

## **E-COMMERCE: A GLOBAL PERSPECTIVE**

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### **SUMMARY**

In 1994 the creation of a graphical interface for use with the Internet led to worldwide 1995 Internet related sales of \$500,000,000, almost exclusively in the US. Estimates for 2002 sales are in excess of \$100,000,000,000 with only 35% being in the US. The majority of current and estimated sales are business to business up from 70 to 75% today to 85 to 90% by 2002. By country, technology, regulations, laws, cultures social issues, economics, vendors, competitors and consumers all have an impact on the use of the Internet. Security, privacy, censorship and taxation also play a role. E-commerce has become important for countries that already possess the environments and capabilities to utilize the Internet. A restructuring of all channels of distribution is occurring world-wide, benefiting not just industrialized nations, but developing ones as well, providing the basis of a new economic development tool for their citizens and their firms.

### **INTRODUCTION**

In 1994, with the development of graphical interfaces such as Mosaic, and subsequently Netscape and Microsoft Explorer, the growth of the use of the Internet has been exponential. Concomitantly, sales of products and services for and over the Internet grew exponentially as well. In 1995 sales were at the \$500,000,000 level, primarily in the United States (US) [1]. In 1998 Internet sales were in excess of \$25 billion, worldwide. Sales in excess of \$100 billion in 2002 and up to \$150,000,000,000 in 2003 are currently being projected. As the rest of the world's citizens use of electronic communication and shopping dramatically increases, US sales will

decline from 70% of the world total in 1998 to 35% in 2002. The majority of all current and estimated sales are business to business sales up from 70 to 75% of the total today to 90% by 2003 [2].

Perhaps the initial use of the Internet depended on the stage of a country's development, its political system and its technology infrastructure. As most sales are business to business, perhaps it also depended on the nature, number and size of its firms. From country to country, technology, regulations, laws, cultures, social issues, economics, vendors, competitors and consumers all have an impact on the use of the Internet. Security, privacy, censorship and taxation also play a role. E-commerce has become important for countries that already possess the environments and the capabilities to utilize the Internet. Currently, a massive restructuring of all channels of distribution is occurring world-wide, now benefiting not just industrialized nations, but developing nations as well, providing a new economic development tool for their citizens and their firms.

### **THIS PAPER**

It is the primary purpose of this paper to explore the present worldwide status and continuing development of the Internet. The story of the Internet and E-commerce is just beginning. With this beginning, goes an intense amount of interest and thus there were an additional 5,000 plus articles available on-line between the time the research for this paper was completed (November 1999) and today (January 2000). The Internet and E-commerce are part of both an evolution and continuing revolution. A brief and, of necessity, unfinished, topical study of the Internet and E-commerce follows. Perhaps this paper should be viewed as something that serves as the basis for conversation and debate about the merits of the Internet and E-commerce. Perhaps it should serve as the basis for discussions about the paradigm shifts in marketing and the impacts of those on the economic development of all nations. Finally, there are also divergent estimates of past, present and future numbers of users and sales. The reader should view the data as tentative and consider the trends, rather than the absolutes.

### **THE INTERNET**

**The Beginning** In the US, Arpanet was the initial version of the Internet that went on-line thirty years ago to insure a viable communications system in case of nuclear holocaust in the US. The use of Arpanet began in the 1970s and while many applications current today were not available in the 1970s and 1980s, there were e-

mail communications, file transfers, and others, with a small group of loyal character-based interface users with great computer skills (Professor Richard D. Teach, private communication) [1].

...Being "on-line" referred to private on-line clubs hosted by America On-line, CompuServe and Prodigy that all launched in the mid-1980s as dial-up information networks. Quantum Computer Services had fewer than 100,000 subscribers when it started in 1985. Later renamed America On-line (AOL), by the time it offered World Wide Web (WEB) access in 1995 it had 3 million members and set a standard for the industry. In 1999 AOL became the leader of the Internet services market with 19 million subscribers" [3]. The recent announcement of AOL's merger with Time-Warner makes it a worldwide leader in the provision of Internet services.

Today the motivating factor for the development of Internet based firms to some appears to be becoming a millionaire by the time a person reaches 22 years old. "To some parts of the world this is not a bad thing, because the desire for fame or wealth can be a great motivator to many and it is the way of capitalism. However, the Internet belongs to no company or nation, and so it belongs to everyone" [4], and everyone can benefit from it, either as a developer or as merchant or as a consumer.

**The United States** During the short modern history of the Internet the US has been the early world leader in its use and in E-commerce sales. The rest of the world is now very quickly recognizing and capitalizing on its potential. The US currently leads the world in E-commerce sites; in business-to-business transactions over the Internet; and in the number of consumers and amounts spent buying over the Internet. One survey reported nearly 100 million US users on-line in 1999, up from under one million in 1994. Meanwhile, the US Internet services market has increased 500 percent in only three years, from \$1.3 billion in 1996 to \$8 billion (E) in 1999 revenues. It is expected to jump again to nearly \$57 billion by 2003 [5].

**Security** "Security is a problem issue not just in the US, where nearly 60% of Americans do not consider it safe to conduct financial transactions on-line, and 67% do not feel confident doing business with a company that can only be reached on-line. A total of 77% do not consider it safe to give out credit card information over a computer, and 87% want their transactions confirmed in writing" [6]. Users in other parts of the world have similar misgivings (see ahead).

While conducting financial transactions over the Internet, the feeling of insecurity is one of the reasons final consumers are not comfortable buying on-line. "One of the future technological goals of the electronics industry is to change this feeling. So far, e-mail messages, electronic checks, secured credit card transactions, and electronic cash systems have been used to address this problem" [7]. The use of on-line security

certifications is a step ahead in terms of technological developments that will improve the amount of business conducted on-line. Another possible alternative is the use of a "supersmart card" for payment [8].

**Privacy** "In 1980 the Organization for Economic Cooperation and Development (OECD) issued what was then one of the most comprehensive policy statements on data protection and privacy. OECD members' concern was and is the increases in cross-border commerce and in the mobility of business and capital. Several additional characteristics of E-commerce appeared to exacerbate expected tax administration and compliance issues. These included: (1) vendors, customers, and the government not knowing where the people involved in trade are; (2) no means of identifying users; (3) the reduced use of information reporting and withholding institutions (disintermediation); and (4) the development of electronic payment systems. As a result, OECD members believe that tax havens and offshore banking facilities will become more accessible and, presumably, more widely used to avoid or evade tax" [9].

**Censorship** Censorship, as pornography, is in the "eye of the beholder." Thus as WEB sites continue to be built around the world, some nations may take exception to materials placed on the Internet. Some, however, have the attitude that there should be no censorship [10]. Depending on the nation and its view of sex, violence, drugs, freedom of speech and religion, to identify just a few, censorship may or not play a role in the development and access to certain WEB sites. One of the founding fathers of the US, Ben Franklin, represented a view that nothing should be censored and at present that view appears to be the majority attitude in the US.

**Connectivity** "The October 1994 release of Netscape was a major change for the Internet market. Netscape triggered Internet democratization. It also created a new breed of companies called Internet Service Providers (ISP.). Firms such as EarthLink-MindSpring (newly merged), and NetCom delivered access for a flat monthly fee. In the US, passage of the Telecommunications Act of 1996 ushered in the broadband era. Telephone and cable companies were given entrance into each other's markets - allowing them to commingle cable and telephone access. Meanwhile, Digital Subscriber Line (DSL), which was originally developed in the early 1980s by Bell Labs (now Lucent Technologies) as a video-on-demand solution to compete with cable companies, made its debut as a broadband net platform. Today almost 90 percent of major US ISPs offer some type of high-speed access connectivity" [3]. Since the early days in the US (1994-1996), Internet access pricing has shifted from minute to flat monthly rates to, in some cases, free, or at least \$99 for a lifetime of connectivity. At present the \$1.1 billion US consumer broadband market access revenues in 1999 will grow to \$5.8 billion by 2003 [3].

**Bandwidth** The following is not meant to be a tutorial, but is important to understand as the Internet network serves as the basis and the limit for future Internet development. Bandwidth refers to the ability of the communication medium, predominantly wire, or optical fiber cable or electromagnetic radiation to carry numbers and densities of data packets within a given time frame. Users are limited by the available bandwidth, which simply translates to the speed and cost of data transmission. Transition from wire to wireless access to the WEB is occurring for a number of users. Many developing nations have never had a wired network available to the majority of their population.

"At present the greatest problem with wireless access is connect speed which is usually limited to 14.4k or 19.2k with actual connect speed, as in wired modems, being a good bit less. Other problems involve keyboards, displays and storage. Voice control hopefully will solve input problems as technology advances and some form of an "in-ear" system for sound and a "heads-up" video projection system becomes eyewear" [11].

Another continuing problem is the ever-increasing bandwidth demand of newer hardware and software. "Consumers want flat-fee access to the Internet with unlimited access to information, music and video. All this requires increasing amounts of bandwidth. The present ongoing trend of bigger and more elaborate WEB -sites, more elaborate software and faster hardware, also creates demand for enhanced bandwidth. Another increasing demand for bandwidth is the growth of on-line gaming with improved 3D images" [11]. All users appear to want fast large bandwidth connectivity [11].

Finally, there are existing technologies that have the potential to relieve some of the current bandwidth limitations. The Internet started by sending digital signals over an analog telephone network using modems. Most users still use modems to connect to the Internet, but gradually more are able to access the Internet with direct "hard wire" DSL, ISDN, cable (modems) and fiber optics , as well as wireless satellite or microwave "hook-ups. " The ultimate solution is a worldwide optical network using the massive broadband capabilities of optical fibers. However, some regions' typography and remote access will only allow for wireless networking.

**The Future** In 1999, one study identified forty-one million dial-up and just 2.6 million broadband (DSL and cable) users. Dials ups and numbers of users do not match, as there can be several individuals at a home or business location and some could be counted twice or more. DSL and cable solutions, which provide speeds 100 times faster than a 28.8 K modem, are still too expensive for the mass market with monthly prices between \$40 and \$60. Nevertheless, the study predicted US broadband subscribership would grow to thirty million by 2003, reducing AOL's present market share from 44 percent to 36 percent. Internet access via satellite will be the best hope for those in rural areas and in other countries where connectivity is an important

Internet issue. In the US wireless will draw less than 4 percent of the access market by 2003, according to Morgan Stanley Dean Witter [3]. However, other countries will likely more heavily utilize such technology in their leap ahead in infrastructure development and thus, an increased use of the Internet.

### Users by Region of the World and Numbers of Users

The exact figures for the numbers of users worldwide vary depending on the information source, when the data was collected and when the article was published. Thus the following information (Tables 1-5) should only be viewed cautiously, perhaps only as trends for discussion purposes only, not as absolutes. The data in Tables 1, 2 and 3 are inconsistent. Disparities in reported actual and estimated data may be due to the time frames of research (the use of the Internet is very rapidly changing) or perhaps different methodologies were used to collect actual data and to make subsequent estimates.

Table 1 shows the changes in Internet usage, actual and estimated, from 1994 to 2004 [12]. The 2003 and 2004 estimates are those of the authors.

Table 1 Internet Usage by Year

Year	Millions
1994	~0
1998	90
1999 E	179-300
2002 E	282-450
2003 E	500-700
2004 E	700 plus

Table 2 shows the June 1999 [12] to 2002 percent estimated users [13] by region of the world and their estimated numbers [3]. The data do not represent a complete list of users, as not all information was available.

Table 2 Region % of total number of users June 1999 and 2002 (E)

Region	% users June 1999	% users 2002 E	Numbers (M) 2002 E
North America	57.0	34.8	98.1
Europe	23.8	29.9	84.3
Asia/Pacific Rim	15.0	21.5	60.7
South America	na	9.4	26.6
Rest of World	4.2	4.4	12.3
Total	100	100	282.0

The distribution of the top fifteen countries by number of users by country [14] is shown in Table 3.

The top fifty countries are not included due to paper space limitations.

Table 3 Top 15 Countries in Internet Use at Year-End 1999 [15]

Rank	Country	Number (M)	% of Population
1	USA	110.8	40.7
2	Japan	18.2	14.4
3	UK	14.0	23.6
4	Canada	13.3	42.8
5	Germany	12.3	15.0
6	Australia	6.8	36.4
7	Brazil	6.8	3.9
8	China	6.3	0.005
9	France	5.7	9.6
10	South Korea	5.7	12.1
11	Taiwan	4.8	21.7
12	Italy	4.7	8.4
13	Sweden	4.0	44.4
14	Netherlands	2.9	18.6
15	Spain	2.9	7.4
Total		294.7	

Based upon the trends of the data, a more reasonable estimate of users might be 700,000,000,000 - 750,000,000 users by 2003, which is more in line with a 30 plus percent share estimate for the US by 2002 (Table 1). This number is about 20% of the world population and some might suggest that such a number is unobtainable. Whatever the "real" numbers are, they are large and growing larger daily.

**Cultural Issues..** While 6.2% of world's population are native English speaking, 54% of people on the WEB either use or are forced to use English, as language choices are not yet available on most WEB sites [16], particularly those hosted in the US. European sites provide for multiple language use.

## E-COMMERCE

E-commerce is the buying, selling and/or exchanging of goods or services, over the Internet, by the industrial and final consumer, usually on the WEB. Access is by a typical WEB browser which today the preponderance of is either the Microsoft Internet Explorer or Netscape. A large diversity of search engines are available to locate information on the WEB, e.g., Metacrawler, Yahoo, Altavista,

### Sales and Sales Trends

Historical and estimated sales figures for Internet based sales indicate the rapid growth of such sales [17] (Table 4). As with the numbers of users, there is some question about the accuracy of the figures. They are presented in order for the reader to note the trends, not their absolute value.

Table 4 Internet Sales, US and Final Consumer

Year	Sales \$B US dollars	US (%) Total Sales	% Final consumer
1995	0.5	> 95%	na
1996	2.7	80	na
1997	21.8	na	30
1998	73.9	50	na
1999 (E)	110.0	na	na
2001 (E)	551.0	na	na
2002 (E)	1000-1500	35	<15

The following table is a summary of future changes estimated for E-commerce sale sales worldwide. Not all regions are covered, as not all data was readily available. Data comes from a diversity of sources too numerous to cite or are cited in the country or region information following the Tables.

Table 5 Internet Sales, World

Country	1998 Sales \$M US dollars	1999 Sales \$M US dollars	2003 Sales \$M US dollars
US	73900	na	1000000
Canada	400	na	na
UK	752	na	5000
Western Europe	na	na	20000
India	30	70	na
Malaysia	184	1200	na
Japan	69000	na	550000
China	8	na	3800

### Regional Issues

Given the 800,000 plus articles on the Internet and E-commerce presently available on-line, only a brief focused view of some of the worldwide issues are covered in this paper. No reader should feel that their specific country's developments were intentionally overlooked. Hopefully the proffered information will

provide some insight into Internet related activities in a number of regions in the world. This work is not meant to be complete, but only one data bit in the overall Internet picture.

**US** US sales are predicted to become \$551 billion in 2001, which would represent 7.2% of the US GDP. A recent predication was made that little new retail sales would occur for Christmas 1999, meaning that in-store retail sales would suffer from cannibalization by Internet sales. However, this is not what happened in the past holiday season [18]. Internet sales effectively quadrupled from those of last year and rose to about 7% of total holiday sales. Holiday sales in retail stores also increased 7% from the previous year. If the figures are close to being right, the US had a very major holiday season, the 1998 holiday sales not being considered to be low. One missing figure not presently available is the percentage of the reported sales that were business to business not to the final consumer. Figures for other countries' holiday sales were not available at writing time.

"Children and teenagers have been identified as one of the most lucrative markets in the U.S. economy, and nowhere is the trend more pronounced than in the hypercharged commercial frontier of the Internet." A recent survey indicated that 67 percent of teens and 37 percent of children have researched or bought products on-line. It was also forecasted that children would account for 1.3 billion dollars of E-commerce business in 2002 [16].

"Older customers still demand a personal touch while conducting business on-line. The three most common reasons given for not shopping on-line were: 1. a fear of the process; 2. the fact that they cannot see/touch/hear/try on the product; and 3. the vague feeling that staying at home and interacting with a machine instead of going to a store is somehow antisocial or dehumanizing in some uneasy, futuristic way" [20].

**Taxes** At present the US appears to be taking a stance that taxation of Internet sales will be restrictive and thus undesirable. However, a telecommunication charge for connecting to the Internet is possible and mirrors what other countries are doing. The impact of that eventuality would be to seriously reduce the use of the Internet, except where there is appropriate personal or financial justification. Finally, the increase of on-line trade increases cross border transactions with other countries and also within the states that have different tax codes. States are concerned with the potential loss of tax revenue.

**Canada** "Five hundred thousand Canadian households shopped on-line and spent \$400 million in 1998. Only \$40 million was spent on Canadian sites, as there were not many Canadian E-commerce sites" [11]. "A recent poll showed that Canadians prefer buying books and CDs on-line compared to all other goods available. Interestingly, this would explain the success of Chapters, the No. 1 ranked Canadian bookstore chain,

which now has a presence on the WEB [22]. It is not known if this was happenstance or circumstance for Chapters, but an interesting footnote for Marketers to consider.

**UK** Almost 1.3 million people in the United Kingdom (UK) shopped on-line in the second half of 1998 spending a total of 470 million British pounds. While it puts the value of UK on-line sales, excluding financial services, at 230 million British pounds in 1998, a recent study predicted that UK on-line shopping would become worth 3.1 billion British pounds in 2003 [23].

"In England telephone usage is charged on a per minute basis. Those charges then result in increased costs of being on-line as compared to United States where a flat monthly fee provides unlimited local access or in Canada where a flat monthly fee provides unlimited access to both local and long distance calls. To work around the problem of high telephone usage charges, service providers in Europe are offering free service to entice consumers to spend more time on-line. They are looking to advertisements for revenues" [24]

"The 1999 World Competitiveness Report places UK 13th in the number of computers per capita, 14th in the number of telephone connections per 1000 of population, and 11th in the extent of Internet connections." As noted, the way telephone charges are made and the technology are both the reasons for this in the UK. Most UK users have only twisted pair wiring available to them. Presently British Telecom (BT) is investing in Asymmetric Digital Subscriber Line to transform the capacity of copper lines [25]."

**Europe** A recent estimate predicted on-line shopping in Europe in year 2003 to be at the 11.8 billion pound level. Current research estimates showed that only 35 percent of Europe's top retailers provided on-line shopping [27]. Total European E-commerce revenues are predicted to be less than at 3.6% of European GDP in 2001. Consumer retail (on-line ordering for products) will represent only 7% of total European Internet E-commerce revenue (.25% of European GDP) in 2001 [28].

In another recent survey European executives indicated E-commerce having a low priority for their businesses (37%); Internet security concerns (31%); a lack of relevance to their industry (28%); technology issues (16%); and tax and regulatory issues (12%), were also identified as barriers to using E-commerce [29]. Finally, telephone charges and technology notwithstanding, a recent study showed that Europeans spent more time on the Internet for doing things as part of their daily life despite their slow acceptance of the Internet for purchases [30].

European WEB sites have language options on their WEB sites to attract customers from not only European countries, but from other countries speaking a language other than English. However, even after the

creation of single market and single currency for the EU, shopping across frontiers has been slow to take off [31].

Finally, "regulators of the European Commission are lagging behind in their attempts to come up with legislation to match up with new technology. The current proposed directive by the European Commission applies only to member countries, which have been directed to amend their laws to make it possible to conclude contracts electronically. Under the directive service providers are required to have a physical location rather than just a virtual one so that they can be tapped for taxes and other issues." It is also aiming for stricter enforcement of conduct codes rather than creating new rules for liability if an electronic trade goes wrong [26, 32].

**Central/SA** Brazil accounts for more than one-half of the Internet user population in South America. The current number of users is estimated to be between 2 to 5 million, and researchers say that this number is rapidly increasing [33]. While many Americans do not consider it safe to conduct financial transactions on-line, South Americans do not use credit cards the way US consumers do. There is greater hesitance to use credit cards with concomitant less penetration of usage. A large cultural difficulty in the region is that consumers are not used to dealing with electronic "facades" [34]. Further, while "E-commerce is all about the free flow of goods across political boundaries, but there is tension between that freedom and protecting individual economies. Most Latin American sites are not conducting commerce " [35].

"South America and several European countries face the problem of high connection charges. Internet providers still choose to charge higher prices and cater to a few, rather than charging lower price to more and generating more revenues." Initially there is a fear among those communities that the Internet exacerbates the difference between the haves and have-nots [35].

**India** Although the number of users remains small Indian E-commerce has more than doubled from 1.31 billion rupees to 3 billion from 1998 to 1999. "A lack of consumers who can afford Internet access is preventing the entry of more ISPs into the market. There are only 3 million Indians that have PCs in their houses, but many more have TVs. Due to recent technological developments, ISPs may be able to expand and attain a greater market, because TVs can be connected to the Internet using a modem and a set-top attachment. India needs ISPs, portals and on-line communities to get E-commerce going" [36].

**Australia** According to a recent study, 80% of Australian organizations plan to increase investment in e-business by an average of 36% in 2000. The average expenditure on E-business per organization was estimated at \$340,000. Thirty-one percent were already spending more than \$500,000, 18% between \$200,000

and \$500,000, 15% \$100,000 to \$200,000, 20% less than \$100,000 and 9% estimated nil expenditures on E-business in 1999 [37, 38].

### **The Pacific Rim**

**Malaysia** The government recently predicted that the value of electronic commerce transactions in Malaysia was estimated to increase from RM 700 million in 1998 to between RM 4 billion and RM 5 billion by the end of 1999. "Malaysian manufacturers were seriously considering E-commerce as a way of doing business, but due to lack of proper information on E-commerce and funding, many firms, particularly smaller ones, were hesitant to do so [39]. This is expected to rapidly change, although a government official recently stressed the importance of human values while conducting on-line commerce when the trading parties were not visible to each other" [40].

**Japan** "E-commerce sales to the final consumer in Japan in 1998 were \$49 million US. Internet sales broke down to purchases of PCs (39%) followed by travel (12%), and apparel/accessories (11%). By 2003 travel is expected to take the lead with 28 percent, automobiles and auto accessories will jump to 15%" [41]. The business to business on-line revenues was \$ 69 billion, with major market segments including electronics, information products, automobiles and auto parts. This market was estimated expected to grow eight fold to 550 billion by 2003 [41].

Nearly eighty percent of all Japanese companies are on-line. Nearly all firms express strong interest in entering the E-commerce market either as an active service or product supplier, or to use digital communication to expand business. The government estimated the current total number of users in Japan as 17 million in 1998 [42].

**China** A recent study estimated "China's E-commerce sales to grow from \$8.1 million in 1998 to \$3.8 billion in 2003, a span during which on-line users will increase more than four fold to 16 million" [42a]. "75.2% of Chinese and 73.7% of Koreans said that they would prefer to see WEB sites with local content and language" [42b]. "It was conjectured that the Chinese are as interested in on-line commerce, because they do not have sufficient sites to expend their money. Since profit is very important for the Chinese, they are willing to sell hardware rather than open up E-commerce sites and are waiting for long term sales to generate profits. [44]. It will be interesting to see how rapidly this attitude, if true, takes to change.

Perhaps the attitude is already changing. A China International E-commerce Application Fair was to be held on September 6th in Beijing. The fair was designed to demonstrate applications of E-commerce in all aspects of Chinese life. It was reported that this was the first E-commerce fair for the Chinese [45, 46].

**Hong Kong** Internet usage in Hong Kong has grown from less than 100,000 users in 1995 to well over 600,000 in 1999. A recent survey indicated that out of Hong Kong's population aged over 15, 11% have access to the Internet. A second survey indicated that "businesses in Hong Kong did not consider E-commerce as being important for their business. On a scale of one (not useful) to six (very useful), Hong Kong businesses gave E-commerce a rating of 3.25, lower than their counterparts in Taiwan (3.49), and Singapore (3.82.)" [47].

A study conducted by the government found that "65% of local companies had not developed a WEB site. Further, 60% of active companies in Hong Kong did not have an e-mail account and had no plans to invest in one in the next six month" [48]. Hong Kong government announced an "E-commerce week" from September 13 to 17, 1999 to help local companies remain competitive in the E-commerce era [49].

Hong Kong government also proposed a \$600 million E-commerce logistics center targeting 50 Internet-related retailers to become tenants. The proposed four-story logistics center would provide a highly automated storage and retrieval system to track goods in real time, as well as more traditional space for order fulfillment and product customization [50].

Finally, "in an effort to become a leader rather than a follower the government had formulated "Digital 21" an Information Technology Strategy based on four enabling factors. These factors were: the hardware for high capacity communications systems; a common software interface mounted on established communications networks; people know how to use IT; and a cultural environment that stimulates creativity and welcomes advances in the use of IT" [51]. It would appear that China is maintaining the 100 year pro business posture that Hong Kong had represented under British rule.

**Singapore** Government recognizes that "Globalization, building a creative workforce, electronic commerce - these are the key challenges Singapore manufacturers have to face if they are to remain relevant and competitive" [52].

**Thailand** A recent article indicated that within two years E-commerce will increase twenty fold in Thailand. "To boost Internet use in Thailand, the government recommended an increase in Thai language WEB sites, government sponsorship and the encouragement to advertisers to enter the WEB. It was also noted that the average monthly access fees paid by Thais is about \$58 for 20 hours, while in the US it was only \$20, and the world average being about \$36 for the same amount of time. The number of Thai companies on-line was

expected to increase five fold in 1999. Perhaps an understatement, but there is a continuing conflict in Europe regarding encouraging E-commerce and the actual impact of some of the related regulatory proposals". There are only 20 to 30 local firms that actively used E-commerce [53].

## DISCUSSION

**The Past** Perhaps because of the technology infrastructure of the United States; perhaps because of the per capita affluence of the citizens in the US; perhaps because of the almost 100% availability of the Internet; perhaps because of the capitalistic nature of the US, perhaps because of the almost eight years of the strongest economic growth in the US in the last 30 years, perhaps because of over 500,000 business organizations and over 10,000,000 million small firms, the US use of the Internet has paced the world.

For two of the last three years the Pacific Rim nations were in extreme economic stress. The Russian economy continued to struggle. Europe and the United Kingdom were attempting to come to terms with a recodification of all commerce related laws. China was just waking up to its potential, with many growth pains. Central and South America, India, Africa and the Middle East to different degrees are struggling with their citizens' existence, the Internet being of little human concern until basic needs are cared for. A fair conclusion might be that a country and its citizen's views of the existence and use of the Internet depended on the stage of a country's development.

**The Present** There are no surprises when viewing the top four countries in Internet usage. The US, Canada, Australia and Sweden were well ahead of the rest of the world (Table 3) in users and the US and Japan paced the world. However, new leaders may emerge as the rest of the world begins to use the Internet and electronic shopping more so than today. And while in 1998 over 70% of Internet revenues were business to business transactions, in 2003 the estimates are that this number will become 87% of total sales (Table 4). Small firms throughout the world will begin to utilize the Internet to create and make sales.

The US government has indicated a desire to maintain present tax structures, so that Internet sales will not be taxed and the US government is pushing this throughout the world. Security, while always a concern, needs continuing attention, as many consumers do see security of financial on-line transactions as being of import. Censorship does not appear to be a major issue. There is a need for multilingual WEB sites. World technical challenges in terms of which delivery infrastructure will be used, will lead or lag the development of the Internet.

One of the authors visited a South American country three years and identified a number of firms that would greatly benefit by having their high -end products on-line in order to afford extensive distribution . The opportunity costs to not do so being much greater than the cost of a WEB site and a camera, a flat bed scanner, and a computer . Of course personnel would have to be trained, but delivery and customs issues would have been easily taken care of by one of the large parcel delivery services located in their capital city. These opportunities exist around the world.

**The Future** E-commerce will remain important for countries and firms that already possess the environment and the capabilities to utilize the Internet for sales purposes. E-commerce will also become a low cost and important economic development tool for firms located in developing and industrial countries, allowing for both the purchase and sale of firms' products to both businesses and final consumers.

However, as all countries, particularly third world countries, will continue to have competitive problems, the development of a local infrastructure dedicated to electronically extending the reach of its citizens and firms, as well as the development of modern technology infrastructure to support the use of the Internet, is necessary. One of the challenges that developed countries have, such as the US and the United Kingdom is that their infrastructure is old and is being updated. A number of the third world countries should only install new equipment and, given the funds, thus leap frog ahead in Internet use.

If a country believes that E-commerce will be important for its firms to enhance their viability then technology will need to be enhanced to accommodate the ever-increasing demands on bandwidth to support Internet usage. Laws, particularly related to security (and the OECD) will have to be passed to accommodate E-commerce. Taxes, whether actual, or under the guise of telephone charges will need to be reviewed and revised to accommodate Internet sales. Industrial and final consumers will have to be accommodated in terms of their views of the less personal buying paradigms. Vendors will have to learn to manage sales electronically. Both social classes and entire cultures will become less insular and learn how to accommodate a widened view of the world.

## CONCLUSIONS

The future of E-commerce is going to depend upon a positive confluence of technology, regulation, laws. culture, social issues, economics, vendors, competitors and all consumers. From the estimated future sales figures, that appears to be happening. Overall, E-commerce is and will be important for countries and

firms that already possess the environment and the capabilities and capacity to utilize the Internet for sales purposes. While E-commerce may offer little initially to bring them to the industrial nation status, there will be dramatic increases in the well being of many third world countries. Economics, politics and competitive forces will also help bring them into the 21st Century of electronics, driven by the Internet that has no boundaries and is owned by no nation. A restructuring of worldwide channels of distribution will occur with concomitant new sales, sometimes to the detriment of existing industrialized nations, with a major contribution to the economic development of both industrialized and developing nations.

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