their e-commerce operations. Heavy reliance on ISPs may, in part, explain the rather low operating costs incurred by these firms. Only one-third host the site internally. As in the case of startup costs, no association was found between business size, as measured by annual sales, and the site's annual operating expenditures.

Figure 17

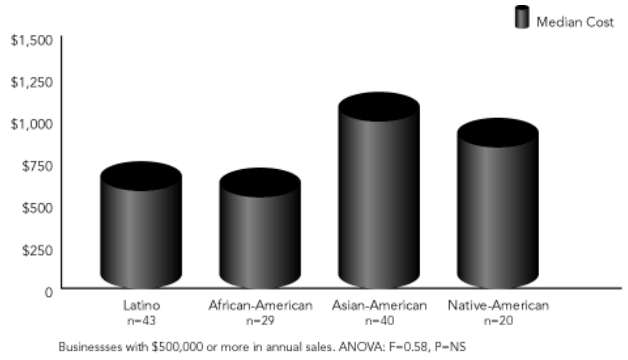
What are the Approximate Annual Costs of Operating Your E-commerce Site?

Table 7

What Were the Principal Challenges You Encountered During the First Six Months Your E-commerce Site Was in Operation?

	Latino	African-American	Asian-American	Native-American
Marketing to customers	14%	23%	30%	31%
Technical	25%	23%	16%	19%
Management and Task Coordination	12%	23%	5%	13%
None/nothing	11%	4%	5%	9%
Other	11%	15%	13%	13%
Don't know/refused	28%	13%	31%	16%
Total Respondents	63	42	58	29

Chi-Square test not performed because of multiple responses

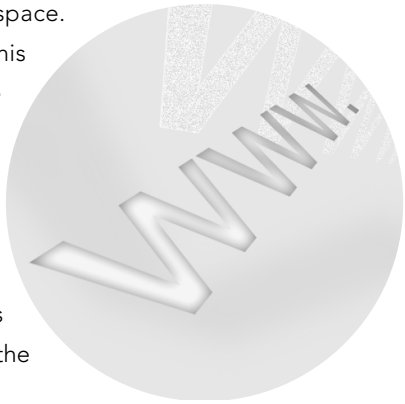


In spite of the media frenzy on the role played by venture capital in financing e-commerce ventures, about two-thirds of minority-owned businesses used company revenues to launch their sites. Personal loans were the second most important source of finance mentioned. Bank loans ran a distant third, with only 4%-6% of the businesses relying on this source of capital.

5
Challenges Encountered When Launching the Site

In terms of the difficulties encountered when they first started their e-commerce sites, the majority seemed to have experienced a wide variety of problems during the first six months of operations. Problems identified by the respondents were aggregated into broader areas and they are presented in TABLE 7.

Although the responses varied somewhat among the four subgroups of minority-owned businesses, issues dealing with marketing and customer satisfaction appeared to be high among Native and Asian-American firms, but lower among African-American and Latinos. Providing customer services and responding to consumer needs is key to being successful in cyberspace. Firms that ignore this fundamental principle jeopardize the ability to compete effectively in the Internet market.



Technical problems were also cited in the survey, including:

- Site design
- Site breakdown and crashing
- Learning how to operate the site
- Integration of on-line and off-line system
- Too long to download graphics
- Site maintenance

Minority-owned firms also mentioned having problems with internal task management and coordination associated with e-commerce transactions. For example:

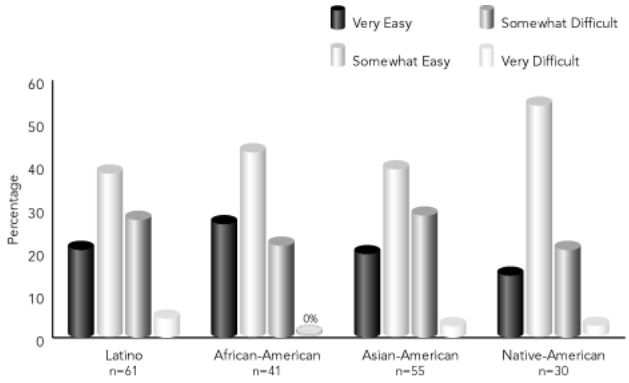
- Inventory management
- Shipping and delivery
- Processing payments
- Staffing the site
- Staff aversion to technology

A surprisingly large proportion of respondents (10% to 13%) did not know of any problems or refused to answer the question.

Figure 18
In General, How Difficult Was Launching Your E-commerce

FACTORS AFFECTING THE USE OF INTERNET TECHNOLOGY RESULTS

Site?

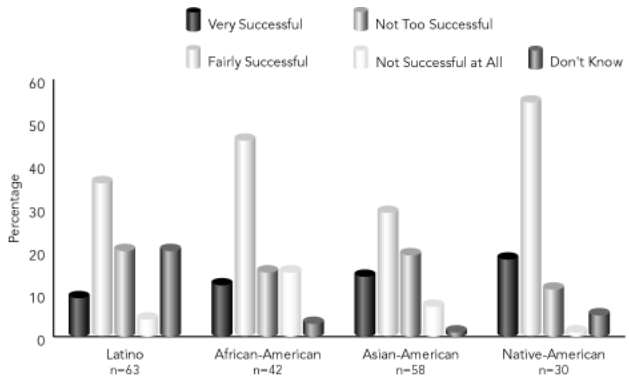


Businesses with $500,000 or more in annual sales. Chi-Square=5.90 P/Chi Square <0.05 with 9 df

In spite of the difficulties encountered when initiating their e-commerce site, the majority of these companies thought that launching the e-commerce site was very easy or somewhat easy (FIGURE 18). On average, close to one-third mentioned the task to be difficult or somewhat difficult. In addition, when confronted with the question of how successful the company's e-commerce site is, close to 50% indicated their site to be very or fairly successful (FIGURE 19). Those mentioning that their site is not too successful or not successful at all were in the minority. It is important to note that as many as 22% of Latino firms and 24% of Asian-American firms responded "don't know" to the question.

Figure 19

In General, Would you Say That Launching Your E-commerce Site Was...



Businesses with $500,000 or more in annual sales. Chi-Square=20.97 P/Chi Square=NS

This section presents the results of the multivariate analysis conducted with the survey data. To test the hypotheses about the factors predicting the use of Internet technology to conduct e-commerce, logistic regression models were estimated for Latino, African-American, Asian-American, and Native-American businesses. This statistical technique is well suited for the study of survey data. The dependent and independent variables of the models are described below. A total of eight logit regression models were estimated, four for each dependent variable.

Dependent Variables:

The use of Internet technology was defined along two dimensions: (1) website availability and (2) e-commerce participation. Website availability was measured as 1 if the company had a website and 0 otherwise. Participation in e-commerce is the other dependent variable and it was measured as 1 if the company conducted transactions online and 0 otherwise.

Independent Variables:

The independent variables consist of several factors believed to affect website availability and the presence of e-commerce. These are grouped into four categories.

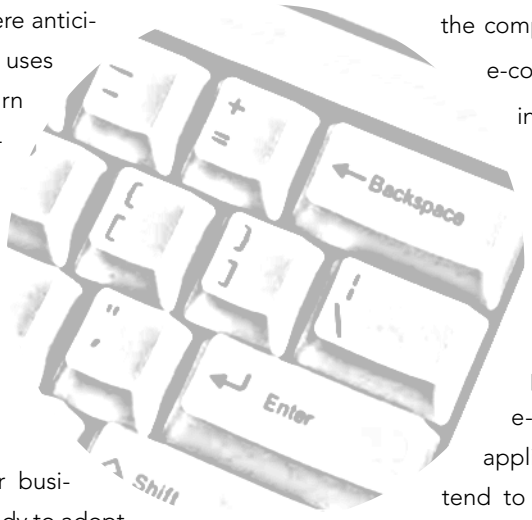
1
Business Executive's Attributes

The first set of factors examined were the years of managerial experience of the business executives interviewed and their sociodemographic characteristics:

- Years of managerial experience
- College education (yes or no)
- Place of birth (i.e., in or outside of the U.S.)
- Age

These variables were introduced as controls, but they were expected to affect the use of Internet technology. Decision makers with more managerial experience and with college education may have a better understanding of the valuable role that the Internet can play in expanding businesses. Thus, firms with business executives with longer years of management experience and with college educations were expected to have a greater likelihood of having a website or being engaged in e-commerce than companies whose executives had fewer years of experience and no college education, when controlling for other variables.

Since Internet technology started in the U.S. and is gradually expanding to other parts of the world, in general, business executives born in the U.S. were anticipated to be more familiar with Internet uses and its importance than those born abroad. As a result, they were expected to increase the company's likelihood of having the technology. Thus, a positive relationship was predicted in this case. This line of thinking may not always be true, especially if the business executive was born abroad but was raised in the U.S.



Holding other factors constant, older business executives may not be quite as ready to adopt Internet technology as their younger counterparts. Because they are older, many of these executives were probably less exposed to computers and information technology in their younger years or they may subscribe to the command-and-control management style and be less open to new ideas in general. These older executives may be more skeptical or slower in recognizing the value of the new technology and, therefore, more resistant to implement it. Thus, age of the business executive was expected to be negatively correlated with the company's likelihood of being web-enabled or having an e-commerce site.

2
Business Executive's Perceptions and Experience Shopping Online

The second set of factors included in the models reflects the business executive's perceptions and experience with shopping online. The first three variables in the list below were believed to influence the firm's likelihood of having a website or selling online in a positive fashion:

- Mentioned of at least one benefit associated with e-commerce
- Agreement with the idea that e-commerce has a competitive advantage
- Frequency of shopping online
- No mention made that the product or service that the company provides is incompatible with e-commerce (this variable was included in the e-commerce equation only).

Business executives who mentioned at least one e-commerce benefit probably are more likely to recognize the web market potential. This attitude, in turn, may influence whether the company has a web presence or engages in e-commerce. The same reasoning applies to those business executives who tend to agree that e-commerce improves the company's competitive advantage. In general, this group may be better informed about the useful role that Internet technology can play in remaining competitive.

Business executives who frequently shop online are probably more comfortable with the Internet, as well as more knowledgeable of it, so they are probably more inclined to push its use in their own companies than those who seldom shop online.

Firms where business executives made no mention that their products do not lend themselves to e-commerce or are incompatible with it were expected to have a lower likelihood of selling products online. Whether right or wrong, such thinking can affect the company's decision to adopt the technology. This variable was included in the e-commerce equation only.

3
Business Characteristics

The third set of factors capture the characteristics of the business. These include the following:

- Proportion of minority customers
- Company's profitability last year (yes or no)
- Longevity
- Annual sales volume
- Proportion of business communication via e-mail
- The number of years that a company had a website (included in the e-commerce equation only)

Keeping other variables constant, the proportion of minority customers served by the business was thought to affect the use of the technology negatively. In other words, the larger the proportion of minority clientele, the lower the likelihood of having a website or selling products online, when controlling for other factors. Why? Because of the existing digital divide (i.e., the separation of those with and without access to the Internet), especially in the B2C market, ethnic and racial minorities are less likely to have computers or be connected to the web. Thus, business executives are not likely to rush to adopt a technology which is inaccessible to the company's customer base. If the clients cannot shop online, what's the use of selling?

Firms that made a profit last year were expected to make greater use of the Internet than those that did not. Profitable firms may have a more positive outlook of the future and may have the necessary cash flow to acquire the hardware and software necessary to move into cyberspace. While it is conceivable that causation can run in the other direction, the effect of e-commerce on the company's profitability was not examined because most of these firms have not used the technology long enough to measure its impact on profits.

The longevity of the business was anticipated to affect the dependent variables positively. The older the business, the greater the stability of the company, and probably the more steady the revenue flow required to finance investment in cyberspace. For the same reason, larger companies were expected to be higher users of Internet technology than smaller companies.

The company's use of e-mail is another business trait included in the equations. The more a company communicates through e-mail the more Internet-integrated the business is likely to be. Thus, the higher the proportion of the company's communication done through e-mail, the higher the chances that the company has a website or that it sells products online.

The last business trait is the number of years the company has had a website. This variable is inserted in the e-commerce equation only, and it was expected to affect the company's probability of having e-commerce positively. Why? Presuming that companies implement e-commerce in stages, they are likely to have a website for some time before they actually start selling online. As discussed earlier in the report, e-commerce usually proceeds in stages, starting with the company's website and ending with online sales transactions. The survey data seem to confirm this line of reasoning.

Results for the Website Availability Equations

TABLE 8 shows the effect of the independent variables on web-

Table 8

Logistic Regressions Explaining Website Availability Among Minority-Owned Businesses

Logit Coefficients (Standard errors are in parenthesis)

	Latino	African-American	Asian-American	Native-American
Business Executive's Attributes				
Years of managerial experience	-0.005	-0.02	0.006	0.017
	(0.017)	(0.021)	(0.017)	(0.022)
College education	-0.023	-0.168	0.155	0.922**
	(0.239)	(0.294)	(0.289)	(0.386)
Born in the US	-0.374	0.378	0.046	0.319
	(0.276)	(0.558)	(0.270)	(0.425)
Age	0.076	-0.154	-0.003	-0.053
	(0.185)	(0.227)	(0.179)	(0.232)
Business Executive's Perceptions and Personal Use of E-Commerce				
Mentioned at least one e-commerce benefit	0.841**	0.41	0.564**	-0.026
	(0.250)	(0.304)	(0.262)	(0.393)
Agreed that e-commerce has a	-0.030	0.100	0.191	0.255**
competitive advantage	(0.118)	(0.162)	(0.140)	(0.189)
Frequency of shopping online	0.159**	0.019	0.108	0.108
	(0.065)	(0.078)	(0.074)	(0.091)
Business Characteristics				
Proportion of minority customers	-0.006***	-0.005	-0.008**	-0.019**
	(0.004)	(0.004)	(0.003)	(0.006)
Profitability last year	0.017	1.039***	0.815**	-0.288
	(0.401)	(0.623)	(0.377)	(0.625)
Longevity	-0.015	-0.008	0.017	0.002
	(0.009)	(0.011)	(0.011)	(0.015)
Annual sales volume	0.055 **	0.021	0.068 **	0.101*
	(0.021)	(0.017)	(0.031)	(0.05)
Proportion of business communication	0.017**	0.019**	0.022**	0.021**
via email	(0.005)	(0.005)	(0.005)	(0.007)
Constant	0.587	-1.267	-2.194	-1.039**
	(0.933)	(1.365)	(1.016)	(1.435)
Sample Size	371	266	352	191
Percent predicted correctly	68%	67%	69%	73%
G/K Tau-c	35%	38%	39%	43%
-2 Log L	444.36	323.78	415.79	214.69
Chi-squared	63.22**	44.24**	68.32**	45.36**

* Significant at 5% level of Significance ** Significant at 1% level of Significance *** Significant at 10% level of Significance

Other things being equal, firms with higher annual sales volume were more likely to have a website than those with lower sales volumes. As expected, the impact of sales volume is positive for all minority-owned businesses, and significant among Latino, Asian and Native-American firms.

The coefficient for the proportion of business communication via e-mail is positive and is highly significant for all the firms. This implies that the greater the proportion of communication that the company does via e-mail, the higher the likelihood of having a website. Thus, as anticipated, higher e-mail users have a higher propensity to have a website than lower e-mail users.

Results for the E-commerce Participation Equations

Because the sample of companies with a website is smaller, the number of variables used in the analysis had to be tested in a stepwise likelihood fashion. Those remaining in the equations are the most important predictors of the odds of selling products online. While this model has fewer variables, its predicted power is higher than the previous website availability model. In this case, the independent variables included in the equation predict between 76% and 83% of the firms having or not having e-commerce. The number of observations used to estimate the model is smaller since it includes firms with a website only. The results are shown in TABLE 9.

As expected, years of managerial experience turned out to be positive and statistically significant for Latino and Native-American firms. The longer the years of experience of the business executive the greater the chances of the company's having an e-commerce site. This relationship was also positive for Asian-American businesses.

In the case of Latino firms, the age of the business executive was negatively associated with the company's likelihood of selling products and services online, as postulated earlier. In other words, Latino firms with older business executives were less likely to be engaged in e-commerce than those with their younger counterparts. Nonetheless, and contrary to expectations, age was significantly and positively correlated with the firm's probability of selling products online in the case of African-American firms. This inconsistency is difficult to explain with the data available and all one can do at this point is to speculate. Perhaps, because business executives in African-American firms were more likely to be born in the U.S. than those in Latino firms, they might have received greater exposure to computer and information technology in general. Thus, the age of the business executive may be a positive factor in African-American firms, but more of an inhibitor for Latino businesses.

Although significant only for African-American firms, companies where business executives mentioned at least one e-commerce benefit were more likely to have e-commerce than those where no mention of a benefit was made. Further, Latino firms where business executives agreed that e-commerce provides a competitive advantage were more likely to have e-commerce than those who disagreed with the idea. This relationship was also positive but less influential among African and Native-American firms. As expected, holding other factors constant, the higher the frequency of shopping online by business executives, the higher the likelihood of the company being engaged in e-commerce. The relationship was only significant for Asian-Americans.

With the exception of Native-Americans, firms that had a website longer were more likely to have e-commerce than those that had a website for a relatively shorter period of time. The relationship was significant only for African-American businesses.

Although statistically not significant, companies where business executives did not mention that their product or service was incompatible with e-commerce had a higher probability of being engaged in e-commerce. As expected, the coefficient was positive for every subgroup.

Table 9

Logistic Regressions Explaining E-commerce Participation Among Minority-Owned Businesses

Logit Coefficients (Standard errors are in parenthesis)

	Latino	African-American	Asian-American	Native-American
Business Executive's Attributes				
Years of managerial experience	0.091**	0	0.022	0.059**
	(0.03)	(0.029)	(0.027)	(0.022)
College education	0.515	0.016	0.362	-1.126
	(0.530)	(0.729)	(0.442)	(0.652)
Age	-0.563*	0.506*	-0.009	0.21
	(0.293)	(0.226)	(0.273)	(0.291)
Business Executive's Perceptions and Personal Use of E-Commerce				
Mentioned at least one e-commerce benefit	0.546	1.118*	0.802	0.806
	(0.460)	(0.526)	(0.408)	(0.610)
Agreed that e-commerce has a	0.548**	1.077	-0.135	0.146
competitive advantage	(0.190)	(0.546)	(0.210)	(0.293)
Frequency of Shopping online	0.002	0.072	0.235*	-0.58
	(0.10)	(0.110)	(0.097)	-0.126
Did not mention that product is incompatible	9.844	9.616	9.705	9.111
with e-commerce	(21.692)	(17.110)	(21.464)	(23.900)
Business Characteristics				
Longevity	-0.007	0.002	-0.024	0.002
	(0.014)	(0.013)	(0.017)	(0.030)
Years with a website	0.122	0.237 *	0.144	-0.113
	(0.094)	(0.106)	(0.104)	(0.124)
Constant	-11.974	-12.749	-9.35	-11.587
	(21.710)	(17.041)	(21.474)	(23.907)
Sample Size	225	213	215	135
Percent predicted correctly	76%	82%	79%	81%
-2 Log L	175.71	144.94	181.49	102.64
Chi-squared	67.81**	63.72**	50.2**	32.95**
G/K-Tau-C	40%	41%	44%	3.60%

* Significant at 5% level of Significance ** Significant at 1% level of Significance

CONCLUSIONS AND IMPLICATIONS

In general, the largest minority-owned firms appear to be making progress in the use of Internet technology for trade and commerce, as measured by website availability and e-commerce participation. In particular, the study indicates that the majority of businesses surveyed have computers, access to the Internet, and websites at rates similar to those of majority-owned businesses. However, a much smaller number currently are engaging in online sales.

Regardless of the race or ethnic affiliation of the business, the majority recognized and understood the benefits of e-commerce. They also had a good notion of how this technology can be useful to their businesses. However, many of these businesses have not entered this lucrative market due to market-based challenges (e.g., product lacks e-commerce potential, there is no need for e-commerce, or company does not want it), uncertainty, and barriers. The barriers were more likely to affect companies without a website and, overall, they reflect scarcity of capital and Internet-skilled human resources, reservations about the viability of e-commerce and concern with too much competition. These problems are probably more severe among smaller minority owned-businesses, especially those excluded from the survey because they lack the resources and expertise typically found in much larger firms.

This study also suggests that e-commerce among minority-owned businesses proceeds in stages and starting a home page is the first step before selling online. As shown in the analysis, the longer the company had a website, the greater the chances of e-commerce participation, except in the case of Native-Americans. The positive association between website availability and firm's size (as measured by annual sales) implies that company size facilitates having a website. Thus, it may be presumed that the presence of a website is likely to be lower among minority-owned firms with annual sales of less than $500,000 (i.e., those excluded from the survey).

The business executive's perceptions and expectations about e-commerce and personal use of the technology were particularly relevant in predicting the presence of a website or e-commerce. The presumption is that these factors are amenable to policy manipulation. With minor exceptions, the results of the multivariate analysis imply that companies with business executives who know and recognize the benefits conferred by e-commerce are more likely to start a website than firms with business executives who do not know or fail to recognize the advantage of selling online. These factors appeared to influence e-commerce participation as well.

The data also reveal that companies with business executives who shopped online more frequently, especially Latino firms, were more likely to have a home page, and with the exception of Native-Americans, were more likely to conduct e-commerce than those with business executives who shopped online less often. According to some experts, personal experience with the Internet may encourage the use of the technology to improve business (Cohan, 1999). A company whose owner or chief executive does not have any clue about buying products online is not likely to commit resources to conduct e-commerce.

It was also found that about one-half of minority-owned e-commerce sites seemed to be conducting B2C transactions in minority markets. African-American firms had the largest share of minority buyers, followed by Asian-Americans, Latinos, and Native-Americans. Given the expected increase in the Latino and Asian populations in the U.S., and the growing economies of China, Latin America, the Caribbean, and some African nations, business of color are in a unique position to take advantage of these emerging markets. By the year 2025, the minority population in the U.S. is projected to be 125.9 million or 38% of the total (MBDA, 1999). In addition, China has climbed to second place behind Japan

in terms of the number of Internet users, with 12.3 million. In Latin America, there are about 13.3 million people online and about 1.15 million in Africa (ITTA, 2000). As the telecommunications infrastructure expands, and the cost of personal computers and Internet connectivity continue to decline, penetration rates and e-commerce business will rise all over the world, especially in these areas. The sharing of a common culture and language with many of these places represents a possible opportunity for minority-owned businesses and provides a strong incentive to compete and develop e-commerce initiatives in order to tap these markets.

However, reliance on e-commerce to penetrate these emerging markets is handicapped by lack of personal computers and Internet connectivity among the economically disadvantaged. The digital divide (i.e., the division of those with and without access to the Internet) is real and is far more pronounced beyond our borders. Unless these barriers are reduced, minority-owned businesses can be discouraged from launching e-commerce businesses. As the multivariate analysis indicate, the larger the proportion of minority customers served by these companies, the lower the likelihood of having a website, after controlling for other factors. If minority customers are not connected, it does not make sense for companies serving them to sell products online because the demand is not there.

The survey information also indicates that the dollar value of the resources committed to the implementation of e-commerce is rather small. Median startup capital devoted to selling products online was about $2,000 and median operating costs were under $1,200 annually. Judging by these numbers, it seems that these companies have yet to integrate their sites with the company's backend activities (e.g., accounting, finance, inventory management, shipping and delivery). For this purpose, the investment required may range from $100,000 to $150,000 according to some experts (see article by Hagerty, 1999). Nonetheless, to make a bigger investment in the technology, minority entrepreneurs must perceive increased market opportunities and a greater potential for profit.

Further, in spite of being the largest minority firms, approximately two-thirds relied on internal revenues to launch their e-commerce sites, followed by personal loans. Given the small size of the investment made and that over 90% of the e-commerce sites had to rely on internal financing or personal funds to become operational, it is highly improbable that these companies have the capital necessary to make a bigger investment in the technology. Thus, it appears that in order to become serious contenders in cyberspace, minority-owned businesses would have to spend more on the technology or borrow from outside sources more aggressively.

With the exception of Latinos, over one-half of minority-owned firms engaged in e-commerce were generating sufficient online revenues to cover the cost of promoting and operating the site or just to break even. Asian-Americans were most likely (35%) and African-Americans (14%) the least likely to have revenues in excess of costs. However, it would be premature to dismiss the economic viability of e-commerce sites with revenue shortfalls, given the brief time they have been active. Besides, in spite of the limited e-commerce investment made by these companies, the modest sales volume generated online looks promising, considering that these companies have been participating in e-commerce for a very short period of time. Estimated median annual sales obtained from online transactions were highest ($131,000) for Native-American firms and lowest ($76,000) for African-Americans.

RECOMMENDATIONS

The Internet market, e-commerce especially, is in a formative stage and will continue to grow and change rapidly. Thus, the following recommendations are tentative and reflect the information and challenges uncovered in this report.

- There is a need to increase the flow of information designed to educate minority-owned businesses on e-commerce and to remove doubts about the viability of the technology or its application. The Minority Business Development Agency is already addressing this problem through several programmatic initiatives.

- For those minority businesses that do not have Internet access, strategies must be developed that involve traditional educational approaches, including printed training materials, conferences and workshops.

- Solutions to the low level of investment in e-commerce technology found in the study must be market-base and identify this return on investment in technology. If investing is not viable, minority-businesses must explore the opportunity to use third party providers of e-business services.

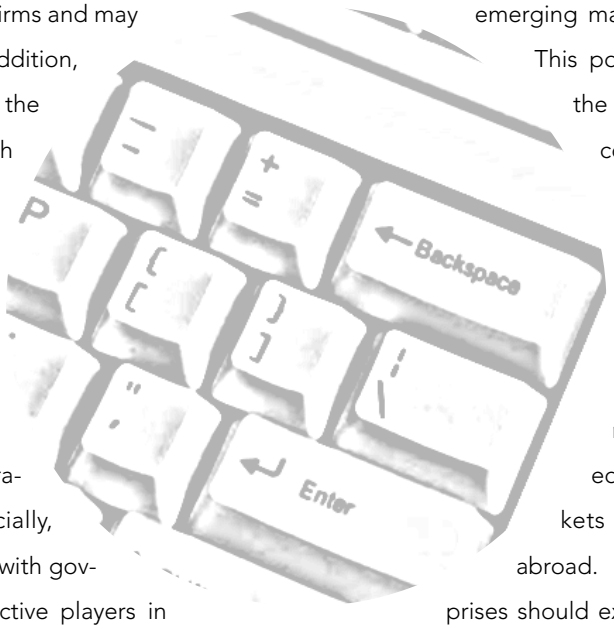
- Because the e-commerce barriers uncovered in the report mainly affect companies without a website, attempts should be made to target these businesses more aggressively with small loans, technical assistance, and practical examples. Government programs, national, state, and local chambers of commerce, trade associations, and private business councils may be good vehicles to reach this special group of businesses. Since the barriers uncovered are probably more pronounced among firms with annual sales below $500,000, great outreach and assistance efforts should be targeted to these businesses as well.

- Agencies and organizations imparting knowledge should understand that website acquisition occurs way before resources are allocated to conduct sale transactions online. This study shows that large minority-owned businesses are not an exception. This order of events should be taken into consideration when persuading minority-owned businesses of the benefit of e-commerce. It would be easier to get these companies to develop a website before they commit to initiate a full blown e-commerce business because the investment is smaller and the process far less complicated. A website would provide valuable experience and may ultimately entice these companies to move into the e-commerce market.

- There is a need to disseminate information on typical companies that are benefiting from using the Internet by marketing or selling products through the web. What one often sees heralded in the media are the exceptional cases, which may require large investments. As our study shows, relative to the limited investment made in the technology by large minority-owned firms, the level of online sales attained looks promising. Examples should be provided to encourage minority owned businesses that remain hesitant or undecided to start their own e-commerce sites.

- More resources should be allocated to collecting reliable data on e-commerce participation among

businesses of all sizes by race and ethnicity. These data will be useful in tracking progress among small businesses, especially minority and women-owned business enterprises. While many Internet economy indicators monitor the dollar volume of online transactions, most of these estimates are the product of Internet consulting firms and may require further sampling. In addition, the research should address the validity issue associated with imperfect sampling frames commercially available.



• While the U.S. government has already allocated substantial resources to help close the digital divide (ITTA, 2000), the private sector, corporations and foundations especially, should share the responsibility with government and become more active players in bridging this gap. As shown in the report, the digital divide may be discouraging minority-owned businesses with a large minority clientele from participating in e-commerce.

• A capital infusion may be necessary to help minority-owned businesses to become strong contenders in the e-commerce market. While the present economic climate is highly uncertain and business expectations are rather mixed, minority-owned firms would benefit if venture capitalists and angel investors are made aware of the competitive advantage that businesses of color have in serving emerging markets in the U.S. and abroad. This potential is likely to increase in the future as minority populations continue to increase, the digital divides shrinks, and economic conditions improve.

• Because of similar race, ethnicity, culture or language, minority-owned businesses may have a competitive edge in serving emerging markets in the United States and abroad. If so, minority business enterprises should exploit this advantage by using the Internet more aggressively to provide product exposure and increase business in these areas.

• Finally, government should continue to pursue online government procurement, but it should ensure that minority-owned businesses share in the benefit of this promising e-government innovation.

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APPENDIX 1

Electronic Commerce Survey: Final Sample Disposition

	Random Dialings	Latino	African-American	Asian-American	Native-American	
No answer	1,008	462	81	432	33	1008
Busy	744	383	27	315	19	744
Answering machine	1,550	696	177	579	98	1550
Not available during interview period	364	144	38	146	36	364
Callback	5,021	2,172	865	1,609	375	5021
Complete	1,673	500	406	480	287	1673
Initial refusal	5,316	2,053	577	2,122	564	5316
Nonworking number	997	340	168	376	113	997
Household telephone number	162	54	17	71	20	162
Interview terminated in the middle	131	30	29	49	23	131
Interviewer abandoned (disconnected)	9	5	2	1	1	9
Refusal	55	19	5	25	6	55
Language barrier other than Spanish	206	38	-	140	28	206
Hearing barrier	10	2	-	6	2	10
Fax/page modem	128	41	26	49	12	128
Don't call any more	87	39	4	34	10	87
Permanent recording	124	40	25	44	15	124
Do not have a website and refused interview	234	109	25	76	24	234
Nonworking area code	10	9	-	1	-	10
Wrong number	130	36	15	60	19	130
Nonminority	1,152	665	149	225	113	1152
Over quota	7	-	7	-	-	7
No quota	13	4	3	6	-	13
Total calls	19,131	7,841	2,646	6,846	1,798	19131

Approximation of Response Rate

	Total	Latinos	African-Americans	Asian-Americans	Native-Americans
Random Dialings	19,131	7,841	2,646	6,846	1,798
Answering machine	1,550	696	177	579	98
Nonworking number	997	340	168	376	113
Household telephone number	162	54	17	71	20
Fax/page modem	128	41	26	49	12
Nonworking area code	10	9	-	1	-
Wrong number	130	36	15	60	19
Nonminority	1,152	665	149	225	113
Deceased	41	25	11	2	3
Subtotal	4,170	1,866	563	1,363	378
Percent	22%	24%	21%	20%	21%
Net Sample	14,961	5,975	2,083	5,483	1,420
Completed Interviews	1,673	500	406	480	287
Response rate	11%	8%	19%	9%	20%
Universe	39,098	21,200	2,706	13,199	1,993
Completed interviews as a percent of universe	4%	2%	15%	4%	14%

APPENDIX 2

Comparison of Sample and Population Distributions Across States

Owner's Ethnicity

	Asian-Americans		African-Americans		Latinos		Native-Americans	
State	*Population*	*Sample*	*Population*	*Sample*	*Population*	*Sample*	*Population*	*Sample*
California	50.6%	38.7%	14.0%	26.5%	25.9%	31.0%	53.3%	37.8%
Florida	3.0%	3.3%	4.7%	4.2%	17.4%	9.5%	2.4%	3.7%
New Jersey	4.3%	3.7%	3.7%	3.2%	5.9%	4.3%	0.7%	2.5%
New York	9.5%	6.5%	8.1%	6.4%	6.9%	5.0%	2.0%	3.9%
Texas	4.5%	6.0%	6.8%	6.2%	12.5%	13.1%	3.7%	4.9%
Other States	28.1%	41.8%	62.7%	53.5%	31.4%	37.1%	37.9%	47.2%
Chi-square with 6 df	11.04 P/Chi-square=NS		13.04 P/Chi-square=NS		6.61 P/Chi-square=NS		14.32 P/Chi-square=NS	

Comparison of Sample and Population Distributions Across Sales Categories

Owner's Ethnicity

	Asian-Americans		African-Americans		Latinos		Native-Americans	
Sales Volume	*Population*	*Sample*	*Population*	*Sample*	*Population*	*Sample*	*Population*	*Sample*
< $ 1.0 million	37.6%	38.1%	37.1%	37.9%	42.0%	36.6%	32.7%	33.1%
$ 1.0 - $ 1.5 million	17.8%	17.1%	16.9%	16.7%	17.1%	19.0%	16.7%	14.3%
> $ 1.5 million	44.0%	44.8%	45.1%	45.3%	40.3%	44.0%	50.0%	52.6%
Chi-square with 3 df	0.094 P/Chi-square=NS		0.042 P/Chi-square=NS		1.245 P/Chi-square=NS		4.1 P/Chi-square=NS	

Comparison of Sample and Population Distributions Across Regions

Owner's Ethnicity

	Asian-Americans		African-Americans		Latinos		Native-Americans	
Region	*Population*	*Sample*	*Population*	*Sample*	*Population*	*Sample*	*Population*	*Sample*
North East	19.5%	21.4%	28.9%	22.7%	21.4%	17.4%	5.9%	12.8%
Central	7.9%	12.0%	20.7%	16.7%	9.8%	11.9%	7.4%	12.7%
South	6.6%	6.2%	24.4%	17.0%	20.8%	13.2%	8.7%	11.7%
South west	6.5%	12.7%	11.1%	13.3%	19.1%	22.8%	20.0%	18.7%
West	59.5%	42.6%	14.9%	30.0%	28.9%	34.7%	58.0%	43.6%
Chi-square with 5 df	0.131 P/Chi-square=NS		0.201 P/Chi-square=NS		0.059 P/Chi-square=NS		0.166 P/Chi-square=NS	

Comparison of Sample and Population Distributions Across Industries

Owner's Ethnicity

	Asian-Americans		African-Americans		Latinos		Native-Americans	
SIC Code	*Population*	*Sample*	*Population*	*Sample*	*Population*	*Sample*	*Population*	*Sample*
Agricultural services, forestry fishing & mining	1.4%	1.7%	0.4%	0.2%	1.8%	1.1%	1.1%	0.3%
Construction	5.9%	5.8%	17.5%	13.1%	15.8%	14.2%	18.2%	18.5%
Manufacturing	12.2%	17.7%	10.5%	7.9%	12.0%	15.7%	17.3%	17.7%
Transportation Communications & Utilities	1.0%	3.3%	2.7%	5.9%	1.2%	4.4%	1.5%	3.0%
Wholesale Trade	34.9%	27.6%	14.0%	15.3%	19.7%	21.7%	26.8%	24.3%
Retail Trade	11.1%	12.1%	8.3%	8.9%	11.8%	15.2%	7.6%	8.7%
Finance, Insurance & Real Estate	3.8%	2.8%	5.2%	5.2%	5.9%	4.5%	3.4%	4.5%
Services	10.1%	26.9%	13.7%	40.1%	11.4%	22.0%	7.8%	23.1%
Chi-square with 8 df	0.378 P/Chi-square=NS		0.567 P/Chi-square=NS		0.215 P/Chi-square=NS		0.329 P/Chi-square=NS	