

Global E-Commerce: Rationale, Digital Divide, and Strategies To Bridge The Divide

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Abstract:

The Internet revolution is sweeping the globe with such swiftness that companies around the world are trying to understand what is occurring, what it all means, where it is going, and how to leverage this new opportunity. In spite of the global nature of this new revolution, studies indicate that almost three fourths of all e-commerce (EC) is done in the United States today and that the United States accounts for 90 percent of all commercial web sites. The purposes of this study are to address several of the underlying rationales for the previous observations, to analyze this digital divide, to propose possible strategies to bridge and overcome this divide, and to propose some specific propositions based on the extensive literature search provided here. To address these questions, this paper provides a general framework including a discussion of present advantages of global EC growth, national and corporate EC comparisons, an analysis of EC limitations, and the development of strategies for global EC growth.

Keywords: Internet | International E-Commerce | Digital Divide | Cultural Differences | E-Commerce Limitations

Article:

INTRODUCTION

The Internet seems to be global in reach by its very nature: The same web site that can be accessed from the United States can be accessed from countries throughout the world. The data flows across the Net in easily digestible packets and can be easily tapped and exchanged by people in every corner of the earth. Thus, the Internet seems to be the medium that eliminates national borders and trade zones and allows everybody to participate equally in the global market. It seems to provide the same opportunities for everyone for the first time, regardless of geographic position or nationality.

With the global nature of the Internet, it is surprising to see that three-quarters of all e-commerce (EC) is done in the United States today and that the country accounts for 90 percent of all commercial web sites (The Economist, 2000). These astonishing numbers raise certain questions:

- Is EC really as global as it seems to be at a first glance or, is it dominated by one single country?
- What are the underlying rationale for the unequal distribution of Internet usage and EC if theoretically everybody has the same opportunities all over the globe?
- Would it be favorable to overcome the current Digital Divide and other imbalances from an economic perspective?
- What would be the strategies for potential players to bridge this Digital Divide and to either enter the global EC market or to increase their share in it?

In order to provide some answers to the questions above, this paper discusses the macro- and micro-economic advantages that would be achieved by further global EC growth. In the next section of our paper, we present the literature survey of the status of EC today, showing fundamental models of international comparisons and essential data on a country-basis. The paper then presents an analysis of the various reasons that account for this Digital Divide in EC growth worldwide, followed by specific testable hypotheses. Finally, a section that discusses strategies and recommendations for managing this Digital Divide from a country's perspective and general conclusions are presented.

ADVANTAGES OF GLOBAL E-COMMERCE GROWTH

E-commerce is one of the keywords used to describe transactions over the Internet. It basically means the use of the Internet to improve organizational performance by enhancing communications and transactions with all of an organization's stakeholders such as customers, suppliers, government regulators, financial institutions, managers, employees, and the public at large (Watson, *et.al.*, 2000). Other sources define EC more specifically as any Internet-enabled business activity that transforms internal and external relationships to create value and exploit market opportunities driven by new rules of the connected economy (Drobik, 2000). The term "connected economy" refers here to the Internet's ability to overcome national boundaries, a process usually described as globalization.

Generally globalization is regarded as a phenomenon that brings various advantages to the worldwide economy. However, there are various opponents and skeptics that in their extremes see globalization as an international conspiracy. They believe that globalization is an attempt by industrial-country governments to marginalize the poorest nations and to diminish their cultures in the interests of an Anglo-Saxon model of lifestyle and language. The Seattle Ministerial Conference of the World Trade Organization (WTO) in 1999 demonstrated with disturbing force these huge confusions and misbeliefs that haunt the public mind about the nature of trade and the process of globalization (Sutherland, 2000). This paper starts with analyzing the advantages of global EC growth from various perspectives. In discussing the advantages, the paper provides the foundation for the analysis of limitations to global EC growth and the strategies to overcome local EC barriers.

Advantages from a Macro-Economic Perspective

The evolution of the Internet as a pervasive phenomenon means that the traditional factors of production - capital and labor - are no longer the main determinants of an economy's power (Mandel and Kunii, 1999). Instead of being dependent on capital and labor, the economic potential of countries worldwide becomes more and more linked to their ability to control and manipulate information in the era of the Internet. It is thus argued that the dynamics of global growth are changing with the Internet at least as profoundly as they did with the advent of railroads or electricity. Furthermore, many observers believe that a global Internet growth with better information flows and virtual elimination of national borders could substantially boost our global economy (Luff, 2000). The following analysis of the characteristics that enable the Internet to positively influence macroeconomic developments focuses basically on three advantages. First, the Internet's potential to boost global innovations is discussed. Second, its ability to increase market efficiency is described. As the third advantage, new trade dimensions in the era of the Internet is introduced.

Advantage One: The Internet's Ability to Boost Innovation

From a theoretical viewpoint, technological diffusion is the process by which innovations, be they new products, new processes or new management methods, spread within and across economies (Stoneman, 1986). As early as 1934, Schumpeter regarded this diffusion process of major innovations as being the driving force behind the trade cycle (Schumpeter, 1934). He reasoned that whenever an entrepreneur innovates successfully, he increases his profits. Larger, more risk-averse competitors would be encouraged to imitate the innovation upon learning about the profit increases. The imitation would represent the diffusion process of an innovation.

This diffusion phenomenon has been traditionally approached from a series of different perspectives, such as sociology, geography, marketing and consumer behavior (Baptisita , 1999). In the era of the Internet, however, a new dimension might be added. With the Internet, new ideas can flow back and forth across national boundaries and information can be accessed from almost every location worldwide. Thus, knowledge of every sort becomes available and useful much sooner than before. Whereas it took American automakers about 10 years to adopt Japanese manufacturing methods after Japanese cars took a large share of the U.S. market in the early 1980s (Mandel and Kunii, 1999), today's corporate world faces a much faster pace . Recent experience suggests that it takes only about 2 years for a start-up to formulate an innovative business idea, establish web presence and begin to dominate its chosen sector. Therefore, the entrepreneur with the appropriate innovation can quickly cut into market shares of more established competitors through the use of the Internet.

In addition, growth theory predicts that the size of a potential market increases through the globalization of EC (Mandel and Kunii, 1999). A few years ago an innovation could barely be marketed beyond the innovator's home market, while today billions of potential customers worldwide will be informed via the Internet about the new product or service. This increased market potential encourages entrepreneurs and risk-taking companies to further boost innovation efforts and the associated risks.

Advantage Two: The Internet's Ability to Increase Market Efficiency

The efficient market is one of the core subjects of macroeconomic theory. Efficient markets fulfill the following five conditions (Guckelsberger 1997): 1) homogenous goods, 2) no personal preferences, 3) no advantages in terms of location, 4) no advantages in terms of time and 5) no advantages in terms of market-relevant information. In these markets, all buyers and sellers come together containing the full information about supply and demand. There are no barriers of entering or leaving the market. Every buyer is matched with the supplier that best meets his needs. Prices are exactly at the level that keeps supply and demand in equilibrium and there are no transaction costs, such as time wasted seeking the right product.

Prior to the era of the Internet, economists were unlikely to encounter such a perfect market in reality. The Internet, however, has brought new marketplaces that promise far greater efficiency than ever before. This new efficiency is primarily manifested in the Internet's ability to increase the real-time availability of information and to link vast numbers of potential buyers and sellers at minimal cost. The following examples clarify these two abilities:

(1) Increased real-time availability of information: An example that illustrates the Internet's ability to make real-time information available is that of rice farmers of a remote Sri Lankan village. These rice farmers gained access to national grain price schedules for the first time when they hooked up a local Internet set-up in 1999. The market information gained from the Internet showed the hefty, and until then secret, margins enjoyed by wholesalers and retailers and placing the farmers in a much better bargaining position. With market transparency experienced for the first time, a substantial power shift took place (Luff, 2000).

(2) Linking vast numbers of buyers and sellers: Examples that demonstrate the Internet's ability to link vast numbers of potential buyers and sellers are the hundreds of online exchanges that developed in the past couple of years. These online exchanges, called intermediaries, bring together buyers and sellers and allow them to trade in super-efficient electronic marketplaces. Internet intermediaries range from portals such as eBay and Yahoo! to startups that are creating unique markets on the Internet such as Cherndex, a company that provides a vertical marketplace to the life sciences research products industry (Bowles, 2000).

International EC growth would thus ensure that the same information becomes readily available everywhere worldwide at the same time. Further, with more and more people participating, the possibility of making a perfect match between buyers' and sellers' wants increases substantially, thus improving market efficiency.

Advantage Three: The Internet's New Dimension of Trade

Historically, international trade flows have consisted mainly of goods. From food and toys to chemicals and airplanes, everything was far easier to ship abroad than services. This changes now with the ability to distribute information and services electronically. Thus, another characteristic of the Internet is that for the first time services of all types

– banking, education, consulting, retailing, gambling – become globally accessible through a Web site (Mandel and Kunii, 1999). Education and brokerages are two well-known examples for services that can be exported easily via the Internet:

(1) Education: American universities and colleges are acknowledged by many to be the best in the world. However, until recently, the only way foreign students can obtain this service was by physically coming to the U.S. With the advancement of the Internet, a growing number of people are pursuing advanced degrees without stepping onto a university campus. The Web now enables distance education, providing the formerly missing ingredient of quick and easy electronic communication between students and instructors and among classmates (Kleiner, 2000).

(2) Brokerages: Online brokerages can also offer their services all over the world. As nearly one in two retail trades was placed online by the end of 1999 in the U.S. (Carey, 2000), it can be assumed that the international development of online trading will emerge soon. "The Internet is the backbone of greater service trade", summarizes Joseph Quinlan, senior international economist at Morgan Stanley Dean Witter (Mandel and Kunii, 1999).

(3) The Internet will boost the trade of goods along with services. As consumers and businesses become much better informed about the products available worldwide, demand will increase. The consumer auction site eBay Inc. is one example of how someone can place an item up for bid and find their buyer in Europe or Latin America as easily as one in the U.S. Indeed, eBay offers detailed directions on how to ship auction goods internationally. Table 1 summarizes the macro-economic advantages of globalization in EC.

Table 1: Macro-economic Advantages of International EC Growth

Macro-economic Advantages of International EC Growth	
Innovation	<ul style="list-style-type: none"> ◆ Bigger Rewards in a global market ◆ Knowledge diffusion through the use of the Internet
Efficiency	<ul style="list-style-type: none"> ◆ Transparency through intermediaries ◆ Global availability of information
Trade	<ul style="list-style-type: none"> ◆ Global reach to export goods ◆ Opportunity to export services

Advantages from a Micro-Economic Perspective

From a micro-economic perspective, EC opportunities help companies in many ways to improve their business. The Internet allows a company to lower cost dramatically across the supply chain, add additional dimensions to customer service, enter new markets or redefine business relationships. With customized services, increasing efficiency and new distribution channels three basic opportunities provided by globalization of EC are identified.

Opportunity One: Realize Customized Service

Database marketing and direct marketing as approaches to gather relevant customer information and to customize offers directly for the individual target have become increasingly important in recent years (Roberts and Berger, 1999). In combination with the Internet's connectivity and information gathering ability, these direct marketing tools have the potential to lift customer service to another level. An airline ticket, for example, is not only the right to a seat on a plane, but has become the entree for selling related services such as hotel bookings, car rentals and travel insurance.

Even though the related services do not necessary need to be owned by one company, they should be offered under a "brand umbrella" to provide a convenient package for the customer. Companies from different countries would then have to cooperate to start a global information gathering and exchange about customer preferences. This means that the German airline cooperates virtually with an American limo service and an American theater service, suggesting a theatre performance to somebody traveling to New York, making all the bookings and throwing in a limo at a bargain rate. If the customer's schedule changes, the airline will change not just its ticket, but all the other arrangements as well. Obviously, the ability of the Internet as an international information provider would allow customizing services all over the world like never before.

Opportunity Two: Increase a Company's Efficiency

A study from Giga Information Group Inc. states that the global cost savings through business use of electronic commerce will rise from \$17billion in 1998 to \$1.25trillion in 2002 (Mandel and Kunii, 1999). Main reasons for these positive developments are efficiency improvements at the procurement and logistics side of the business. The Internet makes it much easier for a company to reach beyond its home country to find the best suppliers; electronic supply chain integration allows foreign organizations to integrate more closely into a company's processes, reducing inventory and cutting lead times.

When a company selects global suppliers, the individual company's business processes link with these outside parties. Timely and accurate information between the entities becomes crucial to make the various business process flows (and the entire supply chain) work efficiently. This information sharing and knowledge exchange can be done much easier with technologies such as the Internet, because the Internet's global connectivity makes it easier to create information partnerships and allow access to information across the entire chain. Dell and Safeway are two examples of efficient electronic supply chain integration. Dell allows its suppliers to plug in directly into its customer databases. Safeway, the British supermarket chain, gives its suppliers full access to its data warehouse, providing them with real-time information about how each of the products is selling in every one of Safeway's stores.

Opportunity Three: Create New Distribution Channels

The main characteristic of traditional distribution channels is that the end users receive the goods they want from retailers. Some of these retailers order their goods directly from producers, while others operate at the end of a distribution chain, which includes one or more layers of

wholesalers and/or regional distribution centers. In contrast to these traditional distribution channels, the emerging EC sector appears to be employing two major alternative production/distribution models (DePrince and Ford, 1999):

(1) Amazonic distribution: The first is characterized as Amazonic distribution (named after amazon .com) and means that the end user orders products directly from a distributor that maintains an inventory of products. Those products are ordered and reordered from producers, in response to sales, usually via wholesale-level Internet or private Internet transactions. As this channel bypasses traditional retailers, consumers generally encounter lower prices with the Amazonic distribution.

(2) Dellphic distribution : The second is characterized as Dellphic Distribution (named after dell.com) and involves essentially direct contact between end users and producers in which the inventory of finished products in the distribution channel has been minimized. In this model, end users respond directly to producers' promotional efforts by ordering custom-made products, which are then produced and shipped directly to the buyer.

Both EC distribution models will clearly reshape the microeconomic structure and operating characteristics of many industries worldwide, particularly in the retail sector. The most likely results include lower consumer prices, customized products and services, shorter lead times and increased flexibility to react to customers' requests. As both distribution systems also provide more global opportunities for business-to- business relationships as well as retail commerce, producers and retailers worldwide must revise their competitive strategies in the Internet era. To avoid a global market dominance by mostly American companies such as Amazon and Dell, the globalization of EC has to be pushed forward. The results of this change would give more companies the chance to use the electronic advantages to stay competitive in their market. Table 2 summarizes the advantages of the globalization of EC from a micro- economic perspective.

Table 2: Micro-economic Advantages of International EC Growth

Micro-economic Advantages of International EC Growth	
Service	<ul style="list-style-type: none"> ◆ Customized and integrated services worldwide ◆ Global knowledge about consumer's preferences
Distribution	<ul style="list-style-type: none"> ◆ Lower costs by bypassing retailers ◆ Global reach through electronic channels
Costs	<ul style="list-style-type: none"> ◆ Electronic supply chain integration ◆ Global selection of suppliers

INTERNATIONAL COMPARISON OF E-COMMERCE GROWTH

In order to determine its EC strategy, a company (or country) should have good knowledge of how it is positioned compared to its competitors. Companies are often facing competitive pressures to invest in EC. In addition to complex technology issues, they have to decide which country to invest in. Thus, the understanding of the e- environments within specific countries becomes a key factor for overall success. Failure to understand this e-environment will lead to wasted resources and missed opportunities. An international comparison of EC growth is therefore crucial to building a foundation for EC related strategies.

Figure 1 provides an overview of the worldwide EC by showing trading volumes differentiated by B2B and B2C transactions.

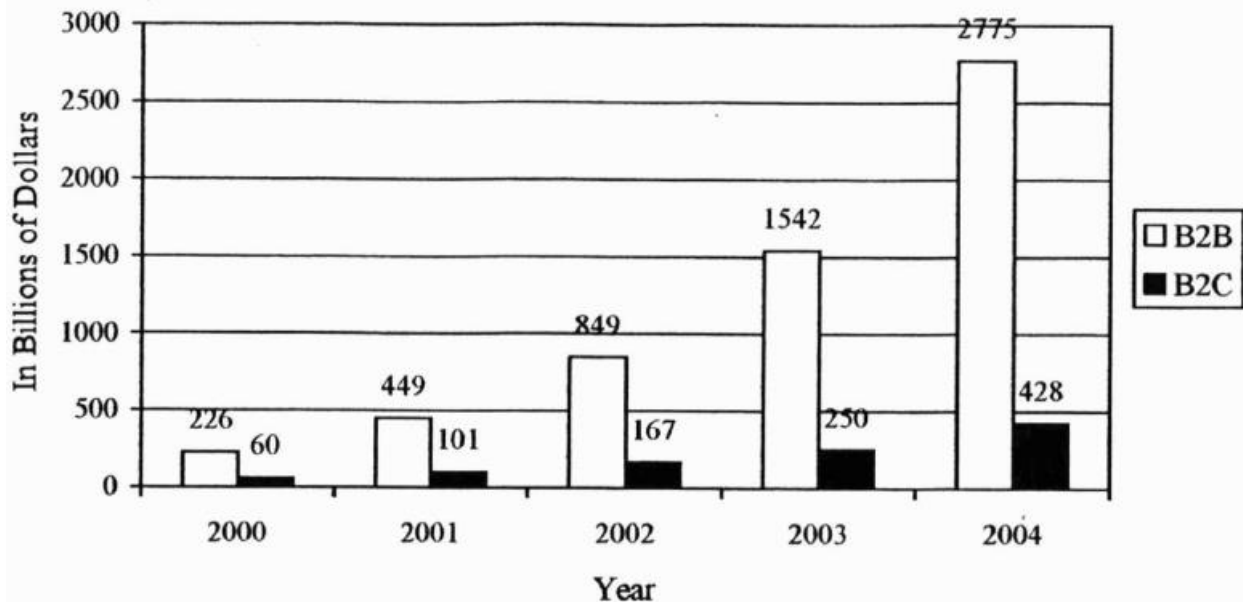


Figure 1: Comparative Estimates of Worldwide Ecommerce
 (Source: www.eMarketer.com)

The data shown is year-end data with actual numbers for the year 2000 and forecast data for the years 2001 to 2004. As can be seen, the B2B EC portion is much larger than the B2C portion. B2B EC is predicted to be 10 times more in volume from 2000 to 2004 with an estimated \$2775 billions trading volume in 2004. At this point, B2C will only account for one fifth of the volume with \$428 billion in 2004. The distribution of B2C and B2B worldwide expenditures is shown in Table 3 and Table 4 respectively. The data shown is year-end data with actual numbers for the year 2000 and forecast data for the years 2001 to 2004. Currently, there is a clear domination of the North American markets in both areas.

Models of International Comparison in E-Commerce

Several approaches are available to break down the worldwide EC data to a country basis. This paper focuses on two models developed by GartnerGroup (and updated by the authors) that provide portfolios about different countries' standings in the global EC world.

Table 3: Comparative Estimates of Worldwide B2C Ecommerce
(Source: *www.eMarketer.com*)

Region	2000	2001	2002	2003	2004	% of Worldwide B2C ecommerce for 2000
North America	47.5	74.4	110.6	135.2	197.9	79.56%
Europe	8.1	16.5	37.1	81.8	182.5	13.57%
Asia/Pacific Rim	3.2	8.3	15.6	26.4	38	5.36%
Latin America	0.7	1.8	3.3	5.5	8.1	1.17%
Africa/Middle East	0.2	0.3	0.6	1.1	1.6	0.34%
World	59.7	101.1	167.2	250	428.1	100.00%

Table 4: Comparative Estimates of Worldwide B2B Ecommerce
(Source: *www.eMarketer.com*)

Region	2000	2001	2002	2003	2004	% of Worldwide B2B ecommerce for 2000
North America	159.2	316.8	563.9	964.3	1600.8	70.38%
Asia/Pacific Rim	36.2	68.6	121.2	199.3	300.6	16.00%
Europe	26.2	52.4	132.7	334.1	797.3	11.58%
Latin America	2.9	7.9	17.4	33.6	58.4	1.28%
Africa/Middle East	1.7	302	5.9	10.6	17.7	0.75%
World	226.2	448.09	841.1	1541.9	2774.8	100.00%

The Gartneffiroup developed a measure of the EC activity level in a country and named it the e-business country opportunity index (Drobik, 2000). This Country Opportunity Index (Figure 2) plots the percentage of a country's population with access to the Internet (called Internet penetration ratio) versus the value of EC transactions achieved by the country, divided by the total number of people in the country. This approach allows Gartneffiroup to remove distortions of population size (Source: *www.eMarketer.com*) and to derive a meaningful country-specific e-business opportunity index. The data in Figure 2 is for January 2000.

Figure 2 shows that the United States has a tremendous lead over the other countries displayed based on this index. Even though mainly European countries are included as benchmarks, it can be assumed that the USA is ahead of Asian, Latin American and African countries as well (see Figure 3, for the GDP/Internet Penetration ratio for the ranking of some non-European countries). It seems that the values for EC transactions correlate well with the Internet access penetration in the lower left side of Figure 2.

However, the example with Sweden shows that countries with high Internet do not necessarily have a high value in EC transactions. Although Sweden has an Internet penetration ratio similar to that of the United States, it lags in EC behind the United Kingdom. Thus, next to technological issues such as Internet access, other factors such as cultural and/or political reasons could play a role in the globalization of EC.

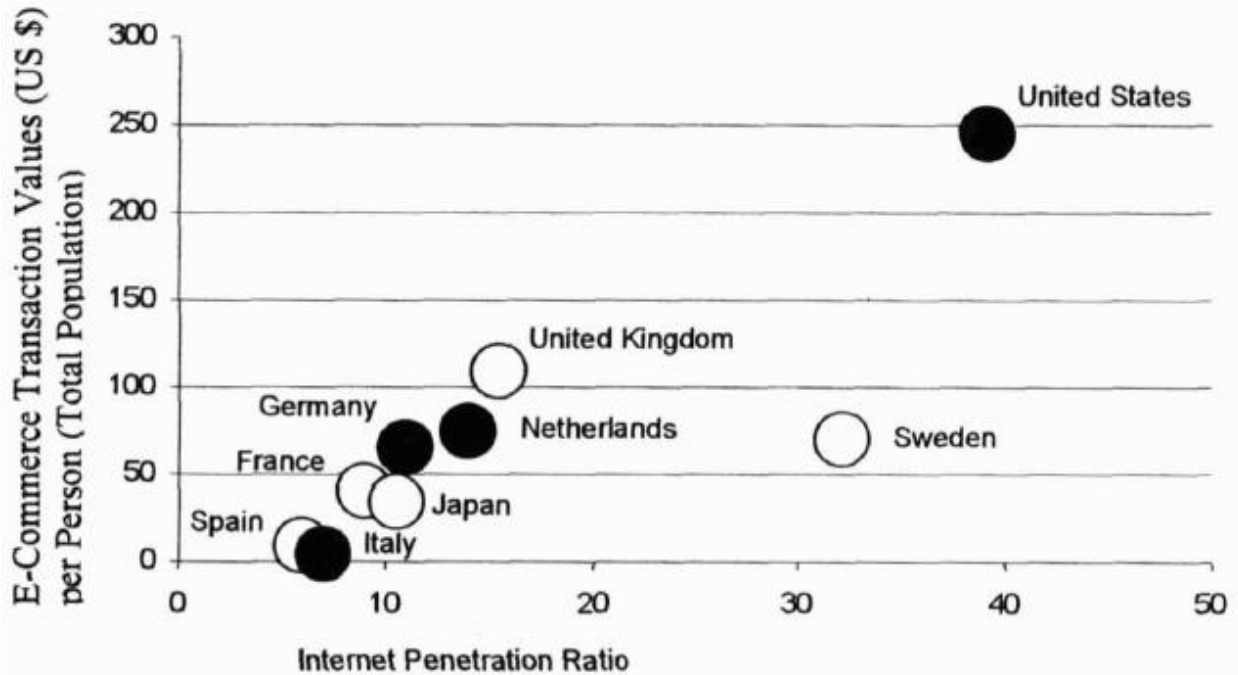


Figure 2: GartnerGroup's E-Business Country Opportunity Index

Figure 3 presents a broader picture of worldwide developments in the area of EC. This plot of GDP/Internet Penetration ratio (Roussel, 1999) includes several emerging markets and non-European countries such as Russia, Brazil and China. It uses a slightly different approach by plotting the total Internet usage in percent of population against the GDP per capita. The data for this plot was updated especially for the purpose of this article (see Table 5). The authors kept the general structure unchanged, but used more recent data for GDP Per Capita numbers and Internet penetration ratios. Figure 3 shows the positioning of various countries in the updated plot.

Table 5: GDP Per Capita/Internet Penetration ratio for selected countries worldwide.

Source: CNN Countrywatch Services (2000) for GDP Per Capita, www.etforecasts.com for Internet Usage in Year 2000, Population Reference Bureau for 2000 world population data.

Country	IP	GDP/capita	Country	IP	GDP/capita
Australia	41.75	21.1	Japan	21.16	22.2
Brazil	6.23	5.97	Netherlands	33.75	22.35
Canada	49.03	22.64	S. Korea	30.33	13.43
China	1.24	3.85	Singapore	35	24.3
Finland	45	20.8	Spain	13.07	16.51
France	15.2	22.36	Sweden	49.44	20.12
Germany	24.21	21.7	UK	29.83	20.92
Italy	21.63	20.26	US	47.7	34.1

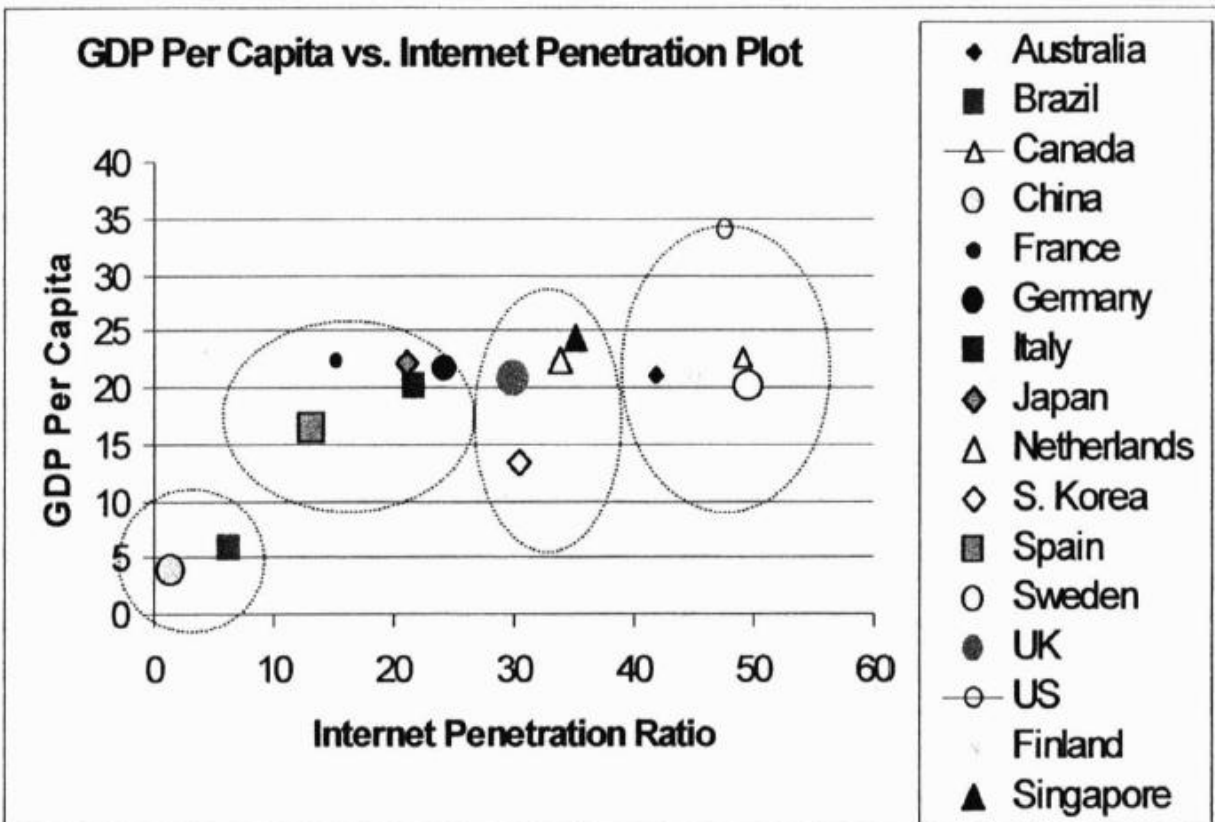


Figure 3: GDP Per Capita/Internet Penetration Plot

From the above plot, four basic types of countries can be determined (circled clusters in Figure 3). Countries in the right side of the plot such as the United States, Sweden, Canada and

Australia have a relatively high GDP per capita matched by a high number of Internet users. However, as in Figure 2, it should be realized that the percentage of Internet usage does not necessarily correlate with a high volume of EC trading.

In the middle part of the plot, countries with high GDPs (such as Singapore, Netherlands, UK and S. Korea) but low Internet penetration ratio compared to countries with similar GDPs (such as the United States or Sweden) are displayed. These are nations where the economic environment is favorable, but whose populations have been slow to incorporate new technologies. The third category of countries in the middle-left part of the plot includes countries (such as Japan, France, Italy, Spain and Germany) that have different Internet development patterns. So far, the lower GDPs of the countries in this cluster have slowed their population's access to latest technology.

The lower left-hand comer includes the countries of China, Russia, Brazil and South Korea. Most of these countries have enormous populations and are expected to be economic powers in the future. Today, various limitations hinder their Internet and EC development, but their growth potential seems to be enormous. The next section will discuss this potential.

Forecast of Growth in Global E-Commerce

As EC forecasts vary widely in their predictions, only two of the most detailed forecasts with an international perspective are chosen to give a general picture about future developments. The first one is a more long-term forecast predicting worldwide developments, whereas the second one is a mid-term forecast focusing basically on Europe and the USA.

(1) Ovum Inc.: Ovum Inc., a London-based information technology analyst group, predicts that the U.S . market will saturate after 2002 and most of the continued global Internet growth will take place in the more developed sections of Asia and Western Europe. In Asia, Japan will dominate the Internet with its large numbers of highly educated users. Although China and India represent major markets as they develop their infrastructures, neither will be significant up to 2005. Thus, the main Internet markets for the next five years will remain in North America, Western Europe and developed Asia. Ovum predicts that the highest growth rates will occur in Eastern Europe and Latin America within the next ten years, driven by the need to catch up with developed Internet markets. These countries will see high growth rates in percentage terms , but low growth rates in terms of absolute numbers as compared to developed markets (*Ovum Report 1999*).

(2) GartnerGroup : Based on Figure 3 on the E-Business Country Opportunity Index, GartnerGroup estimates that a strong European focus during the next 18 to 24 months will allow the United Kingdom to close half of its gap with the current U.S. position in Internet usage per capita (Drobik, 2000) . The United Kingdom will retain its relative leading position among the "chasing" countries over this period. Sweden will only increase its EC position in the next 12 to 18 months to converge to the U.K . position at that time. For Germany and the Netherlands it is forecasted that they will maintain their positions relative to the movement of the U .K. during the

next 18 to 24 months. France and Japan are expected to reach the current positions of Germany and the Netherlands within 12 months, with France potentially accelerating more rapidly due to Minitel (French videotext system) users migrating to the Internet. For Italy and Spain, GartnerGroup predicts that they will take 18 to 24 months to reach the positions occupied by Germany and the Netherlands today.

ANALYSIS OF INTERNATIONAL E-COMMERCE GROWTH LIMITATIONS

Economic, regulatory and cultural factors have an impact on Internet adoption worldwide. Because of the varying weight of each factor for a country, the pace of Internet growth was and will be different in every country as described earlier. Kaarst- Brown and Evaristo (2001) provide several other examples to show that differences exists in global Internet culture. Table 6 summarizes the limitations of global EC growth.

Table 6: Limitations of International EC Growth

Limitations of International EC Growth	
Cultural Differences	<ul style="list-style-type: none"> ◆ Cultural Differences/Values and Language ◆ Reluctance and Lack of Trust
Governmental Regulations and Policies	<ul style="list-style-type: none"> ◆ Issues of Privacy and Data Protection ◆ Regulative and Taxation Aspects ◆ Governmental Support and Ideological Aspects
Infrastructure Considerations	<ul style="list-style-type: none"> ◆ Development of Technical Infrastructure ◆ Problem of Order Fulfillment ◆ Payment methods ◆ Cost of transborder delivery
Market Specifics	<ul style="list-style-type: none"> ◆ Size of the Home Market ◆ Availability of Venture Capital

Cultural Differences

Cultural differences in their broadest sense can almost always be identified as one of the primary reasons for the gaps in global Internet development. In a set of pioneering studies of a U.S.-based multinational with affiliates in over 60 foreign countries, Hofstede (1984) developed four dimensions to explain differences in cultural values and attitudes among nations: *Power Distance, Masculinity/Femininity, Individualism/Collectivism, and Uncertainty Avoidance*. Power Distance (PD) is the way a society handles inequality. A high PD society accepts the idea that power is to be distributed unequally. Low PD cultures are more egalitarian in nature, much more willing to share responsibilities or request ideas (Calvert, 2001). Masculinity/Femininity (MF) focuses on the degree to which a society is concerned with assertiveness and the acquisition of things, as opposed to giving value to quality of life issues. High Masculine societies endorse aggressive behaviors and competitiveness is an acceptable behavior. High Feminine societies value caring, cooperation, the nurturing of relationships, and modesty. Individualism/Collectivism (IC) focuses on the degree to which a person's identity is based on

the social system. People from collectivistic cultures tend to put aside their own self-interests in deference to the interest of their group. Conversely, people in individualistic cultures tend to put forth and promote their own welfare over the interests of their group or organization. High/Low Uncertainty Avoidance (VA) focuses on the ability of people to cope with the inherent uncertainty of our living on the brink of an uncertain future. Hofstede (1984) shows that the tolerance for this uncertainty varies considerably among different countries. High uncertainty avoidance means a high degree of anxiety and a strong need for security, whereas low uncertainty avoidance means a greater willingness to take risk and to break with traditions. Simon (2001) has investigated cultural groups with high masculine and collective in orientation (Asian and Latin America) and those with feminine and individualistic nature (European and North American) regarding web site preferences. Results from his study indicate that differences between perceptions and satisfaction exist between cultures and also among gender within cultures. However, further investigation is needed regarding the impact of these four cultural values/attitudes on the growth of EC globally.

In comparison to Americans, Europeans (valid for continental Europe countries such as Germany, France, Spain or Italy) have generally a stronger need for uncertainty avoidance in their lives (Hofstede, 1984). Making purchases over the Internet means often that no immediate exchange of goods and money takes place, thus giving the Europeans the feeling of increased uncertainty and a loss of control over the buying process. As a German industry sector analysis states, all in all skepticism prevails and Germans are reluctant to use the Internet for banking purposes or EC and distrust the Internet as a means for money transactions, fearing misuse of their personal data (Wirsdorf, 1999). Despite an explosion of Internet use in Europe, many European consumers are still reluctant to shop online (Acheson, 1999). They use the Internet for communication such as e-mail and information services, but do not like to make purchases with it. As no technical or regulative reasons are in place to explain this behavior, the explanation for the Europeans' reluctance towards EC might be of cultural origin. Another possible component of cultural-based limitations would be the tendency of masculine cultures to work hard to promote Internet developments, in order to exploit global EC for materialistic pursuits. It can be assumed that, at least for continental Europe, trust is the key to the growth of EC and this trust will probably come with time (*The OECD Observer*, 1999).

The above discussion on cultural differences creates several propositions for future study. Research can be conducted to determine if the dimensions of power distance, uncertainty avoidance, masculinity/femininity, and/or individualism/collectivism help to identify and explain certain culture-based limitations of EC growth.

Even though cultural differences might be the initial cause for different paces in EC development, they certainly do not explain all limitations a country faces. If for example, the degree of uncertainty avoidance were the only determinant of Internet growth, countries such as Jamaica with a very low degree of uncertainty avoidance would be leaders in the EC world. Thus, Hofstede's cultural dimension should be seen as one explanation in addition to many others presented below.

Language is a definite barrier for French, German or Italian Internet surfers since roughly 90% of all Internet content today is in English, (Roussel, 1999). Asian Internet users (Chinese, Japanese

and Korean) require that even the Latin letters have to be adapted, causing much inconvenience in reading, writing and translating.

Governmental Regulation and Policies

An important factor is the issue of privacy and data. Like most Western countries, Europe has a much higher concern for individuals' rights to privacy than some Asian countries (Urban, *et. al.*, 1999; Schneider and Perry, 2001). In combination with its generally higher degree of uncertainty avoidance in comparison to other highly individualistic countries such as the United States, Europe becomes the place where the electronic transfer of private information, especially electronic payments, creates considerable concerns (Wirsdorf, 1999). Thus, European Union (EU) privacy laws are stricter than those of some Asian countries and of the United States. The EU has adopted a directive that, if implemented, would prevent the transfer of data about consumers to third countries where the level of data protection is, in EU's terms, "inadequate". Because American data protection is non-statutory and there is no government data-protection office, it is regarded as inadequate by definition. This stronger need for rules and regulation regarding the protection of the individual might hinder faster EC growth in Europe as well.

Many governments participate to varying degrees in supporting a country's EC growth and having a stake in the ensuring profits. However, different governmental approaches lead to different levels of EC support, limitations, and outcomes. In comparing the U.S. and Europe, the U.S. clearly prefers a deregulated market, while the European Union has a tendency to regulate. The popular view in Silicon Valley is that the government should keep out of the nascent world of EC and observers are convinced that governments in Europe, which they believe regulate anything that moves, pose a great danger to European EC growth. The advertising on websites in Europe is often quoted as the best example for an EC over-regulation, e.g., Denmark bans advertising to children, France, bans advertising in English, and Germany bans comparative advertising.

However, despite its laissez-faire attitude, the American government has in fact given a big push to EC in the way it handles the taxation issue. Not only are Internet purchases generally exempt from sales tax, the U.S. government imposed a moratorium on new taxes on anything bought over the web. As long as a website operator has no physical presence in a state, it can avoid collecting sales tax on any goods sold in that state. In the European Union, the rate of value-added tax (the nearest thing to American sales taxes) is as high as 25 percent in some countries and accounts for an average of 40 percent of Europe's tax revenues (Maguire, 1999). Thus, there is no prospect that, once EC takes off, goods and services sold over the Internet will be allowed to avoid such an important tax in Europe. National tax structure and the willingness of a government to intervene and regulate will influence significantly the growth of EC.

Beyond the regulation and taxation aspects that influence a country's EC growth, the general attitude of governments towards technological advancements and the Internet will also influence growth. Governmental support to foster EC is non-existent in some former communistic and Islamic governments because it is considered subversive as well as too American. EC is also deeply mistrusted in Malaysia and China because it seems to threaten government control. Completely different is the government support in some fast-growing, ambitious Asian countries

such as Taiwan or Korea. Heavy financial support shows the local governments' desire to foster EC. These governments are trying to push the envelope quickly with low-cost technology infrastructure - not necessarily for the populace, but so that at least businesses can take advantage of the electronic pipeline and be part of the global Internet business. The size of governmental investments relative to the size of the GNP of the economies can be extremely large for these governments (Thurston, 2000).

Based on the above discussion, future research can be conducted to determine if Governmental Regulations and Policies limit EC growth. Specifically, do countries with stringent legal and regulatory polices have higher barriers to EC growth?

Infrastructure Considerations

One of the prerequisites for EC growth is the availability of Internet access. Thus, countries such as China that would have a great opportunity over the next millennium for Internet business solutions fall behind since the appropriate technical infrastructure does not exist. Without telecommunication infrastructure, it becomes just impossible for large parts of the population to participate in the Internet growth. Similarly, Latin American countries are facing the technical problem of interconnections between major Internet service providers that hinders their EC growth. Internet connections initiated in Argentina may bounce through a US-based link on their way to another South American nation. Thus, even before considering all other reasons that might hinder EC growth, it has to be ensured that the right telecommunications infrastructure is in place. This explains the very little interest in EC in a number of third world countries , such as Pakistan , or regions, such as Africa, that just do not have the telecommunications infrastructure to drive demand (Thurston, 2000) .

Another technical aspect that influences EC growth of industrialized nations as well is the cost of local calls. While local calls are free in the US, in most European countries local phone calls are still charged by minute, discouraging extensive use of the Internet. The cost of calling a local ISP (Internet Service Provider) can be a significant part of the total cost of surfing the net (Wirsdorf, 1999). Consequently, surfers in countries with costs for local calls tend to get frustrated quickly with slow response times and in general spend less time on-line compared to their U.S. counterparts (Withworth and Pryor, 1999).

As most goods cannot be delivered electronically, EC means usually that at a certain step the transaction process requires the physical handling and shipping of the goods traded. Thus, even if the appropriate technical infrastructure is in place to take incoming orders from all over the world, a country must also provide the physical infrastructure to allow the actual order fulfillment. Emerging markets such as China or India might have an appropriate physical infrastructure for the trading of goods at a local level, but start to struggle if the goods have to be shipped from city-to-city or outside the country. A lack of airports and harbors to ship goods worldwide can frustrate overseas customers. A lack of infrastructure is thus regarded as a central inhibiting factor for EC growth outside the United States and Europe (Thurston, 2000).

Likewise, research can be conducted to determine if Infrastructure Considerations limit EC growth. Specifically, do countries with strong technological and support infrastructure have lower barriers to EC growth?

Market Specifics

One important factor that determines the pace with which EC is adopted in a country is the size of a country's home market. To keep things more manageable from a marketing side, a company's first steps in EC are mostly focused on domestic customers. From this perspective, a huge, relatively homogenous home market, such as the American market, provides certain revenue/cost advantages. Consequently, circumstances are much more favorable for American companies than French companies since the French market is less than one-fifth the size of the American market. Therefore, it is far more attractive for U.S. companies -especially small ones to invest in EC. Thus, the size of the American market is one of the most important advantages for U.S. firms.

It is also important that local selling practices for products and services are considered. Europe is the second largest EC market, given the high penetration of PCs and Internet usage. But while the European Union is only nominally a seamless economic entity, variations among their countries hold back faster growth (Ihurston, 2000). National groups with different ways of entering the market with different social priorities make it much harder to attract customers. Similarly, the lack of a huge, homogenous market (many languages and currencies) in South America and much of Asia makes EC growth more difficult.

A final factor is the availability of venture capital. The almost notorious conservatism of investors in continental Europe (Gruner, 1999) makes venture capital less available in Europe than in the United States. With many new Internet start-ups depending on the investors' willingness to take considerable risks, the lack of venture capital has the potential to limit EC growth in many European regions. However, European governments played a positive role by helping to jump-start high-tech companies recently: The German national government pushed start-up financing that matches the risk taken by venture-capital firms and encouraged the creation of the Neue Markt, a sort of German NASDAQ (Muller, *et.al.*, 2000). Similarly, a Japanese arm of the U.S.

NASDAQ stock market will be created (Mandel and Kunii, 1999), in spite of the risk and uncertainty avoidance issues.

Future research can be conducted to determine if Market Specifics limit EC growth. Specifically, do countries with existing efficient markets have lower barriers to EC growth?

STRATEGIES FOR GLOBAL E-COMMERCE GROWTH

The previous sections have discussed the various entities and organizations that have an interest in developing and pursuing EC strategies. With the macroeconomic advantages of international EC growth in mind, it becomes obvious that not only companies, but also national governments and supranational organization as the European Union (EU), the Organization for Economic

Cooperation and Development (OECD) or the United Nations (UN) are involved. Figure 4 visualizes the pyramid of EC strategies.



- 1) Supranational level: e.g. the European Commission's eEurope initiative launched in December 1999. The goal of eEurope is to accelerate Europe's transition to the information society and thereby achieving greater economic progress and social cohesion. With the strategy reinforced during the Lisbon Summit in April 2000, Europe should become the most competitive and dynamic knowledge-based economy in the world within the next decade (Liikanen, 2000).
- 2) National level: For presidents and politicians in every country, it becomes more and more popular to set up "e-programs", both for the government entities themselves and to foster a "knowledge economy" environment for the country as a whole. The United Kingdom was well known for its personal computers being more expensive than those of other European countries. The UK government became aware that the high cost of its computer equipment built a significant barrier to Internet and EC growth and recently came up with an initiative to provide tax exemptions to boost personal computer sales (Withworth and Pryor, 1999).

Developing Company Strategies for EC Globalization

Firms typically take advantage of the microeconomic opportunities of EC globalization via the local-to-global approach. There are two main variants on this approach, however:

- 1) **Established Firms:** The first type of company is an organization - mostly American - that is already utilizing EC in its country. This type of company initially focuses on its home market (e.g. American) and applies its home market strategies to all other markets in an undifferentiated way. With growing EC market potential especially in European and some Asian markets, this type of company is now realizing that it has to adapt its strategies to the different local market needs in order to be successful in these markets . Thus, it develops differentiated strategies to overcome the barriers and limitation of EC growth at the local level.
- 2) **Start-up Firms:** The second type of company is a local company that enters the market as an EC start-up. Facing the specific EC limitations and barriers of its particular home market, this type of company has to develop appropriate entrepreneurial strategies to succeed first on a local level and then in the global EC market.

Both types of companies face barriers and limitations that were analyzed earlier.

The entrepreneur type of local-to-global company might be of greater importance for a country's economy, as it helps to develop a local EC culture, instead of relying on foreign - generally American - companies to introduce their EC business locally. However, even though facing the same barriers and limitations, a local company trying to get established as an EC start-up has to pursue different strategies to overcome the barriers and limitations than an established company that tries to enter a country's local EC market.

With ninety percent of all Web pages on the Internet still originating in the United States (The Economist, 2000), it can be assumed that the local-to-global approach of American companies entering foreign markets will be the dominant EC strategy in the coming years . Furthermore, local-to-global strategies for Internet start-ups would be a country and industry specific as possible; these types of strategies and their success/failure stories represent additional research, beyond the scope of this paper.

A Four-Step-Strategy for a Local-To-Global EC Approach

With the dominance of US companies in the field of EC, it is apparent that the information, entertainment, and merchandise offered over the Web is basically designed to appeal to consumers in Chicago or Seattle, but not to Parisians who want to look up theater schedules, to English soccer fans who want the results of their favorite team or to Berliners who want to order groceries online (Roussel, 1999). However, with the expected saturation of the US EC market after 2002, and other regions such as developed Asia and Western Europe becoming important EC markets instead, many American companies have started thinking and planning about adapting their EC strategies to the local needs of the overseas markets.

The following four-step strategy uses the analysis of international EC limitations as a foundation and deduces strategic steps that an EC company should consider in order to enter foreign markets successfully.

Step 1: Address The Globalization Issue At The Beginning

Doing business in an EC environment offers the opportunity for people from all over the world to instantaneously become customers for a new start-up Internet-based company. However, Forrester Research found out that only 10% of companies are doing true global EC from their Web sites (Leibs, 2000). Many online companies, such as macys .com, do not have the resources to set up a true global EC strategy right at the beginning of their Internet presence; these companies pursue a "not-global strategy" instead. In stating explicitly that they will not ship to overseas destinations, they at least clarify the issue of globalization and avoid disappointed overseas customers and the reputation of being not reliable. Addressing the issue of globalization - even by only defining a "not-global strategy" - is therefore crucial in dealing with such an international medium as the Internet. It helps to avoid annoying foreign customers before a true global strategy is pursued.

Step 2 : Set Up The Logistics For Global Order Fulfillment

An analyst of Forrester Research states "there is a great myth out there that you can tap into global markets just by putting up a Web site that anyone can access. To actually fulfill international orders, you have to address a huge number of issues that are far more complex than most companies realize" (Leibs, 2000). Since the order fulfillment part of an international EC strategy is often underestimated, an EC company intending to pursue a true globalization strategy must address how it will handle addresses and orders worldwide.

Overseas customers could easily be annoyed by inconveniences in the order fulfillment process; orders from many European prospects were repeatedly rejected from an American Web site because they could not fill out the "state" section of the form (Rasmusson, 2000). In addition, once an EC company decides to explicitly target foreign markets, it should state clearly on its web site how much airfares, fees and duties have to be added for overseas shipments. Thus, all issues of order fulfillment should be clarified in detail in order to avoid finding out the hard way that "while a web site may reach the world, the products it advertises often do not" (Leibs, 2000).

Step 3: Understand the Local Culture

Solving the global EC equation requires more than just targeting international customers and drawing them to the company's web site. Once the global consumer is targeted, the challenge is in turning him from a prospect into a paying customer. An understanding of the interactions between various cultures and the Internet is crucial to successfully forming customer relationships. "What you observe in the United States is people quite happy to spend \$30,000 for a car over the Web", says David Topping, worldwide marketing director for UpDate Marketing Inc., a London-based customer relationship provider. But most Europeans, he says, are behind in their Web usage: "So you have to understand a fundamental difference: If they are less comfortable with the Web, once you have got them to your site, what do you do? If you treat everyone the same, an American customer is satisfied. But an European customer will state: 'No way will I buy that over the Web'." When selling to the French, Topping recommends limiting the goods offered online to those less than \$150. That avoids making the French feeling uncomfortable at the site (Rasmusson, 2000).

Beyond different attitudes towards values and prices of items bought over the Internet, consumers in each country will have definite preferences about the look and feel of Websites. Many Europeans feel that American sites have too many bells and whistles (The Economist 2000). Thus, a Web site has to be adapted to different local tastes. Furthermore, customers should be targeted in their own language with prices in their own currency to feel really comfortable with an offer and to overcome initial reluctance. Recognizing this problem, Dell has its premier web pages for business customers available in 12 languages with price information in local currencies (Leibs, 2000).

Step 4: Build Partnerships Or Acquire Locally

Certainly, tremendous resources are needed to pursue local EC strategies in different countries worldwide. Thus, the development of partnerships with local companies based in the targeted market or the acquisition of local EC providers might be the only way to pursue local EC strategies (Hicks and Chen, 2000). With local companies on its side, the foreign company is brought closer to the country and achieves a better awareness of tastes or local regulations and taxation issues.

Amazon .com is an example of an American EC company that had already an established Internet presence, when it started to target explicitly the European market. Amazon decided to pursue a country-by-country approach in acquiring local EC providers in its industry. It started with the UK by buying Bookpages .co.uk and turning it into Amazon.co.uk and then to Germany where, after buying local player telebuch .de, Amazon .de was launched (Roussel, 1999). Amazon's entering into the European market is regarded as an example of a highly successful local-to-global approach.

CONCLUSIONS

Global EC growth is a broad and complex topic with multiple layers of content reaching from country and industry specific considerations to supranational, national or company specific issues. Obviously, the breadth of such a topic makes it impossible to cover all aspects in a single paper. Although globalization is regarded as a phenomenon that brings various advantages to the worldwide economy, based on the extensive literature review and data obtained from secondary sources, we find significant differences in the growth of global EC. This study provides a general framework including a discussion of present advantages of EC growth (both from a macro-economic as well as micro-economic perspective), national and corporate EC comparisons, an analysis of EC limitations, and the development of strategies for international EC growth. As seen with the GartnerGroup's GOP Per Capita/Internet Penetration plot (see Figure 3), once the general structure of an analysis or a basic model is developed, it can be easily updated with more recent information or customized to a specific context. Several propositions stated in this study can be tested as part of future research to determine how differences in cultural, governmental rules and policies, IT infrastructure, and market specifics impact the global growth of EC. We recommend an extension of this study not only to various countries but also across industries. Thus, within the general concept of international EC growth, country and industry specific

scenarios can be examined further. The detailed findings for a specific situation of global EC growth can then be easily fitted into the broader picture developed in this paper.

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