



Office of Advocacy
U.S. Small Business Administration

E-commerce

Small Businesses Venture Online

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The report examines the available data on small businesses' use of electronic commerce. E-commerce applications include e-tailing in virtual store fronts and electronic data interchange.

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Foreword

Small businesses—as usual—are the fastest changing sector of business. In fact, the proliferation of electronic commerce is evidence of entrepreneurs' rush to meet growing market demands. Research shows that entrepreneurs are capitalizing on this technology. Estimates vary but online sales—or e-tailing—are booming.

The Office of Advocacy at the U.S. Small Business Administration is committed to researching trends that are caused by or affecting small businesses. During the expansion of e-commerce, the attitudes of main street businesses must be known in order to understand the future of the virtual market square. The Office of Advocacy has pulled together research on the use of e-commerce, particularly sales online, to determine its advantages and use to small firms, and its downfalls.

Obvious concerns exist about online security of information and the cost of ever changing technology and expertise. But the fears and challenges are far outweighed by the long-term hope for new enterprise and solutions on the Internet. Digital cash and more sophisticated encryption systems are answers to some of the online puzzles. Today's Internet-savvy youth is also a key to mass acceptance of the online market as they grow up with computer merchandising.

The Office of Advocacy welcomes your comments on this report, and we look forward to more research on small business and e-commerce.



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Executive Summary

Small businesses are tapping into the Internet to conduct business and to reach new prospective consumers. This report, prepared by the Office of Advocacy at the U.S. Small Business Administration, examines the available data on small businesses' use of electronic commerce (e-commerce). For the purposes of the report, e-commerce includes: e-tailing ("virtual store fronts"), electronic data interchange, electronic mail, and computer faxing. Data sources are from different studies performed by various organizations, most of which looked at the barriers to e-commerce and the expanded use of e-commerce by businesses. Most research identified small companies as those with less than 100 employees.

The findings from various research covered in this report include:

- Over 4.5 million small employers used computer equipment in their operations in 1998.
- The percentage of small businesses with access to the Internet nearly doubled from 1996 to 1998 from 21.5 percent to 41.2 percent, respectively.
- Small businesses that utilize the Internet have higher revenues, averaging \$3.79 million in 1998 compared to \$2.72 million overall.
- Seventy-eight percent of small business owners declared the ability to reach new and potential customers as their primary reason for having a Web site; 35 percent of small business owners maintain a Web site.
- The most common barrier for small businesses in the adoption of e-commerce is the cost associated with it.
- Small businesses use the Internet for a variety of operations including e-mail, customer-based identification, advertising, consumer sales, business-to-business transactions, research, and internal networks for employees.
- Only 1.4 percent of Internet use among small businesses is directed toward e-commerce sales.
- Internet sales account for less than 1 percent of total retail sales in the U.S. economy.
- Over 60 percent of small businesses have inoculated themselves from Y2K (millennium bug).

- E-mail service is the number one use of e-commerce, while education is the least-used application.
- Online retail marketing is experiencing about 200 percent annual growth, and traffic online has been doubling every 100 days.
- Only 5 percent of consumers who visit the World Wide Web become customers.
- Estimates of e-commerce revenue vary widely. In 1997, it is estimated that small businesses earned \$3.5 billion in e-commerce sales. Projections for the beginning of the next decade range from \$25 billion to over \$300 billion.
- The Internet Tax Freedom Act of 1998 has placed a three-year ban on both state and local government taxes on the Internet.
- By 2000, it is estimated that almost one-third of all business-to-business transactions will be performed via e-commerce.

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Introduction

Small businesses are important to the U.S. economy, and they are adopting electronic commerce (e-commerce)—the marketing, promoting, buying, and selling of goods and services electronically, particularly via the Internet—as a new way of transacting business. E-commerce encompasses various modes of Internet use. E-commerce includes: e-tailing (virtual store fronts), which is a site for shopping and making purchases; electronic data interchange (EDI), which is business-to-business exchange of data; e-mail and computer faxing; business-to-business buying and selling; and ensuring the security of data and transactions (Van Ketel & Nelson, 1998). Forrester Research, Inc., an independent research firm, narrowly defines Internet commerce as the trading of goods and services in which the final order is placed over the Internet. (1998).

Estimates vary, but a growing number of small businesses are tapping into the Internet to conduct business and to reach new prospective customers.

According to this study, online sales are booming, but such electronic commerce represents only a fraction of small businesses' use of the Internet. One conclusion of this report is clear: more research is needed, especially on the barriers to e-commerce use.

The data examined by this report are somewhat inconsistent. This inconsistency may have been caused by the small sample size of some studies, the time frame between which the studies were conducted and released, or because respondents were allowed more than one response in some of the studies.

This report looks at the various areas of small businesses affected by this new way of doing business, using summaries of interviews, surveys, and field studies by various research groups and organizations.

Almost all industries in the economy are beginning to use the Internet as a means of cost savings on purchasing, managing supplier relationships, streamlining logistics and inventories, planning production, and reaching new and existing customers more effectively. (U.S. Department of Commerce, 1998). This medium has experienced unprecedented growth.

Information technology (IT) has made it possible for e-commerce and has enabled small, medium-sized, and home-based businesses to compete more effectively in the global market. E-commerce makes it possible for more people to start their own

businesses. The number of U.S. households that have a home-based business currently exceeds 12 percent.

More than 13 million households spent an estimated \$22 billion on technology in 1998. Home-based businesses represent about 18 percent of all homes with personal computers (PCs) and 22 percent of home businesses that have made an online purchase. By 2003, home-based-business technology spending is projected to be \$30 billion, and 71 percent of those businesses will be conducted online. (Forrester Research, 1998). According to the National Federation of Independent Business (NFIB) Education Foundation, the number of small employers that use computer equipment in their operations exceeds 4.5 million.

Information technology has opened new avenues for businesses and individuals to get easy access to information. It has made it possible and easier for businesses and individuals to conduct transactions with the click of a mouse. As a result, e-commerce is becoming a vital tool in the economy, and small businesses are using it.

This report identifies a number of issues in the move to electronic commerce by small businesses: the cost of establishing and maintaining a Web site, the security of data collected online, potential tax liability, and the millennium bug (Y2K).

Uses of the Internet by Small Businesses

The uses of the Internet vary widely among businesses, as do the surveys on the extent of such usage. Recent surveys by Arthur Andersen's Enterprise Group and National Small Business United, Zdnet, Cashners In-Stat Group and many other organizations have evaluated the uses of the Internet by small businesses. Data inconsistencies among these studies are a result of a number of factors: the time the study was conducted and released, the sample size, and firm size of each of these studies. However, general conclusions can be drawn from the cross section of these reports, including the inevitable growth of e-commerce and the expanded use by small businesses.

Currently, 40 percent of small businesses are logged onto the Web, according to a recent report by ZdNet. The report revealed four major uses: 1) 35.4 percent use the Internet for research; 2) 19.3 percent for homepage uses; 3) 18 percent for email; and 4) 13.3 percent for intranet (internal, private networks for a business's employees) purposes (Goldberg 1998). In this survey, unlike other research examined in this report, the respondents listed a single primary use of the Internet.

Most small and medium-sized businesses, as well as large businesses, in the United States are using the Internet. Internet use by small businesses is on the rise: 47 percent of small businesses have access to the Internet, 35 percent maintain a Web site, and one in three do business transactions through it, according to a private annual small business study (Dun and Bradstreet, 1998).

According to a survey of small and medium-sized businesses conducted by Arthur Andersen's Enterprise Group and National Small Business United, e-mail and research continue to be the most popular uses of the Internet among small enterprises (1998). Half of businesses with computers reported using the Internet to send business related e-mail while 35 percent use e-mail to send personal messages. This survey found that 47 percent of small enterprises are using the Internet for research purposes, up from 32 percent in 1997. Nearly one-quarter (23 percent) of companies that use the Internet have a Web page. Among the findings, 22 percent use the Internet to sell goods and services, while 19 percent use it for purchases. Only 4 percent use it to recruit employees.

Some of the major reasons why small enterprises use a Web site according to the NSBU study include: reaching new and potential customers (78 percent); selling goods and services (65 percent); providing information more efficiently (62 percent); reaching new prospective employees (13 percent); and expanding globally (17 percent).

A study by IBM and the U.S. Chamber of Commerce (which surveyed 1,010 firms with less than 100 employees) discovered that 30 percent of small businesses surveyed use the Internet to promote their services while one-half use it to seek information about potential customers. Sixty-three percent use it to answer specific questions and 85 percent use it for e-mail purposes. The survey also revealed that one-quarter of small businesses report being conversant with “e-commerce” while some are already practicing it. Thirty-seven percent of Internet users use it to place orders while 29 percent receive orders with it; 9 percent use it to pay suppliers (Small Business and Technology, 1998). (See Table 1).

Table 1

Small and medium sized uses of the Internet		Primary uses by ZDNet		IBM and the U.S. Chamber of Commerce	
	%		%		%
Business e-mail	51	E-mail	18	E-mail	85
Research	47	Research	35.4	Provide answers	63
Personal e-mail	35	Intranet purposes	13.3	Seek customer info.	49
Web-site	23	Homepage	19.3	Promotion/Advertising	30
Online transaction	22	E-commerce	1.4	Online ordering	37
Online ordering	19	Communication	1.5	Receive orders	29
Employment	4	EDI	4.9	Pay suppliers	9
		Technical support	2		
		Education	1.3		
	N = 504		N=50,931		N=1,010
<i>Note: Respondents included small and medium-sized businesses.</i>		<i>Note: Study was on businesses with less than 100 employees.</i>		<i>Note: Study was on businesses with less than 100 employees.</i>	
<i>Source: Arthur Andersen's Enterprise Group and National Small Business United, Nov., 1998.</i>		<i>Source: ZDNet, Nov., 1998.</i>		<i>Source: IBM and U.S. Chamber of Commerce, June 1998.</i>	

Additionally, a study by Cahners In-Stat Group shows that about one-quarter (28 percent) of small businesses accept customers' orders via the Web (Goeler, 1998).

Almost one-fifth accept or use the Web for payment information online and 36 percent use it for online catalogs, where information and pricing is provided for customers. In most of the sites, 62 percent use it to get customer feedback and technical support.

Business-to-Consumer and Business-to-Business E-commerce

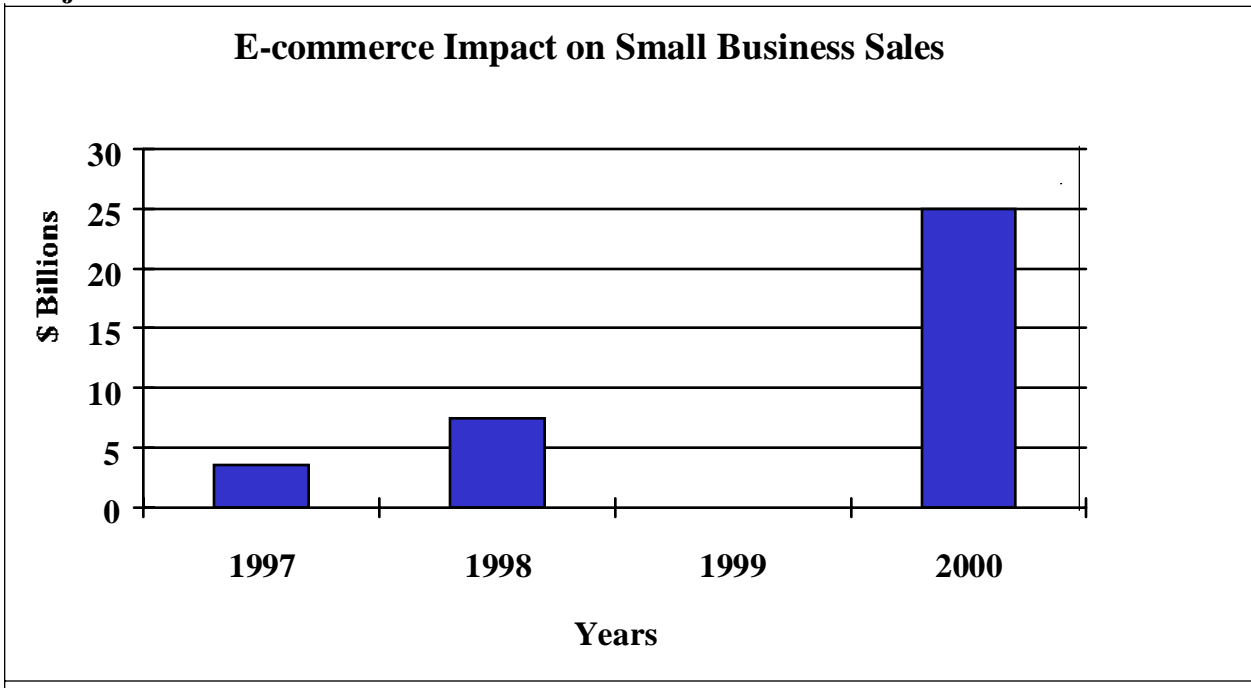
Source estimates differ dramatically for Internet sales for both business-to-consumer and business-to-business e-commerce. According to Roberts, analysts estimate Internet retail sales to be a minute fraction of consumer spending – between \$1.3 billion and \$4 billion out of \$2.5 trillion that consumers spent in 1997 (1999). A study by Access Media International (AMI) estimated that small business gained \$3.5 billion in e-commerce consumer sales in 1997 and projected that number to exceed \$7.5 billion in 1998; this number is expected to reach \$25 billion in the year 2000 (1998). See Figure 1. Business-to-consumer online shopping should rise from \$2.4 billion in 1997 to \$17.4 billion in 2001, according to Mehling (1998). Another report projects the growth rate of business-to-consumer Internet transactions to rise by 37 percent, from \$7.17 billion in 1998 to \$19.37 billion in 1999 (Zona, 1998).

The largest component of electronic commerce is business-to-business trade (Tax Features, 1998). This could be attributed to its cost saving features. Revenues of U.S. business-to-business e-commerce will grow from \$17 billion in 1998 to \$327 billion in the year 2002, according to Mehling (1998). Another study projects business-to-business transactions to grow by 46.5 percent, from \$24.1 billion in 1998, to \$51.9 billion in 1999 (Zona, 1998). Olbeter projects that by the year 2000, almost one-third of all business-to-business transactions will be performed via e-commerce (1998).

Figures 2 and 3 show the projected growth of e-commerce between business-to-business and business-to-consumer. It is important to note that the studies in figures 2 and 3 do not reveal what fraction of sales represents e-commerce by small businesses.

Figure 1

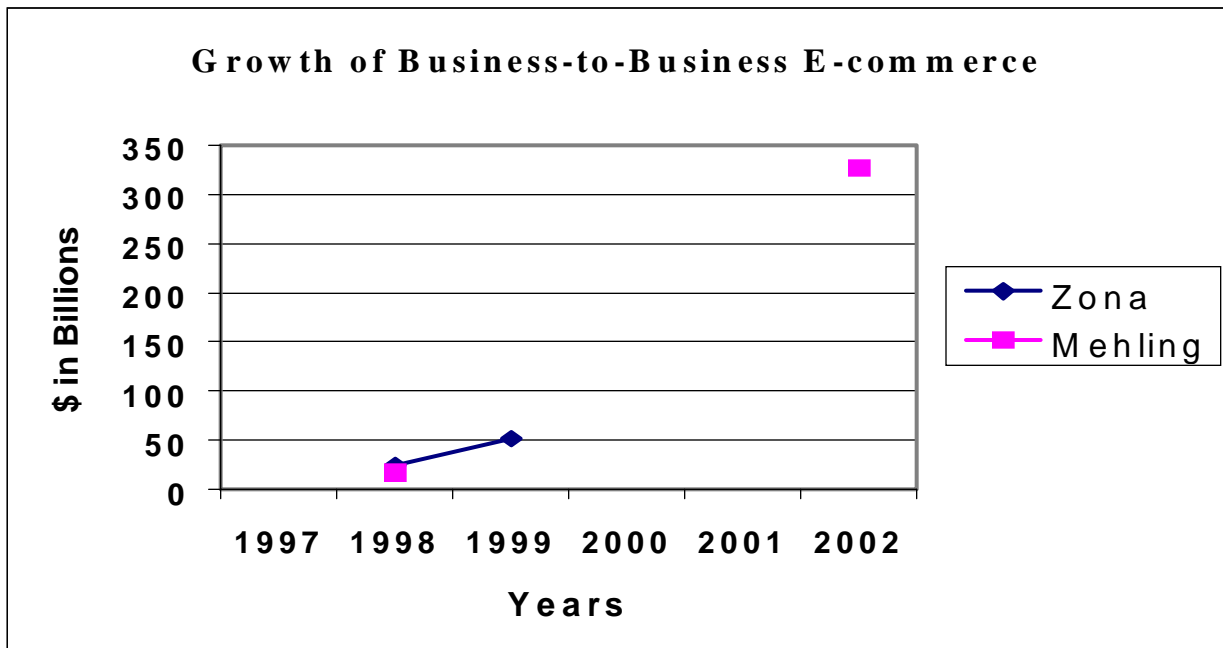
Projections of E-commerce Sales



Source: Access Media International (U.S.A), February 1998.

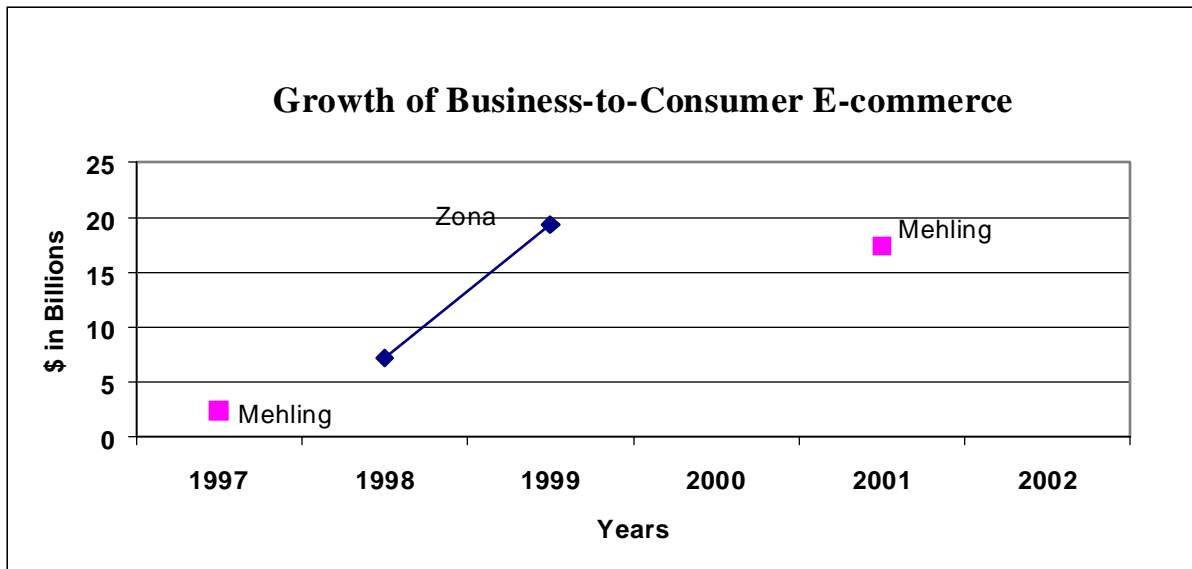
Figure 2

Business-to-Business Projections



Source: Chart prepared by the Office of Advocacy based upon Zona Research Inc. (1998), and Mehling (1998).

Figure 3



Business-to-Consumer Projections

Source: Chart prepared by the Office of Advocacy based upon Zona Research Inc. (1998), and Mehling (1998).

Types of Industries

The percentage of small companies or firms that have access to the Internet has increased dramatically in the last two years, from 19.7 percent in 1996 to 41.2 percent in 1998, according to International Data Corporation (IDC, 1998). IDC found that the use of the Internet is more common among the professional services sector (e.g. law firms, insurance agencies, real estate agencies, accounting firms). Based on the study, manufacturing companies log onto the Internet most frequently and for the broadest range of applications. On the other hand, retail and health care industries lag when it comes to Internet usage.

Phases and Purchasing Behavior

The Yankee Group has identified three phases of Internet involvement which small (2-99 employees) and medium-sized (100-499 employees) enterprises go through over time as their Internet commitment strengthens: connectivity, customer connections and commerce (1998). “More than two-thirds of the companies we surveyed have yet to even move into the customer connection phase,” according to Chris Gwynn, senior

analyst. These phases could be seen as the building blocks of e-commerce (See Figure 4).

Figure 4 has the various phases as building blocks toward e-commerce that are analogous to those identified by the Yankee Group. Brochure-ware, Pre-Commerce and Simple Commerce Sites are described below according to Cahners In-stat:

Brochure-ware sites Companies have and use their Web sites predominantly for product advertisement. Firms gather customer prospect information and improve customer service by providing forms for customer feedback and information requests. These firms have yet to install the technology that is needed to sell their goods over the Web.

Pre-commerce sites These firms have enough information including price to create immediate orders off their Web sites. However, they drag their feet when it comes to online point-of-sale transactions. Unlike their counterparts, they have jumped a major hurdle in implementing e-commerce and have developed a business model that allows them to make transactions and have the resources to keep their site current.

Simple commerce sites These businesses accept orders over the Web, and most of the time accept payments. When compared with larger companies that have larger sites, simple commerce sites by small businesses are likely to be very primitive. They have little in security or online payment processing and virtually nothing when it comes to back-end integration.

Figure 4. Small Business: Laying the Foundations for E-Commerce

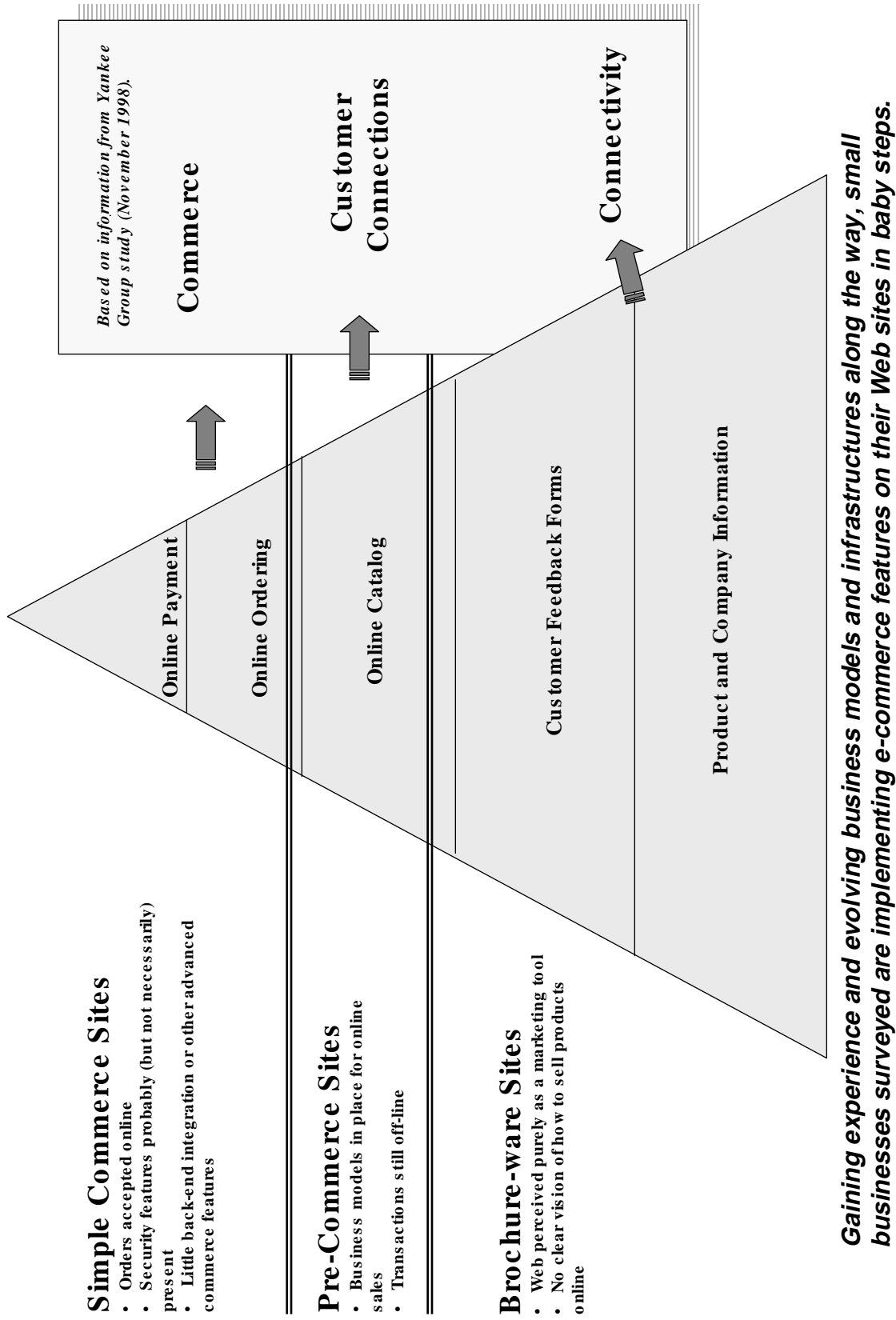


Illustration adapted from Kate Von Goeler, "Internet Commerce by Degrees." ©1998, Cahners In-Stat Group. Reproduced with permission.

Furthermore, consumers have developed a behavioral sequence when it comes to shopping online. Forrester Research Inc. has divided the online retail market into three categories: convenience items, replenishment goods, and research purchases. (1998)

Convenience items These are low-cost discretionary purchases such as books, music, apparel, and flowers. More product selection and the ease of shipping along with retail promotions will continue to keep convenience items a favorite with consumers.

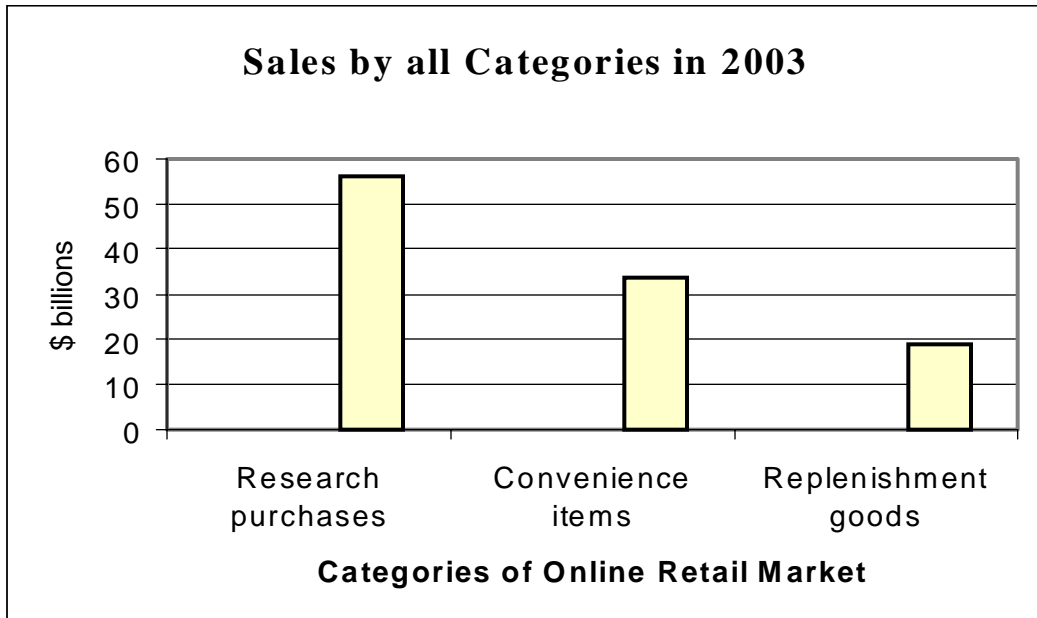
Convenience items are leading and expected to generate more than \$32 billion worth of sales by 2003.

Replenishment goods These goods are moderate-cost and are high frequency purchases like groceries and personal care (basic everyday necessities). This group will be slow in the adoption process by consumers, with the exception of specialty foods and pharmaceutical products (prescription refills). This category will be hindered by the lack of a feasible distribution model. However, by the year 2003, replenishment goods will account for \$19 billion in sales.

Research purchases These purchases cost much more than the other two categories and are information-driven, planned purchases, such as airline tickets, computers, and automobiles. Travel represents the single largest subcategory today, and it is estimated to reach almost \$30 billion in sales out of \$56 billion for research purchases by 2003. The study observed that first time buyers tend to purchase convenience items, and that it takes about a year for online shoppers to progress to the next category. The findings are based on 100 interviews with North American online merchants and supplemented by a field study of 120,000 North American households (Forrester, 1998). Below is a chart of the different categories, which includes predictions for the year 2003.

Figure 5

Projections of Sales by all Categories



Source: Office of Advocacy, based upon Forrester Research Inc., 1998.

Sales and the Economy

The information technology sector is projected to grow 8 percent in 1999 (Roberts, 1999). Although e-commerce is still in its infancy stage, the online retail market is experiencing exponential growth in excess of 200 percent annually according to a study by the Boston Consulting Group (1998). Growth in traffic on the Internet has been doubling every 100 days (U.S. Department of Commerce, 1998). Fifty percent of sales have been concentrated only on a few mature sites, based on the findings of shop.org/BCG and, on average, only 5 percent of consumers who visit the Web sites become customers.

However, Internet sales are still less than 1 percent of total retail sales today, with products such as computers, software, cars, books and flowers growing rapidly (U.S. Department of Commerce, 1998). Revenues of the e-commerce business-to-business market are predicted to grow to \$327 billion in 2002, while business-to-consumer sales are projected to top \$17 billion in 2001 (Mehling, 1998). Even at \$300 billion, e-commerce will only represent 3 percent of total Gross Domestic Product (GDP) in 2002, meaning more efficient companies using electronic commerce are likely to continue to diffuse through the U.S. economy for decades to come (U.S. Department of Commerce, 1998). Even a bullish forecaster like Forrester Research sees e-commerce as only 6 percent of retail purchases by 2003 (Hamel & Sampler, 1998).

Taxes and the Web

With all of the services, sales, and revenues that are generated by the Web, U.S. lawmakers are trying to regulate taxes on e-commerce. So far, they have reached an agreement to ban all state and local taxes on the Web for at least three years. The agreement that was reached is known as the Internet Tax Freedom Act of 1998 (ITFA). The law prohibits new taxes for three years on Internet access charges that many Americans pay monthly to companies like AT&T, America On Line, and similar services (CNNFn, 1998). The highlights of the ITFA include:

- Tax-free Internet access: State and local governments are prohibited from imposing taxes on Internet access charges (e.g., the \$19.95 that millions of Americans pay to

Internet service providers). The moratorium is in effect from October 1, 1998 through October 21, 2001.

- No discriminatory treatment of Internet based sales: Consumers and vendors that are involved in commercial transactions over the Internet are protected against any new tax liability.
- Study and report to Congress: A temporary commission is created to study taxation of Internet commerce and to determine within 18 months if Internet commerce should be taxed.
- Support global free trade on the Internet: The administration should require foreign governments to keep the Internet free of taxes and tariffs.

Online entrepreneurs believe that the application of sales taxes would slow the growth of this medium (Simons, 1998). Austan Goolsbee, a University of Chicago economist who analyzed data on the buying decisions of Internet shoppers, found that the number of online buyers would decline by 25 percent, and the amount of spending would decline by more than 30 percent if existing sales taxes were applied to the Internet (Simons, 1998).

Services are a growing fraction of consumer spending while sales taxes apply primarily to tangible products at the state and local levels in the U.S. (Tax Features, 1998). The growth of e-commerce will increase the fraction of commerce that escapes sales and use taxes as more consumers go online to purchase services and intangible goods as a tax avoidance scheme (Tax Features, 1998). Some states that do not have an income tax rely on sales tax for their revenues (e.g., Washington and Nevada) (Simons, 1998). Among the uncertainties engendered by the ITFA is the impact on these states because retail e-commerce is not taxable.

Obstacles Facing Small Businesses

While some small businesses may have been early adopters of Internet marketing, many other small businesses have been slow putting in place the tools to sell their products and services directly over the Web (Notes & News, 1998). Small businesses have been slower than big businesses to embrace e-commerce, but is now more interested in sales over the Web according to Mehling (1998). Although small businesses joining the Internet are on the rise, most of them face a number of obstacles to e-commerce application: costs, security concerns, technical expertise, and customer service concerns (Goeler, 1998). Cahners In-Stat released a study that showed the growth of Internet commerce by high-tech small business and the challenges that they faced (1998). In examining 47 businesses that are already using the Web to sell computer-related goods and services, they identified obstacles to implementing e-commerce, including cost, security of sites, difficulty of implementation, and customer service.

Cost is the most common and greatest impediment to expanding e-commerce. Three basic cost concerns identified by respondents were: 1) lack of funds for up-front implementation costs; 2) lack of monthly cash flows to maintain their sites; and 3) the probability that there would not be a real return on their investment. Security concerns are of great concern even for this technical-savvy market segment. The major worries were customer fraud and the potential for hackers to gain access to vulnerable information. Other concerns were the security of Internet service providers and Web hosts, and the possibility that back-end integration into a company's existing system would make internal systems vulnerable to hackers. Although the businesses in the study had technical skills, they were impeded by the difficulties of implementing and integrating commerce sites. They had concerns that they would not have the available resources to maintain their sites. Finally, customer service was seen as a challenge for e-commerce. Numerous small businesses rely on knowing customers and their needs intimately and have created their business processes and quality control methods around personal communications. The majority of businesses that participated in the survey were concerned that the loss of customer contact would decrease the quality of service. Others felt that selling on the Web without providing enhanced services would make customers more resistant to their price at the point of sale.

The businesses in the Cahners In-Stat study were high-tech, computer-oriented companies, with in-house technical skills. Yet they were still hindered by the complexity of installing commerce sites. Logically, less technology-savvy firms would have greater concerns about e-commerce and online sales (Goeler, 1998).

In a recent survey of 500 small business owners and managers, E-valuations research found that most respondents believe selling on the Web will be important to their future. One-half indicated that the cost of building and maintaining a site is the biggest barrier to selling online. Other barriers were: lack of technical expertise (45 percent); the amount of site security needed (39 percent), and the cost of building a transactions-based site (36 percent) (Mehling, 1998).

The minimum initial investment in an e-commerce site is about \$10,000, according to Erica Rugullies, an e-commerce analyst at research firm Giga Information Group. Small businesses should expect to spend 20 percent of the launch cost for annual maintenance and support (Mehling, 1998). Another barrier affecting the growth of e-commerce among small businesses, according to a study by Pricewaterhouse Coopers, is the lack of qualified workers (1998). Two-thirds of top technology executives cited this as a barrier to achieving their revenue goals over the next 12 months. According to the same study, 76 percent of small high-tech businesses see worker qualifications as a possible pitfall, versus 56 percent of large companies.

Factors Affecting E-commerce

A study by Visa indicates that gender and age have a great impact on how small business owners utilize technology, whether they have computers, fax machines or use the Internet (1998). The report is based on a survey of 350 small business owners. Other factors, according to the report, that can play a role in the usage of technology are the age of the business and its industry. Visa developed four classifications for technology views among owners: 1) express lane, 2) slower traffic –stay right, 3) proceed with caution, and 4) no access.

The “express lane” represents about 34 percent of business owners who are eager, adaptive to new technologies, and younger. They typically are 30 to 49 years old and male, managing larger organizations in the business and financial services industries and generating more than \$250,000 in annual revenues. Their counterparts are female

business owners, who are classified as the “slower traffic- stay right” and represent 26 percent of owners and are age 40 to 49 years old. Often they are owners of smaller companies, with annual revenues less than \$250,000, and engage in the hospitality, travel, construction, and nonprofit sectors. They are aware of the value of technology, but are satisfied with the level of high-tech tools they are using. “Proceed with caution” category is a socially diverse group that is a little older (ages 50 to 59), and represents about 21 percent of this survey. Their companies typically have been in existence for fewer than five years, and they are in the insurance or transportation industries. This group viewed technology as an essential element of being competitive but felt overwhelmed by it. Older owners (aged 50 and over) with mature businesses (more than 15 years) dominated the “no access” class and represented 19 percent of owners. They are often engaged in retail trade generating annual revenues of less than \$250,000, and the viewed technology as adding little or no value to their business.

Strengths and Challenges

The accelerated growth that is being experienced by the Internet is attributable primarily to its strength as a medium of communication, education, entertainment, and, more recently, a tool for e-commerce (U.S. Department of Commerce 1998).

Fraudulent Misuse

As the Internet grows, so does fraudulent behavior. The risk that is involved with the use of e-commerce includes the security of proprietary information of the business online and its customers. The Internet has become an efficient medium and haven for white-collar crimes. Fraudulent operators find the Internet attractive because they can instantly communicate with millions of potential victims via professionally looking Web sites, — appearing to offer legitimate information or products, online newsletters, or e-mail at relatively lower cost than traditional means of communication and doing business transactions (Hillman, 1999). According to the Securities Exchange Commission, the public submitted about 10 to 15 complaints daily about online fraud in 1996 via the e-mail system. This increased to about 120 complaints daily through September 1998. The number soared to 200 to 300 daily and stayed in this range in early 1999 (Hillman, 1999).

As fraud grows exponentially, fraudulent behavior can be a disincentive for both consumers and businesses to embrace e-commerce.

Some of the advantages and challenges highlighted in various studies include:

Advantages

1. Ability of small firms to compete with other companies both locally and nationally (promotional tool);
2. Creates the possibility and opportunity for more diverse people to start a business;
3. Convenient and easy way of doing business transactions (not restricted to certain hours of operation, virtually open 24 hours a day, seven days a week);
4. An inexpensive way (compared to the cost of paper, printing and postage prior to the Internet) for small business to compete with larger companies and for U.S. firms to make American products available in other countries; and
5. Small businesses that utilize the Internet have higher revenues, averaging \$3.79 million compared to \$2.72 million overall (IDC research).

Challenges

1. Managing upgrades (anticipating business needs/application);
2. Assuring security for a Web site and the back-in integration with existing company system;
3. Avoiding being a victim of fraudulent activities online;
4. Costs required to maintain the site;
5. Finding qualified consultants;
6. Finding and retraining qualified employees;
7. No market for old computers; and
8. the Y2K issue.

The Millennium Bug (Y2K)

The millennium bug (Y2K) also has the potential of disrupting the growth of e-commerce where payments, orders, and accounts may be interrupted. Simply put, the Y2K problem is the inability of computer programs at the beginning of the year 2000 to

interpret the correct century from a recorded or calculated date having only two digits to indicate the year (Angal, 1998).

Two studies have looked at the Y2K problem and small businesses: the National Federation of Independent Business (NFIB) survey and a joint Arthur Andersen and National Small Business United study. Both studies found about one-third of small businesses have not addressed the issue. Around 60 percent have addressed the issue and have installed system upgrades.

The NFIB survey indicates that about 84 percent of small businesses say their firms are directly exposed to the Y2K problem. Nine percent of small business that use their computer for sales/production estimate that their firms would lose 91 percent to 100 percent of sales during the occurrence. On a positive note, owners who have taken action outnumber those that are planning to do so, by three-to-one (Dennis, 1998). Small businesses are not in bad shape when it comes to the Y2K problem, because most of them have taken the steps to inoculate their firms.

According to a survey of small and medium-sized businesses conducted by Arthur Andersen's Enterprise Group and National Small Business United, 56 percent of business owners plan to use system upgrades—the popular compliance method—and 17 percent plan to convert to a new computer system to rectify the Y2K issue. (1998).

Preventing the Y2K problem is not only the issue—but business owners are also concerned about the cost of prevention. However, the cost of inoculation against the bug by small businesses has not been expensive. The NFIB's survey indicates that 46 percent of firms will spend less than \$1000 on Y2K inoculation, and 27 percent of firms will spend between \$1000 and \$5000. About 60 percent of those business owners who have preventive measures in place spent less than \$1000.

Digital Cash and the Future

Analysts predict that the number of devices used to access the Web will increase significantly, and spending on such devices would increase from \$78.1 million in 1997 to \$515 million in 2002 (Hu, 1998). With the number of devices increasing, more entrepreneurs will gain access to the Internet at a lower cost. If basic concerns like Y2K and security issues are not addressed, the growth of e-commerce may be stalled. Securing a viable digital cash system is a key element of online security.

In studies by Cahners In-Stat, ZdNet, Giga Information Group, and E-valuations, respondents mentioned security concerns as one major hindrance to e-commerce progress. One would assume that if a more secure way of doing business on the Internet is developed, businesses and consumers will not feel so vulnerable about personal information. This concern could be alleviated if electronic money or digital cash is put into place. According to Matonis (1995), a private digital cash system would consist of ten key elements:

Security: Transaction protocol must ensure that high-level security is maintained through sophisticated encoding techniques (i.e., an individual should be able to pass digital cash to another without either of them, or others, being able to alter or reproduce the electronic token).

Anonymity: Anonymity assures the privacy of a transaction on various levels. Beyond encryption, this optional feature to prevent tracing the exchange of digital cash promises to be one of the major points of competition between providers (both individuals should have the option to remain completely anonymous with regard to the payment).

Portability: Security and usage of digital cash is not dependent on any physical location. The money can be transferred through computer networks and off the computer network into other storage devices. Both individuals and businesses should be able to walk away with their digital cash and transport it for use within alternative delivery systems, including non-computer network channels. Importantly, digital wealth should not be restricted to a unique, proprietary computer network.

Two-way: Digital money can be transferred to other users. It is essential that peer-to-peer payments are possible without either party required to attain registered merchant status with today's card-based systems.

Off-line capability: The protocol between the two exchanging parties is executed offline, meaning that neither is required to be host-connected in order to process, and unrestricted availability must exist. Each individual can pass value freely to another at any time without requiring third party authentication.

Divisibility: A digital cash token amount can be subdivided into smaller units of cash. The money must be fungible, so exchanges can be made. An individual should be able to visit a provider or exchange house and request digital cash breakdowns in the smallest possible units.

Infinite duration: Digital cash should have no expiration date. It continues to maintain value until lost or destroyed provided that the issuer has not debased the unit to nothing or gone out of business. Individuals should be able to store a token in a safe place for a number of years and then retrieve it for use.

Wide acceptability: Digital cash is well known and acceptable in a large commercial zone. This feature implies trust in the issuer. The individual should be able to use the preferred unit in more than just a restricted local setting.

User-friendly: Digital cash should be simple to use for spending and receiving. Simplicity in use will result in massive acceptance and increased trust in the system. The protocol machinations should be transparent to the immediate user.

Unit-of-value freedom: Digital cash should be denominated in market-determined, non-government monetary units. An individual should be able to issue non-political digital cash denominated in a defined unit, which competes with governmental-unit digital cash.

Conclusion

E-commerce has created an evolutionary change in catalog retailing and improved business methods of communication and information. These quality and productivity increases are what drive the U.S. economy forward. Consumers are on the Internet because of the price and choice that is available to them there. The use of e-commerce expands the small business's and consumer's venues for exchanging information, goods, and services. While barriers, such as security, Y2K bug, and costs are associated with the Internet use in e-commerce, solutions such as digital cash likely will expand the market.

It is important to understand how e-commerce affects small businesses and how they are utilizing it, because small businesses generate most net new jobs in the U.S. More research is needed in this area to fully understand the experiences of small businesses with e-commerce and to find solutions for the future of e-commerce for the small business community and its customers.

The number of small businesses that use computer equipment in their operations will increase significantly in the near future. Based on the studies available, the Internet is a fast and easy medium of communication among businesses and customers. With Internet retail sales below 1 percent of total retail sales, more companies are likely to experience e-commerce in the future. Businesses that use the Internet to buy, sell, distribute and maintain products and services can realize significant cost savings and attract more customers to their business, thereby potentially increasing sales. However, e-commerce will not replace the traditional way of shopping and doing business; rather it will provide another option to the merchant and consumer.

Although the Internet Tax Freedom Act of 1998 may encourage new entrepreneurs and more buyers online by temporarily banning sales and use taxes, it also tends to discriminate against those who do business the traditional way. As e-commerce continues to grow so does the fraction of sales that escapes sales and use taxes, at least temporarily.

The business-to-consumer trend is slow when compared to business-to-business e-commerce. Until more cost-effective and secure mechanisms are in place, growth in consumer online sales could stall. Demographics have also played a role in the way that e-commerce has been implemented, particularly in the retail sector. The newest

generation of consumers likely will embrace e-commerce. If e-commerce blossoms as predicted by analysts within the next five years, digital cash may become more prevalent.

The Office of Advocacy anticipates the development of e-commerce in the small business community. Through research and policy development, Advocacy will pursue a successful, secure virtual market square.

Bibliography

Publications, Journals, Magazines, Articles, etc.

Access Media International: Press “ U.S. Small Businesses Spent Record \$138 Billion on Information Technology and Telecommunications Products And Services in 1997, (February 9, 1998).

Arthur Andersen and National Small Business United, “Survey of small and Medium-sized Businesses,” p. 19- 20. (November 1998)

Dennis, William J. Jr., “Small Businesses and the Y2k Problem: Part 11” NFIB Education Foundation, (December 28,1998).

Hamel, Gary and Sampler, Jeff “The E-Corporation” *Fortune Magazine* (December 7, 1998), p. 92. Quebecor Printing Corp., Clarksville, Tenn.

Hillman, Richard J. “The Internet Poses Challenges to Regulators and Investors” Securities Fraud. (1998).

Olbeter, Erik R. “The Strategic Economic Importance of the Internet,” *Economic Strategic Institute* (November 1998), Washington, D.C.

Schmitt, Eric, Mines Christopher and Rhineland Tom (December, 1998) “People and Technology Strategies” *Forrester*: Forrester Research Inc., Cambridge Mass. Vol. 5 No. 8. p. 2–7.

Simons, John, “States Chafe as Web Shoppers Ignore Sales Taxes” *The Wall Street Journal* (January 26, 1999) p. B1

Tax Features “Mismatch Between Old Tax and New E-commerce has Governments Scrambling,” (November 1998) Vol.42, No. 10 p. 4, 8.

U.S Department of Commerce, “The Emerging Digital Economy” Washington D.C. (1998).

Zona Research, “Challenges in the Electronic Economy” – Part 11 (November 23, 1998)

Available on the World Wide Web

Angal, David S., “Rogue Valley Y2K Task Force” (December 6, 1998).
<http://www.rv-y2k.org/introy2k.htm>

CNNFn, “Tax Banned From Web”, (October 15, 1998)
<http://cnnfn.com/>

- Dun & Bradstreet 17 Annual D&B Small Business Study (February 19,1998).
<http://www.dnb.com/newsview/0217news4.htm>
- Forrester Research, “Growth Spiral In Online Retail Sales Will Generate \$108 Billion In Revenues By 2003”, (November 19,1998).
<http://www.forrester.com>
- Goldberg, Aaron, “What Small Businesses are Doing on the Web”, (November 10,1998)
<http://www.ZdNet.com/icom/ebusiness/1998/11/small.webbies/index.html>
- Hu, Jim, “E-commerce to Hit \$400 Billion by 2002” (August 18,1998).
<http://www.abcnews.com/>
- IBM, U.S. Chamber of Commerce “Small Business and Technology” (June 1,1998).
<http://www.uschamber.com/news/sb980601a.htm>
- International Data Corporation “Small Business Embraces the Internet” (1998),
<http://www.idc.com/F/HNR/071398.htm>
- Matonis, Jon. W., “Digital Cash and Monetary Freedom” (August 7,1995).
<http://info.isoc.org/HMP/PAPER/136/abst.html>
- Mehling, Herman, “Small Businesses are Eager to Sell Wares on Web” (December 21, 1998) p 87b
<http://www.crn.com/sections/news/7>
- Price Waterhouse Coopers “Economic Outlook Appears Bright for Technology Businesses, Especially Smaller Ones” (November 3,1998).
<http://www.pwcglobal.com/extweb/ncsurvres.nsf/>
- Robert, Victoria, “Economic Outlook: Information Technology Sector to Lead U.S. Economy’s Continuing Growth in 1999” (January 27, 1999) No. 17.
<http://www.newsstand.k-link.com/>
- Visa “Signs Of The Times”: How Small Business Owners View Technology (1998)
<http://www.visa.com/cgi-bin/vee/fb/smbiz/survey/signs/main.html?2+0>
- Von Goeler, Kate, “Internet Commerce by Degrees: Small Business Early Adopters” (November 8,1998).
<http://www.instat.com>
- Van Kete, Mark and Nelson, Tim D., “E-commerce” (May 18, 1998).
<http://www.whatis.com/>
- Yankee Group “Yankee Group Finds Small and Business Market Missing the Internet Commerce Opportunity: Market Unsatisfied with Current Internet Solution Provider Offerings” (November 17,1998),

<http://www.yankeegroup.com/>

Zimble, Eileen, "U.S Small Businesses spent record \$138 Billion on Innovation: Technology And Telecommunication Products and services" (February 1998).

<http://www.ami-usa.com/press2.html>