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## Globalization of E-Commerce: Growth and Impacts in the United States of America

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### Abstract

The paper outlines a case study of US Ecommerce over the past 5 years. The case describes key factors that position the US for leadership in the realm of global Ecommerce, while pointing out inherent risk areas that could threaten this position. It does so utilizing a list of drivers and inhibitors as the basis for analysis in the context of an overview of the US National Environment; its inherent characteristics and their propensity to promote Ecommerce; the Governmental Policies that serve to enable the diffusion of Ecommerce; the level of Ecommerce Readiness that the US has attained through its infrastructure and societal characteristics; the resulting level of Ecommerce Diffusion and finally the Social and Economic Impacts that Ecommerce has had to date and is expected have in the future.

**Keywords:** Ecommerce, Diffusion, eBusiness, B2B, B2C, Internet, Globalization

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# **Globalization of E-Commerce: Growth and Impacts in the United States of America**

## **Introduction**

The United States (US) is the economic and commercial epicenter of the world. Throughout history, the US has set the benchmark for the establishment of new modes of conducting commerce, and the implementation of innovative business models. Their subsequent success or failure as evidenced by the performance of the economy has also served to dictate the pace of economies worldwide. The advent of Ecommerce has been no exception to that rule. Currently, the US, said to have ‘the most wired population on earth’ (Cahners In Stat, 2001) and to be ‘the best country to initiate Ecommerce’ (Forrester Research, 2000), sets the pace in the global realm of Ecommerce. From the inception of the Internet as a tool for communication and the advent of Ecommerce, the US citizens and their government have been at the forefront of this revolution. They have been passionate in the development of the infrastructure, building and implementing the business models, educating their communities and embracing the wave of societal change that the digital age has brought. By all measures this phenomenon is still in its very early stages, yet the transformation that it has brought to the US is profound and will likely be permanent. The Internet and Ecommerce have become integrated into most citizens’ daily lives as they have grown to depend on it for many forms of information, communication and commerce. The Internet has become a permanent part of the US society. The questions now center on where the US goes from here, what the future looks like for Ecommerce in the US, and how the US can best leverage the powers of the Digital Economy to promote growth and prosperity.

Although, there seems to be no question that Ecommerce is expected to play a vital role in the future growth of the majority of businesses in the US, there are significant barriers present that have limited its diffusion to date. Most significantly, the US economy’s current downturn is slowing the trend toward the adaptation of Digital Age Ecommerce models. Online consumer spending growth is falling short of projections of a year ago. The death of many dotcoms has caused an air of skepticism on the part of investors and consumers. Furthermore, the lack of common protocols and platforms such as EBXML has caused B2B Ebusiness exchanges and marketplaces to fall far short of achieving widespread implementation, with resulting momentum loss in the B2B sector. These barriers are compounded by the US’s laggard position in the wireless communication sector. The position is exemplified by a recent announcement by the FCC that the release of 3G wireless spectrum capabilities will not be available until 2004. 3G is expected to be the new standard in wireless communication and commerce. This development puts the US well behind many Asian and European countries that are currently in the process of rolling out these capabilities and are firmly entrenched in the use of wireless technologies as Figure 0 shows.

	Dec 00	Jun 01	Dec 01
<b>Total</b>	455.1	550.1	646.5
Arab States	10.4	13.9	17.3
Asia Pacific	133.7	180.4	226.1
Africa	10.8	13.3	16.6
East Central Asia	2.2	3.2	4.1
Europe	281.3	317.1	354.3
Russia	2.3	3.6	5.7
India	3.1	4.1	5.4
North America	9.6	11.6	13.5
South America	1.7	2.8	3.5

*Figure 0 – Wireless Subscribers Regional Breakdown*  
 All figures are in Millions.  
 Source: [EMC World Cellular Database](#).

Although these barriers are significant in the short term, projections for the future of US Ecommerce diffusion are positive. Taking into consideration its strong demographic traits, growing level of online consumer spending, robust IT/Telecom infrastructure, relatively strong economy and businesses' intent to adopt sizeable long-term Ebusiness strategies, the US is positioned best to maintain and expand its leadership in global Ecommerce.

This paper will use the following list of drivers and inhibitors as the basis for analysis of US Ecommerce in the context of an overview of the **US National Environment**; its inherent characteristics and their propensity to promote Ecommerce; the **Governmental Policies** that serve to enable the diffusion of Ecommerce; the level of **Ecommerce Readiness** that the US has attained through its infrastructure and societal characteristics; the resulting level of **Ecommerce Diffusion** and finally the **Social and Economic Impacts** that Ecommerce has had to date and is expected have in the future.

### US Ecommerce Drivers

1. Demographics such as high gross domestic product and large population
2. Favorable long-term economic environment for growth in a free economy
3. Telecom infrastructure that makes the US the most wired country in the world
4. Digital Divide narrowing
5. Highest Internet user population on the world
6. Ubiquitous availability of broadband access for both consumers and businesses
7. Governmental support of the emphasis on Ecommerce growth and the Internet as a learning tool in schools
8. B2B and B2C revenue expected increase significantly over the next 5 years
9. Expanding of infrastructure expected taking place to support the advent of new B2B business models
10. Wide use of credit cards for consumer purchases

### **US Ecommerce Inhibitors**

1. The current economic downturn, plus geopolitical uncertainty surrounding the aftermath of the terrorist attacks on the US in September of 2001.
2. Skepticism in the US business community that has resulted from the rise and fall of the dotcoms
3. The US's laggard position in the diffusion of wireless technology
4. Data and transaction security issues as businesses invest more of their strategy in Ecommerce
5. Lack of standard platforms and infrastructure to enable B2B Systems Integration

### **National Environment**

In assessment of the business environment in the United States, it is clear that its demographics, economy and infrastructure establish it as the business frontrunner. It has consistently set the pace for the rest of the world in the past and is expected to do so in the foreseeable future. We have seen this trend continue into the evolution of the digital economy, as US businesses begin to shift their focus to Ecommerce.

### **Demographics**

Demographically, the United States has consistently been and continues to be positioned well for future commerce growth. The US is the world's third largest country in population (behind China, and India), with about 273 million people in year 2000. It is the world's wealthiest country in terms of Gross Domestic Product, at USD 10.2 trillion as of early 2001. As shown in Table 1, the US can be compared with the aggregate of the OECD.<sup>1</sup> The US represents less than one fourth of the OECD member population but well over one third of GDP. The US GDP per capita is about 1.5 times higher than that of the OECD country average. The US had significantly lower unemployment and inflation than did the average of OECD countries, and its GDP growth between 1995-1999 is substantially higher. In demographics and wealth distribution, however, the US was closer to the OECD average. The US has a less egalitarian income distribution, with significantly more of its wealth held by the wealthiest people. In the past, this is skewed distribution of wealth has created a phenomenon known as the by the US Government as the 'Digital Divide', which has created a large technology gap between the affluent and less affluent population. However, this divide is actively being narrowed at present by the implementation of significant government funding for technology in schools, more widespread availability of affordable Internet access in American homes and the downward trend in personal computer prices.

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<sup>1</sup> The OECD consists of 33 member nations that promote policies designed to achieve the highest sustainable economic growth and employment, a rising standard of living, financial stability, and the expansion of world trade on a multilateral and non-discriminatory basis. Current members include Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, South Korea, Luxembourg, Mexico, The Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.

	Population billions	Urban population (% total)	% over age 65c	% under age 15c	GDP USD trillions	GDP per capita, thousands	Wealth in richest 20%	Wealth in poorest 20%	Unemployment rate	Inflation Consumer Prices %	Avg. GDP growth 1995-99
US	263	77.0%	11.9%	21.2%	\$9.3	\$34.6	46.4%	5.2%	4.2	2.19%	4.17
OECD	1,1070	77.3%	12.6%	20.4%	\$24,9	\$22.5	40.2%	7.7%	7.1	4.85%	3.22

**Table 1. US and OECD Demographics and Economics**

**Economics**

Although the US is in the midst of a significant slowdown, history has proven its ability to rebound strongly. A look at the current state shows that the US economy began slowing in the third quarter of 2000, as shown in Table 2. The U.S. GDP grew at a rate of 1.2% in the first quarter of 2001, compared to 5% in 2000. In spite of the slowing, the U.S. unemployment rates remained the lowest for the G-7 nations. In a proactive effort to stimulate the economy, the Federal Reserve has cut interest rates numerous times in the past year. Furthermore, the Bush administration has consistently focused on the revival of the economy as a key issue. Although the current economic picture does not appear favorable in the short term, all indications are that long-term growth will occur which will present a favorable environment for Ecommerce.

	GDP*	% change
Q4 1999		8.3
Q1 2000	9,752.7	4.8
Q2 2000	9,945.7	5.6
Q3 2000	10,039.4	2.2
Q4 2000	10,114.4	1.0
Q1 2001	10,226.8	1.2

**Table 2. U.S. Gross Domestic Product At Seasonally Adjusted Annual Rate.**

Source: U.S. Department of Commerce Bureau of Economic Analysis, Billions of Current Dollars GDP calculated using a chain-type Fisher formula with annual weights.

**IT Strength**

A key factor in the US’s ability to lead the charge in Ecommerce is its position in the global IT arena. As Table 3 shows, the US is comparable with the average of OECD countries in some areas, but leads in many others. The US has less of its GDP represented by telecom investment than the OECD average, but more of its GDP in IT generally. The US represents nearly 40% of the OECD total in IT hardware production, but slightly less than one-quarter of all IT exports among the OECD countries. The US has a highly developed wireline telephone infrastructure (approximately 1/3 more lines per 1000 people), and about the same proportion of its lines are digital. However, it does have a slightly lower penetration level of cellular telephone use. As will be discussed below, this media is expected to play a significant role in the diffusion of Ecommerce in the next 5 years as mobile commerce models become more prevalent. As such, this will serve as a significant challenge to the US in its quest for global Ecommerce leadership, as the bandwidth required for Mcommerce is expected to be occupied by the FCC and the military for the next 2-3 years. The US has a significantly larger CATV subscriber presence, and many more personal computers per capita than the OECD average, which are indicative of its consumers and small

business level of readiness for Ecommerce. The US has nearly twice as many Internet users per capita as the OECD average, and nearly three times as many Internet hosts per capita. Table 4 shows that the US is much stronger in enabling technologies for electronic commerce as it has more than three times as many secure servers and strongly encrypted secure servers per capita than the OECD average.

	Telecom investment as % of GDP	IT as % of GDP	IT hardware production, USD billion	IT hardware exports USD billion (1998)	Main phone lines/1K population	Cell phone subscribers/1K population	Digital as % of all phone lines	CATV subscribers/1K population	PCC/1K population	Internet users per 1K population	Internet hosts/1K population
US	0.3%	4.1%	\$85.10	\$38.00	673	315	91.6%	251.34	517.07	271.74	195
OECD	0.5%	3.1%	\$221.20	\$170.00	508	325	93.8%	140.02	285.55	180.05	62.63

**Table 3. US and OECD: Telecommunications Indicators**

	Secure servers/100K population (1998)	Encrypted servers/100K population (1998)	B2B trade in USD billions (2000)	B2C trade in USD billions (2000)
US	54.29	38.39	449	39
OECD	17.77	11.47	589	52

**Table 4: US and OECD: Electronic Commerce Enablers**

The US national environment has always been favorable for commerce and as a result the country has experienced consistent growth. Their position at the forefront of the global economy is expected to be maintained as Ecommerce diffusion levels rise. The above indicators are indicative of this assertion.

**National Policies**

Recent statements by the Department of Commerce emphasize that the US Government sees the importance of Ecommerce and IT to our society and to US business. The government characterizes the online dynamic that is occurring as ‘a transformation of America’s economy and society’. It cites that the IT sector has accounted for nearly one third of the US economic growth in the past year and has helped spark an increase in US productivity and global competitiveness.

The Bush/Cheney administration, which took office in January of 2001, has not yet rolled out its agenda for electronic commerce. Although, there have been no decisions to suggest any specific philosophy or strategy on the matter, it is expected that it will at least follow the principles of private sector leadership established in the Clinton/Gore administration. For purposes of this

baseline paper we will operate under the assumption that this status quo will be maintained. However, it must be noted that the Bush/Cheney administration has been occupied primarily with the aftermath of the terrorist attacks of September 2001, and it is as yet difficult to tell whether the administration will engage in any specific policies related to Ecommerce in the near future.

### **Enabling Policies**

According to the government's Ecommerce website ([www.ecommerce.gov](http://www.ecommerce.gov)), the five primary guiding principles held by the US government with regards to this area are as follows:

- The private sector should lead.
- Governments should avoid undue restrictions on electronic commerce.
- Where governmental involvement is needed, its aim should be to support and enforce a predictable, minimalist, consistent and simple legal environment.
- Governments should recognize the unique qualities of the Internet.
- Electronic commerce over the Internet should be facilitated on a global basis.

By allowing the private sector to lead it was hoped that innovation and profit incentives would enable e-commerce to expand rapidly. The government's involvement under the Clinton/Gore principles was focused mainly on digital equality issues such as providing Internet access to schools, providing government information online, and on building consumer confidence in the Internet as a whole. A number of laws were passed that illustrate this. The Children's Online Privacy Protection Act that requires sites collecting information about minors to disclose what information they are collecting and how it will be used. The Uniform Electronic Transactions Act (UETA), provides that "contracts and records are not invalid simply because they are in an electronic format rather than on paper." E-SIGN legislation proclaiming the legitimacy of digital signatures further promotes the legitimacy of electronic transactions. The National Institute of Standards and Technology has been working for several years to develop a Federal Public Key Infrastructure through its Computer Security Resource Center, which would hopefully increase consumer confidence in electronic transactions. These issues are not merely domestic, but extend to the international arena as well. For example, the Safe Harbor Accord between the U.S. and the European Union protects consumer information.

Prior to 2001, the Clinton Administration worked to accomplish the following goals with regards to Ecommerce:

- Increased effective consumer protection online by encouraging industry self-regulation and the aggressive prosecution of fraudulent practices and misleading advertising in the online marketplace under existing consumer protection laws.
- Successfully promoted codes of conduct developed and enforced by the private sector as the most effective way to protect privacy online. In just over a year, websites with privacy policies or information practice statements have jumped from 14% to 66%. The Administration also has supported expanded legal protection for medical records, financial records, and children's privacy.
- Changed the Administration's encryption policy to provide U.S. firms new opportunities to sell encryption products abroad, and bring the benefits of strong encryption to individuals and businesses using the Net around the world, while protecting the legitimate interests of public safety and national security agencies (<http://www.bxa.doc.gov/encryption>).

- Bolstered the security and reliability of the underlying telecommunications infrastructure through the President's Critical Infrastructure Program set forth in Presidential Decision Directive 63. The Critical Infrastructure Coordination Group has developed the first version of the National Plan for Information Systems Protection aimed at making the Federal government a model of information security and building a voluntary public/private partnership to protect the information infrastructure ([http://www.info-sec.com/internet/99/internet\\_012799a\\_j.shtml](http://www.info-sec.com/internet/99/internet_012799a_j.shtml)).

They also put forth the following initiatives to facilitate the growth of the US Ecommerce:

- Tripled investment in Community Technology Centers from \$10 million in FY99 to \$32.5 million in FY00.
- Supported innovative applications of information technology to link job seekers and workers with employers to fill jobs and upgrade skills through a suite of online services called America's Career Kit.
- Challenged the private sector to develop new business models for low-cost computers and Internet access to make universal access at home affordable for all Americans.
- Increased the number of classrooms connected to the Internet from 3 percent in 1994 to 51 percent in 1998 through the implementation of the 'E-Rate Program', which leverages a Universal Service Fund to provide significant capital for disadvantaged schools to narrow the digital divide. The funds are allocated to give these schools telecom services, internal connections and infrastructure as well as Internet access.

The US government attempted to demonstrate its recognition and commitment to the growth of Ecommerce through other initiatives such as:

- The Federal Communications Act of 1996
- The Electronic Commerce Working Group
- The release of 'A Framework for Global Electronic Commerce', a Whitehouse directive on Ecommerce

### **Other Enabling Factors**

Historically, The US national government has always directly promoted and subsidized a large number of enabling factors in the rise of electronic commerce. It is highly doubtful that the Internet would have been created without the direct agency of the US national security apparatus. The Internet arose from a long tradition of US military investment in the development of information processing technologies (Edwards, 1996; King, Grinter and Pickering, 1997, Abbate, 1999). A great deal of this development work was done in universities, which for purposes of this discussion must be considered either governmental or quasi-governmental organizations. However, this takes nothing away from the powerful influence and contributions of private sector firms. Companies in the computer and communications industries were frequently central players in these developments, either as contractors for the government or as investors in their own right. But it is important to note that the US philosophy about letting the private sector lead belies a long-standing US tradition of creating opportunities for new technologies, new products, and new industries through its heavy investments in research and development. The most notable indirect enabling policies put forth by the US government have been the efforts at deregulation in related industries (communications, transport, etc), the preservation of tax advantages for activities using the Internet, and investments in Telecommunications



### ***Deregulation***

The trend toward deregulation seems likely to continue for some time, and there is an expectation that the liberalization of the markets will encourage new entrants and innovation in both products and services. Of the recently deregulated markets, the one that has the largest bearing on the diffusion of Ecommerce in the US telecommunications. The Telecommunications Act of 1996 pushed the limits of deregulation, specifying procedures whereby Local Exchange Carriers (LECs) could extend their services into long distance provision, while the International Exchange Carriers (IXCs) could enter the local loop. However, this has not yet happened to any great degree due to difficulties among the LECs in opening the local loop to real competition. However, the overall scheme of deregulation is expected to play a significant role in setting the long-term Ecommerce landscape in the US as the cost of telecom is expected to continue to drop dramatically in the next 5 years.

### ***Ecommerce Sales Taxation***

The question of taxing Ecommerce dollars is a vexing one indeed. It is currently being posed by Ecommerce tax proponents and it is this: 'In the end, whether bought in a store or online, it is all commerce...therefore, shouldn't the same tax rules apply? The answer to that question remains to be seen, but will have a large impact on the diffusion of Ecommerce in the US.

Currently there is no tax on state-to-state transactions; a fact which adds tremendous appeal to the option of online shopping. However, many state and local governments depend heavily on sales taxes. Indeed, due to various "tax revolts" over the past twenty-five years (often traced to California's Proposition 13 passed in 1978), both property taxes and income taxes have been under pressure for reduction. Often, the proponents of such tax reductions publicly favor use of sales taxes or value-added taxes as more "fair" (i.e., less progressive). Yet the move to give preference to the Internet and electronic commerce in sales taxation imposes a serious risk to the abilities of state and local authorities to generate needed revenue. It seems that an unbalanced sales tax structure between electronic commerce and non-electronic commerce probably cannot be sustained indefinitely, as many states such as Ohio are pressing aggressively to change this.

A further look into this issue shows that the federal government exercises authority over most aspects of telecommunications in the US as a consequence of the "commerce clause" of the US Constitution. Under Article I, Section 8, clause 3, of the Constitution of the United States, Congress retains the power "...to regulate Commerce... among the several States..." It has never been completely clear exactly what the clause means. It is still in existence only to give more power to Congress than to the states in regulating business activities that affect more than one state. Generally, states are prohibited from restricting or burdening commerce that crosses their borders from another states. Many of the decisions under the commerce clause have dealt with taxation (e.g., when one state tries to impose higher taxes on a product made in another state), but in recent years the clause has been interpreted in a variety of different cases.

The states can set their own taxes related to income, property, sales and so forth. However, there has been a great deal of controversy in the past thirty years regarding whether a state can establish sales and other forms of tax on products and services provided by companies outside the state. The federal courts have ruled that a state may enforce collection of sales taxes only on products or services that are sold by companies that have an actual physical presence inside the state for purposes of the sale. Under this ruling, a company that lies outside a state's boundaries, collects orders from customers inside the state, and delivers the merchandise to the customers using mail or package courier need not collect sales taxes. Thus, "mail-order" products and services are not currently taxed unless the selling company has at least one physical store operating within the state.

This has been a very important issue in electronic commerce, because in many cases electronic commerce (especially business-to-consumer, or B2C) is similar to mail order sales. In those cases where states have attempted to tax electronic commerce sales, federal legislation blocking “taxing the Internet” have taken precedence. This gives electronic commerce the effect of a price discount compared to similar products and services delivered by non-electronic means. Companies engaged in electronic commerce argue that they need this tax advantage because varied and complicated state tax laws would deter online customers in a mode of commerce that is just getting started. However, the states (led by the National Governors Association) claim they are losing money on two fronts: the tax dollars they would have gained with taxation ability and the loss of business among bricks-and-mortar companies that are taxed.

The future of this issue remains to be seen, but as it stands it represents a key advantage to current and prospective E-merchants as they expand their businesses into the realm of the digital economy. If maintained it will certainly enable further Ecommerce growth, if repealed it will be a deal a blow to the potential of Ecommerce in the US.

Although the US does not know if the Bush administration will hold to the principles of its predecessor, take a more aggressive approach or make governmental involvement in Ecommerce less of a priority, it seems very clear however, that the importance to and potential impact of this phenomenon on the future of the US economy is unmistakable. Therefore, increased involvement by the government in the future as growth and expansion of Ecommerce occurs seems imminent. This involvement will likely come in the form of an expanded agenda on Ecommerce that will include:

- Implementation of security and encryption standards
- Taking a hard line on cybercriminals
- Bolstering of funding and support for Internet/Ebusiness oriented education in high schools and institutions of higher learning
- Regulation of content, access and quality
- Decision on taxation issues
- Intellectual property protection
- Privacy Issues
- Initiatives to foster B2B Ecommerce and to assure US global leadership in Ebusiness

### **Ecommerce Readiness**

Globally, the US has been the quickest to develop and adopt new Ecommerce business models. This assertion can be explained in terms of its overall societal tendencies towards collaboration and community, the nature of its consumers to engage in liberal credit card spending limited fear of the risks inherent in Ecommerce, its established role as a leader in the IT industry, as well as its superior telecommunications infrastructure.

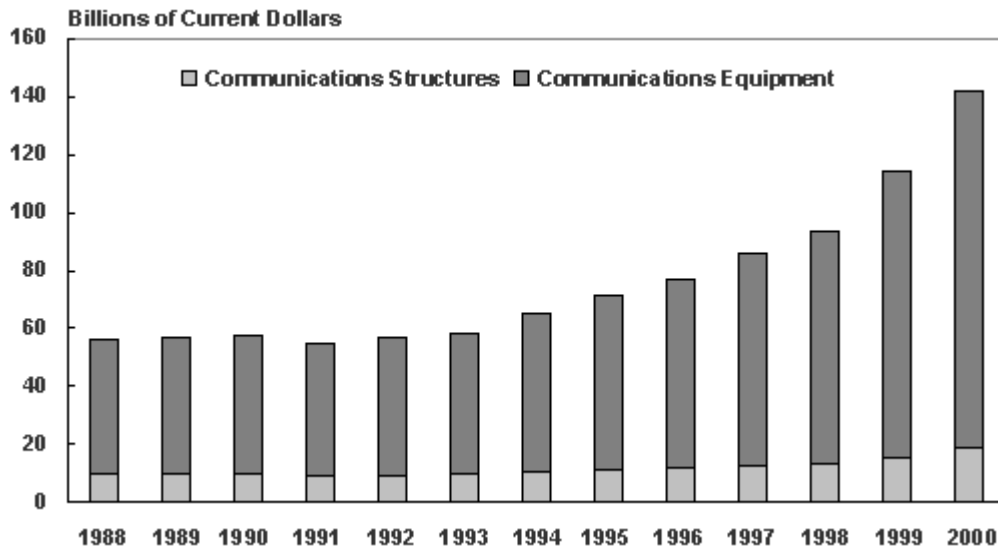
First of all, the Internet is by nature a social tool utilized to share information and experiences as well as for conducting business. The US is a highly social/interactive country as evidenced by its emphasis on consumers social interaction and team-oriented collaboration in the workplace. It therefore follows that one of the primary points of emphasis in the design of Internet products and services is their ability to facilitate interaction. In the US Ecommerce society, examples of this nature abound. Online communities such as Yahoo, Excite and Geocities which focus on sharing experiences and information, social buying forums such a Amazon.com which

foster interaction and deliver content and services in addition to goods, B2B marketplaces and exchanges such as Arriba and Commerce One which promote a high degree of interaction between business, and groupware/collaborative business tools such as Lotus Notes are all examples of the commerce-oriented use of the Internet in a highly interactive and social fashion which the US has embraced on a large scale.

Second, US consumers have a higher propensity to engage in liberal spending, especially with the use of credit cards. A report issued by Metagroup states that percapita, the US ranks in the top four countries with respect to the number of credit cards issued. Of those issued, the US has the top ranking in credit card utilization. This is highly significant when considering the fact that nearly all consumer online spending requires the use of a credit card. Furthermore, according to Forrester Research, the average American who utilizes the Internet for Ecommerce spends about 250 dollars a month online.

Third, according to a report by Cahners In-Stat issued in March of 2000, US consumers are more prone to tolerate the security risks that online shopping and B2B Ecommerce entails. Even in light of recent individual and corporate level attacks by hackers on Ecommerce sites which have caused denial of service, theft of personal information such as credit card numbers, and widespread virus infection, healthy Ecommerce growth continues to occur and is projected to do so into the foreseeable future. The report also went on to state that US Internet users tend to be much more liberal with the divulgence of sensitive personal information in the Ecommerce process. This is a key point when one considers the fact that the availability of this information is a key to the effectiveness of most Ecommerce sites.

Furthermore, investment in telecommunications structures and equipment has been growing substantially in recent years. As Figure 1 shows, investment in year 2000 reached approximately USD 140 billion, up from less than USD 60 billion in 1988. In addition, price-performance improvements in telecommunications technology have dramatically increased the capability of the telecommunications infrastructure. Especially important in the 1988-2000 time frame is the growth of mobile communications, and particularly cellular telephony. Virtually unknown prior to the deregulation of the telephone industry in the mid-1980's, cellular telephony has swept the world. It is now estimated that more than 1 billion people use cellular telephones. Although the US lags behind Asia and Europe in the use of cellular telephony, it has among the higher penetration rates among developed countries, as was discussed earlier in Table 3. According to these OECD statistics, the US has about 315 wireless subscribers per 1000 people, compared to the OECD average of 325. The next five years will be very telling as the world sees the position that the US takes in the rollout of 3G, GSM and Mcommerce strategies.



*Figure 1. Investments in Communication Infrastructure and Equipment, 1988-2000*

*Source; Congressional Budget Office based on data from the Department of Commerce Bureau of Economic Analysis.*

### **Flat Rate Telecom Service**

In this assessment of the readiness of the US for Ecommerce it seems vital to discuss the uniqueness of its telecom rate structure. In most regions, CLECs offer a service for local phone service in a flat rate structure. Under this type of an arrangement, consumers pay one monthly fee for unlimited calls in their local dialing area. This is vital as the majority of Internet service providers have points of presence (POPs) in most areas. ISP subscribers can therefore dial in to the Internet for as long as they wish without incurring any additional cost from their CLEC. This is a key difference between the US and most of Europe or Asia, which charge a per-minute fee for local calls. Users in these continents must pay by the minute to access the Internet, which acts as a significant barrier to the length of time required to shop on the Internet

### **Diffusion of E-commerce**

Exact measures of the diffusion of electronic commerce are difficult to find. Although there are now a number of analysts and forecasters issuing assessments on regular basis, the variance between the analysts' reports of electronic commerce diffusion can be significant. However, despite their apparent discrepancies in precision, they are consistent in their indications of the trends in US Ecommerce. With the exception of the measure of Ecommerce dollars, these trends will be the primary focus of this analysis. In this section we use three primary groups of measures to determine the diffusion of electronic commerce: availability and use of Internet infrastructure, measures of activity on that infrastructure and measurements of the actual dollar amount of electronic commerce transactions taking place.

#### ***Availability and Use of Internet Infrastructure***

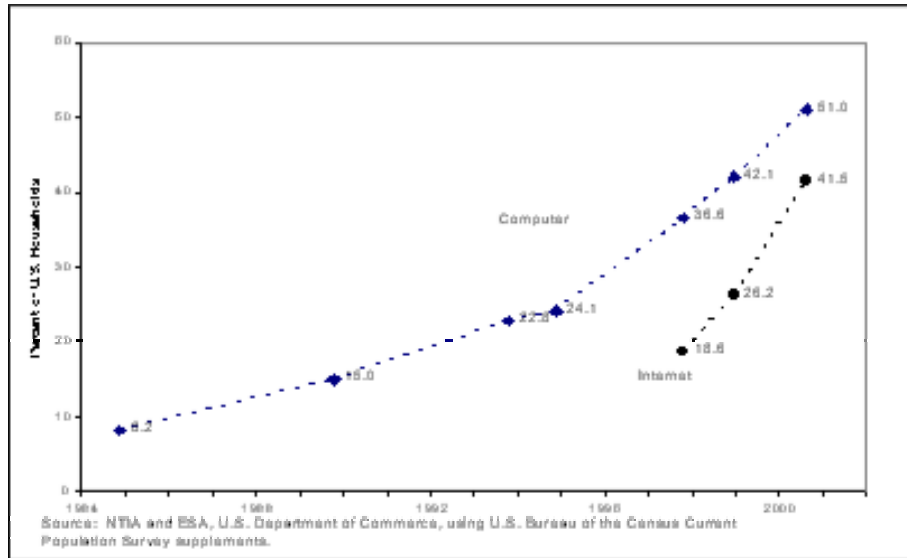
A key measure of Ecommerce diffusion is the use, availability and penetration of Internet service such as dial-up, DSL and cable access. As Table 5 suggests, the US leads the world by a

wide margin in the diffusion of Internet use. Figure 2 gives a recent history of computer use and Internet penetration in US households. Table 6 gives comparative data on connection rates to Internet infrastructure across the US and several other countries. Based on this estimate, it is safe to assume that somewhere between one-third and one half of global Internet users are in the United States. This is a function not only of the extensive penetration of the Internet in the population, but the large population size of the United States.

U.S.	45.02%
Germany	5.56%
Canada	5.00%
Korea	4.57%
Japan	4.35%
Other	35.5%

**Table 5: Distribution of Internet Users Worldwide as of January 2001.**  
 Source: StatMarket

**Figure I-1**  
**Percent of U.S. Households with a Computer and Internet Access, Selected Years**



**Figure 2: US Households with Computer and Internet Access over Time.**  
 Source: US Department of Commerce and US Bureau of the Census.

France	4,718,000 (19.6% of population)
Germany	9,976,000 (29.2% of population)
Spain	2,031,000 (15.6% of population)
UK	8,487,000 (35.9% of population)
USA	53,488,000 (51.6% of population)

**Table 6: Percentage of Population Connected to the Internet in 5 European Countries**  
 Source: Netvalue, December 2000.

Table 7 shows the North American market statistics for residential use of broadband for Internet access, and Table 8 shows the relative household broadband penetration in the US and several other countries. Use is significant and growing, with the US leading. This is extremely vital as bandwidth requirements become greater for Ecommerce applications. The widespread availability of broadband will play a key role in consumer and businesses' ability to transact Ecommerce. Although broadband is becoming ubiquitous and is therefore widely available to most businesses and consumers, it is still in the early stages of adoption. Of the 68.4 million current US Internet access subscribers, only about 7 million are utilizing DSL and Cable, the two primary broadband mediums. However, with investments that have been made in broadband access infrastructure to increase quality and availability, the US is positioned well for future growth in the use of the Internet as a tool for conducting Ecommerce. Further, growth in small business offices, branch offices and telecommuting are playing a key role in driving broadband demand. The result is the line between business needs and consumer activity is blurring and broadband is encompassing both requirements.

	DSL	Cable	Total
Subscribers as of 6/1/01	2,913,636	6,450,916	9,364,552
Subscribers as of 3/31/01	2,543,938	5,800,103	8,344,041
Q1-01 Subscriber Additions	560,148	986,081	1,546,229
Q1-01 Average Adds/Week	43,088	75,852	118,941

**Table 7: North American Residential Broadband Distribution.**  
**Source: Kinetic Strategies Inc.**

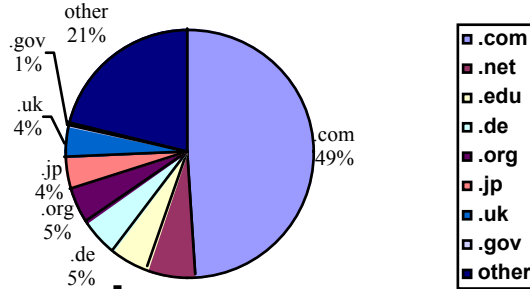
Region	2001	2005
France	2.0%	22.6%
Germany	4.8%	27.4%
Italy	1.1%	10.6%
Netherlands	6.1%	33.9%
Spain	3.6%	21.9%
Sweden	9.4%	37.3%
UK	0.9%	19.5%
Total Europe	3.3%	24.2%
North America	14.1%	53.1%

**Table 8: Household Penetration of Broadband. Source: Strategy Analytics**

### **Level of Ecommerce Activity**

The Internet by itself is merely infrastructure for electronic commerce. A more telling indication of the extent to which the Internet is being used for electronic commerce can be seen by examining the comparative presence of sites with particular Top Level Domains (tlds). As shown in Figure 3, the .com tld that designates a US commercial site currently accounts for approximately

half of all sites. Table 9 shows the breakdown of the number of Internet hosts by the US and selected countries, derived as an estimate of the number of sites specifically registered under the .us tld as well as those early tld's (.com, .edu, .org, .gov, .mil, .net) that can be attributed to US sites. These measures show the US clearly dominates in the realm of Internet activity.



**Figure 3: Leading Top-Domain Name Composition.**  
 Source: Statistics.com; Data from Google

Country	# Hosts	# Users
USA	81,223,800	183,004,000
Japan	6,548,600	48,587,000
Germany	4,313,280	37,605,400
UK	4,431,550	50,315,300
Canada	5,972,720	27,171,900
Australia	1,898,260	11,723,500
Finland	1,012,300	3,204,330
Netherlands	2,012,830	12,177,900
Sweden	1,655,320	6,991,790
France	1,711,080	12,319,100

**Table 9: Number of Internet Hosts and Users, July 2001**  
 Source: Netsizer.com

Yet another way to assess the level of electronic commerce is to examine the level of use of specific sites to see how the tld profiles compare. Data from Netvalue shown in Table 10 demonstrate clearly the dominance of the .com domain; indeed, only one of the eleven top sites listed fails to have a .com tld, and that one (aol.prop) is a subsidiary of a very large commercial site (America On-Line). Table 11 provides a picture of the top World Wide Web properties. Again, commercial sites that offer either Internet service provision, entertainment, or narrowly defined merchandise sales (e.g., Amazon) dominate.

Domain	% of users	Unique Visitors
yahoo.com	59.7 %	50,038,000
msn.com (*)	52.3 %	43,842,000
aol.com	38.5 %	32,282,000
aol.prop	30.8 %	25,868,000
passport.com	29.8 %	24,973,000
lycos.com	25.4 %	21,304,000
microsoft.com	25.1 %	21,011,000
netscape.com	20.3 %	17,057,000
ebay.com	18.9 %	15,838,000
amazon.com	17.0 %	14,294,000

**Table 10: Top Domains in the US, May 2001**

Source: Netvalue

Property (multiple domains)	Reach (active)	Unique Audience
AOL Time Warner	62.61 %	63,531,959
Yahoo!	53.71 %	54,493,102
MSN	47.67 %	48,371,258
Microsoft	25.37 %	25,745,577
Lycos Network	21.65 %	21,971,353
<a href="#">Excite@Home</a>	19.65 %	19,938,445
About The Human Internet	15.76 %	15,994,150
Ebay	15.72 %	15,949,118
Walt Disney Internet Group	14.78 %	14,995,364
Amazon	14.74 %	14,952,600

**Table 11: Top Web Properties, June 2001**

Source: Nielsen//NetRatings

Considering the new opportunities that Ecommerce presents small and medium-sized businesses (SMBs), it is prudent to look at the level of diffusion that has taken place in that sector. The initial expectation was that the Internet would level the playing field so that SMBs could compete with larger firms. Although this has taken place to a certain extent, the SMBs have been much slower to implement Ecommerce than originally expected. Almost three-quarters of small businesses are accessing the Internet, according to [International Data Corp.](#) (IDC), up from about two-thirds just a year ago. SMBs are also moving quickly to establish their own home pages, with 2 million small firms maintaining their own Web sites. However, at the end of 2000 only 725,000 small firms were actively selling online, even though a far greater number had planned to do so. The diffusion level has been below that projected, but the opportunity for that sector to thrive in the world of Ebusiness is still prevalent and expected to be a factor in the future as these firms develop the strategies and resources to implement Ecommerce.



**Ecommerce Dollars Transacted**

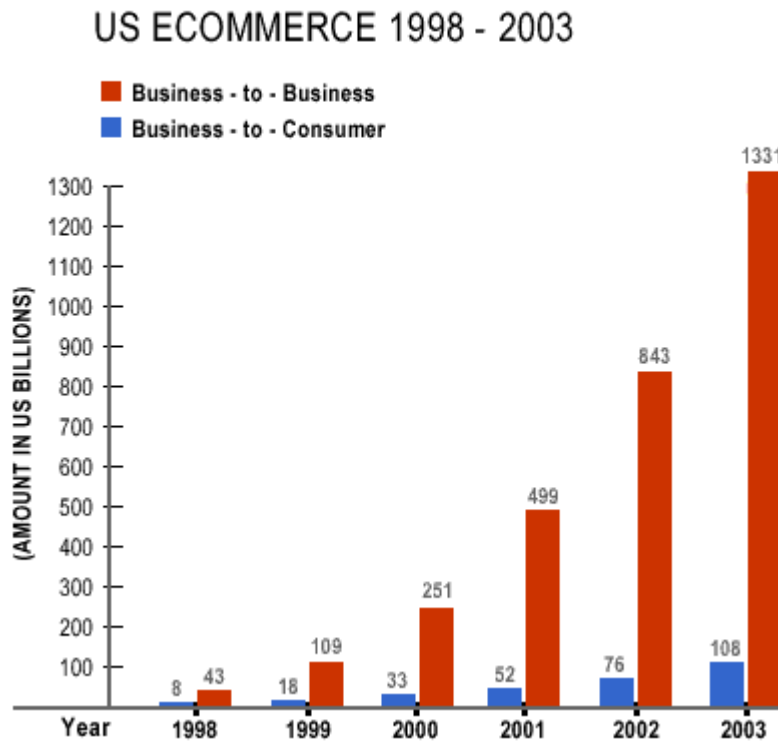
As stated before, the estimates of Ecommerce dollars vary widely. In order to maintain a more consistent viewpoint, the primary source of data for this section was Forrester Research. As these figures show, even with the present adverse economic conditions in the US, the trend of significant growth in the future continues. In comparison with the rest of the world, these global Ecommerce projections put the US squarely in the lead.

In 2000, according to one estimate, the US represented three quarters of all B2B and B2C e-commerce trade within the OECD countries. Table 12 shows one estimate (the Forrester Global e-Commerce Model for 2000) of the rate of US electronic compared to eight other countries. Again the position of overall US Ecommerce leadership from a pure dollars standpoint is exhibited.

In Billions	US	Japan	Denmark	France	Singpr.	Taiwan	Brazil	Mexico	S.Korea
Total	488.655	31.880	3.302	9.920	1.182	4.136	2.403	3.249	5.559
B2B Trade	449.900	29.618	3.125	9.102	1.098	3.843	2.233	3.019	5.164
B2C Trade	38.755	2.262	0.177	0.818	0.084	0.293	0.170	0.231	0.394

*Table 12. US Rates of Electronic Commerce Activity Compared to Eight Countries.  
Source: Forrester Global e-Commerce Model*

Within the US, figure 4 shows a view of the B2B vs B2C over time. Again this estimate shows significant growth expected in both sectors.



Source: [Forrester Research](#)

**Figure 4: US Electronic Commerce, 1998-2003**  
Source: Forrester Research, Incorporated

With respect to other countries, the US is certainly ahead in the adoption life cycle of B2B Ecommerce. According to a study conducted by CommerceNet of their global partners, companies in the US are grappling with more substantive issues in implementing Ecommerce such as interoperability with legacy systems and with complementary companies' systems. By contrast, dominant issues outside the US are more perceptual, such as perceptions of security. Four of the top ten barriers to Ecommerce outside the US revolve around security issues such as encryption, trust and risk, user authentication and fraud/risk of loss. Interestingly, the issues of systems integrations/interoperability did not figure into the top ten barriers for Non-US companies. It is expected that they will loom large for Non-US companies in the future however, as global Ecommerce becomes more prevalent. Some concerns that were common to both US and Non-US companies include lack of qualified personnel, culture, organization and security. These will all be issues which will factor heavily into the level of global diffusion of Ecommerce.

In summary, electronic commerce is clearly present and growing, although it is very difficult to say with certainty how large it is or how fast it is growing. It is clear however, that the by all measures available, the US dominates in the diffusion of electronic commerce and is expected to do so on a long-term basis.

### **Social/Economic Impacts**

The advent of the Internet has had widespread impacts in the US in recent history. The effects range from the almost ubiquitous use of electronic mail and browsing of web sites, to increasing B2C and B2B Ecommerce trends. Businesses and consumers alike have begun to make a serious shift towards the adaptation of the Internet and its Ecommerce capabilities as a key part of its societal core. The result has been the evolution of a society that has in large part begun to depend upon the Internet. Further, all indications are that in the future this phenomenon will continue. Although widespread data is not yet available, the effects are obvious and marked. US consumers are taking advantage of the Internet's shopping forums and content, to get better deals, shop more efficiently and to make more informed buying decisions. Businesses are utilizing the superior Internet infrastructure of the US to enhance existing business models and initiate new businesses. They are beginning to experiment with new and more efficient ways of transacting business online through the integration of existing systems with marketplace and exchange service providers as well as directly to other members of the supply chain. As discussed earlier, the US leads on the overall Ebusiness adaptation curve, but it is still very early in the lifecycle and only a fraction of the potential in this realm has been realized.

The effects of Ecommerce have also been quite noticeable in the industrial organization arena, with a clear consolidation among Internet service providers, mergers between internet-related companies and traditional media companies and the evolution of new B2B oriented businesses from traditional businesses. For example, AOL merged with Time Warner to create the largest media merger in history. Another high impact example in the industry is the famed Microsoft ant-trust case, which has world watching to see the outcome of the US Justice Department's antitrust case against this software behemoth. The formation of the B2B buying forum called COVINST by the 'Big 5' auto makers has the ability to change the way US manufacturing firms will conduct business forever. These and other major business reorganizations are a clear indicator that larger businesses are making a solid Ecommerce strategy a strong priority for the future of their firms and will certainly shape the future of the US Ecommerce landscape.

Another area being studied is the effect of online advertising. Recent adoption of broadband connections has lessened some of the limitations of online advertising. Therefore, flash, pop-up and pop-under ads are more readily used and have freed companies from the use of traditional eyesore banner ads. Furthermore, there is also considerable speculation about this targeted advertising and its effects. Through the use Customer Relationship Management Systems (CRM), detailed information about consumers, collected through online browsing and Ecommerce transactions, are now being used extensively by most Etailers. The net effect is the ability build detailed user data profiles, enabling the delivery of focused content and advertising with pinpoint accuracy. This is effecting a trend towards a highly upgraded Internet Ecommerce experience with escalated service to consumers. It is not clear whether rising concerns about privacy will cause a backlash against such practices, but this is certainly a possibility that Ecommerce providers and participants will be grappling with in the near future.

Online banking is also a sector that has shown recent growth in impact. It is attracting more customers due to the convenience of consolidated, easy delivery of banking services such as payment of bills, routine transactions, account maintenance and loan application. The use of this model has also created a considerable increase in efficiency and reduction in paper. As Figure 4a shows, most major US banks have leveraged this trend to move aggressively to increase the role of the Internet as a media to improve customer service while realizing its inherent efficiency benefits, as it has now become a competitive necessity in this industry. However, again the US lags behind its counterparts in Europe and Asia in this area. The level of interoperability between banks is much lower as banks are not as cooperative. Further, the level of Electronic Funds Transfer (EFT) is much slower leaving a great deal of room for improvement in this area.

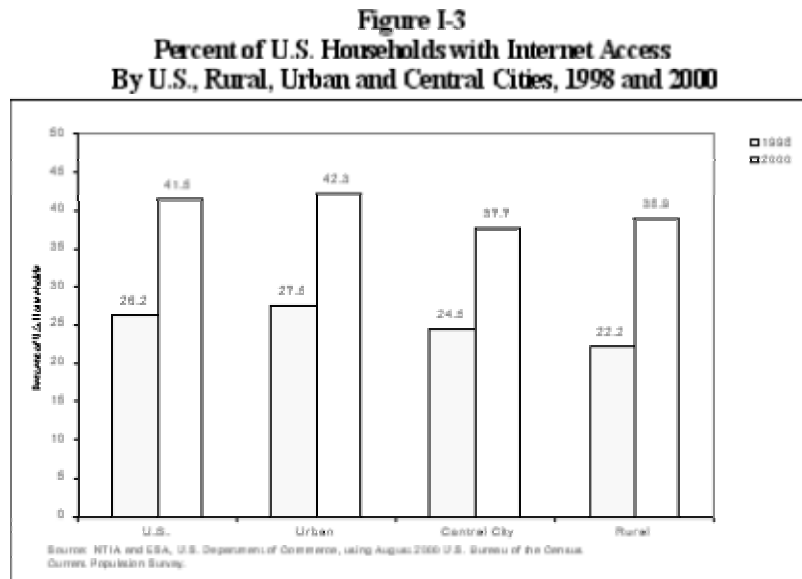
<b>Traffic to Banking Sites</b>			
Home & Work Users (000)			
	<b>July 2000</b>	<b>July 2001</b>	<b>Percent Change</b>
<b>Total WWW</b>	76,910	92,175	19.80%
<b>Banking Sites</b>	10,411	18,489	77.60%
<b>Multichannel Banking</b>	6,367	13,405	110.50%
<b>Online-Only Banking</b>	1,194	1,097	-8.10%
<b>Multichannel Banks</b>			
Chase	957	3,647	281.10%
Wells Fargo	2,007	3,492	74.00%
Citibank	1,718	3,469	101.90%
Bank of America	1,502	3,296	119.40%
Bank One	536	1,139	112.50%
Fleet	501	900	79.60%

*Figure 4a Utilization of Banking Sites*  
*Source: Jupiter Media Metrix*

Another area that will likely be a US Ecommerce factor in the future is the advent of mobile commerce. Though still in the very early stages of adaptation, the evolution of this model is highly significant. It involves the use of personal data assistants (PDA) and cellular phones to conduct Ecommerce transactions and browse the Internet, has great potential for the global diffusion of online commerce. The convenience and mobility that it offers the purchaser has widespread appeal. Although the advantages are obvious, the availability of appropriate 3G technology for large-scale deployment is not currently available in the US. However, Japan and the European community are deploying such services at this time with late 2G and early 3G wireless technologies. This is a key area for future Ecommerce growth and diffusion which the US lags behind significantly in the global market.

### Digital Divide

According to a study conducted last year by the Commerce Department's National Telecommunications and Information Administration (NTIA), the digital divide, which characterizes the technology gap between different demographic groups in the US, is narrowing quickly. This study shows that virtually every group has participated in a sharp upward trend to connect their homes and businesses to the Internet utilizing dial-up and increasingly, broadband access. As Figure 5 shows, rural areas once left behind are catching up with other parts of the country and according to this report, are expected to surpass some of the central cities in their Internet use within the next 5 years.



**Figure 5: Percent of US Households With Internet, Urban/Rural**  
**Source: US Department of Commerce and US Bureau of the Census**

The effects of the digital divide are also profoundly felt in US classrooms, where the future of US Ecommerce begins. The disparity between the level of technology available from an infrastructure and connectivity standpoint has been significant, with less than 3 percent classrooms connected to the Internet in 1994 according to the US Dept of Commerce. A fundamental paradigm shift in education has been initiated since then which places a high level of emphasis on the Internet as a learning tool and recognizes its place in society. As a result, US schools are incorporating the

Internet into their curriculum in various ways and the government is providing funding to facilitate this through a program called 'E-Rate'. This program provides millions in funding to under privileged schools to allow them to build out their infrastructure and receive telecom services for connectivity at a highly discounted rate ranging from 20% to 90% depending upon need. This program has proven highly successful, as the percentage of classrooms with Internet connectivity has escalated to from the figure mentioned earlier, to well over 60% in 1999.

### **Economy**

In the assessment of any commerce-oriented environment, the impacts of the national economy are obviously pivotal. This is especially true in the case of the recent rise and fall of dotcoms and the struggle for adaptation of B2B models in the US. The U.S. economy was characterized during most of the 1990's by the longest-running economic expansion in the country's history. The US economy was experiencing unprecedented growth on the strength of thousands of new businesses which represented significantly higher levels of income. Consumer spending was at an all time high. Demand for tech stocks was driving stock prices and company valuations up at levels that seemingly defied all the principle rules of business. The US was, it seemed, in the middle of an economic revolution that could change the face of the marketplace.

The growth was most striking in the companies identified with the "Internet economy," meaning those firms that were selling key infrastructure for the Internet (e.g., software leader Microsoft and network equipment manufacturer Cisco) or using the Internet to conduct business or create new kinds of industries (e.g., book seller Amazon, web portal Yahoo, and merchandise auction site e-Bay). Many of such companies represented what came to be called the New Economy, in part because they were dealing with new technology itself or with business changes enabled by that economy, or because their shares were being traded on non-traditional exchanges such as the NASDAQ.

The rise of the NASDAQ's value from a few hundred in the early 1990's to more than 2000 in 1999 was a genuine boom, resulting in large part from the rapid growth of companies related to the Internet. These companies, signified by the .com extension on their Internet addresses, quickly became known in the industry press as dot.coms. They were the tangible evidence of the New Economy. The growth to 1999 was impressive, but nothing prepared the financial markets or the population at large for what was to follow. As shown in Figure 6, the NASDAQ nearly doubled in a single year, from mid-1999 to mid-2000, to almost 5,000. Entrepreneurs with little more than an interesting idea about how to use the Internet in a business application could garner venture capital, put together an embryonic company, launch some kind of product or service, and move toward an IPO. These IPO's often launched at less than \$15 per share and quickly moved into the hundreds. The entrepreneurs could become worth hundreds of millions or even billions of dollars within weeks. People who had sat on the sidelines of the stock market for years suddenly joined, including many thousands of inexperienced "day traders" who made use of computerized stock trading services to manage their own portfolios of stocks. There was speculation that the New Economy of Internet-related products and services would displace the Old Economy of traditional manufacturing and services.



*Figure 6. NASDAQ Rise and Fall*

Then the immutable laws of business and economy resurfaced and reality set in quickly. The inevitable market correction began to take place as scores of the new businesses that had launched, many of them with marginal business models, burned through cash in a struggle for survival. The plight and attrition of these businesses combined with the Microsoft verdict has caused tech stocks to sharply decline. The result has been a US economic tailspin that has many talking of recession. Beginning in mid-2000 the NASDAQ headed down at a terrifying pace, shattering the dreams of millions of investors who had come to believe their modest investments had made them wealthy. While not showing the exaggerated movements of the NASDAQ, the other major stock indices (e.g. Dow Jones, Standard and Poor) rose and fell with the fortunes of the dot.coms. The economy as a whole showed a major slowdown during this period, as Table 4 shows. Over \$3 trillion of value was created during the three-year run-up to the NASDAQ peak, only to be lost in less than 18 months. Venture capital for New Economy ventures nearly dried up, and in many cases, Old Economy firms were seen to be swooping in to take control of the territory once occupied by the New Economy companies.

Our new president says the economy is 'winded' while Federal reserve Chairman Alan Greenspan says we're still growing, albeit at a slower rate. It is true that this is a time of serious decline, and that many of the concerns that are being voiced are indeed viable.

However, the consensus among economists seems to be that this decline is simply a correction, which was inevitable. The opinion being voiced is that even the power of the Internet is not strong enough to rewrite the laws of business, which state that in order to survive, a business must be profitable. This is something the startups and the venture capitalists that supported them seem to have forgotten in the process. Electronic commerce as both concept and fact was caught up in the rise of the dot.coms and the New Economy rhetoric. Not surprisingly, the intense enthusiasm for the concept has waned as the disappointment with the New Economy followed the NASDAQ's slide.

The temporary setback that this correction has brought is not an indication that the US Economic environment is not highly favorable for long-term growth and Ecommerce leadership. Historically, the US has proven that it can weather economic storms and emerge bigger and better.

The bottom line is that the society and economy of the US is still positioned very well for long-term success in Ecommerce. However, a more thoughtful perspective on this subject has evolved. Concerns regarding the establishment and maintenance of trust between customers and

Internet-based companies have emerged, focusing mainly on security and privacy. Many companies are placing privacy policies on their web sites in hopes of assuring customers that personal data about transactions are safe from disclosure or abuse. Non-profit organizations such as the Better Business Bureau Online and TRUSTe now grant seals of approval to companies who verify their privacy policies. The World Wide Web consortium, a group of companies and others promoting use of the WWW, have been working on the Platform for Privacy Preferences Project (P3P) (<http://www.w3.org/P3P/>), an effort to create a standard wherein consumer preferences are automatically matched to a site's privacy policy. The rating service Consumer Reports has started an online e-ratings service to consider privacy policies in their rankings of commercial sites. New innovations in security, smart cards and biometrics for identification, are being explored to add an extra layer of identification in Internet-based transactions.

Further, analysts predict the correction that is taking place will bring the Ebusiness environment back to reality. Viable businesses will have to become more efficient to survive. Those that are not viable have either fallen by the wayside or will soon. The workforce will reposition itself and consumer spending will continue to increase as a wiser more stable breed of Ecommerce strategies evolve. Though the first attempt to launch into the digital economy was less than successful on many fronts, Ecommerce will still play a huge role in the future of US business, as it is likely that by 2002, 93% of US firms will have some portion of their business conducted online (Balakrishnan, 1999). The difference is that it will have to evolve in a more realistic fashion. This imperative was summarized well in a study of American and European Ebusinesses entitled 'Value Creation in Ebusiness' (Amit and Zott, 2000). This study explored how these recently publicly traded firms create value in an Ecommerce setting, and serves as an excellent benchmark for future Ebusinesses. They summarize the requirements for success in this arena as high levels of transactional efficiency and keeping costs minimal; bundling of goods and services; 'locking in' customers by providing them with ample incentives to stay and keeping switching costs high; and novelty of service which is adding new and exciting means to deliver products and services. Although these may seem obvious, the key to competing effectively will be leveraging the power of the Internet to exploit these modes of creating value for customers.

## **Conclusion**

As evidenced by the above analysis, the US is positioned well for future leadership in the global realm of Ecommerce. From an infrastructural perspective – it is abreast of the world leaders in wireline telephony and not far behind in wireless telephony. It is a leader in information processing technologies, and dominates the global use of the Internet. The largest number of Internet sites are located in the US, as well as the majority of .com tld sites. All of the conventional measures of electronic commerce activity show the US to be the leader in volume and most other indicators. Furthermore, its society as a whole has shown itself to be very adept at embracing the Digital Revolution as evidenced by trend towards larger numbers of households and businesses leveraging the Internet's power.

Although the US appears to set the benchmark for other countries in setting aspirations for Ecommerce, it is not clear exactly how much electronic commerce is taking place there. Even the most optimistic estimates of electronic commerce in the US state that it currently constitutes a fraction of total commerce. For example, although according to Forrester Research online consumer spending is expected to hit \$65 billion in 2001 (up from about 55 billion last year) it must be noted that less than a quarter of the US population is Online. Of that population of approximately 100

million users, less than half of them make online purchases. The B2B realm is expected to climb dramatically to become a \$6 trillion sector by 2004. However, currently only about 3-6 percent of business is being conducted online and in 2000, business trade only accounted for about \$300 billion in revenues. This information indicates that although significant revenue is already being generated through the use of B2C and B2B models, and annual growth continues to be robust, there is still a tremendous amount of capacity for growth and expansion remaining in all areas of Ecommerce in the US. This is highly significant when one considers the effect that this small amount of commerce has had on the US business world.

The bottom line seems to be that although there is still a long way to go in the scope of global Ecommerce, and there are barriers in place that the US must overcome, the combination of its long history of global leadership and its current momentum in the Digital Revolution position it quite well to maintain its status as the frontrunner in this realm.\*

*\*See Appendix 1 for a summary of the key US Ecommerce points presented in this paper.*



### Appendix 1 - Summary of Key Points

- The US is the economic and commercial epicenter of the world and has set the pace in the early stages of the Digital Revolution
- Demographically, the US has the third largest population and it is the wealthiest in terms of Gross Domestic Product
- The US has suffered from an economic downturn in the past year which has adversely affected the diffusion of Ecommerce. In addition, the terrorist attacks on the US in September of 2001 further destabilized the economy as well as the international political situation. There are indications that the economy will recover without going too deep into recession, but uncertainties in the international situation remain.
- The US has consistently demonstrated its strength in the IT sector through large investments in infrastructure, which have bolstered its position as the Ecommerce leader.
- A significant challenge for US Ecommerce leadership is its lack of adaptation of 3G wireless technology to set the stage for the expected rise of mobile commerce. At present, the US lags significantly behind Asia and Europe in this area.
- The US Government stands firmly behind US Ecommerce and has taken an approach of enacting enabling policies to promote it while leaving overall leadership in this area to the private sector.
- Factors such as the communal nature of our society, propensity to engage in liberal credit card spending and higher tolerance for the inherent risks of Ecommerce have made the US the leader in Ecommerce readiness to date.
- Highly available Internet access (both dial-up and broadband), large number of commercial websites with high levels of activity and overall leadership in Ecommerce dollars transacted (B2C and B2B) are measures that show the US has realized the highest level of Ecommerce diffusion
- The US Society has been significantly impacted by the integration of the Internet into its core. This is exemplified by its use for everything from communication, shopping and banking to conducting B2B transactions.
- Despite all barriers in place, the US is by all measures the global Ecommerce leader and is expected to maintain this position in the future

## References

Abbate, Janet. *Inventing the Internet*. MIT Press, 1999

Andeen, A. and J.L. King “Addressing and the Future of Communications Competition.” *Information Infrastructure and Policy*, Vol. 6, No. 1, 1998, 17-46. (Appeared originally in, *Proceedings of the 1996 Telecommunications Policy Research Conference*, Solomons MD, May 1996.

Brynjolfsson, Erik and Brian Kahin. *Understanding the Digital Economy: Data Tools and Research*. Cambridge, Mass: MIT Press, 2000.

Delio, Michelle. “E-commerce fears? Good reasons.” *Wired News* 22 June 2001.  
<http://www.wired.com/news/ebiz/0,1272,44690,00.html>

“Falling Through the Net: Toward Digital Inclusion.” U.S. Department of Commerce. Economic and Statistics Administration. National Telecommunications and Information Administration. October 2000. <http://www.ntia.doc.gov/ntiahome/ftn00/contents00.html>

King, J.L., Grinter, R. and Pickering, J. “The Rise And Fall Of Netville: Institution, Infrastructure, and The Saga Of A Cyberspace Construction Boomtown In The Great Divide.” In Kiesler, S. (ed.) *Culture of the Internet*. Ehrlbaum Publishers, 1997, pp. 3-34.

“Leadership for the New Millenium: Delivering on Digital Progress and Prosperity.” U.S. Government Working Group on Electronic Commerce, 3<sup>rd</sup> Annual Report, 2000.  
<http://www.ecommerce.gov/ecomnews/ecommerce2000annual.pdf>

Mandel, Michael J. “In A One-World Economy, A Slump Sinks All Boats.” *BusinessWeek* 25 June 2001: 38-39.

“The Potential for Accommodating Third Generation Mobile Systems in the 1710-1850 MHz Band: Federal Operations, Relocation Costs, and Operational Impact.” U.S. Department of Commerce. National Telecommunications and Information Administration. March 2001.  
<http://www.ntia.doc.gov/ntiahome/threeg/33001/3g33001.pdf>

Tedeschi, Bob. “Why Purchasing Agents Turned Out to Be Hard to Herd.” *New York Times* 28 Feb. 2001. <http://www.nytimes.com/2001/02/028/technology/28TEDE.html?printpage=yes>

## Stats

“429 million people worldwide have Internet access, according to Nielsen Net Ratings.” Press Release. Nielsen/NetRatings. June 11, 2001. Global Internet Trends Service.  
<http://www.eratings.com/news/20010611.htm>

“CBO’s Current Economic Projections.” Congressional Budget Office. 31 Jan. 2001.  
<http://www.cbo.gov/showdoc.cfm?index=1824&sequence=0&from=7>

“Factsheet” Economist Intelligence Unit *Country ViewsWire*. 30 Nov. 2000.  
<http://www.economist.com/countries/USA/profile.cfm?folder=Profile-FactSheet>

“Global eCommerce Report.” Taylor Nelson Sofres. June 28, 2001.  
<http://www.tnsofres.com/ger2001/home.cfm>

“Gross Domestic Product: first quarter 2001 (Final); Corporate Profits: First Quarter 2001 (Revised).” News Release. U.S. Department of Commerce. Bureau of Economic Analysis. 29 June 2001. <http://www.bea.doc.gov/bea/newsrel/gdp101f.htm>

“OECD Economic Outlook. U.S.” Organisation for Economic Cooperation and Development. Dec. 2000: 37-46. Proquest Research Library. University of Michigan Library, Ann Arbor, MI. June 2001 <http://proquest.umi.com/>

“Worldwide eCommerce Growth.” Forrester Research.  
<http://www.forrester.com/ER/Press/ForrFind/0,1768,0,00.html>

### Other Links

Children’s Online Privacy Protection Act Federal Trade Commission  
<http://www.ftc.gov/ogc/coppa1.htm>

The Digital Millennium Copyright Act of 1998: U.S. Copyright Office Summary U.S. Copyright Office <http://www.loc.gov/copyright>

E-rate U.S. Department of Education <http://www.ed.gov/Technology/eratemenu.html>

Economic and Financial Data for the United States FEDSTATS  
<http://www.fedstats.gov/imf/>

Electronic Commerce Organisation for Economic Co-operation and Development  
[http://www.oecd.org/subject/e\\_commerce/](http://www.oecd.org/subject/e_commerce/)

Electronic Commerce U.S. Department of Commerce [http://home.doc.gov/Electronic\\_Commerce/](http://home.doc.gov/Electronic_Commerce/)

Electronic Commerce and Intellectual Property World Intellectual Property Organization  
<http://ecommerce.wipo.int/index-eng.html>

Global E-commerce Law Baker & Mackenzie <http://www.bmck.com/ecommerce/>

International Telecommunication Union  
<http://www.itu.int/home/index.html>

National Telecommunications and Information Administration <http://www.ntia.doc.gov/>

Telecommunications Act of 1996 Federal Communications Commission

<http://www.fcc.gov/telecom.html>

United States Government Electronic Commerce Policy

<http://www.ecommerce.gov/>