Chapter III
Identifying Factors for Lack of E-Commerce in Developing Countries

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ABSTRACT
The past few years have seen a rise in the number of companies’ embracing e-commerce technologies in developing countries and the volume of e-commerce has been growing. However, as compared to developed nations, developing countries still have been lacking in e-commerce. This chapter identifies some of the reasons that may be responsible for lack of e-commerce in developing countries. For the scope of the study, we have limited developing countries to China, India, Indonesia, Philippines and Sri Lanka. The study identifies factors at the macro level to understand why the adoption of e-commerce in developing countries has been not taking off as expected.

INTRODUCTION
The use of the Internet as a vehicle for electronic commerce (e-commerce) has become a standard operating practice in many corporations throughout the world (Ah-Wong et al., 2001; Rosenbaum, 2000). The world is rapidly moving towards Internet based economic structures and information societies, which comprise networks of individuals, firms, and countries linked electronically in interdependent and interactive relationships (Heeks, 2002). The wide use of information and communication technologies (ICTs) has accelerated the growth of e-commerce in last few years in many parts of the world. These technologies have revolutionized business, economic prosperity
and the way the world and its citizens communicate (Davison et al., 2000). However, developing countries still lag behind the developed countries in technology absorption. Roche and Blaine (1997) point out that most of the developing world suffers from an “MIPS gap ratio” in the order of something like 1:26 with the developed world. The reasons for low participation level of many developing countries in the global information society for e-commerce include perceived incompatibilities between cultures and technologies, an idealistic preference for self-reliance, and simple lack of economic or human resources to acquire and utilize technology (Davison et al., 2000).

Developing countries, while representing around 80 percent of the world’s population, account for only 2 percent of the total global expenditure on informatics (Davison et al., 2000). This may create marginalization for developing countries from the mainstream economic growth of the world.

E-commerce technologies have the potential to help solve many problems faced by developing countries; from providing remote health care to education (Schech, 2002, Sprano, 2000). However, developing countries may miss major benefits of the e-commerce revolution for the next few years because of inherent problems they face in the implementation and use of e-commerce solutions. This chapter examines the state of e-commerce in developing countries and discusses issues that developing countries must address to harness the benefits of e-commerce. Our discussion includes the progress made in handling these issues and outlines the challenges facing developing nations in successfully implementing e-commerce in their economies. We also endeavor to describe approaches that can be taken to resolve some major issues and challenges related to e-commerce in developing countries. The rest of the paper is organized as follows. We first briefly describe our framework and how we derived this framework. The next six sections discuss the issues and challenges in each category identified in our framework. In these sections, each category is further divided into several sub-categories so that progress made to handle the issues and the remaining challenges can be easily illustrated.

A FRAMEWORK FOR E-COMMERCE INFRASTRUCTURE

The emergence of electronic commerce over the past decade has radically transformed the economic landscape. There has been an increasing amount of literature on the factors that affect development of the Internet and e-commerce in developing countries. On one hand, it is helping nations increase their economic growth and thereby provide more opportunities for the businesses to grow, but on the other hand it raises many technological, economic, and social challenges. While developed countries that have been offering e-commerce have shown impressive performance in their respective economies, many developing countries still lag behind in the e-business race. This could be due to several reasons including but not limited to language, education, technology and technical infrastructure.

In developing countries, internet use and its economic potential are growing exponentially. Developing countries have the advantage of learning and benefiting from the diverse experiences of industrialized countries and leapfrogging into an e-commerce revolution. However, there are still many unresolved issues that hinder the growth of e-commerce in developing countries. Many businesses and consumers in developing countries are still wary of pursuing e-commerce because of the lack of a supporting legal environment, particularly for international trade transactions. Concerns such as the enforcement of contracts, liability, intellectual property protection, privacy, and security are still unresolved to the satisfaction of those involved (Bhatnagar, 2001, Ah-Wong, 2001, Davison et al., 2000 and E-commerce report 2001). Developing countries have a difficult task
to create an e-commerce environment because of many reasons such as poor and limited access to telecommunications infrastructure and services, market restrictions, lack of capital to create infrastructure and acquire technology, and instability in economic, legal, and political environments (E-Commerce Report 2001, Ah-Wong, 2001, Sprano and Zakak, 2000, Dutta, 1997, Roche and Blaine, 1997, and Petrazzine, 1999). In 1998, Esprit listed several issues concerning e-commerce including globalization, contractual and financial issues, ownership, privacy and security, interconnectivity and interoperability and deployment (Kimbrough, & Lee, 1997). Clinton & Jr. categorized possible barriers to the expansion of e-commerce into three main subgroups: technical and financial issues, legal issues and market access issues (Mukti, 2000). There have been a large amount of different research streams on e-commerce frameworks, ICT diffusion, and ICTs in developing countries. To understand various e-commerce related issues, we conceptualized our framework from three major unique e-commerce frameworks documented in literature.

The authors conceptualized a framework from existing three major unique e-commerce frameworks documented in literature. These three frameworks are; the Zwass’ (1996) generic framework for electronic commerce that assesses the different dimensions of e-commerce in general. The Wolcott’s framework for assessing the global diffusion of the Internet produced by the Global Diffusion of the Internet (GDI) Project (Wolcott, Press, McHenry, Goodman, & Foster, 2001) and finally, the Travica (2002) framework, which directly examines the factors necessary for

Figure 1. A framework used for analyzing e-commerce related issues and challenges
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the commercial application of the Internet in the context of developing countries. Drawing various indicators from these frameworks, authors conceptualized the framework to identify some of the reasons that may be responsible for lack of e-commerce in developing countries. For the scope of the study, we have limited developing countries to China, India, Indonesia, Philippines and Sri Lanka. The study identifies factors at the macro level to understand why the adoption of e-commerce in developing countries has been not taking off as expected.

Drawing various indicators from these frameworks, we conceptualized our framework which is shown in Figure 1.

There has been an increasing amount of literature on the factors that affect development of the Internet and e-commerce in developing countries (Mbarika et. al., 2001; Mbarika, Byrd, & Raymond, 2002; Montealegre, 1996, 1998, 2001; Travica, 2002; Wolcott et. al., 2001, Heeks, 2002; Schech, 2002). To understand the contextual settings of the developing countries, Travica’s framework was quite helpful to conceptualize the framework (Travica, 2002). The Travica (2002) work goes beyond both Zwass’ (1996) and the Wolcott’s framework to specifically address the diffusion of e-commerce in developing countries. The Travica’s framework helped to identify the various aspects of physical, cultural, economic and legal infrastructure that are necessary to support successful diffusion. In his study of e-commerce diffusion in Costa Rica, Travica (2002) developed a framework based on six layers of infrastructure required to support e-commerce in a developing country; transportation for delivering physical goods and documents; a reliable delivery system such as effective postal services; internet-enabling telecommunications, including both physical and legal infrastructure to facilitate the efficient operation of the Internet; a functional software industry to develop and support the necessary Internet applications; e-payment infrastructure, which includes a widespread and effective credit card system, as well as secure and efficient banking; and a cultural layer, which refers to the various cultural aspects of consumer behavior that will incline individuals to use the Internet for commercial activity.

From our e-commerce framework as shown in Figure 1, it is evident that electronic commerce requires at least four types of infrastructure to be in place before online solutions are offered. These are telecommunication infrastructure, business and services infrastructure, user infrastructure and regulatory and commerce infrastructure. Technological infrastructure is needed (e.g., interconnectivity among telecommunications, cable, satellite, or other Internet ‘backbone;’ Internet service providers (ISPs) to connect market participants to that backbone) to create an Internet marketplace.

User infrastructure or end-user access devices such as such as PCs, TVs, or mobile telephones are needed to access the Internet. A business and service infrastructure in the form of content, distribution and delivery systems are essential for developing e-commerce. Regulatory and commerce infrastructure is needed to make payment over the Internet possible (through credit, debit, or Smart cards, or through online currencies). E-commerce is not possible without laws, and regulations to check the legality and modality of digital transactions, signatures, certification, and encryption; and disclosure, privacy, and content regulations. In government policies and market access for promotion and growth of e-commerce, specific customer bases must be considered. Thus, keeping these important components of e-commerce in consideration, the authors used the derived framework to analyze the e-commerce-related issues in developing countries. This is in contrast to previous research studies that have focused on the technological, social, economic, and cultural aspects that hinder the growth and implementation of e-commerce in developing countries ((Ngai, & Wat, 2002, Panagariya, 2000, Yavwa and Kritzinger, 2001, Bhatnagar, 2001,
Abeyesekera et al., 1999, Domeisen). Data used for analysis is taken from developing countries such as; China, India, Indonesia, Philippines and Sri Lanka. While the findings are generalized within context, many variations were noticed within these countries for the scale of growth and implementation of e-commerce activities. The methodology adopted for the study used data collection from secondary sources. Available data for e-commerce activities within selected countries came from different time periods and it was difficult to extrapolate the data based on previous patterns.

**TELECOMMUNICATION INFRASTRUCTURES**

Telecommunication networks are the most important part of an organization’s business strategies to compete globally. With the explosion of the Internet and the advent of e-commerce, global telecommunication networks need to be accessible, reliable, and fast in order to effectively participate in the global business environment. Telecommunications is a vital infrastructure for Internet access and hence for e-commerce. Telecommunications and Internet connectivity have now been universally recognized as key to economic development, social progress and a good investment (Schech, 2002). Communication infrastructure not only plays a key role in economic growth, but also impinges on and can impact virtually all global issues: health, education, advancement of women, cross-border and cross-cultural understanding, and tolerance. The lack of communication facilities in developing countries is a constraint to social, political and economic empowerment of the people. The major problem impeding the installation of telecommunication infrastructure in these regions is that most service providers are unable to justify the cost of investment because of the low economic activities leading to low return on investment (Yavwa and Kritzinger, 2001, Darley, 2001, Dutta, 1997, Heeks, 2002, Kibati, & Krairit, 1999).

In almost all of the developing countries, the low tele-densities are a consequence of deliberate political decisions supporting government-owned monopoly telecommunication agencies. Recently, a few of the developing countries have opened the telecommunications market to competition and foreign investment (ITU Report, 2002). Changes in regulatory environments and market conditions will have a pronounced impact on the future implementation of telecommunications infrastructure for basic telephony and Internet access (Yavwa, and Kritzinger, 2001, E-commerce Development Report 2001, 2002, 2003, Mbarika et. Al., 2002). To access the Internet, developing countries pay, on average, three times more than developed country users (Woodall, 2000). Lack of communication technologies has been the main cause of inadequate economic and social development and widening the gap between developed and developing countries. The new economy’s self perpetuating cycle, where investment generates efficiency that frees more capital for investment, is not taking root in the developing world as quickly as many would like, and the rapid growth of wealth in the West is exaggerating the differences (Brandman, 2000).

Most of the developing countries rely on Public Switched Telephone Networks (PSTN) for residential users to connect to the Internet. Although, of late, a few countries have started using other media (such as cable TV network, limited ISDN, and radio links), wired infrastructure is woefully inadequate to meet the demand of basic connectivity (ITU Report, 2002). Moreover, inadequate maintenance of the access loop, low quality of cables, and high rates of accidental damage to cables lead to transmission impairments (Mbarika, et al., 2002, Simms, 2000, Sridhar, 1998). Despite initiatives taken by many developing countries to invest heavily on building up IT infrastructure, the growth of e-commerce does not commensurate with the investment. In
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a democratic country like India, where 40% of the people are still living below the poverty line, mobilization of the huge investment required for the implementation and growth of e-commerce is not easy (Nair and Prasad, 2002, World Bank Report, 2002). Developing countries need large scale promotion of the IT industry through domestic and foreign investment, a higher level of PC penetration and internet access. While voice-over-Internet, known as “IP Telephony,” is allowed in certain developed countries, it is still illegal in many developing countries. However, if IP telephony becomes legal in those countries, how will the revenues be generated to maintain the large communication infrastructure? Developing countries that have recently invested in circuit technologies are still waiting to receive returns on their investment (Lynch, 2001).

**Opportunity for Wireless Technologies**

New communication technologies can even allow developing economies to leapfrog old technologies such as copper wire and analog telephones. Now they have the option to switch to new wireless technologies that are more cost effective. Also, wireless technologies can reach remote terrain where a wired infrastructure is difficult to place. These technologies, if used to connect the population, can increase the tele-density ratio and ultimately set a platform for global e-commerce. Developing countries can use these technologies effectively for health, education, and other purposes. The World Bank already uses satellites to broadcast televised courses to students in 15 African countries who communicate with teachers by e-mail, fax, and telephone (Woodall, 2000).

**Lack of Electricity**

Developing countries often lack electricity that is the main necessity for promoting e-commerce. Electricity, a good telecommunication infrastructure, and affordability of computer hardware, software, and servers are the three basic requirements for electronic commerce. These are all lacking in many developing countries. Governments control most of these ingredients of e-commerce, such as telecommunication infrastructure and electricity. Foreign direct investment (FDI) is currently not permitted. In order to encourage e-commerce, countries need to make a change in their financial liberalization and foreign investment policies. Present communication infrastructures in developing countries are more concentrated in urban cities rather than normally distributed in all regions. Strategically, these countries can create smart cities and set up software technology parks in those places from where they can do offshore projects for export intensive industries. However, it is equally important to create an e-commerce center of public services to improve the quality of life for all citizens. One of the strategies that developing countries can take is to rely on external financial aid from developed countries and create infrastructure. For e-commerce, one requires supportive logistics to cut the costs and speed delivery. Most of the developing countries lack logistics support and good delivery systems. While this may be desirable, it may take time. Another strategy that could be adopted is to ask foreign companies to invest in local markets and help create infrastructure.

**Digital Divide**

A major global concern is the so-called “digital divide” or “telecommunication gap” between countries with high telecommunication infrastructures and those without. The digital divide is one of the greatest impediments to development, and it is growing exponentially. Presently, the Internet penetration rates in these developing regions range from less than 1% to 3%, which is far below the 25% to 50% penetration rates seen in many wealthy, developed nations (Rombel, 2000). Many US companies such as IBM, Microsoft, and...
America Online have recently taken initiatives to aid the developing countries. They have provided Internet-enabled computers and digital cameras to aid existing education, health, and community development work in third world countries (Rombel, 2000). If the digital divide gap can be closed by transferring technology from the rich countries to the developing world, it will foster the growth of sustainable new local businesses that will promote prosperity and reduce poverty (O’Kane, 2000). The International Telecommunications Union (ITU) and World Bank have taken the initiatives to address this problem. With the initiatives of the ITU, developing countries have gained approximately $40 billion in voice rate subsidies from the developed world in the latter half of the 1990s (Rombel, 2000). But as the dependence on communication infrastructure grows even more rapidly, these subsidies are not enough (Lynch, 2001).

USER INFRASTRUCTURE

One of the major bottlenecks to the expansion of e-commerce to the developing world is the lack of telecommunications and Internet connectivity and access to the necessary hardware and software. The tele-density, reach and geographic coverage of telephone services, its bandwidth, the cost of telephone services, the national policies governing the telecommunications sector and the number of computers are major obstacles for the growth of e-commerce in developing countries.

Internet Access Infrastructure

High Internet access rates and low penetration of computers are primary obstacles to the growth of electronic commerce in developing countries (Petrazzini and Kibati, 1999). Internet access is one of the main components of e-commerce, and Internet access is still very expensive in most developing countries, especially in Asia (Odedra, et al., 1993, Peha, 1999, Petrazzini, & Kibati, 1999). The majority of the population in developing countries still cannot afford a personal computer (PC). For consumers, the biggest barriers are the limited diffusion of PCs, high cost of Internet access, and lack of easy payment mechanisms (Dedrick and Kraemer, 2001). The high cost of Internet access, and the low bandwidth available to most users, is a serious problem. The lack of basic telecommunications infrastructure is a severe hindrance to the growth of the Internet in any country. One of the reasons to explain the high Internet access costs is inefficiency of telephone services and low levels of tele-density.

Developing countries lag far behind developed markets in the availability of technical pre-requisites for conducting electronic commerce. In addition, telecommunication services in developing countries are unreliable and/or costly. There are also enormous differences in access to telecommunications, both between and within developing countries. For instance, while the majority of the population in developing countries lives in rural areas, over 80 percent of the main telephone lines are located in urban areas. Although the Internet revolution is growing by leaps and bounds in developing countries, intensity wise, it still lags behind the developed countries. This can have profound implications on an individual country’s ability to participate in the global electronic market place.

Computer Lines and Equipment

The cost of a computer itself is so high in proportion to the average income in developing countries, that not more than 2% of the people have computers to access the Internet (Abeyesekera et. Al., 1999). The Internet subscription costs are also not affordable. When the majority of people do not have computers and Internet access, e-commerce becomes difficult. Further, the cost of local and long-distance telephone calls, giving access to the Internet, are significantly higher in
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developing countries.

The World Trade Organization (WTO) can take a lead in lowering the prices of information technology (IT) equipment and telephone services through the Information Technology Agreement (ITA) and the Negotiations on Basic Telecommunication Services under the General Agreement on Trade in Services (GATS) (Bhatnagar, 1999). Cheaper equipment costs and cheaper telephone services would increase the likelihood of success in e-commerce.

BUSINESS AND SERVICE INFRASTRUCTURE

Developed countries have very strong communication infrastructures, and thus they have the advantage to set up business infrastructure in form of services on the servers that can be accessed at high bandwidths. Whereas, due to lack of technology and telecommunication infrastructures, developing countries have to host all of their applications and services on the servers that would be far beyond their national boundaries in developed countries.

Business Infrastructure

Owing to the lack of infrastructure, one component of e-commerce, known as Web content, is also missing. Web content is hosted at servers that are connected at high bandwidths, typically located in developed countries. Even among these connected countries and regions in the developed and developing countries, its usage remains largely with the “haves”, that is, those who can afford the hardware, software, and cost of connectivity. The International Telecommunications Union (ITU) and several other international bodies are taking various initiatives to help developing countries to prepare themselves for e-commerce, but business infrastructure in developing regions is still nonexistant.

The impact of e-commerce on the business sector has been widely accepted: it reduces transaction costs, allocates resources better, increases economies of scale and improves the competitiveness of businesses in general (E-commerce and Development Report 2001). In addition to these common problems that face all businesses, most enterprises have to deal with equally serious internal shortcomings. First is the lack of the necessary information systems and infrastructure to support e-commerce. Most firms do not have enterprise applications linking sales, production, finance, service and other functions, and many lack even more basic applications in each of those areas. Without such systems, it is difficult to conduct transactions electronically, and what is called e-commerce is actually limited to e-mail and an informational Web site ((Montealegre, 1996, 1998, 2001).

Service Infrastructure: Distribution and Delivery Systems

Service infrastructure in the form of distribution and delivery systems is very important for developing e-commerce. Speed is one of the most important manifestations of electronic commerce. Unless products are delivered faster at lesser cost, the benefits of e-commerce will not be realized. Most of the developing countries have inefficient distribution and inadequate transportation and delivery network. These countries lack nationwide delivery companies such as FedEx and UPS, and transportation infrastructure (road, rail, air) is poor in many areas (E-commerce and Development Report, 2001).

REGULATORY AND COMMERCE INFRASTRUCTURE

E-commerce depends on rapid authorization, payments, and settlement of accounts through the “financial plumbing” of the economy. Authoriza-
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Payment over the Internet is an important link for developing e-commerce and is viewed as a bottleneck in developing countries. Most developing countries do not have banks that offer online electronic payment systems. It would require a massive effort to sensitize banks toward building an e-commerce infrastructure since many would likely be resistant towards this new mode. A few countries have created some form of infrastructure to support online payments, but that is still not adequate.

E-commerce involves transactions conducted using credit facilities over the Internet. In many developing countries, credit cards are rare, and consumers use upfront cash payments in a face-to-face environment. Since the Internet is not available in local languages, only a few elite could make use of the Internet for commerce. Fewer than 6% of Internet users currently reside in developing countries, which account for 84% of the world's population (Domeisen, 1999). The United Nations Development Program is trying to create cyber cafes in villages, bringing Internet and fax services to rural areas to reduce the gaps between “haves and have nots”.

Banks and financial institutions, such as credit card companies must integrate their activities so that transactions can be completed online. Developing countries need to create an electronic network (between financial institutions) and the legal framework for online transactions. Banking laws and regulations thus need to be adjusted to the new formats and requirements. Converting currencies is another complex issue to be resolved. Besides banking and investment services, insurance, brokerage, credit worthiness and guaranteeing services, underwriting, and a host of other financial services require restructuring. To restructure these sectors, developing countries may need financial reforms for liberalization of financial sectors. Governments in control will
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find it difficult to make major reforms in these financial sectors.

Finances through Venture Capitalists (VC)

Several developing countries have skilled manpower in abundance and they have the opportunity to utilize them to develop new products and services of e-commerce. These countries, however, do not have venture capitalists to finance the ideas for innovations. Traditionally, in developing countries, financing has come from either banks or stock market listings, neither of which is suitable for young, high-risk Internet companies that have yet to launch commercial operations.

Regulatory and Tax Issues

E-Commerce does not distinguish between goods and services if they are in an electronic form. This creates difficulty to fix tariff and tax on these. Usually, goods are charged differently than services, but in e-commerce, since the entire transaction is in electronic form, it is difficult to differentiate it for tariff purposes. For example, if a CD is bought online and if music CDs or software CDs are delivered across border, one may fix a tariff for this transaction since it is a physical good being delivered, but what happens if CD contents are downloaded electronically across borders?

Another major task would be how to monitor the tax and tariff collection. Due to availability of skilled manpower, developing countries like India, China, Singapore, and Malaysia extensively export electronic goods and services. Exports may be out of tax structures because of the promotion of export revenue. However, at the same time, software and consultancy services, which are sought by these countries, deserve to have taxes or tariffs, but are not taxed because they happen in electronic mode and are too difficult to monitor. Many would argue that since digital transactions cannot be monitored, duties cannot and should not be levied.

Differentiation of Goods and Services

One of the main concerns for e-commerce, therefore, is how to classify items (goods, services and currency) that are bought and sold across the borders for tax. It is extremely difficult to regulate international commerce, which involves trade in goods, services, currencies, information or ideas, and the impact of these developments on national sovereignty, political institutions, administration, financial and trade policy, and the way of life. This may be a common concern for all countries, but developing countries will be especially hard hit because they will have less to say in devising policies and negotiations.

Developed countries had suggested a zero-duty regime for all electronic transactions where goods and services are digital. The basic problem for such an argument is how to classify digital goods wherein financial data transfer and consultancies may take place electronically. It is essential to create a policy and regulatory environment that favors the development of e-commerce and harmonizes national approaches in diverse areas including telecommunications, trade, competition, intellectual property, privacy and security.

Taxes and Regulation Restructuring

Tax planning for an e-business differs from tax planning for a traditional bricks-and-mortar company. Historically, the generation of income depended on the physical presence of assets and activities. This physical presence, or permanent establishment, generally determined which jurisdiction had the primary right to tax the income generated. Because of the growth of electronic commerce, new e-business models (including digital marketplaces, on-line catalogs, virtual communities, subscription-based information services, on-line auctions, and portals) have
emerged. Each allows taxpayers to conduct business and generate income in a country with little or no physical presence in that country. The separation of assets and activities from the source of the income represents a significant departure from historic business models. This change creates new tax planning challenges and opportunities (Olin, 2001). Issues related to tariffs, intellectual property rights, electronic payment, and technological standards require international coordination. Other impediments include obstacles to Web access and e-banking, along with inadequate supply and delivery systems, as well as security concerns. The global e-commerce market for international trade has many obstacles including a lack of coordination among players, payment systems, multiple competing currencies, and technology limitations.

Regulatory and tax structures for e-commerce are not in place. Developing countries have been paying the price of expensive connectivity and lack of access to technology. Once these issues of regulatory and tax structures are resolved, international trade through e-commerce would increase. Nevertheless, many nations are looking for new sources of revenue, and may seek to levy tariffs in global electronic commerce. The World Trade Organization (WTO), OECD, and other appropriate international forums are working to see if global e-commerce can be treated as a tariff-free environment for online products or services.

Legal Framework Issues

E-commerce allows the customers and sellers to interact for any transaction nearly anywhere, crossing borders, cultures, and legal jurisdictions. It may be good news for many since it brings a number of opportunities, but many governments worry that it can lead to many other issues including access to pornography, fraud, libel, gambling, consumer protection, defense of intellectual-property rights, and taxation. Policy makers in these countries have to think about how to tackle some of these problems. Internationally, the United Nations Commission on International Trade Law (UNCITRAL) and other appropriate international bodies like the bar associations must come forward to determine an appropriate framework for encouraging governmental recognition, acceptance, and facilitation of electronic communications (i.e., contracts, notarized documents, etc.) for international contracts in electronic commerce.

Absence of Cyber-Laws

Many countries, including developed nations, are also still grappling with cyber laws. The Cyber Law Bill is getting passed in a few developing countries like India, Singapore, Malaysia, and China. For most developing countries, cyber laws do not exist. While lack of a legal framework under which Internet transactions take place is a real impediment, it is not going to stall e-commerce. However, to gain full benefits of e-commerce solutions, developing countries need to develop cyber laws that define a legal framework for Internet transactions. Further, it would be helpful if these cyber laws are consistent among different countries.

Security Problems Associated with Net Transactions

Security is seen as another impediment for e-commerce. While it is true that there are vulnerabilities with online transactions, experience shows that it is not a major concern for the users. Since developing countries do not have a strong infrastructure to back electronic payment systems, there is little security concern. The culture of credit cards, ATM cards, or purchasing on the Net has just begun in a few urban pockets and it is quite encouraging that the young generation is keen to go for electronic transactions. Culturally, by their mindset, users still do not believe in electronic transactions because people prefer
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face-to-face transactions to online transactions. As the people change their mindset and start believing in online transactions, security issues are brought to surface.

Intellectual Property Rights (IPR) Issues

The electronic commerce revolution, wherein information is available on a free basis and where much of the information exchange takes place across the borders, raises the issue of how to protect intellectual property rights (IPR). In addition, IPR play an important role in technology transfer and the development of the communications infrastructure in developing countries in the form of foreign direct investment, joint ventures, and licensing. Much of the exchange of information involves intellectual property rights protection. Already, there have been cases of IPR disputes. There have been conflicts of similar trademarks and domain names owned by different parties in different countries. While e-commerce provides more opportunities for free information on the net, it should be able to protect the IPR of the authors and producers. Developing countries need more awareness on these issues since, historically, these issues have not been a matter of concern.

Adequate and effective legal frameworks, therefore, are needed to protect the IPR of sellers and consumers. Sellers should be ensured that their intellectual property will not be stolen and buyers should be ensured that they are obtaining authentic products and services. The World Intellectual Property Organization (WIPO) and other appropriate forums have to work out treaties with different nations to agree on a common guideline (laws and regulations) to protect interest of copyright, patent and IPR. Bodies like WIPO should come forward to ensure that the needed technology transfer to the developing countries takes place in such a way that IPR concerns are addressed.

MARKET ACCESS AND CAPACITY BUILDING ISSUES

Access to open international markets is essential to realize benefits from electronic commerce. Therefore, once the developing countries start offering e-commerce solutions, marketing the products and services would be a challenging task. E-commerce is still perceived either as a mere direct-selling device or simply as a new form of communication. In fact, it should be seen as one of several media to conduct international marketing. Developing countries need to develop and implement effective marketing strategies. Without a critical mass of buyers and sellers, e-commerce would not see the light of day in developing countries (Abeyesekera et al, 1999).

Transfer of Technology

The doctrine of opening markets to developing countries could provide many benefits to developed countries, but developing countries may have to pay disproportional high prices for the needed technologies, products, and services. Although forums like the WTO protect the interests of the nations, developing countries find it difficult to cope up with the aggressive push of those technologies that may change procedures, regulations, cultures, and the role of the governments (Schech, 2002, Sprano, 2000). To ensure the growth of global electronic commerce over the Internet, standards are needed to assure reliability, interoperability, ease of use, and scalability in areas such as: electronic payments, security, public key infrastructure, electronic copyright and patent measures, and data interchange. Numerous organizations have been working to develop standards for the above-mentioned technologies. For the success of electronic commerce, an effective partnership between the governments and private sectors would be helpful.

Presently, developing countries have to rely on technology controlled by developed countries.
Once e-commerce becomes quite common in developing countries, the process of technology transfer will begin automatically. Technology transfer is a slow process and involves several questions related to investment, expertise, government policies, and market access. There may be much give and take between developed countries and developing countries. Developed countries need access to large markets and developing countries need technology. Since both blocks need each other, the technology transfer process will begin. In the beginning, developing countries may attract foreign investments. As time passes, real transfer of technology may take place.

E-commerce technology is maturing and so have the encryption standards that are needed for conducting e-commerce. However, developing countries have to create public key infrastructure (PKI) and Trust and Authentication Services to support e-commerce. Countries, like India, which have already passed the electronic bill to promote e-commerce, have started to set-up government-controlled PKI infrastructures to support e-commerce. Other countries may follow the model since historically all the developing countries have government interventions for developing trust among the users.

**Widespread Illiteracy**

The chances of success of e-commerce revolution depend upon whether the developing countries have enough intellectual capital to develop and utilize e-commerce products and services. Several countries may have intellectual capital in abundance, but those countries lack infrastructure and financial resources. Once the countries decide to create good communication infrastructure with the aid of developed blocks, it becomes mandatory to build a capacity of intellectual human capital.

E-commerce demands that people should have a good knowledge of English. Since English is predominantly used as a medium for Web sites, a working knowledge of English is required. In addition, good technical skills are needed to create content for e-commerce. All these required skills might not be easily available in developing countries. Capacity building for e-commerce skills is therefore crucial. Many researchers predict that future economies will be driven by strong intellectual capital of the countries. The development of electronic commerce, therefore, puts a premium on the development of education and training policies to ensure that the training curricula meet the needs of industry. In turn, the Internet and electronic commerce itself can contribute to the educational process, through distance learning and educational links between universities, specialized private companies offering HRD training, and between developing countries themselves.

This is a special and serious problem for many developing countries. Most of the developing countries continue to suffer from large-scale illiteracy. In many developing countries, these people also suffer from poverty. These two problems are a cause for slow progress of e-commerce. Therefore, developing countries need to find a way to expand their educational programs to reach people who cannot afford education. Since the majority of the people needing such education reside in rural areas, developing countries can effectively use the emerging distance education systems. The open university concept that combines the audio, video, text, and tutoring system used in India for example may provide a mechanism to decrease the level of illiteracy in developing countries and hence benefit e-commerce solutions.

**International Forum for Coordinating E-Commerce Related Activities**

Developing countries need the help of international bodies such as OECD, WTO, WIPO and UNCITRAL to prepare an e-commerce, legal custom, and taxation framework which favors not only the “haves” but also supports the “have nots.”
Identifying Factors for Lack of E-Commerce in Developing Countries

Developing countries have a huge potential for e-commerce and they have large markets to offer to the developed countries. Market access is another issue that requires attention of international bodies to resolve. All these issues, including electronic payments, legal commercial code, intellectual property, copyright and trademark, privacy and security, and market access need resolution and developing countries should get favor of “haves”. The taxation of electronic commerce, in “virtual goods,” such as information, services, and physical goods is a complex issue. Trade and tariffs for goods and services delivered through electronic commerce channels may be differentiated from physical goods purchased through the Internet and delivered by traditional methods.

Many developing countries have the advantage of skilled manpower that is currently not utilized well. However, this strength, if used strategically can provide leverage in the age of knowledge driven businesses. In addition, developing countries have to protect their small and medium-sized enterprises (SMEs) because the entry of foreign companies into local markets may eat away not only the local markets but may also be a threat for the existence of SMEs. Several UN and inter-governmental agencies are presently addressing the above issues related to e-commerce. Developing countries can use these inter-governmental agencies to seek help solve their problems and thus enhance the benefits of e-commerce solutions.

GOVERNMENT POLICIES, LIBERALIZATION AND DE-REGULATION

Developing countries need domestic reforms to create infrastructure that is owned by private parties. So far many of the countries have infrastructure owned by government that has its own limitation for the growth of e-commerce and international trade. The liberalization and de-regulation initiatives taken by the governments should be aimed at supporting growth and integration with the global economy. The reforms may reduce licensing requirements; make access to foreign technology and investment easier and removed restrictions on investment. While there are currently no explicit trade barriers on electronic commerce, the infrastructures that make electronic commerce possible are still burdened by a myriad of trade and investment barriers. The growth of electronic commerce depends on continued liberalization of these infrastructures, many of which are already part of WTO commitments. E-commerce growth would also depend the political stability in that country. Political stability is the key to foreign direct investments for building e-commerce infrastructure particularly in those countries where infrastructure is weak and there are not enough funds to develop. Many countries such as China, India, Philippines are still in the transition from a planned to a market economy.

Developing countries should encourage private sector investment by privatizing government-controlled telecommunication companies. They should create competition by inviting foreign investment to government-controlled telecommunication set-ups, and by ensuring telecom connectivity at affordable low prices. They should create a regulatory framework that is pro-competitive and matches state-of-the-art technology. Governments, with the help of bodies like WTO and ISO, should be able to take proactive steps to influence Internet pricing, service delivery options, and technical standards.

Governmental Control & Policies

Legal and taxation issues are very important because they involve governments when formulating economic and financial policy. Each country would like to devise these policies in order to utilize them for competitive advantage. If developed countries drive these issues, then
the very role of government would be questioned. These countries need to set up a fiscal and legal framework to promote e-commerce through several initiatives ranging from EDI for improving trade logistics, to education and training, setting up portals, cyber Cafes, software technology parks, and smart cities. Most of the developing countries have a long history of strong government-controlled markets so it is a much tougher task to convince the bureaucracy to release control to private parties.

Developing countries have special challenges and responsibilities to create a policy environment that on the one hand allows for the development of e-commerce and on the other ensures the social objective of providing access and benefits for those who cannot afford it. Electronic governance, public Internet terminals, rural access at subsidized cost, and e-awareness are some of the initiatives that must be considered and promoted.

The government of these countries must face many challenges to promote e-commerce. Economic liberalization is a painful exercise because it destabilizes many conventional structures and practices (Mann, 2000). Governments find it difficult to sustain the transition of the economy. E-commerce would certainly help to develop more trade. It may also indirectly help to raise education and health standards. E-commerce has an inherent strength to bring customers and sellers together. This provides opportunities for more choices and more markets even to those citizens who live in rural areas and are isolated in road and rail connectivity. Once people start accessing this medium, it provides a greater opportunity for people to have dialogue with their government on a regular basis thus improving the democratic process itself. E-commerce also offers opportunities to entrepreneurs to participate in creation of knowledge-based economies.

To realize the benefits of e-commerce solutions, the government of a developing country needs to take the following steps.

- Prepare appropriate transparent regulatory frameworks for promoting technologies, foreign investments, and trust.
- Formulate transparent and competitive telecommunications policies.
- Safeguard the interest of local trade and industry and create an atmosphere of competition.
- Reduce controls and regulations.

Governments should ensure and assess whether e-commerce has resulted in better information and delivered better goods and services to consumers.

**Business Practices Issues**

Each country has its own business culture (trust, ethics, practices) and business practices that are used to deal with customers and suppliers within the country (Hofstede, 1980, Straub, et al., 2002). In e-commerce, borders and boundaries are meaningless. Therefore, the managers have to prepare themselves differently to handle issues of access, trust, security, digital contracts, and guarantees. On the one hand, there may be opportunities for new alliances but on the other hand, there may be dangers for breaking existing alliances and practices. There are predictions that major volumes of businesses will come from the B2B (Business-to-Business) model of e-commerce that may provide opportunities for alliances to SMEs. But SMEs that lack technology standards and quality would find themselves out of business. Business communities may again look towards the government to set up standards, laws, and policies that may conflict with international trade policies. Developing countries have to go for capacity-building infrastructure to support e-commerce. Trust plays an important factor to promote e-commerce. Since the entire transaction is done electronically, many customers may be concerned about quality of products and services that they will receive from e-commerce solu-
tions. Questions are raised about what happens if products received are not as expected? Will the sellers replace the faulty products? Will customers trust sellers and vice versa? Presently, developing countries do not have national certifying authorities to break the trust barrier.

CUSTOMER BASE

E-commerce, for its viability, requires a critical mass of customers and suppliers. Due to the lack of infrastructure and affordability, a very small population has access to the Internet. The computer penetration and Internet penetration, as well as credit card and online payment facilities, are lacking in many developing countries. Also, there are very few consumers within the countries as consumers come mostly from developed countries with modern ICT and financial infrastructures (E-commerce and Development Report 2001). According to Michael Porter, one of the key factors to a country’s strength in an industry is strong customer base (Porter, 1985). However, in the case of developing countries, the domestic market overall is fairly weak and the countries do not have a strong customer base. In addition, the absence of a strong domestic market hinders to the growth of competition that lacks innovation and competitive pricing.

RECOMMENDATIONS AND CONCLUSIONS

E-commerce has indeed been an impetus to globalization. One great attraction to globalization through e-commerce is the high speed and low cost of achieving a global presence. Many countries are taking initiatives for e-commerce and replacing the old systems with new ones. These transaction systems and the emerging extranets for purchasing and accounting integrate better with the new e-commerce systems to deal more efficiently with a firm’s partners, customers and suppliers. This is helping the developing countries to make quicker and better business decisions for improving their economy. There is no simple way to create a global IT system or global business practice, because every country has its own rules and cultural practices. Although, every country has initiated the process of e-commerce, developing countries still lag far behind.

E-commerce, in developing countries, is still not considered a significant market driving force. Firms, in developing countries, have Internet-related constraints. Among them are telecommunications infrastructure gaps, the need to develop more local sites, translation (English is still the dominant language on the Internet) challenges to adapt existing laws to this new medium, and higher costs for installation and access. E-commerce applications are underway in developing countries, but telecommunications and banking infrastructures remain key challenges to meeting the potential of this medium. Logistics, trust, and marketing strategies are other concerns which developing countries need to resolve. Also, people are grappling with basic needs of food, water, clothing, housing and health. The prevailing notion in these countries is that e-commerce is for wealthy people and not for everyone. The general population remains, by and large, unaware and unaffected by it. The reality of limited and undependable connectivity, of course, seriously hampers its growth. Based on our discussions in this chapter and identification of the opportunities and challenges facing the developing countries preparing to offer e-commerce solutions, we recommend the following actions.

• Increase telephone density and widen telephone coverage nationwide - expand the telecommunications infrastructure across all urban and rural areas.
• Increase IT awareness - introduce computer courses in schools, colleges and universities. Train the manpower - create an IT labor force and make every citizen an IT literate.
Identifying Factors for Lack of E-Commerce in Developing Countries

- Create a good backbone telecommunication infrastructure to support e-commerce - satellite, fiber optics, wireless, and digital technologies network.
- Market liberalization - deregulation of government ownership, provision and direct operation of telecommunications infrastructure and services.
- Create a legal framework to permit and promote more electronic-based transactions.
- Allow a certain extent of foreign direct investments.
- Modify export and import formalities and customs clearance procedures to remove the regulatory impediments to physical delivery of goods ordered online.
- Develop financial network and banking to support online payments.
- Recognize legally digital signatures for electronic transactions. Change laws to support online transactions.
- Create a legal framework for protecting IPR, copyrights, and patents.

To make e-commerce the mainstream for business and social development is a mammoth task facing the developing countries. Future research should focus on developing easy solutions to the emerging issues and challenges and the actions items listed above so that developing countries can reap the benefits of e-commerce.

REFERENCES


