ELECTRONIC COMMERCE IN ASIA

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The concept of electronic commerce (e-commerce) is not new. However, the rapid rise of the Internet has made the potential of e-commerce more promising. It is now widely stated that the Internet and e-commerce will transform traditional business and consumer life. By one estimate, Internet-based sales reached US$ 43 billion in 1998. There is no lack of forecasts of the future size of e-commerce markets. Many analysts expect online business to be worth more than US$ 300 billion early next decade while the more optimistic estimates range between US$ 1 trillion and US$ 3 trillion. It has been suggested that by the end of 1998, the United States—the leading e-commerce market—entered an e-commerce build-out period of up to two years, after which ten years of hypergrowth will follow.

What does this mean for developing countries? The rapid growth in industrialized countries could be argued to be widening the gap between "information haves" and "haves nots". On the other hand, Internet enhances the possibility for developing economies to participate in the emerging digital economy. Even though the full impact of e-commerce is still difficult to predict, Internet-based electronic commerce is likely to significantly promote economic growth and welfare in developing countries. New export opportunities should attract new foreign and domestic investment and thereby enhance growth. E-commerce will not only enable developing country businesses to participate as vendors in the global electronic market, but it will also allow them to buy goods and services from the developed world in ways that were earlier impossible.

Figure 1: E-commerce projections
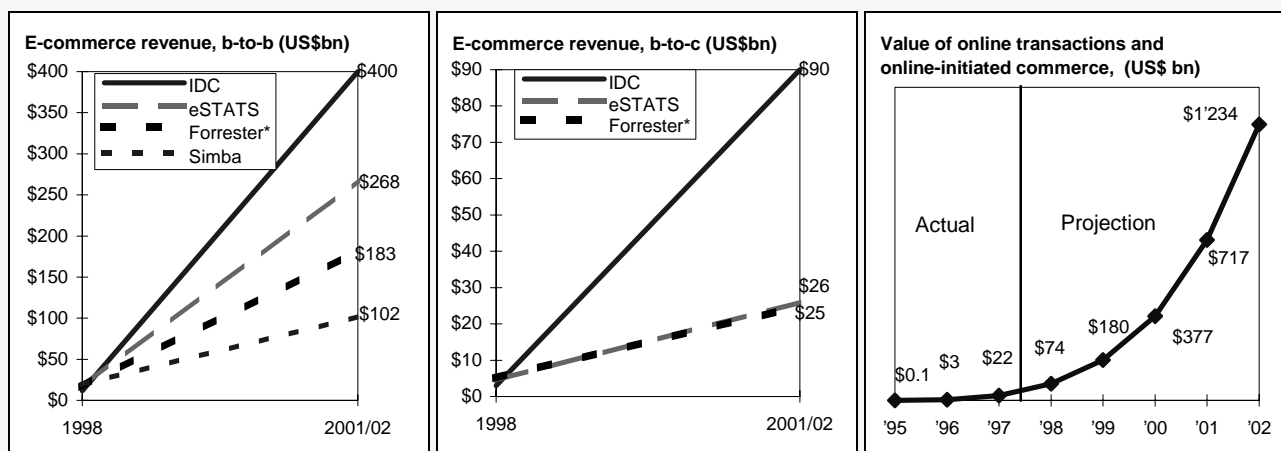
Note: "b-to-b"= business-to-business; "b-to-c"= business to consumer. * Forrester's revised projections (not included in the charts) of November 1998 estimate that worldwide Internet Commerce will be between US$ 1.4 trillion and US$ 3.2 trillion in 2003, or as high as 5 per cent of all global sales.

Source: IDC <http://www.idc.com>, eMarketer (eStats) <http://www.emarketer.com>, Forrester <http://www.forrester.com>, Simba Information Inc. <http://www.simbanet.com>. Right chart, ActivMedia, <http://www.activmedia.com>.

The reporting on Internet-based electronic commerce has tended to distinguish between two broad categories: business-to-business and business-to-consumer sectors.

Business-to-Business (b-to-b). Although most current analysis deals with the business-to-consumer sector, the business-to-business sector is reported to be growing faster and to have greater potential. Some have suggested that 70 to 80 per cent of online commerce is carried out between businesses. Business-to-business e-commerce includes, for instance, a firm and its suppliers who use a common network for ordering,

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payment and monitoring of shipment. Until recently much of this activity was carried out over private networks using Electronic Data Interchange (EDI).

More recently, with the rise of the Internet, most of these activities have migrated to the Internet and companies are embracing *extranets* as the dominant strategy to deal with clients and suppliers. An extranet is a network based on TCP/IP protocols, used to reach a firm's external partners—suppliers, distributors, and corporate customers. Extranet websites are similar to other websites, but are surrounded by firewalls that prevent unauthorised access. Extranets are a fast-growing segment of the Internet because they are much cheaper to build and manage than private networks based on proprietary protocols.

Business-to-consumer (b-to-c). E-commerce provides consumers with access to a wide range of online shops via the Internet. Some of the most successful b-to-c products and services to date have been software, books, travel services, entertainment (music and video, gambling, adult entertainment) and financial services. Regardless of the high expectations, volumes of b-to-c commerce have remained modest—with a few notable and oft-quoted examples, such as the book-retailer Amazon.com. In most parts of the world outside the United States, the b-to-c online activity is mostly informational rather than transactional.

Although many companies are adapting to electronic commerce, they also seek to minimise financial risks. Setting up a significant e-commerce site is still costly, potentially risky, and remains a major barrier for companies. Although the cost of setting up Internet commerce platforms varies widely, on average companies are spending some US$ 250'000, while larger firms are spending between US$ 500'000 and US$ 2 million. In addition, website redesign and upgrade intervals are short (measured in months) which adds to the cost. Even though revenues have remained modest, companies continue to be optimistic about future growth. Most companies anticipate revenue growth of 50 to 400 per cent per year. In 1998 consumer websites, for instance, reported a growth of 300 per cent.

The United States dominates Internet commerce. In 1998, the United States accounted for some 70 per cent of commercial websites around the world and the owners of those websites gained over 90 per cent of global e-commerce revenues. At the same time, however, the United States had the smallest share of electronic commerce revenue from exports when compared with other countries active in this area (Figure 2), implying the significance of the US domestic market.

Figure 2: Websites, e-commerce revenues and exports
By region, 1998
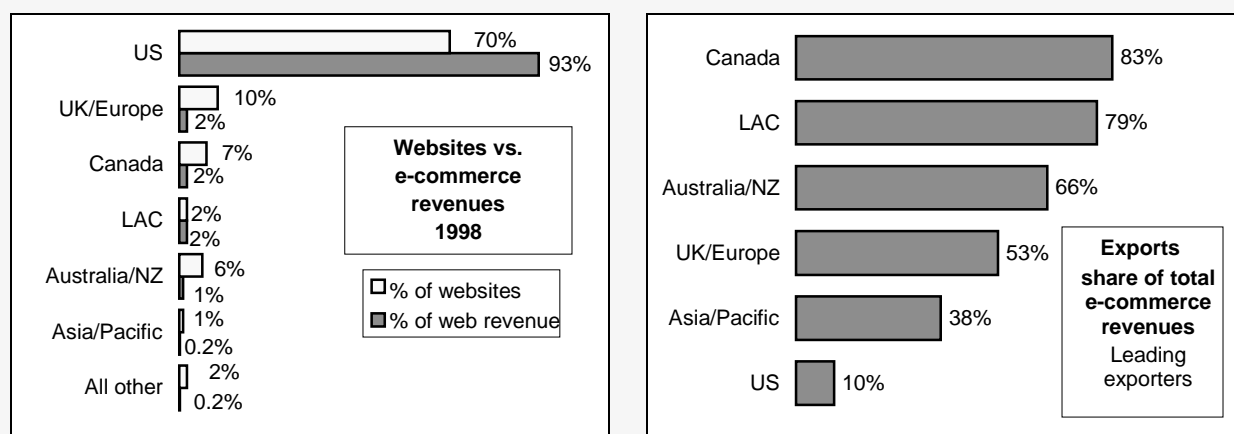
Note: LAC = Latin America and the Caribbean
Source: Real Numbers Behind 'Net Profits 1998, ActivMedia, <http://www.activmedia.com>.

Internet commerce in developing countries

The belief that the Internet and e-commerce can bring new and attractive opportunities to developing nations is reflected in the fact that most large industrial companies in developing countries already use the Internet. What is even more surprising is that a rapidly growing number of small and medium-sized firms are also adopting the Internet to support their business activities. In spite of this, there is still a considerable lack of awareness of the relevance of electronic commerce. Most of the firms that do not have a connection to the

Internet cite the lack of perceived relevance of the Internet to the particular business as the main reason for not being online.

The most common use of Internet among firms in developing countries is for electronic mail to communicate with customers and other companies, including clients and suppliers. Yet, some 70 per cent of the connected firms in developing countries consider the Internet to be useful beyond e-mail. Some 45 per cent of those connected have a website to provide information on the company and its products, while 85 per cent of the companies online indicate that they use the Internet for information research.

Business-to-consumer commerce in lower income countries varies widely. Many countries have established electronic payment systems, but traditional means of payment still dominate. The Web is mostly used to promote products through online catalogues along with contact information, or in some cases to allow placing online orders while the actual transaction occurs by conventional means, such as telephone, fax, telex or mail. However, online payment systems are emerging in an increasing number of countries.

Aside from the use of the public Internet to carry on business with other businesses and consumers, the use of *intranets* for intra-company operations—either within a single facility or among more remote offices and factories—is also emerging as a significant development.

Asia has been shaken by a severe financial crisis which is having serious repercussions on trade activities in general, and, specifically in the development of online commerce. Nevertheless, by mid-1998, some 75 per cent of the 1'000 largest Asian companies (ranked by sales revenue) had established a Web presence, up from 57 per cent in October 1997. The main items on Asian corporate websites are company financial information, online customer support and online registration facilities.

In India, electronic commerce is expected to grow from approximately US$ 3 million in 1997 to an estimated US$ 160 million by 2001 (Figure 3). In 1998, 81 per cent of Indian companies felt that Internet will have an enormous impact on the way they do business. The Indian Internet marketplace today includes a variety of players, such as financial information providers (Indiainformer.com, cmots.com), stock market exchanges (Bombay, Mangalore, Bangalore), movie halls (Lidotheatre.com, PVR-movies.com), book shops (indiabookshop.com), online banks (ICICI.com & IndusInd.com), and online marketplaces (rediff.com, indiamart.com). If Internet-friendly policies are adopted, India could become a major player in cyberspace. In November 1998, the government made a move to liberalise the ISP market by issuing the first licences for private ISPs. Some 50 companies are reported to have taken advantage of the new liberal policy that allows direct international gateway access and the possibility of up to 49 per cent foreign ownership. Other positive steps by the government include proposals for favourable taxes and promotion of information technologies. The Telecom Regulatory Authority of India (TRAI) has also proposed to develop a new ruling to cut leased line charges by 60 to 90 per cent. In a number of areas—ranging from Internet telephony to recognition of online payment systems—work still remains to be done.

In China, the growth of the Internet and electronic commerce activity has been rapid, together with growth in PC sales. The Chinese Web market includes a wide range of businesses including technology manufacturers (e.g., bbef.com, boif.com), retail stores (e.g. szrainbow.com.cn), Chinese-language portals (e.g., china.com), advertising networks (e.g., webunion.com), etc. However, the low density of Internet users and lack of credit card holders still make online commerce difficult (see section 3.4). But the potential for electronic commerce is obviously huge. Some 42 per cent of Chinese Internet users have credit cards and, even though most of these cardholders have non-international, non-convertible cards, nevertheless an estimated 10 per cent of Chinese Internet subscribers holding credit cards made purchases on the Web in 1997.

Aside from private sector initiatives, governments in the region are active in a number of official programmes aimed at supporting the emerging digital economy of Asia. In China, for example, the Golden Projects (e.g., Golden Bridge, Golden Card, Golden Customs, etc.) are a series of ambitious telecommunication and info-structure projects, launched in 1994 with strong government support. They have sought to enable voice, data and video communications, and to provide the information, entertainment and trade services to support the growth of the Chinese economy. In Malaysia, the national e-commerce master plan, which proposes a broad strategy to guide the country in embracing e-commerce, is expected to be finalised in May 1999. Furthermore, the government, with its initiative on the Multimedia Super Corridor, seeks to encourage companies to test the potential offered by information technologies and prepare for the

future. The three-phase plan over a 20-year period will seek to accelerate Malaysia's entry into the Information Age. In South Korea, the Ministry of Information and Communication plans to build a sophisticated electronic commerce system using post offices across the nation. The system will operate a large cyber-shopping mall; provide information; offer a payment gateway system; act as a certificate authority; and provide delivery service. In Thailand, an electronic commerce pilot project, implemented by the Business Economics Department of the Commerce Ministry, seeks to promote Thailand's export industry over the Internet.

Figure 3: E-commerce revenue projections in Asia
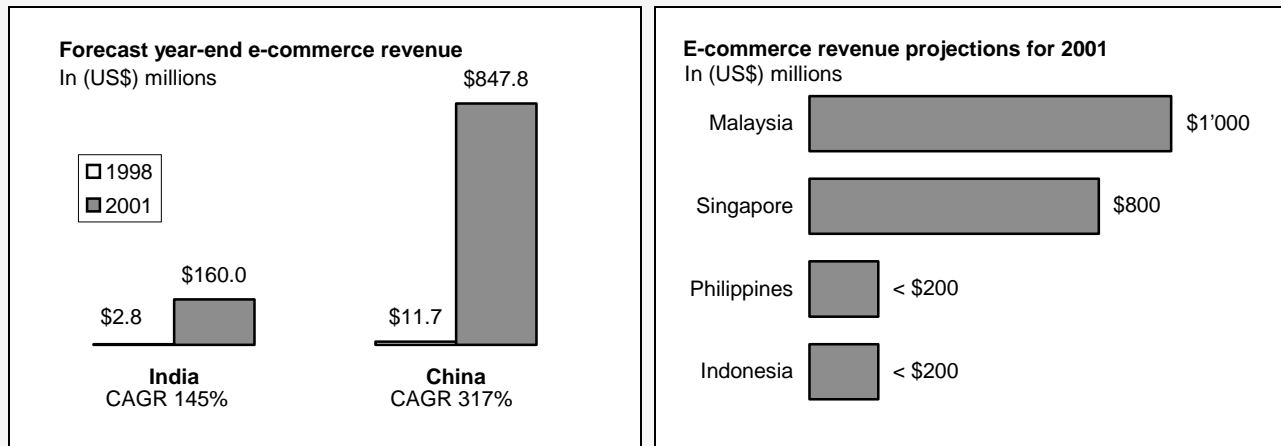
Note: IDC's revised projections for China's e-commerce revenues in 2002 total US$ 1.87 billion, while South Korea is expected to generate US$ 2 billion. CAGR = Compound Annual Growth Rate.
Source: Left chart IDC, Market Forecast for Internet Commerce (October, 1997). Right chart IDC, as reported by CommerceNet.

Internet commerce in selected industries

Internet commerce has not penetrated all economic sectors equally. Many estimates of the size of electronic commerce markets exist, but their accuracy is doubtful. The estimates here should therefore be taken as indicative. Nevertheless, there is considerable agreement and hard facts to indicate that some industries that have done especially well in the early stages of e-commerce development will continue to do well in the future. Computer hardware and software, real estate, publishing & information services, and finance are among the sectors with an estimated growth of over 150 per cent in 1998.

Digital goods and services

Software has been the most successful example of digitally delivered products. The pre-packaged software segment is the most dynamic and is expected to double in size from US$ 109.3 billion in 1996 to US$ 221.9 billion by 2002. Some 1-2 per cent of total software industry revenues today are created by delivering software through electronic means, while 10 per cent of packaged software are delivered online. By year 2000, as much as 50 per cent of packaged software revenues and 5 per cent of total software sales may be recorded from Internet downloads. An oft-cited example of a developing country with a highly developed software industry is India, thanks to its low-cost, highly skilled work force and international communications links. India's software exports have been growing by 50-60 per cent per year for the past seven years and are expected to reach US$ 1 billion in 1998.

Travel/Tourism is an increasingly important source of growth for developing countries. While less developed countries are faced with adverse terms of trade for agricultural products and high levels of protection against manufactured goods, tourism (including transportation, tour operators, travel agents and accommodation) has become a major economic activity, often contributing more foreign currency than traditional primary commodity exports. The Internet is quite well fitted to boost the already strong growth experienced by tourism in developing nations. Analysts estimate that the travel industry accounted for some 20-32 per cent of total online revenues in 1997. Online travel sales are expected to grow to almost US$ 30 billion by 2002.

Hotels in emerging economies—like Dusit Mangga Dua (rad.net.id/dusitmanggadua) in Indonesia—increasingly use the Web for direct contacts with potential customers, thus bypassing the traditional intermediaries—the travel agencies. Internet was some time ago believed to render the traditional middlemen obsolete, but now we are increasingly witnessing a wide range of new types of intermediaries, or so called *infomediaries*. New Internet-based intermediaries have also been established in the travel business to take advantage of some of the unique potentials of the Internet. For instance, Asia Travel (asiatravel.com) one of the most popular travel sites in Asia, provides full information on hotels and resorts, including rates and discounts, pictures and floor plans of rooms, sports and recreation facilities, food and cuisine facilities. The company is paid a fee by each establishment for designing, producing, hosting, and managing their websites. In Thailand, Siam Hotel Network (hotels.siam.net) offers a 60 per cent discount on hundreds of hotels throughout Thailand through its travel website where it offers multiple services.

Although hotel-related services hold a great potential for developing nations, the most attractive item for Internet users in the developed world has not been hotel reservation, but airline tickets. Many major airlines are bypassing the traditional services provided by travel agents to offer 'Web specials' directly to customers, such as American Airlines' weekly discounted Net SAAver fares, Northwest Airlines CyberSaver specials, or Cathay Pacific's auctions of tickets from Los Angeles and New York to Hong Kong China.

Intermediation in the airline business is not, however, on its way of extinction, it is just taking a different face. A number of new and creative airline ticket resellers have sprung up on the Internet. Companies such as Priceline.com that allow travellers to specify the price they want to pay are becoming popular. Priceline takes the price offered by the customer and then tries to match it with a major airline willing to release seats in unsold space at that price. A drawback of this innovative approach is that the service is somewhat inflexible—tickets are non-changeable, non-refundable and do not earn frequent flyer points.

Many Asian airlines have also established a Web presence to offer a number of services to their customers, such as for instance Thai Airways.

Financial services is another area of great potential growth in the online world. Financial services on the Internet have been forecast to grow from an estimated US$ 240 million to US$ 22 billion by the turn of the century. Internet banking is already available in many developing countries enabling customers to pay bills, check account balances, or transfer funds. Online financial transactions have a clear cost advantage compared to traditional transactions.

Investment-oriented websites in the United States attract more people with higher purchasing power than online banks do. For example, Charles Schwab, the largest retail stockbroker, reports more than half of its total trading volume to take place online, with US$ 4 billion worth of securities traded on its website every week. However, due to increasing competition between more than 80 online brokers in the United States, brokers have been forced to reduce commissions and squeeze profits. Still, online brokerages have more than twice as many visitors than online banks. In 1996, there were some 1.5 million online trading accounts. By 2001 the total is expected to go up to 12.7 million.

As investment-oriented websites have proved popular in the United States, the same is also true in many emerging markets. For instance, a popular site is Asiaonline Finance (www12.asiaonline.net/finance) that covers financial information including nine stock markets across Asia. The service provides not only quotes, but also technical analysis, five-year data series, buy/sell recommendations and a hosted forum. Other highly popular financial/economic information sites include StockStar (stockstar.online.sh.cn) in China and Indonesia NET Exchange in Indonesia (indoexchange.com).

Data processing. Cross-border teleworking (also known as 'teleporting' or 'teletrade') refers to business use of telecommunications networks (formerly private networks but increasingly the Internet) to redeploy both high-skill and clerical/accounting jobs to developing countries. Teletrade and teleporting have grown exponentially over the last several years as a result of the need to process and manage the data flood created by the banking, insurance, airlines and databank industries.

The offshore teleporting information business has settled mainly in India, the Philippines and Caribbean and East Asian countries. These countries typically have low labour costs, adequately educated and trained workers as well as relatively modern, reliable telecommunications networks. Teletrade had grown to a market value of some US$ 30-40 billion per year by 1996. This rapid growth has been experienced thanks to a combination of factors:

- Outsourcing has become a more attractive option for businesses, often in connection with downsizing within the parent organisation;

- Information-processing contributes to a higher share of the total value of products, and hence such costs need to be reduced;

- Skills required to carry out information-processing have become increasingly global in nature;

- Customer demands need to be fulfilled quickly and flexibly. Time-zone differences can be exploited to provide round-the-clock service, by drawing upon a global pool of subcontractors.

- A relative over-supply of skilled labour exists in some parts of the world (notably India and the former Comecon countries) mirroring relative skill shortages in parts of Europe, North America, Japan and other parts of Australasia. The shortage of skilled labour in OECD countries has been exacerbated by the Year 2000 problem and the emergence of the single European currency, the Euro.

Media, Entertainment & Information Services

Information Services: Internet and digitalisation of content are transforming the information service business. Information is argued to be the core competence in the future. Electronic market power is often equated with the ability to manipulate or mediate information in a way that it brings value to users. Value can be created, for instance, by repackaging or giving away information—either directly, or through intermediaries. Although some providers do charge subscription fees for accessing a service, a great number rely on advertising only.

The acceptance of charges for content may be limited to niche audiences, not the mass market. Consumers are likely to pay for the content that they value the most, for instance, information that specifically affects a purchasing decision. Investing-related information is a category that is forecast to grow from 15 per cent of subscription revenues in 1997 to greater than 42 per cent in 2002. Other areas of potential include trade and business journals, or safe, moderated environments for children. New business models of how to charge for information have emerged, information can be packaged in various versions that have different values, priced depending on, for instance, the freshness or comprehensiveness of the information.

Media: The Internet with its mix of computing, telecommunications, and broadcasting is revolutionising the media and publishing business. New models of delivering content and entertainment to users through networks—such as Webcasting of TV and radio—have emerged. For instance, one website (timecast.com) lists over 1'000 radio and TV stations worldwide that broadcast online. Radio stations offering live or recorded broadcast over the Web, include for instance 102.3 Fmania (i-2.co.id/fm1023) in Indonesia. An increasing number of TV stations are webcasting reduced-quality video online, such as TV5 (tv5.co.th) in Thailand.

New players, capable of competing with the traditional media companies, have entered the online media/information services scene. For instance American Online is a media company that is already competing in certain segments of the media market with large traditional corporations such as Walt Disney and Time Warner.

Although the media industry has been relatively quick to adapt to the Internet environment, traditional media companies and publishers have not yet been able to gain the lion's share of traffic and advertising dollars online. Instead, portal sites, such as AOL, Yahoo, Excite, Lycos and Infoseek have gained the lead in stimulating traffic and advertising revenues (Box 1). The power of portals, however, has not gone unnoticed by the big media players, who have been active in getting stakes in the major portal companies. The approach of many media companies has been to build comprehensive sites around specific niches and then partner with portals to promote them. Deals include, for instance, Disney's 43 per cent stake of Infoseek and Bertelsmann's US$ 10 million partnership with Lycos to create portals in all main European markets.

Advertising. Worldwide online advertising expenditure is expected to reach US$ 15 billion by 2003, but that would still be only a small fraction of total media advertising. The US share of the worldwide market is forecast to decline from 87 per cent in 1998 to 70 per cent in 2003, while the Asian and South American share is expected to increase significantly in the coming years (Figure 4). The main industries spending on online advertisements in 1998 were computers/software, financial, telecom, and media/advertising. The top

online advertising spenders were Microsoft and IBM, with US$ 30.9 million and US$ 18 million respectively.

Advertising online takes place mainly through banner ads, priced per thousand impressions (commonly known in the industry as CPM). Banners are estimated to count for some 80 to 90 per cent of the total web ad sales today. By the year 2001, banners are forecast to make up only 40 per cent of web ad sales, while sponsorship should account for 40 per cent and interstitials 20 per cent. Free advertising banner exchanges have also gained popularity online. The Asean Banner Exchange (siam.net/tbe) is a fast growing banner advertising network, designed to help Asean related websites to advertise each other via banners. WebUnion (webunion.com) in China claims to be the first and largest global Chinese Internet advertisement network. In July 1998, WebUnion had over 3'000 member sites, and was collectively showing more than 6 million banner impressions every month.

Box 1: Portals

A portal commonly refers to the starting point, or a gateway through which users navigate the Web. However, the term portal is an evolving concept, as new functionalities are constantly added. Portals are projected to draw 20 per cent of online traffic and 30 per cent of online advertising dollars by 2003. There are two main types of portals: horizontal and vertical. A horizontal portal is a website or a service that provides a wide range of resources and services, such as e-mail, forums, search engines, and shopping malls, and is geared to the mass audience, like Yahoo or AOL. A vertical portal focuses on a specific content area targeted to a particular niche audience, such as E*Trade (etrade.com).

A number of regional and local portals have emerged in developing regions. In the Chinese market, Netscape has partnered with the Hong Kong-based China Internet Corporation (CIC) to set up a Chinese-language portal. Yahoo! has also established a Chinese-language website and AOL plans to do so soon.

Major portals, however, are seeking to dominate the market by acquiring or partnering with local portals around the world. On the other hand, smaller portals operated by, for instance, telecommunication operators and local media companies are likely to attempt to gain regional market share. New developments in Internet software, though, point to a possible evolution towards highly personalised portals, where the gateway to the Internet consists of personally defined links.

Box Figure 1: Selected Portals and Top Web Domains

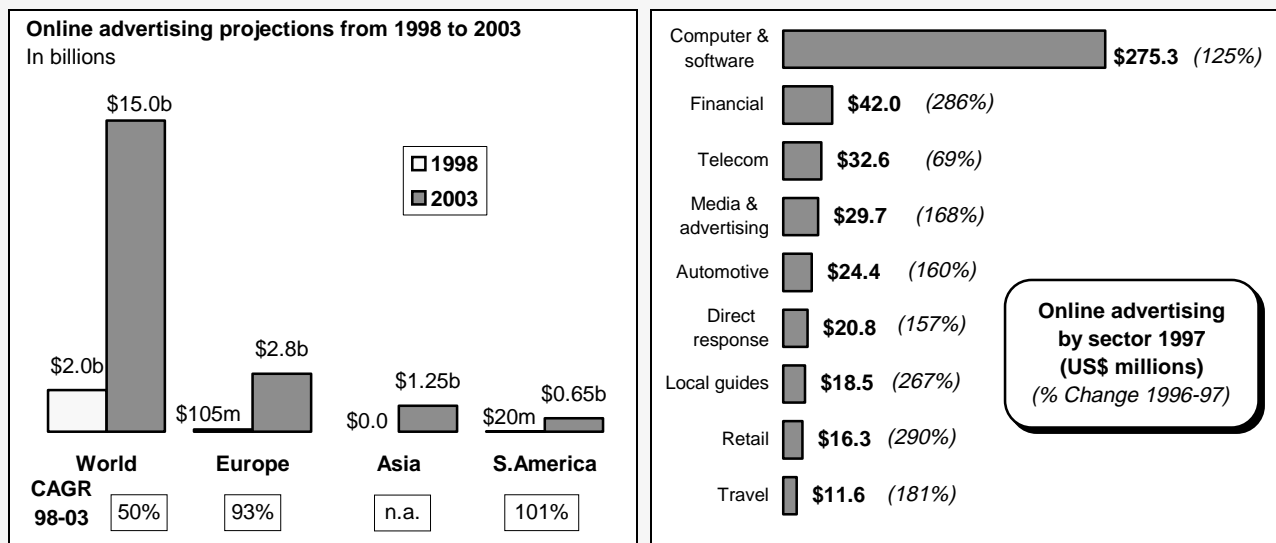| Selected Portals		
Company	URL	Country/Region
Arabia.On.Line	www.arabia.com	Regional
Bangladesh Online	www.bangladeshonline.com	Bangladesh
Bulgaria Online	www.online.bg	Bulgaria
China Internet Corp	www.china.com	China
India Online!	www.mallofindia.com/online	India
Orientation	www.orientation.com	Worldwide
StarMedia	www.starmedia.com	Latin America
Vietnam Online	www.vietnamonline.net	Vietnam
Yehey!	www.yehey.com	Philippines
24.com	www.24.com	South Africa

	Top Web Domains (From Home)		Top Web Domains (From Work)
1	aol.com	1	yahoo.com
2	yahoo.com	2	netscape.com
3	microsoft.com	3	microsoft.com
4	geocities.com	4	aol.com
5	netscape.com	5	excite.com
6	excite.com	6	infoseek.com
7	infoseek.com	7	geocities.com
8	lycos.com	8	altavista.com
9	msn.com	9	lycos.com
10	n.a.	10	msn.com

Source: Left chart, ITU; right chart Media Matrix/Relevant Knowledge, August 1998.

New online advertising business models have emerged that go beyond banner ads and are more interactive. For instance, companies now pay points or give other rewards to users, such as free e-mail, if they watch ads. CyberGold (cybergold.com) has received a patent for its "*attention brokerage*"-model. The company pays consumers online incentives—including cash, points, frequent flyer miles or other forms of compensation—whenever consumers demonstrate that they have paid attention to an ad or marketing message, or participated in an online loyalty program. Another online advertising specialist Yoyodyne (yoyo.com) designs free online games with prizes which are paid by sponsors/advertisers. Its model is called "*permission-based marketing*". Another online advertiser, DoubleClick, hopes to transform Internet marketing through its "DoubleClick Local", which allows advertisers to target Web users by their location, and match their preferred web content and interests. However, the results may be somewhat hindered by the fact that a number of IP addresses do not reflect the actual location of the user.

Figure 4: Online advertising projections and online advertising spending by sector in 1997
In US dollars

Online advertising projections from 1998 to 2003
In billions

□ 1998
■ 2003

$15.0b

$2.0b $2.8b $1.25b
     $105m $0.0 $20m $0.65b

World	Europe	Asia	S.America

CAGR
98-03   50%   93%   n.a.   101%

Computer & software	$275.3 (125%)
Financial	$42.0 (286%)
Telecom	$32.6 (69%)
Media & advertising	$29.7 (168%)
Automotive	$24.4 (160%)
Direct response	$20.8 (157%)
Local guides	$18.5 (267%)
Retail	$16.3 (290%)
Travel	$11.6 (181%)

Online advertising
by sector 1997
(US$ millions)
(% Change 1996-97)

Source: Left chart Forrester Research, plus other estimates. Right chart InterMedia Advertising Solutions InterWatch report.

Tangible goods

Agro-businesses are well established on the Internet, but they rarely get the headlines. In developing countries, the emerging electronic markets in agricultural products could become an important driver of economic development, as agriculture employs more than 70 per cent of the workforce in many of them. With the rise of the Internet the way of doing business in agriculture will certainly change. Farmers may be able to access the latest produce prices online, and based on this negotiate better prices with intermediaries. In some cases farmers may bypass middlemen completely, and thus can reduce costs and increase revenues by selling products directly to consumers. The closer relation with consumers can help them to better meet consumer demands for product quality, diversity and timely delivery. Finally, one of the unprecedented developments in agro-business is that small local farmers can, thanks to the Internet, market their products globally.

Furthermore, a number of websites providing trading floors for meat and livestock (mostly in developed countries) offer traders from the less developed world an opportunity to participate and trade their local agro-products (see for example aginfo.aust.com). These markets generally operate on an auction, barter or trade lead basis. Internet-based e-commerce is also likely to transform the operation of financial services in agriculture. Futures and options markets will most likely become the principal mechanism used by farmers to manage risk. But this is clearly far away from the reality in agro-businesses in most developing countries today.

Computer products: Computer hardware together with software has been said to make up the largest category of e-commerce. Computer related items should make up between 25 and 35 per cent of the online market. In emerging economies a number of computer product manufacturers/distributors have also gone online. For instance, ACE Electronics (inet.co.th/cybermall/ace) in Thailand, or Unicorn Computech Sdn. Bhd. (www1.tm.net.my/unicorncomputech) in Malaysia use the Web to support marketing, shipping and other business operations. China Technological Product Fair Online (techfair.com.cn), sponsored by the Ministry of Foreign Trade and Economic Cooperation (MOFETC), is the largest online database for Chinese transferable technology. It covers 29 provinces, autonomous regions and municipalities. More than 700 enterprises and 3'500 projects participate in the network. Joined companies include machinery manufacturers, chemical factories, electronics enterprises and building material suppliers, etc.

Music: Online music sales are projected to increase to almost US$ 2.5 billion by 2003. In the Philippines, PhilMusic (philmusic.com) started as a non-commercial venture to promote Philippine music online, but is now branching out to e-commerce (with credit card transactions). It seeks to follow the model of the big pioneering online CD stores, such as CDnow, Music Boulevard, or Tower Records. EntertainIndia (entertainindia.com) is an online superstore that sells the latest CDs, videos and even has a facility to create

its own custom CDs for purchase through a secure online ordering via credit cards or personal cheques. The special shipping offer only applies to the United States customers, which suggests that the store is actually located in the United States. This highlights a broader problem: high international postal charges, and the low reliability of postal services in some developing countries may hinder the ability of potential merchants to exploit the potential demand for their services.

Retail: Many online stores or marketplaces that were set up in the early Web excitement have been forced to close shop. However, the excitement is re-emerging as new stores are being set up in various locations on the Web. The online grocery market is projected to total $10.8 billion in 2003, when it will still represent less than 2 per cent of consumer packaged goods revenues. An increasing number of retailers in both developed and developing countries are starting to take the Web seriously. In China, the "Shenzhen Rainbow Department Store" (szrainbow.com.cn), a sino-foreign equity joint venture, has five chain-stores and has agreed to co-operate with the top 100 department stores in China for two years. In co-operation with the Shenzhen Merchant Bank, the store launched its online shopping in May 1998. In Sri Lanka, an online mall Avakása Kadé (emall.ccom.lk/cgi-bin/emall/perlshop.cgi) sells anything from air conditioners, kitchen utensils to pest control and wall posters and offers a number of payment options (credit card, digital signature, cheque, fax).

Opportunities generated by Internet-based electronic commerce

Internet commerce can substantially improve productivity by lowering transaction, production and distribution costs, facilitating market entry, improving customer service, extending geographical coverage and increasing competition. This should lead to lower prices, improved quality and innovative new products and services, which should further increase economic growth and welfare. Some of the benefits associated with commerce over the Internet include (a) better availability of information, (b) global reach, (c) reduced transaction costs, (d) lower barriers to entry, and (e) new sources of revenue.

- *Better availability of information:* Online commerce enables better access to product and price information for all involved including buyers and sellers, producers and distributors. Already, search-agent software allow users to look for the lowest prices around the world. A new breed of 'infomediaries' has emerged that base their operations on bringing more complete product information to customers. Excite Inc. search engines, for instance, offer a comparison-shopping service called Jango (jango.com), which screens a range of online merchants and brings back the best prices for specific books, compact discs or other products. Many others offer similar service, such as Hotbot (hotbot.com) by Wired Ventures. A fast growing auction house that brings buyers and sellers together and claims to have been profitable from day one is eBay (ebay.com). Compare.net finds products that match the features and price range that the user has specified. The user can then jump to the indicated site to make a purchase.

- *Global reach (production, distribution and customer service):* Distance and time become less relevant as companies are able to reach their business partners across the globe and serve their customers quickly and around-the-clock. Producers will often be able to choose a place for production and customer service much independently from the location of their customers. Companies and individuals in low income countries are able to reach information and get contacts in ways which were difficult earlier—either due to the nature of voice communication and/or its very high cost.

- *Reduced transaction costs:* Cost reduction has been one of the main motivations for early adoption of the Internet. E-commerce should also offer improved transaction management thanks to automated order, payment and logistics processing systems. Cisco Systems reports reducing its expenses by US$ 500 million thanks to the Internet

- *Lower barriers to entry:* The capital cost of entry to establish a presence online is low compared to conventional outlets. The cost of establishing a reputation on the Internet can also be lower than in traditional established markets. A modest investment in a brilliant idea can eventually lead to good results. Small and medium-sized enterprises (SMEs) benefit from easier market entry. But considering the amount of unsuccessful business endeavours online, the actual cost of setting up a profitable business is probably higher than believed. With increasing global competition in electronic business, many argue that global brands will continue to dominate, while SMEs will have to specialise to niches in order to compete.

Figure 5: What's so good about the Internet? The Corporate view
From the perspective of firms in developing countries (left chart) and global corporate interests (right chart)
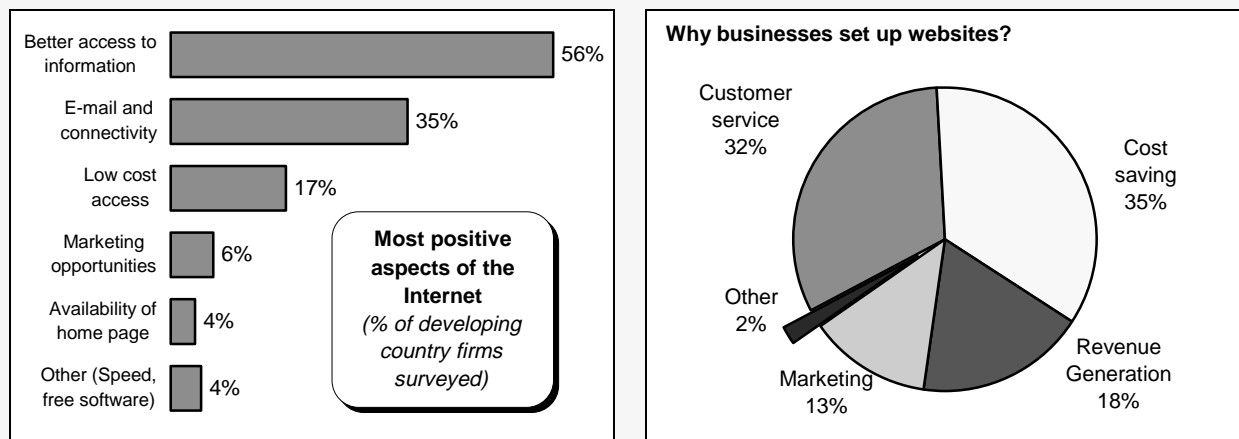
Source: Left-hand chart, International Finance Corporation (IFC) . Right-hand chart; Computerworld.

- *New source of revenue*: In 1998, nearly half of website managers claim that their online businesses are profitable (46 per cent, up from 30 per cent recorded in the last three years). The highest profits are reported among retail websites selling directly to consumers—around half of them are profitable today. Of the websites that generated revenue in 1997, the average was a little over US$ 100'000. About 30 per cent generated revenues under US$ 1'000 and 25 per cent had revenues between US$ 1'000 and US$ 10'000. Yet, the reality is that today few companies are making *big* profits on the Internet. Only 1 per cent of the b-to-b online businesses generated revenues above one million US dollars in the year. Not even the widely admired Amazon.com, in the Internet bookselling business, is expected to be profitable before 2001.

But sales are not the only source of revenues. A number of online shops generate revenues from sources other than sales—mainly advertising, but also subscriptions and other content-related services. Some 60 per cent of larger websites generate non-sales revenues, while the same was true for 28 per cent of smaller firms and 18 per cent of mid-sized Web stores. Large online sites are the most likely ones to generate non-sales revenues (such as advertising or subscriptions), because they have more established e-commerce strategies and thus heavier consumer traffic.

Challenges to Internet commerce

Although Internet commerce potential appears promising, many challenges still remain. Barriers to Internet commerce are to some extent the same as those affecting the diffusion of Internet in general. In developing countries, in particular, the scarcity or absolute lack of communication infrastructure and the high cost of both services and hardware pose real and sometimes insurmountable barriers to the development of e-commerce. But, aside from these "common" problems faced by all Internet-based services and applications, there are several challenges that are specific to electronic commerce developments. Some of the key ones include:

- the need of a legal framework for Internet transactions (e.g., commercial code, intellectual property/copyright and trademarks, domain names, privacy and security);

- the establishment of an adequate financial framework (e.g., customs, taxation, electronic payments); and

- the provision of market access and trade logistics (e.g., market access to the Internet, access for suppliers over the Internet, content, shipping of goods, etc.).

Legal framework

Legal challenges related to e-commerce include, for instance, adapting commercial codes to the online environment, or dealing with such issues as intellectual property/copyright and trademarks, domain names, privacy and security). One major effort has been the establishment of the Model Law on Electronic

Commerce by the United Nations Commission on International Trade Law (UNCITRAL). The model law provides national governments with a framework to eliminate legal barriers to e-commerce. It aims, for example, to make electronic documents—such as EDI and e-mail—as official as paper-signed documents. Many countries are implementing the Model Law as part of their national legislation. UNCITRAL Working Group on Electronic Commerce is currently paying special attention to legal matters, such as digital signatures and certification authorities.

One of the major challenges facing electronic commerce developments is that of establishing a system for certification that is globally acknowledged. To assure trust, cross certification agreements between certification authorities or governments are needed, where both parties validate each other's certificates. One initiative to tackle the issue of cross certification is the Global Certificate Authority Forum (GCAF) (gcaf.org) formed by a number of international bodies, including the International Telecommunication Union (ITU), the International Secure Electronic Transaction Organisation (ISETO), the World Trade Centre Association (WTCA), the International Trade Centre (ITC), the World Trade Organisation (WTO), the World Health Organisation (WHO) and the United Nation Conference on Trade and Development (UNCTAD). The forum has as its goal to facilitate the work of certification authorities in responding to technical and market developments, while ensuring consumer confidence.

Financial framework

Customs and taxation are two of the various issues that policy-makers will have to face when dealing with the financial-related challenges posed by the rise of electronic commerce.

In taxation matters, the principle of "tax neutrality" seems to be emerging as the more widely accepted way of handling the challenges posed by electronic commerce. Under this principle there should be no difference or discrimination in the taxation of physical or electronic products (be they digital goods or services).

On the question of customs, issues are more complicated and there is less consensus on the matter. For the time being a number of countries have decided to hold a moratorium on duties to be applied to items that are traded and delivered over electronic networks—like the Internet. At the 1998 Ministerial Meeting of the World Trade Organisation (WTO), held in Geneva, Switzerland, 132 Member nations agreed, until the end of 1999, not to impose any custom duties, or 'import taxes' on electronically delivered products or services.

Initially, nine developing countries opposed the moratorium. They argued that electronically-delivered products and services would be mainly exported from developed countries to developing countries. Given that developing countries rely heavily on export of commodities, by accepting the 'zero duty' –principle on electronically delivered items, developing countries would be losing a source of revenue on these items, while still facing protectionist barriers on commodities (mainly agricultural ones) imposed by industrialised nations. Furthermore, those developing countries that do produce and export electronically delivered goods would not suffer in their competitiveness if 'import taxes' were charged, because the production costs of such products in developing countries would still be generally lower than in developed countries. On the basis of these arguments, some developing countries proposed that the issue be treated as a case of tariff negotiations. Some developing nations suggested that a zero duty commitment on digital goods could be exchanged for much lower tariffs for their main export items, i.e. physically delivered commodities. Initial resistance prompted the acceptance of a moratorium of 18 months only as it was agreed that developing country concerns would be closely examined.

Electronic payments. A major obstacle in the way of Internet commerce is the perceived security problems of online transactions. But as the security issues are increasingly being resolved (see Figure 6), a more immediate barrier to developing countries is the lack of adequate financial infrastructure to conduct online commerce. Credit cards—the prevalent online payment method today—are only used by a small part of the population. In some countries—such as India—credit card payments are authorised only with a faxed or hardcopy signature. In Thailand, the Siam Commercial Bank (SCB) (scb.co.th) was the first bank in the country to accept Internet credit card transactions without a signature. But, in order for the Internet commerce to take off in the country, the merchants will need to be certified. SCB believes the certification should be carried out by the Bank of Thailand or a neutral third party.

Figure 6: Perceived drawbacks of the Internet by developing country companies and expected losses to fraud

From the perspective of firms in developing countries (left chart) and global corporate interests (right chart)
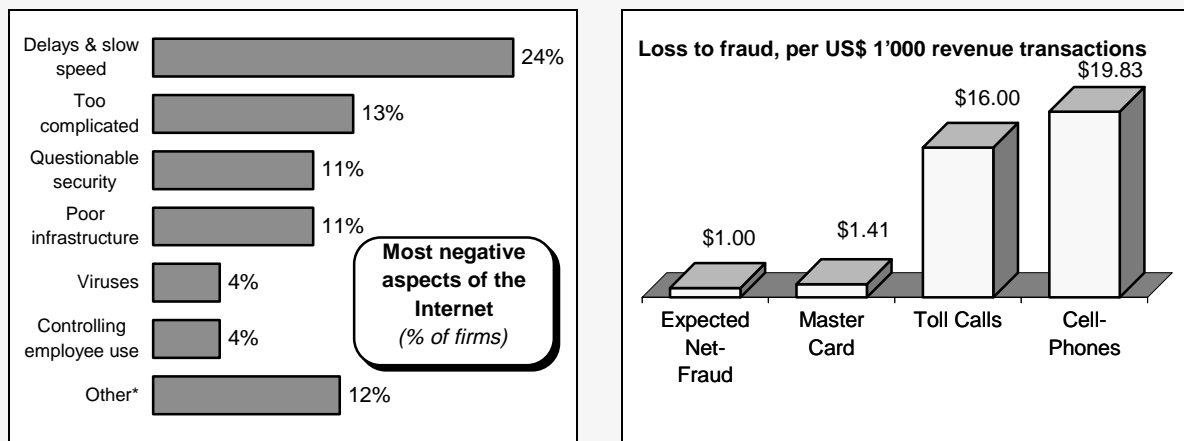
Note: *Other: unsuitable material, "junk mail" and other information, too costly, etc.
Source: Left chart, International Finance Corporation (IFC). Right chart, Forrester Research as reported by eMarketer.

Although many electronic payment systems have been proposed, it has been argued that credit cards will remain the dominant payment means for the future of electronic commerce. Credit cards are a universal and currency-transparent form of payment. Yet, in countries like China, the main obstacle in the way of electronic commerce is the scarcity of convenient payment systems. The number of Chinese credit card holders is relatively low, and internationally accepted credit cards are available only for those individuals or businesses that are able to open accounts in foreign currency, and often require very large deposits of more than US$ 200'000. Further, many retailers still insist on seeing other identification before accepting locally issued credit cards. Internet retailing initiatives in China require either cash on delivery, cash payment to the post office, or establishment of a debit account in a specific bank.

One innovative Chinese Internet company, Sparkice, proposed that an Internet café could function as a retail outlet, where customers could place orders online, and make payment directly to the Internet café upon delivery. It is not entirely coincidental that Sparkice runs the majority of Internet cafés in China. A further proposal has been that Internet Service Providers should perform the role of financial intermediaries between customers and retailers. This alternative, however, is not likely to be adopted quickly. Overall, the main sticking point in the way of online retailing in China is its banking system − credit is not easily extended and issuance of personal credit cards is tight.

Market access and trade logistics

A major issue for international trade in digitised products and services—such as software, travel or banking—is not related to tariff barriers, but to other barriers to international market access. The World Trade Organisation (WTO) is the multilateral entity that is concerned with market access issues. Based on WTO principles products bought and paid for over the Internet but delivered physically would be subject to existing WTO rules on trade in goods. But the situation is more complicated for digitised products that are delivered over the Internet, as a variety of issues arise relating to the appropriate policy regime.

- Some believe that in principle services delivered over the Internet fall under the General Agreement on Trade in Services (GATS). This would imply that there is no need to draft new rules on electronic supply of services. In spite of this there is still a need to clarify exactly how the GATS apply to electronic commerce and come up with policy decision regarding the issues that are unclear or definitively not resolved by the GATS. One especially challenging area concerns items that can be delivered both electronically and physically, such as computer software. It also remains unclear which policy issues related to electronic commerce should be tackled by the WTO, and which by other entities

.

Physical delivery of goods: A further major barrier to electronic commerce in physical goods is the slow, and expensive delivery for offline products This is particularly a drawback, as one of the most important criteria for buyers of goods in highly developed countries has been found to be timely delivery.

High international postal charges, and the low reliability of postal services in some developing countries may inhibit developing country firms gaining business from the developed world. International parcel delivery can cost many times more in d   eveloping countries than national parcel delivery for a similar distance in a competitive market, such as for instance the United States.

Conclusion

The development of Internet-based commerce varies greatly between different developing regions. In a regional context, a great growth potential in Asia is especially evident in China, Korea, Malaysia and India, although future prospects in other countries in the region are also promising. Many Asian countries have recognised electronic commerce as a high priority issue for economic development.

Industries of great Internet commerce potential for developing economies are to a great extent the same as those showing great potential in the developed world. Information intensive industries such as financial and tourism sectors offer promising opportunities. The online agro-business will give developing country farmers new opportunities to market their products worldwide.

A number of challenges remain for implementing electronic commerce. Developing countries aiming to promote electronic commerce would have to work, on the short term, on the both fronts—i.e., improving communication infrastructure and accessibility and adjusting the legal, financial, and logistic conditions to the new requirements of online trade. In the longer term, they would certainly have to address some of the underlying preconditions for global commerce to flourish—such as improved education and computer skills.

Despite the fact that developing countries are behind in the deployment of Internet commerce, they may potentially have a remarkable advantage in leapfrogging not only the infrastructure, but also the implementation of electronic commerce. An increasing number of Asian countries are building state-of-the-art infrastructures to connect to the global electronic markets, and at the same time they could become the innovators in new technologies. For the moment, 90 per cent of Internet commerce is based in the United States and developing countries are more likely to be customers than competitors.