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Barriers to ecommerce in developing countries

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Abstract

Electronic commerce (EC) has the potential to improve efficiency and productivity in many areas and, therefore, has received significant attention in many countries. However, there has been some doubt about the relevance of ecommerce for developing countries. The absence of adequate basic infrastructural, socio-economic and the lack of government national ICT strategies have created a significant barrier in the adoption and growth of e-commerce in developing countries. The study shows that, in order to understand the adoption and diffusion of ecommerce in developing countries, cultural issues need to be considered. In this paper, we present and discuss these issues hindering e-commerce adoption in developing countries.

Keywords:
Developing countries, e-commerce, internet, technology, information technology

Introduction

The number of Internet users around the world has been steadily growing and this growth has provided the impetus and the opportunities for global e-commerce. The literature describes the Internet and ecommerce as an essential part of the development process (Kole2000; Hoffman, 2000). However with Internet, different characteristics of infrastructural, socioeconomic and socio-cultural have created a significant level of variation in the adoption and growth of ecommerce in developing countries.

E-commerce has been predicted to be a new driver of economic growth for developing countries, (Humphrey et al., 2003). The opportunities offered by Internet technologies, a necessity for ecommerce has led many to believe that e-commerce will grow rapidly and help developing countries to overcome their problems of exclusion from the world economy and improve the terms of their participation (Odedra-Straub, 2003). It does present great opportunities to business organizations in developing countries to gain greater global access and reduce transaction costs (Kraemer et al., 2002; Humphrey et al., 2003). However, previous research has

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found that developing countries have not derived the expected benefits from e-commerce (Pare 2002, Humphrey et al. 2003). Consequently, there is still doubt about how e-commerce will actually lead firms in developing countries to new trading opportunities (Humphrey et al. 2003; Vatanasakdakul et al, 2004).

The obstacles to reaping the benefits brought about by e-commerce are often underestimated. Accessing the Web is possible only when telephones and PCs are available, but these technologies are still in very scarce supply. In addition to this problem, Internet access is still very costly - both in absolute terms and relative to per-capita income - in most developing countries. While PC prices have fallen dramatically over the last decade, they remain beyond the reach of most individual users and enterprises in developing countries (Odedra-Straub, 2003).

Add to this, the human capital cost of installing, operating, maintaining, training and support, the costs are beyond the means of many enterprises in developing countries. There are significant disparities in the level of Internet penetration across regions, which have profound implications for an individual country's ability to participate in ecommerce. Moreover, skilled personnel are often lacking, the transport facilities are poor, and secure payment facilities non-existent in many countries (Odedra-Straub, 2003).

Other than the insufficient physical infrastructures, the electronic transaction facilities are deficient and the legal and regulatory framework inadequate. Most consumer markets face severe limitations in terms of connectivity, ability to pay, deliveries, willingness to make purchases on the Web, ownership of credit cards, and access to other means of payment for online purchases and accessibility in terms of physical deliveries. Moreover, the low level of economic development and small per-capita incomes, the limited skills base with which to build e-commerce services (Odedra-Straub, 2003).

While many developing countries have abundant cheap labour, there still remains the issue of developing IT literacy and education to ensure the quality and size of the IT workforce. The need to overcome infrastructural bottlenecks in telecommunications, transport system, electronic payment systems, security, standards, skilled workforce and logistics must be addressed, before ecommerce can be considered suitable for developing countries (Odedra-Straub, 2003).

This paper examines the barriers hindering e-commerce adoption and diffusion of ecommerce in developing countries. It seeks to identify and describe the technological infrastructure, socioeconomic, socio-cultural and governmental policies environments that hinder the adoption and diffusion of ecommerce in developing countries. The infrastructures in developing countries are not as developed as they are in developed countries, and these infrastructural limitations are significant impediments to e-commerce adoption and diffusion in developing countries.

Developing Countries: a scan of diverse context

It is often stated that developing countries are at the receiving end of technological development particularly in the areas of industrialisation, information technology and military science. By developing countries, we refer to newly emerging and post-colonial economies of Africa, Asia, South America and Pacific regions – arguably referred to as ‘Third World’, ‘Less Developed States’ or ‘the Global South’. These countries are often are often associated with negative indices such as poverty, insecurity and instability. The developing world constitutes a group of countries that do not make up ‘industrialised capitalist democracies’ of Europe and North America. This includes countries of Africa, Asia, Latin America and Pacific region who share common (often negative) structural and historical characteristics such as colonial experience, weak industrial base, failing economies, military interventions, mutinies, domestic insurgencies, civil wars, inter-state skirmishes and, in extreme circumstances, 'state collapse'. However there are exceptions: some so-called developing countries (such as China, India, Brazil) are catching up with developing and shedding their known stereotypes.

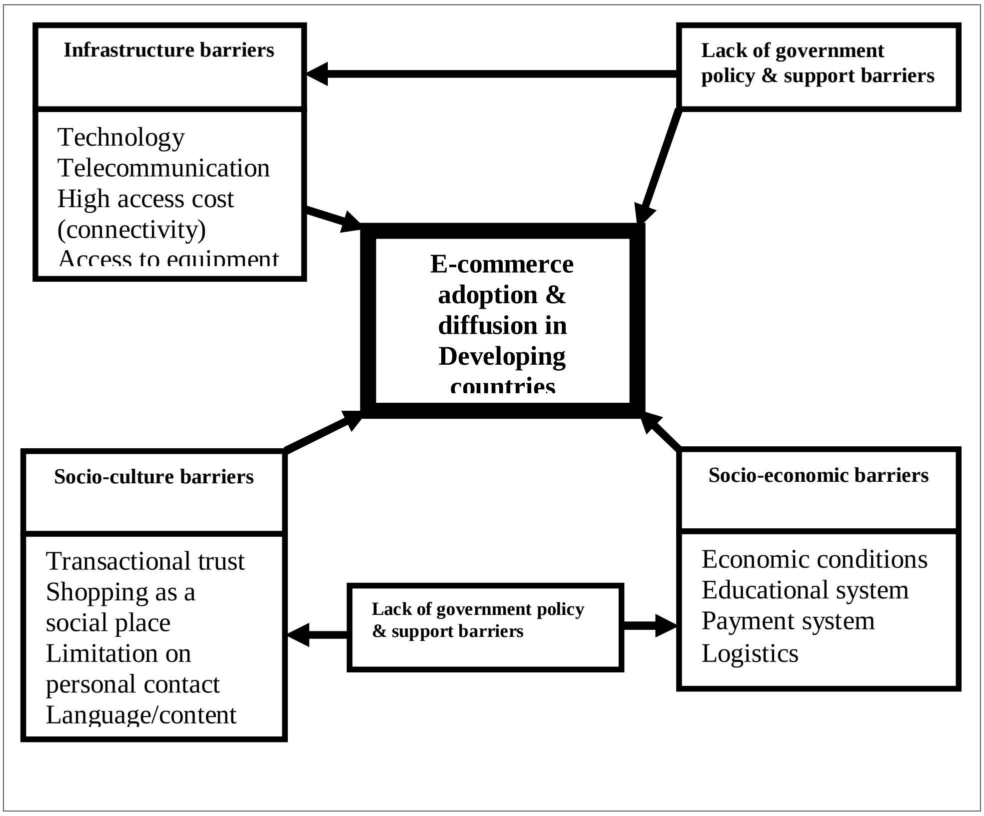
Unlike most developed societies which are largely 'homogeneous' (e.g. Europe where countries and peoples share a lot in common racial make-up and historical experience), the developing world is phenomenally 'heterogeneous' in terms of political systems, economy, ideology, demography, culture, race and so on. For instance, while most states in the developing world experienced European colonial conquest and annexations during the 19th and 20th centuries, a few states – such as Ethiopia and Liberia in Africa, and China in Asia – were not subjected to such conquest. In terms of political systems, developing countries have adopted a wide range of systems that defy linear categorisation – democratic (Botswana, Malaysia and South Africa after 1994); authoritarian (Myanmar); monarchical/Sultanic (Saudi Arabia, Jordan, Morocco, Lesotho); socialist (China, Cuba, North Korea) etc. Furthermore, in terms of demography, a sharp contrast exists, for instance, between India with a population of 1.9 billion and Saudi Arabia with a population of only 25 million.

Nevertheless, despite these dramatic differences, the developing world does share some important common characteristics. For instance, most states face crises of governance, extreme poverty, high population growth, political instability and structural dependence on the industrialized countries of Europe and North America. Still, most states are endowed with abundant natural and mineral resources, even though such resources have not been translated into development. Together, developing countries face enormous challenges of fighting the huge developmental gap between themselves and the wealthy capitalist nations – e.g. by forming South-South alliance and forging a common front in global political forums such as the World Bank, International Monetary Fund, World Trade talks etc. This reality is underpinned by the advent, particularly since the late 1980s, of donor-inspired structural adjustment and political liberalisation exerting pressures on state elites to adopt democratic reform, observe 'good governance', and guarantee human rights and allow the efflorescence of civil society (pro-democracy NGOs, civil liberty and environmental movement). Thus the developing world is a scene of real and potential anarchy, economic deficiency, and technological deficit. However, it is also characterised by profound change and transformation.

Barriers hindering e-commerce adoption in developing countries

The study identified specific infrastructural barriers hindering the adoption of e-commerce in developing countries. There is a wide range of reasons why ecommerce adoption in developing countries is hindered, see figure 1 for a framework of barriers hindering ecommerce adoption in developing countries. Reasons vary widely among countries and are most commonly related to these: enabling factors infrastructure (technology, network availability of ICT skills, qualified personnel); cost factors (costs of ICT equipment and networks); and security and trust factors (uncertainty of payment methods, and legal frameworks), poor distribution logistics, "lack of feel-and-touch associated with online purchases", "problems in returning products (OECD, 2004).

Figure 1: Framework barriers hindering ecommerce adoption in developing countries



Infrastructural barriers

The study identified specific infrastructural barriers hindering the adoption of e-commerce in developing countries. Some of the barriers include lack of credit cards (the wide availability of them for the general public in developing countries) and convenient payment means, poor distribution logistics, lack of specialized, trust-worthy online merchants of reasonable size, imperfect legal system, and lack of large scale telecommunication transmission capability (broadband), Internet security", "lack of feel-and-touch associated with online purchases", "problems in returning products", and "selection" (product availability and breadth).

Technology

There are serious infrastructural hindrances in developing countries. We identified various infrastructural characteristics as barriers hindering ecommerce adoption in developing countries. Among the most pressing infrastructure limitations are access to technology (computers, connectivity, and gateway to Internet), limited bandwidth, which reduces the capacity to handle audio and graphic data; poor telecommunications infrastructures (most of which are still analogue and can only transmit voice) and unreliable electricity supply.

Telecommunication (network)

The Internet connection in most developing countries is unreliable because of the poor telephone communications and the erratic power supply. The majority of developing countries are not ready for ecommerce, because of their lack of network infrastructure especially among individual users and entrepreneurs. E-commerce success relies heavily on a number of technology infrastructures. Telecommunication infrastructures are required to connect various regions and parties within a country and across countries. In the absence of an adequate basic infrastructure, it is possible that the potential advantages of the use of electronic commerce turn into disadvantages. In the case of telecommunications for example, where the infrastructure is not at the same level of development in all regions of the world, access to the Internet in most developing countries is very slow and expensive.

In most developing countries, outmoded and unreliable telephone connections in many countries result in narrow bandwidths offered by many ISPs, with consequent low connections. A weak telecommunications infrastructure can cause a concentration of the technology in urban areas, which makes the participation of rural users more difficult. The predominant model for pricing local calls in many developing countries is the measured service. In other words, the cost of use increases in proportion to the duration of the calls. These costs inevitably affect the use that users can make of the Internet as well as the business model that they will adopt based on its use. Flat-rate ISP pricing and affordable leased lines still do not exist in most developing nations.

Broadband connectivity is a key component in ICT development, adoption and use. It accelerates the contribution of ICTs to economic growth, facilitates innovation, and promotes efficiency. The development of broadband markets, efficient and innovative supply arrangements, and effective use of broadband services require policies that: promote effective competition and continued to stress liberalisation in infrastructure, network services and applications across different technological platforms (OECD, 2004).

High access cost

The cost of the Internet access makes it inaccessible to most users in developing countries. The cost of accessing the infrastructures also influences the growth of ecommerce. The priority for most developing countries is to put in place the necessary infrastructure and a competitive environment and regulatory framework that support affordable Internet access (OECD, 2004). The monthly connection cost of the Internet far exceeds the monthly income of a significant portion of the population.

The availability of a wide range of Internet connections and other communication services, preferably at competitive prices, may affect citizens of developing countries' decisions to adopt ecommerce and allows users to choose different and appropriate services according to their specific needs (OECD, 2004) and expectations from on-line activities. Broadband faster speeds improve the overall on-line experience for both individuals and businesses, encouraging them to explore more applications and spend more time on line.

Internet access prices are a key determinant of Internet and ecommerce use by individuals and businesses. Countries with lower access costs typically have a greater number of Internet hosts, and electronic commerce has developed rapidly in countries with unmetered (flat-rate) access. The basic network infrastructure must be in place for developing countries to participate in global ecommerce, although the development of reliable fixed communication networks is an important policy area for e-commerce, especially in the developing countries.

Access to computer equipment

There is still a low level of PC penetration and the cost of Internet access is too high. Majority of developing countries'population lacks the income required to have telephone services, especially the low-income and rural populations (OECD, 2004). The cost of computers and Internet connectivity far surpasses the monthly wage of the average person in developing country (US Internet Council, 2000). For example, average person in developing country neither owns a computer nor has access to a computer connected to the Internet. The prohibitively high cost of computer equipment is seen as one of the barriers to the wide use of computers. Without computers, one cannot have Internet access. The lack of computers at the individual as well as at the organisational level therefore becomes a major barrier to accessing the Internet and participating in e-commerce. A combination of these costs and the high fees charged by telephones companies both contributed to discouraging Internet connectivity in developing countries and their participation in ecommerce. The necessary infrastructure for such widespread usage simply does not yet exist. Before computer technologies and the Internet in particular, can be used to assist developing countries to overcome their problems, the necessary infrastructure and deregulation need to be firmly in place. However, even with access to the necessary equipment, users will not become active ecommerce participants unless they have reasonable confidence in the integrity of transactions undertaken on- line. The presence of an adequate Internet infrastructure is a necessary but not sufficient condition for the development of ecommerce (Oxley and Yeung, 2001)

Socio-cultural barriers

Most cultures in developing countries do not support ecommerce and the conditions are not “ripe” because of lack of confidence in technology and online culture (Efendioglu et al, 2004). The social and cultural characteristics of most developing countries and the concepts associated with online transaction pose a much greater challenge and act as a major barrier to adoption and diffusion of ecommerce. Even though online transaction that are pre-cursors to e-commerce, such as catalog and telephone sales, have existed in developed countries and have been used by the public for an extended time period (Efendioglu et al, 2004), such systems are new and novel approaches in developing countries and is not suitable to the culture and way of doing business. Since the business foundation of ecommerce is based on such a methodology, some of these local cultural characteristics do pose significant challenges for the e-commerce adoption. We identified various socio-cultural characteristics as barriers hindering ecommerce adoption in developing countries. Among the most pressing primary cultural barriers are level of trust in institutions, shopping as a social place, limitation on personal contact and language/content.

Transactional Trust (ordered goods will arrive, payment will be made)

E-commerce is a radical behaviour that goes contrary to experience and culture. The move to electronic commerce challenges many of the basic assumption about trust. Confidence and trust is an essential requirement for secure electronic trading. The question of trust is even more prominent in the virtual world than it is in the real world. The geographical separation of buyers and sellers, often coupled with a lack of real-time visual or oral interaction, creates a barrier to ecommerce adoption in developing countries.

Contracts are expected to change and promises may be broken; a strong individual relationship is often the only indispensable ingredient that is required for the implementation of a contract. Counterfeiting and distribution of below products is a major problem and further aggravate this lack of transactional trust between parties who do not know each other personally and separated by distance and technology.

The sheer number of people conducting business on the Internet becomes a deterrent. When you find potential partners, do you trust these sellers or buyers to be reliable, their products to have satisfactory quality, and payments to be truthfully carried out? There is no “western honour system" in most developing countries (Efendioglu et al, 2004). In the developing world, trust is established and reinforced through family association, repeated personal contact and interaction. The transactional trust and related issues are barriers for conducting online transactions but, are also amplified as a result of cultural characteristics and prevailing legal system.

Developed countries have devised ways of extending the basis for trust through the impartial enforcement of the law and its adaptation to a new technological environment. This is the basis of trust that underpins ecommerce in the developed world. Where legal and juridical institutions are underdeveloped in developing countries, businesses find themselves at a disadvantage because of insecurity, whether real or perceived. Most users in developing countries are not willing to provide sensitive financial information over the Web. The reluctance to entrust sensitive personal information like credit card numbers to businesses operating on the Web remains strong in developing countries.

The lack of a satisfactory redress mechanism in the event of a dispute may strongly hinder on-line transactions (OECD, 2004). Eurostat figures clearly show that legal uncertainties constitute, at least in some countries, a significant barrier to the adoption of e-commerce by entrepreneurs. Legal uncertainty concerning contracts, terms of delivery and guarantees was mentioned as an important barrier to e-commerce purchases.

Shopping as a social place

In developing countries, shopping is seen as a social place where friendly conversations between the vendor and the customer. The success of doing business depends heavily on the quality and sometimes the quantity of personal relationships. A strong individual relationship and long term association between the parties provide a sense of community and enhances social bonding. Most of the business is conducted through small enterprises and it is local. A typical company in developing country is a socio-economic entity and not just a pure economic one.

Limitation on personal contact

The adoption of e-commerce depends on the cultural and social environment. In most developing countries, people consider shopping as a recreational activity (Boerhanoeddin, 2000). The idea of buying goods that one cannot see and touch and from sellers thousands of miles away may take some "getting used to" for those who are used to face-to-face transactions, familiarity with the other party, (strong individual relationship and long term association between the parties), and getting satisfaction from winning business negotiations (they are willing to employ a variety of tactics to get the best deal). As one person stated "I like buying over the Internet, but it does not beat going to an actual shop where you can see what you are buying and make sure it's what you want" (Lawrence, 2002). All of these long standing cultural traits are undermined by and are contrary to the depersonalization associated with ecommerce and business systems designed to sell products online.

The interpersonal relationships with people located at a distance when shopping online is an alien culture to most people in developing country. The face-to-face contact is irreplaceable, you can't replace going to see people; you can't beat having face-to-face interaction for selling or buying products. The limitation on personal contact as a barrier to ecommerce adoption is a reflection of people in developing countries that prefer more direct and individual contact with their merchants (Lawrence, 2002). In developing country, there is still a suspicion of technology that is perceived to destroy their culture and way of life. It is argued that the decrease in human interaction with customers could lead to less understanding of the customers needs, as they are not always able to express comments, criticisms or request for new products while interacting with machines. Most entrepreneurs in developing country rely substantially on personal contact to build confidence with their customers, particularly when the relationship is in the establishment phase.

Language / content

Language is another important hindrance to ecommerce adoption. Language has been identified as a socio-cultural barrier that hinders both access to information and to the Internet and participation in ecommerce. Most people in developing countries are illiterates and uneducated people tend to have limited access to access information on the web because information is either in a language, which assumed some degree of education. The less educated and illiterate could not read nor understand the languages that are used to disseminate information on the Internet. Therefore, many people are unaware of how their quality of their lives and their incomes could be improved by skilful use of computer technologies such as the Internet and on-line trading. The issue related to language is important because it is a gateway of information and knowledge transfer in the digital world. English is a primary language used in many Western countries where new technologies originate. It is the predominant language for development of IT and ecommerce and it is the main language used on the Web.

Socioeconomic Barriers

Developing countries need to address a number of socioeconomic and regulatory barriers before they can participate in electronic commerce. We identified various socioeconomic characteristics as barriers hindering ecommerce adoption in developing countries. Among the most pressing are economic condition, educational system, payment systems for enabling transfer of funds, and distribution systems for physical transfer of goods

Economic Condition

Economic condition in developing countries is widely recognized as a major hindrance for ecommerce adoption. The GDP and income per capita are common indicators for the economic condition of a country. Since ecommerce relies on some technology infrastructures which are relatively expensive for many developing countries, and they have unfavourable economic condition and are not likely to be involved in ecommerce. For example, the initial and continuing cost of Internet access has dropped in recent years, but it remains a significant barrier to ecommerce adoption in developing countries. Consequently, large “entry” and on-going costs are a great disincentive to internet usage and therefore to the development of ecommerce business both within a country and for international trade.

The access charge relative to income affects Internet use. Monthly Internet access charges are still very high in most developing countries. The inequalities in income distribution means the Internet is not affordable for a large proportion of the population in rural areas. The common pattern found across developing countries is the dichotomy between the urban and rural areas in terms of technology use. In urban areas, ICT use is fairly common; while in the rural areas of some developing countries, many small enterprises do not even have computers yet, talk less of Internet access.

Educational system

The poor state of educational system in most developing countries is seen as barrier to ecommerce adoption. Lack of ICT skills and business skills are widespread impediments to effective adoption of ecommerce. The lack of appropriate IT education is perceived to be a reason why the potential value of computers and the Internet as a means to participate in ecommerce is not appreciated. In most developing countries, school curriculum does not include computer education. There is a need for early computer education so that people could become computer literate in school. It is argued that computer literate populations have greater potential to appreciate and participate in ecommerce. If the Internet is to be of any real benefit to developing countries, it must focus primarily on the needs and problems of the majority of populations (i.e. those who are traditionally deprived of education and opportunities for personal and community development). People would have to be comprehensively trained and educated before they could benefit from the advantages offered to them by the Internet and ecommerce.

Payment System

The availability of credible payment channels such as credit cards. An institutional environment that facilitates the building of transactional integrity is critical to the development of ecommerce in developing countries (Oxley and Yeung, 2001). This infrastructure makes payment over the Internet possible (through credit, debit, or Smart cards, or through online currencies). It also makes possible the distribution and delivery (whether online or physical) of those products purchased over the Internet to the consumer. Its growth further requires the establishment of reliable and secure payment infrastructures to avoid frauds and other illegal actions. A supportive electronic payments infrastructure is crucial to promote ecommerce, which exposes a key link between ecommerce and the financial foundation of the economy. The efficiency of the payments system itself can help or hinder the development of ecommerce.

Few people in developing countries have credit cards, most banking sectors in developing countries lack a national clearing system and potential customers are suspicious of being cheated (Efendioglu et al, 2004). In most developing countries users may be unable to purchase online because credit cards are not accepted without a signature. Additional confirmation via fax is necessary to complete the payment. In addition, in the case of fraud, the credit card holder and not the issuer bears the loss, which makes the customer reluctant to provide information and to use credit cards in an environment where the privacy and security issues are not guaranteed. Beyond individual transactions, full efficiency and realization of the benefits of ecommerce depends on rapid authorization, payments, and settlement of accounts. Many developing countries do not have financial institutions or central bank payments mechanisms that are up to this task.

Logistics (speed and timeliness of delivery)

Ecommerce relies on efficient logistic infrastructures within a country. In most developing countries, logistical changes need to occur in order to create an appropriate environment for the effective participation in ecommerce. Inefficiencies in essential services such as postal service along with delivery required in an international transaction can frustrate the success of the transaction itself.

The distribution and delivery systems are key components to developing ecommerce. It is not sufficient to have a name and a product to adopt ecommerce successfully. It is also necessary for an enterprise to have in place the distribution and delivery channels capable of meeting customer expectations. Speed is one of the most important manifestations of ecommerce. Overnight delivery, just-in-time processing, 24/7 operations all are examples of how much faster and more precisely timed economic activities are in the ecommerce world.

The inefficient distribution and cumbersome delivery systems and the lack of good transport, and postal system are primary obstacles to the growth of electronic commerce in developing countries. There is a very important link between the effectiveness of the distribution and delivery systems and the incentives for the private sector to innovate and invest in new technology. For example, suppose the private sector spends money on internet technologies, but cannot get products to customers because of distribution and delivery barriers. Burdensome customs procedures can also further hinder the seamless fulfilment of a cross border e-commerce transaction.

Political and Governmental Barriers

The poor state of most developing countries telecommunications infrastructure is the major barriers hindering the adoption of ecommerce. The lack of telephone lines, low quality, slow speed and high cost of bandwidth and security concerns needs to be addressed before users and enterprises in developing countries can think of participating in ecommerce. Most developing countries do not have ICT policies to guide the provision of Internet services. No progress is possible in the absence of clear policies and the determined implementation of such policies. The lack of a policy to guide ecommerce expansion in developing countries is a major hindrance to the adoption of ecommerce. Government initiatives are important in the adoption of ecommerce and other ICT in general. They can be in terms of promotion of ICT usage, education and the establishment of adequate regulatory framework for ecommerce. Competition, both for telephone access as well as among ISPs is a key area where government policy can make a difference in access and adoption of ecommerce.

It is very crucial in developing countries Governments to ensure open and competitive telecommunication markets that offer a range of interoperable technological options and network services (particularly broadband) of appropriate quality and price, so that users can choose among various technologies and services for high-speed Internet access.

Other issues that are seen as barriers to ecommerce adoption are free trade, the monopoly which national governments exercise over national telecommunications, import duties on IT equipment like hardware and software. The elimination of control and deregulation of telecommunication systems is necessary before a free flow of information and an expanded use of ICT is possible.

Changes in government policy are perceived as being critical to creating an environment for the broad use of the Internet in many sectors of developing countries. The commitment and participation of Government in Internet service provision and the reduction of import duties will lead to the reduction of costs which will in turn make equipment more affordable and encourage connection to the Internet.

Most countries still need to deregulate the telecommunications industry. They also urgently need to formulate information policies that will provide a framework for efficient, widespread and cost-effective use of the Internet. The conditions in most developing countries are sadly not conducive to the widespread, cheap and effective use of the Internet by the majority of citizens.

There is neither a government policy on Internet provision or on the future of ecommerce in most developing countries nor any comprehensive information policy. The absence of national information policies in developing countries means that the government is not involved in

Internet provision.

Conclusions

The Internet is not yet a universally accessible resource in developing countries. Most countries lack the necessary policies and infrastructure that would enable widespread usage of the Internet. In spite of the fact that the necessary conditions for supporting Internet usage are not in place in most developing countries. The Internet has enormous potential as a tool for development.

The extent of adoption is hampered by a ranges of obstacles including the unavailability and/or unreliability of infrastructure, the absence of government policy frameworks, the lack of banking facilities and amenities (such as credit cards), and ignorance on the part of possible users about the enormously beneficial potential of ecommerce. The level of education, the availability of IT skills, the level of penetration of personal computers and telephone within the society hinders adoption of ecommerce.

Despite the limitations of most developing countries, it appears that ecommerce is indeed relevant to developing countries, despite the current limitations with the existing infrastructure and other issues related to the economical and socio-cultural conditions. Ecommerce can be an extremely beneficial tool in developing countries provided that certain problems are resolved and provided that the governments of developing countries demonstrate that they have the political will to remove the barriers that currently stand in the way of widespread adoption.

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