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Chapter 5

THE IT INDUSTRY, E- BUSINESS AND DEVELOPMENT

A. Introduction and definition of the information technology industry

This chapter looks at the information technology producing sector (IT) with special reference to IT multinationals' investments in developing countries.

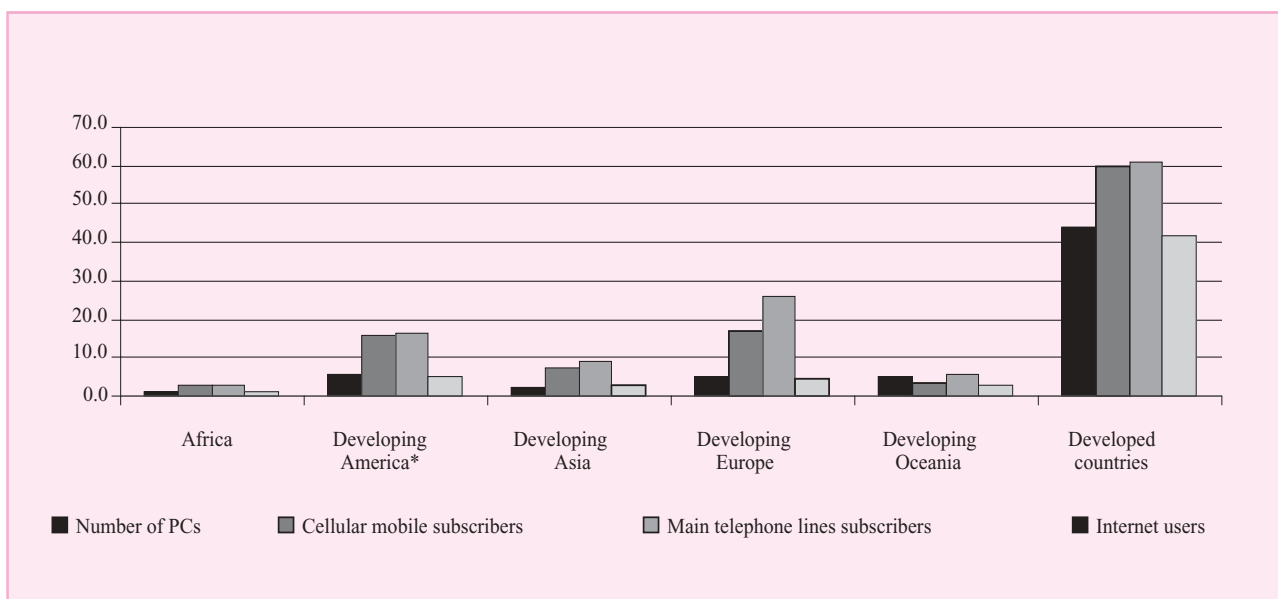
The IT industry provides essential instruments that make e-business possible, including not only computer hardware and software but also fixed telephones, mobile telephones, telecommunication equipment and wireless transmission equipment.¹ As chart 12 below

shows, the availability of IT equipment goes hand in hand with Internet connectivity and is therefore clearly a prerequisite for e-business.

Even though e-business impinges on IT goods, this does not necessarily imply that having a local IT producing industry would be an advantage for the local business sector when it moves into e-business. However, when the business sector starts adopting new information and communications technologies in its operations, it relies heavily on local or locally available IT expertise in order to fully realize all the efficiency gains that the Internet makes possible at the level of a single firm as well as at the level of the industry and of the country's economy as a whole.

Chart 12

Access to telephones, PCs and the Internet per 100 inhabitants (2001)



Source: UNCTAD calculations on ITU data.

In this connection, the existence of a local IT sector or of investment from IT multinationals might contribute to the take-off of e-business in developing countries if it promotes IT awareness and culture in the local business sector, if it advances the IT competencies of the workforce and if it brings the technology closer to the local business community.

In the light of the above, this chapter sets itself two objectives. On the one hand, it tries to present some long-term trends in the industry that produces the tools necessary for conducting 'e-business', in its widest possible meaning. On the other hand, it attempts to present evidence about whether the conditions outlined above are realized, or in other words, whether the IT industry can contribute to development and growth by enhancing a country's capacity to engage in e-business.

This chapter presents data on international trade in IT products and the trade policy environment in which the industry operates, and summarizes the debate on the impact of IT on growth and development. In addition, it presents the results of an UNCTAD survey of the most influential IT multinationals designed to obtain information about their investment in developing countries and countries with economies in transition and their use of e-commerce in general and in the latter countries in particular.

Clearly, the analysis does not aim to be exhaustive. It needs to be complemented by the analysis – contained in other chapters of this report – of the experience of companies from developing countries that are successfully engaging in the production of IT goods, as well as of the IT-using business sector that is turning the new technologies into new products and new ways of conducting business.

B. Trade in IT products and trade policy environment

Although reliable data on the IT industry are hard to find, it is safe to say that IT is one of the world's largest industries. According to one estimate, "worldwide IT spending has reached almost \$988 billion and is expected to increase at a compound annual growth rate (CAGR) of 9.4 per cent from 2001 to 2006 to reach \$1.5 trillion".²

Most analysts agree that the IT industry, having suffered a setback in 2001 due to the economic recession and the effects of the tragic events of 11 September, might experience a modest recovery in 2002. Growth should then pick up again in 2003.³

The IT sector was the subject of intense negotiations during the Uruguay Round and remains so today. In

Box 17

The Information Technology Agreement

The products covered by the Agreement include computers and other electronic data processing equipment, semiconductors, telecommunications equipment, and computer software¹.

For these products, participating Governments agreed to completely phase out tariffs and all other duties and charges by 1 January 2000. However, developing countries participating in the agreement however, have requested and received an extended phase-out period for at least some products. In no case does the implementation period extend beyond the year 2005.

As of 4 February 2002, 57 Members States or separate customs territories in the process of acceding to the WTO had signed the ITA. Collectively, they represented approximately 93 per cent of world trade in IT products.

In addition to the elimination of tariffs on the products that were initially covered, the ITA called on participating Governments to expand product coverage. To date, however, in spite of the intense negotiations in the Committee of Participants on the Expansion of Trade in Information Technology Products, which supervises the implementation of the Agreement, no products have been added to the initial lists. The Committee is also negotiating the question of non-tariff barriers with a view to including these within the scope of the Agreement.

¹ The complete listing of the products covered by the Agreement can be downloaded from WTO (1996).

December 1996, at the first WTO Ministerial Conference held in Singapore 54 WTO Member States signed the Information Technology Agreement (ITA – see box 17 for details). Its two most important characteristics are that:

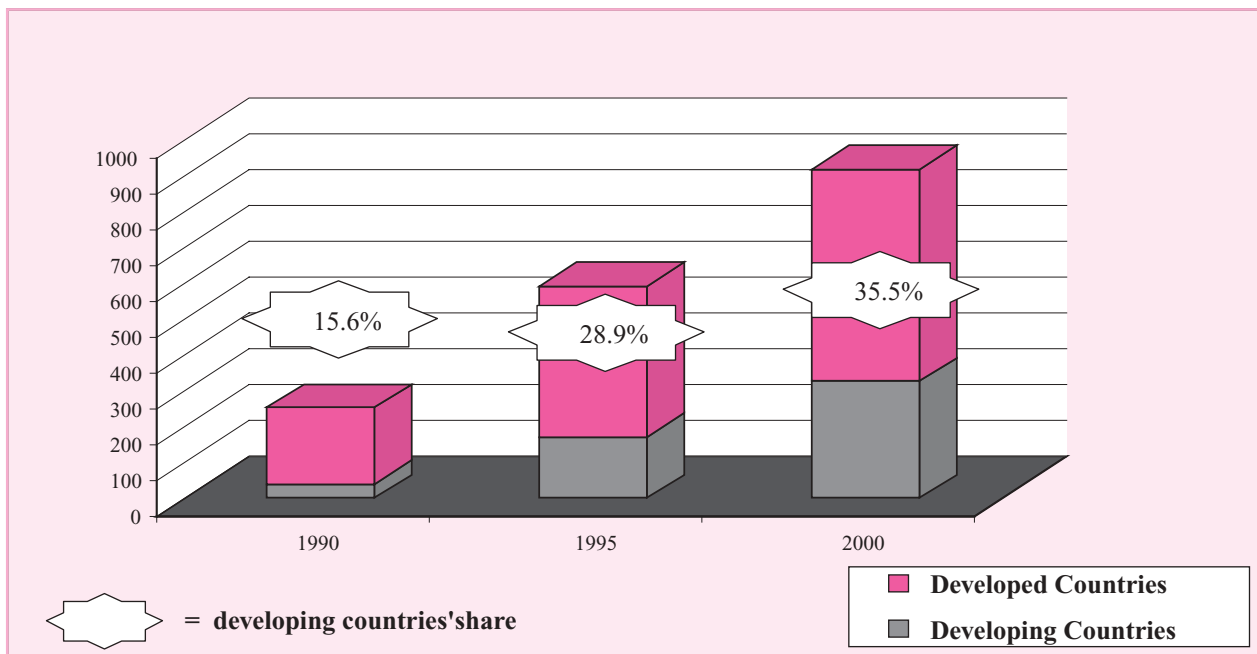
- It was signed as a separate document, and is therefore not a part of the “Single Undertaking”: for this reason, participation in the Agreement is not compulsory for WTO member countries and for countries that are in the process of accession to the WTO;
- It is a tariff-cutting mechanism that obliges its members to cut tariffs of all products covered to zero.

As shown in chart 13, trade in IT products grew tremendously over the last decade and was worth over \$ 900 billion in 2000.⁴ In particular, exports of IT products from developing countries grew at a compound annual growth rate (CAGR) of 23.5 per cent over the

last decade, while exports from developed countries grew at a CAGR of 10.8 per cent.⁵ By comparison, total world exports grew by 6 per cent over the same period.⁶ As a consequence, the share of developing countries and economies in transition in IT exports grew from 15.6 per cent of exports in 1990 to 35.5 per cent in 2000.

It is also worth noting that IT exports represent a higher share in the exports of developing countries than in those of developed countries. In fact, IT exports grew from 12 per cent of total developing countries’ exports in 1990 to 22 per cent of their total exports in 2000, while for developed countries the share was respectively 10 per cent in 1990 and 14 per cent in 2000.⁷ This phenomenon was a result of transnational corporations strategies for locating hardware production in emerging markets, as well as of developing countries’ efforts to develop local IT production capacities which resulted in important outsourcing of IT production to those countries.

Chart 13
Total exports of IT products (\$billions)

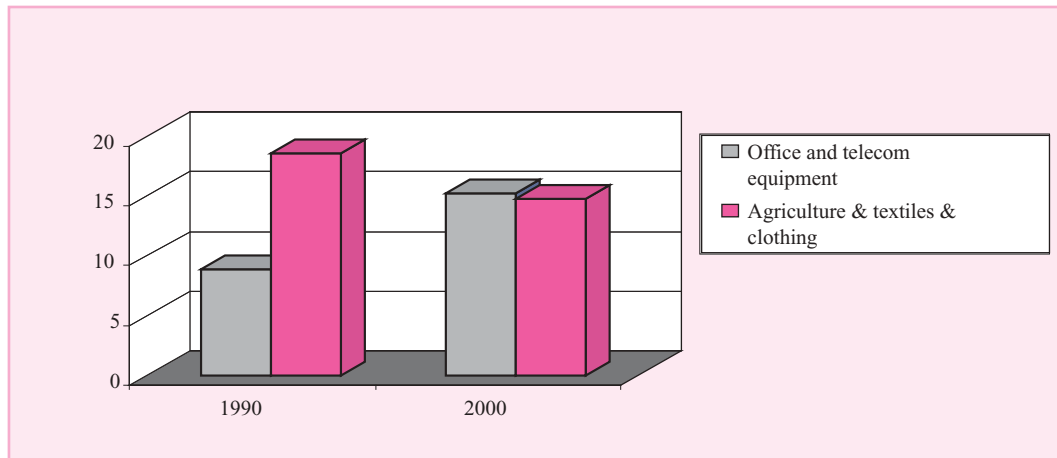


Source: UNCTAD COMTRADE database.

As a result of the rapid growth in the last decade, and as shown in chart 14, the share of IT products now

exceeds the share of agriculture, textiles and clothing products combined.

Chart 14
Share of IT in World Trade (percentage)



Source: WTO (2002).

The main sub-sectors within the IT industry were semiconductors, electronic data processing (EDP), office equipment (OE), telecommunications equipment, components and miscellaneous goods.⁸ The two largest of these – accounting for almost 60 per cent of IT exports – were EDP and semiconductors.⁹

EDP was the largest sub-sector, with 29 per cent of total IT exports in 2000.¹⁰ This segment includes personal computers, mainframe computers and peripherals such as keyboards, printers, monitors, cables and modems. Storage units, for example hard drives but also CDs and diskettes, are also included in this category. It is interesting to note that trade in EDP includes trade in packaged software, although this is not specifically mentioned. This happens for two sets of reasons: on the one hand, a large proportion of internationally traded software is installed in new computer devices, and users pay for it as part of the price of their new machine; this makes the distinction between hardware and software difficult to capture in import and export figures. This problem is compounded by the fact that, in the current trade nomenclature, there is no distinction between virgin disks and disks containing data, information or programs, so that even software that is sold separately from new computers is not adequately recorded in international trade figures.

The share of developing countries in EDP hardware was quite high, accounting for 40 per cent of exports in 2000.¹¹ Developed countries – and in particular the

United States and Japan – are the main producers of high-end computer products, but Asian countries, particularly Singapore, the Republic of Korea, Malaysia, Thailand and China, are also powerful competitors, especially in the PC sub-segment.¹² Thus, the presence of developing countries is higher in the commoditized IT products, which are characterized by low value-added.

As regards software, the United States is the world's leading exporter, and it has been estimated that 'American off-the-shelf software accounts for 70 per cent of the world market'.¹³ Among developed countries, Japan, Ireland, Singapore, the United Kingdom, France and the Netherlands are emerging as software industry hubs. Among the developing countries, a number of Asian countries are promoting production of software and software services, in particular India, Pakistan, Malaysia, the Philippines and Thailand, among others.¹⁴

The second largest sub-sector, with 25 per cent of exports, was semiconductors, and it was the one with the largest participation by developing countries, accounting for 43 per cent of exports.¹⁵ Again, the largest producers were the United States and Japan, together with a number of ASEAN countries, whose market share has been increasing steadily. Leading exporters from the ASEAN region are in particular the Republic of Korea, Thailand and Taiwan Province of China.¹⁶

Table 19
Total exports of IT products and developing countries' share of exports

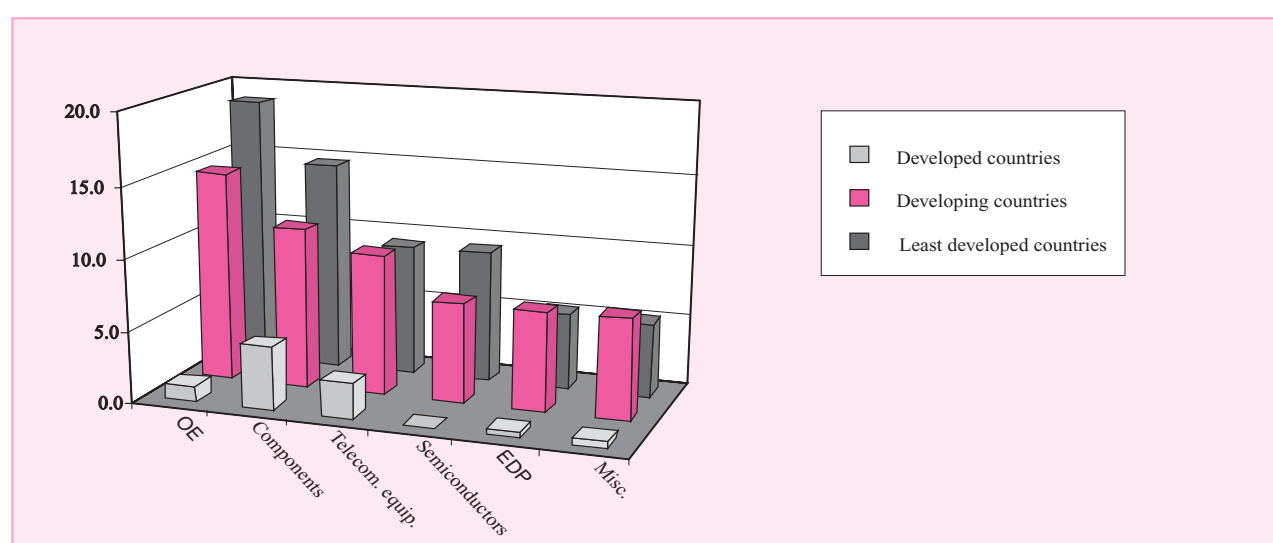
Years	1990		1995		2000	
Product Group	Total exports (billion \$)	Developing Countries' Share (%)	Total exports (billion \$)	Developing Countries' Share (%)	Total exports (billion \$)	Developing Countries' Share (%)
Electronic Data Processing	94	15	196	28	303	40
Semiconductors	41	29	138	38	227	43
Other components	51	14	125	27	179	34
Telecommunications equipment	16	11	42	16	109	24
Miscellaneous	26	4	56	20	60	13
Office equipment	25	16	37	36	41	34
Total	253	16	594	29	919	36

Source: UNCTAD COMTRADE database.

As shown in chart 15, the level of tariff protection applied to IT goods is currently low in developed countries and it is quite likely that since developed countries are the main markets for these products, this was one of the factors that enabled the rapid growth of developing countries' exports of IT goods. However, tariffs remain relatively high in the developing world and especially so in least developed countries. As the chart shows, the level of protection is highest in the office equipment and components sub-sectors. The reason for this, with regard to the components sub-sector, is in part that some products included in that sub-sector are difficult to separate from compo-

nents of an electrical and even mechanical nature.¹⁷ Thus, these products were not subject to the sweeping tariff-cutting exercise that focused on the IT sector. Even when this is taken into account, the rate applied by some of the least developed countries appears to represent one more obstacle for companies located in those countries in accessing technology at reasonable cost. In order to enable developing countries' manufacturers and service providers to engage in e-business and to take full advantage of the opportunities offered by the new technologies, the tariffs levied on these products need to be reassessed.

Chart 15
Simple average of tariffs applied to IT products



Source: UNCTAD TRAINS database.

C. Role of IT in e-business and the developmental impact of the IT industry

In the last three decades a number of countries have used the IT industry as a tool for their development, for a number of reasons. First, the sheer size of the industry now makes it an important investment opportunity. Second, since many segments of the industry do not require a large amount of upfront capital, entry in this sector is relatively easy for countries that have adequate human capital. Third, as mentioned in the previous section, the protection level for the IT industry is relatively low in the major importing markets, and this no doubt was among the factors that favoured the growth of the IT industry in some of the developing countries.

A number of developing countries have therefore undertaken strategies to attract investment in the field

of IT and/or develop the IT industry. The IT industry has grown in waves, as regards both technological developments and market demand, so according to one interpretation, the countries that have succeeded in developing an IT local sector were those that recognized and consequently targeted an emerging trend, investing in the production of goods for which the technology was already established, but for which the market was not yet saturated.¹⁸ Some of the South-East Asian countries were, for example, successful in penetrating the PC industry in the early 1980's when PCs relied on a robust technological base and the industry was growing fast.

One clearly emerging new wave in the next few years concerns the development of open-source software. As explained in box 18, open-source not only offers promising opportunities to the software industry in developing countries but also is particularly well adapted to fitting in with developing countries' current pattern of hardware production.

Box 18

Open-source software

In contrast to the proprietary software produced by most commercial manufacturers, open-source software is written and perfected by volunteers, who freely share the programming code that would otherwise be kept secret. Under the terms of the most popular open-source licences, anyone can redistribute the software without paying fees to its author, and anyone can modify it if they distribute the new version under the original terms: open-source and non-proprietary.

The most important of open-source products is the operating system Linux, which has become a powerful competitor of proprietary software and is running on 30 per cent of all active website servers on the Internet, including perhaps the most famous B2C website, Amazon.com. Furthermore, it was recently reported that 'Merrill Lynch and Credit Suisse First Boston have both started to use Linux throughout their operations, for such high-powered tasks as financial trading and order processing'.²

The development of open-source software provides promising opportunities for the software industry in developing countries. In this respect, it should be made clear that open-source is free in the sense that anyone is free to view and modify its source code, but not in the sense that nobody is selling it. For-profit companies have found ways to sell open-source software basically by selling customer service and support.

It is also interesting that the development of open-source provides an ideal match for the capacities of developing countries also as regards their current patterns of hardware production. In fact, thanks to open-source programs, complex applications can run on ordinary PCs linked together into "farms" rather than requiring more expensive super-computers and mainframe workstations. Because ordinary PCs are mainly produced in developing countries, while more expensive equipment is mostly produced in the developed countries, the developing countries can capitalize on their strength by developing open-source software.

In addition, by writing applications based on the Linux operating system, programmers from developing countries will be increasingly be able to acquire a more direct understanding of the operating system and enhance their skills. Also, developing countries' programmers can now draw on the online collaboration by software engineers throughout the world in the development of the software and benefit from shared experience rather than from the mere transfer of a technology that is developed outside their borders.

Box 18 (continued)

An interesting example of the utilization of Linux in the developing countries comes from a Pakistani university and research institution,³ where low-cost, old computers – such as 386 or 486 machines with no hard disk and little memory – are used in connection with larger machines to operate a laboratory which is used to give courses in engineering and computer programming.

¹ See www.netcraft.com/survey.

² Dylan Tweney (2002).

³ The University of Engineering and Technology, Lahore, Pakistan. For details see Bokhari, and Rehman (1999).

Another emerging trend in developing countries is the customization of IT and especially software products for the use of their local or regional markets. In fact, a number of SMEs from developing countries are

closely cooperating with transnational corporations in order to make their products or services suitable for the particular needs of a niche clientele or a foreign market. Box 19 explores this area and gives examples.

Box 19

Localization of software and websites: a growing industry

The increasing size and reach of the IT industry and the Internet have created the need for the “localization” of software packages as well as of companies’ websites. Localization can simply mean translation of the content into the local language, but quite often goes further because the software programs will require some re-engineering in order to run smoothly in the foreign language environment.

For example, there is a major need to “Arabize” software for the Middle East region, a potentially large market with some 175 million Arabic speakers, Arabic being the sixth most widely spoken language in the world. A number of Egyptian companies are competing in this potentially lucrative market, in the hope they can replicate the success that they enjoy in the Arab world in producing media content – books, films and broadcasting. Examples include Shazly, specializing in the Arabization of English software, (<http://www.shazly.8m.com>) and S.A.L.T. (<http://www.salty2k.com> Systems Arabic Localization Technology), which has conducted successful localization of Microsoft and Lotus software packages as well as providing services related to websites translation and web hosting. From another region, Transco Technology Co., Ltd. of China (<http://www.transco.com.cn>) provides an already solid client base of TNCs with localization in respect of the growing Chinese market.

Interestingly, localization is clearly also extremely important in the open-source environment. As an example, Arabeyes (www.arabeyes.com) is “a Meta project that is aimed at fully supporting the Arabic language in the Unix/Linux environment. It is designed to be a central location to standardize the Arabization process. Arabeyes relies on voluntary contributions by computer professionals” from all over the world. As was discussed above, open-source provides a number of opportunities for developing countries: these opportunities can only be enhanced by localization and translation into local languages, which can then serve as a springboard for developing new ventures and business opportunities.

A number of other examples could be given of potential opportunities for companies from developing countries in the IT sector. However, it is more important to underline the key input that IT makes to development in its widest possible sense. In fact, IT is among the factors that underpin the globalization taking place in virtually all business sectors.

New ICT such as the Internet give companies the opportunity to develop new products, to access world

markets at lower costs and to source the goods and services needed in the production process in wider and more competitive markets. This translates into increased efficiency not only at the level of the firm, but also at the level of the business sector and the economy as a whole.¹⁹

While it is clear that many companies in developing and transition economies are using e-business in a variety of forms,²⁰ to fully benefit from the new tech-

nologies and integrate them into everyday business requires a technological infrastructure and a level of workforce expertise that are beyond the reach of the majority of small and medium sized enterprises in developing countries. It is for this reason that business associations, local and national governments, and international organizations are developing a number of initiatives in order to create a nurturing environment into which the business community can successfully integrate e-business practices.²¹

The present analysis is complementary to these efforts, in that its aim is to offer hindsight on the role of the IT industry in facilitating the adoption of e-business by the local business sector in developing countries. In this connection, the next paragraph presents the survey designed and conducted by the UNCTAD secretariat in order to highlight some of the basic facts of foreign investment in IT in developing countries and especially the relationship between IT transnational corporations and the local workforce and the local business sector.

D. Methodology of the survey of the most important IT multinationals

The UNCTAD secretariat undertook a survey of the determinants of IT companies' investment and use of e-commerce in developing and transition economies. It used several databases²² in order to identify all the IT companies of a size large enough to justify overseas investment. Information about the sample population, the rate of response and a copy of the questionnaire can be found in annex 2.

The questions included in the questionnaire were carefully selected and worded in such a way as to minimize the work required of the respondents and to facilitate the analysis of the results. This meant that – with only one exception – multiple-choice questions were preferred to open questions. As an example, many of the questions requested the respondents to choose among alternative strategic options or rank various factors that guide their investment decisions or desired government strategies. Of course, this implied a certain loss of spontaneity and of generality in the answers, which are typical and have to be accepted in these surveys.

While a question on the magnitude of worldwide revenue from IT products was included, questions aimed at extracting quantitative information such as the mag-

nitude of planned or existing investment, the revenues from sales at a specific location or the number of personnel working in any given site were deliberately excluded for a number of reasons. First, quantitative information would be difficult for the companies to disclose, and would prevent many from participating in the survey and providing a valuable insight into policies and strategic business options. Second, these questions would not necessarily have given indications about the magnitude of developing country operations. For example, depending on the different ownership arrangements and on the business strategy adopted by the mother company or by the local management, a very small upfront investment could result in a larger or a smaller business venture. Including a question on the number of employees could have been equally misleading, depending on what part of the work was subcontracted and on the labour or capital intensity of the goods that were produced (production of semiconductors is capital-intensive whereas IT services are markedly labour-intensive).

The answers, which are presented below, are intended to be of assistance in the design of policies and strategies that will not only attract the kind of IT investment that best matches a country's strengths but also allow developing countries and countries in transition to increase the IT competence of the workforce and to deepen the linkages between national firms and IT multinationals. Unless otherwise indicated, the source of all the data presented in the next paragraphs is the UNCTAD survey.

E. Results of the survey

1. Composition of the sample

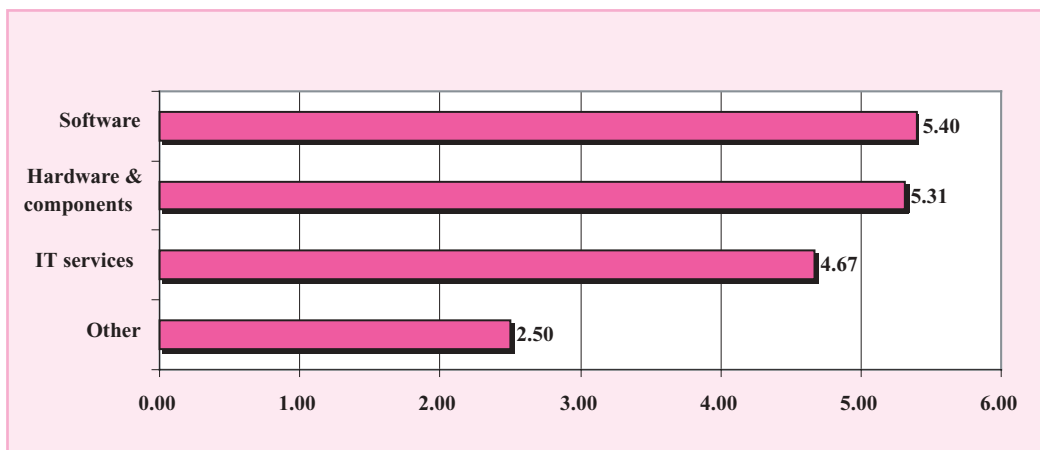
As regards the composition of the sample of respondents, the 35 companies that replied to the questionnaire had a cumulative turnover from IT products of \$ 413 billion, which represents around a half of IT worldwide production. The average turnover was \$ 12 billion: it should be noted however that this is not the total turnover of the companies – which is even larger – but exclusively the revenue from IT sales.

The sample included companies of different sizes and revealed that even relatively small-scale companies in the field of IT invest in overseas markets. Twelve companies had a turnover of less than \$ 1 billion, nine companies between \$ 1 and 10 billion, five companies between \$ 10 and 20 billion, five between \$ 20 and 40 billion, and 3 with more than \$ 40 billion.

The survey was not addressed to local IT-producing companies in developing countries for two sets of reasons. First, multinational companies make up an important share of production in the IT sector. For instance, the sum of the revenue of the top ten hardware and of the top ten software producers, according to *Fortune magazine*, is \$ 311 billion, or roughly a third of worldwide IT spending.²³ Secondly, it would have required two different questionnaires to inquire about the local operations of small IT companies and the overseas operations of IT multinationals, so that it was decided that this second line of analysis should be treated separately.

As regards the geographical composition of the sample, 14 respondents were from North America, 11 from Western European countries, 5 from Japan and 4 from Asia. The companies in the sample represent a variety of business models and invest in different sub-sectors. The respondents were asked to indicate in which sectors they primarily invested: multiple answers were possible because several companies are producers of both software and hardware. Chart 16 reproduces the finding on a scale of 1 to 10: the sectors in which most companies invested were software and hardware and components, followed by IT services. Only a minority invested in other sub-sectors.

Chart 16
Sectors in which the companies invest



Scale: 1 to 10.

It is interesting to note that the companies which indicated that they invested primarily in hardware and components had an average turnover of \$ 18.82 billion, while those that invested primarily in software had an average turnover of \$ 4.28 billion. In other words, many of the “smaller” companies in our sample were mainly investing in software. This replicates the underlying structure of the industry: by way of comparison, the 12 largest companies in the field of computer hardware and office equipment, as reported by *Fortune magazine*, had an average turnover of \$ 21.3 billion, while the 13 largest software producers had an average turnover of \$ 4.3 billion.²⁴

2. Type of ownership arrangements

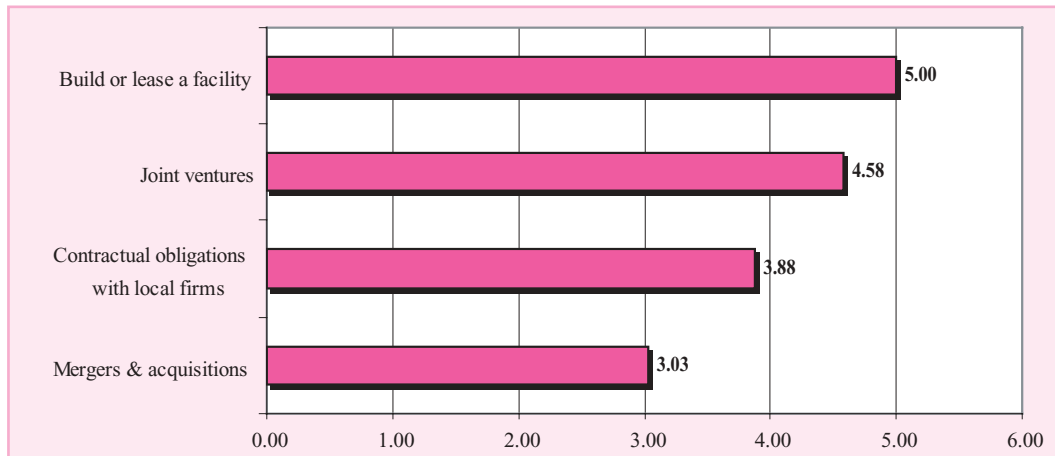
Respondents were asked to rank the means that their company used in order to establish a presence in

developing countries. Companies were given four choices, as set out in Chart 17.

The majority of respondents answered that investment was of the greenfield type (building or leasing a facility), while mergers and acquisitions were the least utilized among the available options. Interestingly, this is the reverse of the finding by the *World Investment Report*. “Over the past decade, most of the growth in international production has been via cross-border M&A rather than greenfield investment”.²⁵ The difference in conclusions may be explained by the fact that the corporate IT sector in developing countries has not yet presented advantageous acquisition targets or merger partners owing to the relative infancy of the entire IT sector.

Our finding could be related to the particular characteristics of the IT industry as opposed to other eco-

Chart 17
Means that your company uses in order to establish a presence in developing countries



Scale: 1 to 10.

conomic sectors. One should be careful, however, about potential definitional discrepancies. In particular, in our survey, greenfield investment was defined quite loosely to include building or leasing a facility. In other words, this answer could point to strikingly different patterns, such as building a new plant for the production of IT hardware or leasing an office for the distribution of a company's products.

Nevertheless, reading through the answers, and combining this answer with the one on the purpose of investment (see below), led to the conclusion that quite a number of the respondents were indeed undertaking greenfield investment with the intention of starting local production. The prevalence of greenfield investment is a positive sign, because it results in a net increase in the developing countries' production facilities, and can contribute to the overall improvement in macroeconomic and export trade performance.

Another important expansion tool, utilized extensively by the respondent companies, was the formation of joint ventures with local companies, whereby the multinational corporation is typically contributing its command of state-of-the-art technology and the local partner the knowledge of the market. In many cases, joint ventures are preferred to the alternative of directly acquiring local companies, because this strategy requires a lower upfront investment, and because continuity in the operations of local companies is preserved.

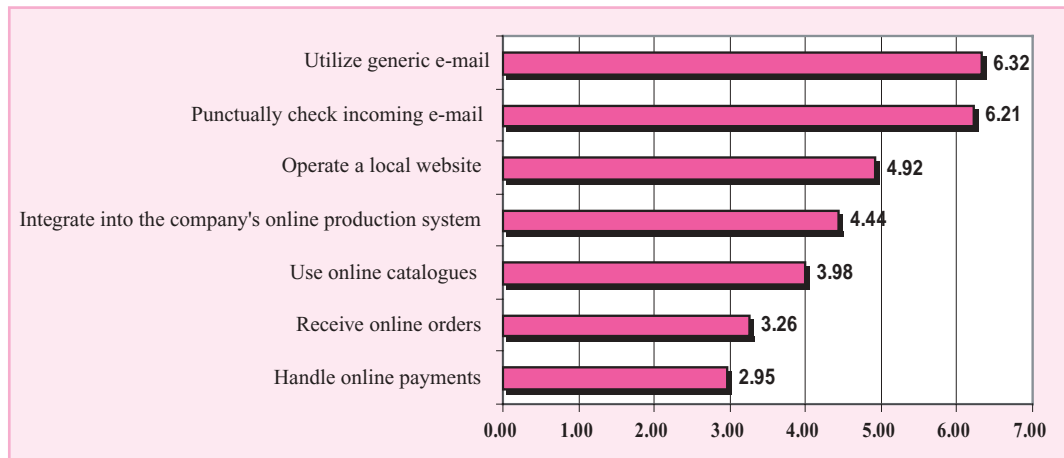
The relatively low number of companies that chose mergers and acquisitions as their preferred expansion tool could be due to a number of factors, including the fear that local companies may be burdened by debt or tied down by the composition of their workforce.²⁶

3. Utilization of e-commerce by IT multinationals

The respondents declared that – on average – 35 per cent of their purchases and 16 per cent of their sales were done over the net. Reliable statistics on enterprises' use of e-commerce are notoriously difficult to find,²⁷ and so it was not possible to compare this finding against other figures collected at the worldwide level, as would have been desirable. As a tentative comparison, in the United States, a recent survey by the United States Department of Commerce found that: "E-shippments account for 18.4 per cent of the value of all shipments from US manufacturing plants in 2000".²⁸ In account of the fact that our sample includes companies from countries that are less advanced in e-commerce than the United States, we can conclude that companies from the IT sector are – as would have to be expected – comparatively heavy users of electronic commerce.

In this light, it is interesting to see whether developing countries' operations are able to seamlessly integrate into the multinationals' system of production, which relies on high technology for the execution of contracts with established suppliers (see chart 18)

Chart 18
What proportion of your facilities in developing countries use the following technologies?



Scale: 1 to 10.

The respondents were asked what proportion of their developing countries' operations used common information and telecommunication technologies. On a scale of 1 to 10, 10 would represent an answer such as "all developing countries' facilities utilize the technology" and a value of 1 "none of the developing countries' facilities utilize it". As can be seen from chart 18, a large proportion of developing countries' facilities utilize e-mail and operate a website, but few of them are yet engaging in e-commerce operations such as managing online catalogues, receiving online orders and handling online payments, and more generally becoming integrated into the company's online production system.

It is perhaps for this reason that a rather high percentage of the respondents declared that the various aspects of e-commerce did not facilitate "at all" the setting up and operating of developing countries' facilities (9 per cent). An equal percentage of respondents held an opposite view – namely that e-commerce had greatly facilitated such operations – and the great majority of respondents thought that e-commerce had made things significantly (32 per cent) or somewhat (47 per cent) easier.²⁹ More research would have to be done to qualify this perception, but it appears that in the operation of overseas facilities the "handshake" and personal contacts still retain their importance in spite of technological advances and that developing countries' facilities continue to be managed utilizing ordinary telecommunications tools rather than the new technologies, in view in particular of the still limited availability of ICT in developing countries.

4. Location of investment

The respondents were asked to provide details of the regions where they invested or where they intended to invest in the near future, indicating for what purpose they were investing or were intending to invest there (Chart 19). In order to keep the design of the questions simple, the companies were offered six choices: Africa, Eastern Europe, Latin America, Middle East, South-East Asia (ASEAN countries) and other developing countries in Asia (including India and China). The majority of the respondents (70 per cent) indicated that they invested in "other developing countries in Asia", while a slightly lower percentage (67 per cent) in South-East Asia. These regions were followed at a distance by Eastern Europe and the Middle East, and then by Africa and Latin America.

Next, in view of this strong concentration of IT investment, which appears to be even more important than that encountered in many other industries, it becomes interesting to see what are the factors that draw investment to specific countries and what are the consequences of alternative policy actions that countries can take in this regard.

In the first place, as Chart 20 shows, the location of the investment was influenced by the location of the mother company's headquarters. On the Asian and Latin American markets, the bulk of the investment was from United States' firms, while in Eastern Europe it was from European companies. In the Afri-

can and Middle East markets the percentages of European and American companies were identical. A surprisingly high percentage of investment in Latin

America and the Middle East came from Japanese companies, and equally interesting was the involvement of Asian companies in the African market.

Chart 19

In which of the following regions does your company currently invest or intend to invest (percentages)?

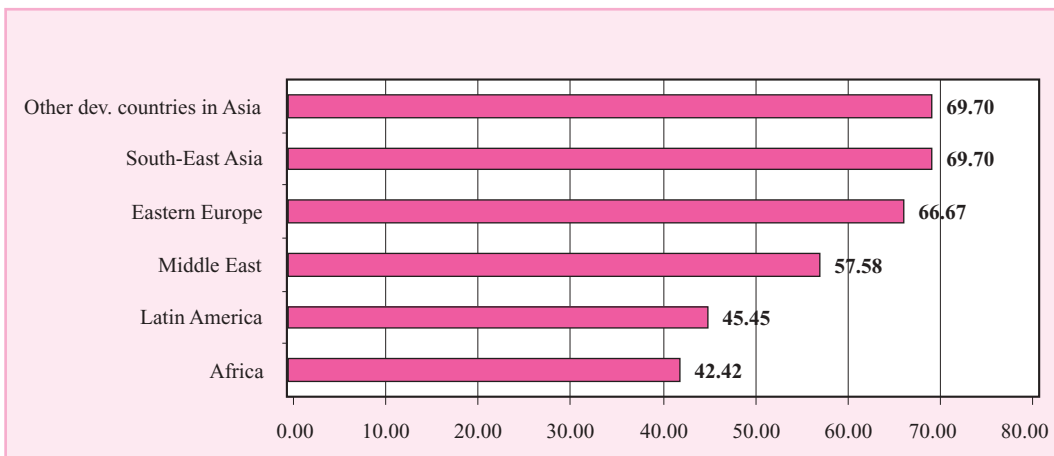
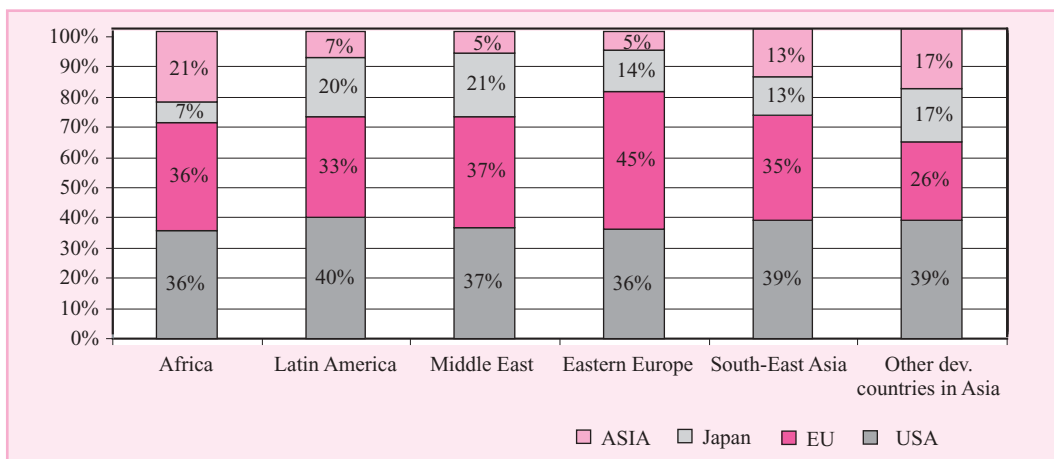


Chart 20

Percentage of companies that invest in the different regions according to the location of their headquarters

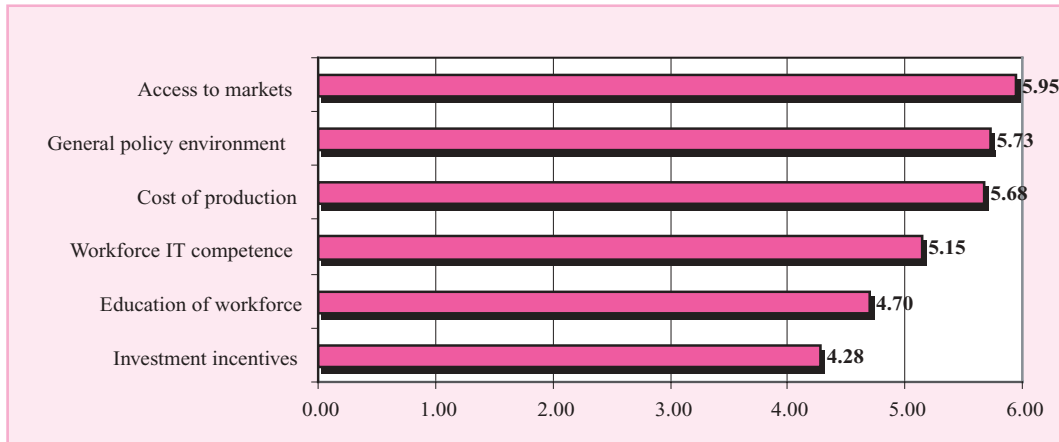


As for the other factors that directed IT investment to specific markets, the most important was access to markets (market size and potential, proximity to larger markets, participation in regional/bilateral free trade areas), followed by general policy environment (political stability, trade policy, tax policy), cost of production, workforce IT competence, workforce education and investment incentives (see chart 21).

This ranking basically reflects the findings of other surveys – see, for instance, the *Foreign Direct Investment Survey*³⁰ – but shows that IT companies attach particular importance to the competences of the workforce. The most important message from chart 20 is that IT multinationals will select the location of their subsidiaries according to fundamental macroeconomic variables, which the country can alter only in the medium

Chart 21

Factors that your company considers in choosing a developing country as a potential location for investment



Scale: 1 to 10

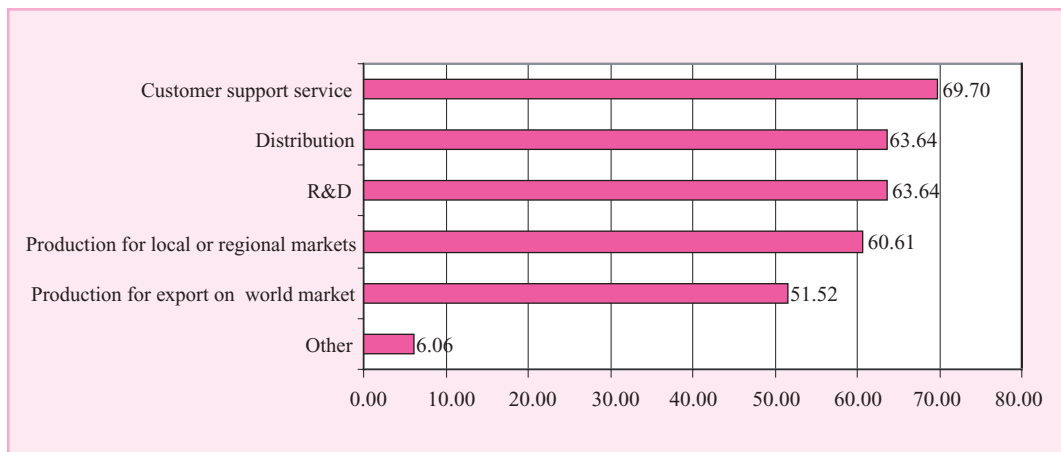
to long term. For instance, the most important factor in TNCs decisions appears to be “access to markets”: while access is a geographical factor over which the policy maker has little control, partially, it can be enhanced by signing free trade area agreements at the regional level and marketing the country as the potential production hub to service the regional market. The case is similar for factors such as “general policy environment” and “cost of production”: Governments can influence them by making the country an enabling environment for investment – both local and foreign – but clearly this can only be a long-term policy goal. Factors such as investment incentives, which can be altered in the short term, are instead likely to have less effect on companies’ decisions on the location of investment.

Next, it is interesting to analyze the purpose for which the respondent companies invest in developing regions (see chart 22). The questionnaire gave the companies five choices: Customer Support Service (CSS), Distribution, Production for export on the world markets, Production for local or regional markets, Research and development (R&D) and Other. The most important reason for investment in developing countries was customer support service and distribution, followed by R&D, and production.

Since customer support service and distribution are critical factors that draw IT investment to the different markets, it is safe to assume that IT multinationals will invest more heavily in the very regions in which they are more intensively exporting. Thus, as e-commerce

Chart 22

For what purpose does your company invest or intend to invest?(percentages)

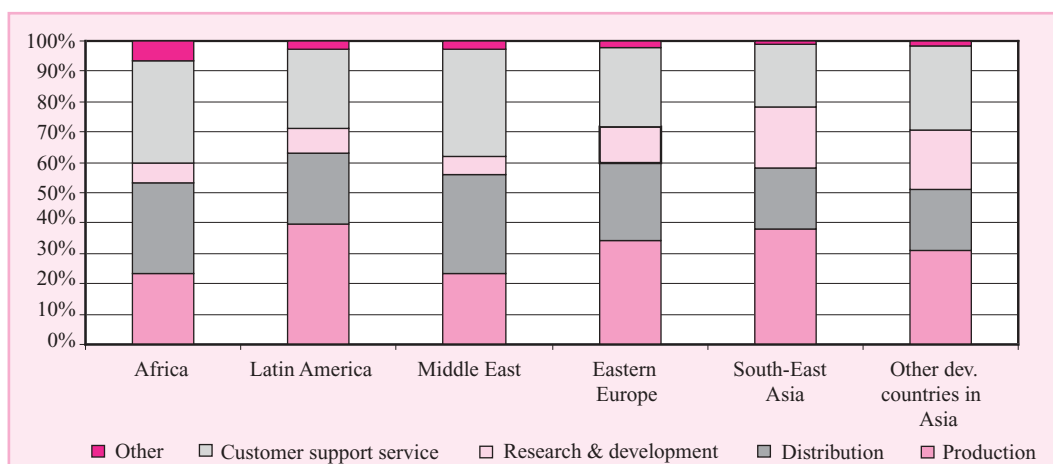


and e-business lead the business sector in developing countries to make more intensive use of the new technologies, more IT investment will flow to those regions. The relative importance of customer support service also points to the growing market which tends to the needs of corporate clients for the customization of hardware and software and which – as was discussed in boxes 17 and 18 – also offers business opportunities for developing countries.

Chart 23 makes a cross-analysis of the reasons why multinationals invest in the different regions, accord-

ing to the purpose of investment. It appears quite clearly that investment in production facilities and in research and development – which is the one that most facilitates the transfer of technology from multinationals to local companies – is still heavily concentrated in South and South-East Asia. In fact, while R&D represents 20 per cent of all investment in those two regions, the percentage is only 6 per cent in the Middle East and 7 per cent in Africa. Similarly, investment in production facilities represents 37 per cent of total investment in South-East Asia and only 23 per cent of total investment in Africa.

Chart 23
Percentage of companies that invest in the different regions according to the purpose of investment



To summarize, the findings from the questionnaire point to an intensive concentration of IT investment in South and South-East Asia and in particular to the concentration of investment for productive and research purposes in those regions. Furthermore, it appears that government policies can only alter investment decisions on location in the medium to long term.

We turn now to the last set of questions, which focused on what actions Governments could take in order to maximize the positive fallback of IT investment, in terms of use of local labour by TNCs and enhancement of workforce skills and in terms of deepening the linkages between TNCs and the local industry.

5. Labour

A key benefit of FDI – and especially so in the field of IT – is the potential for human resources development. TNCs may in fact act as a powerful pull factor,

because they often offer better wages than domestic firms, but at the same time require a higher level of competence. As a result, they stimulate the development of a technically skilled workforce and encourage Governments and households to invest in education. In addition, the characteristics of jobs in TNCs are such that they often require on-the-job training so there TNC investment may have a direct impact on the qualifications of the workforce.

This brings us directly to the next question - how much of the employment generated by the multinationals is local. The respondent companies reported that – on average – local labour represented 79.7 per cent of the total workforce in their facilities in developing countries. The variation among companies was quite high for this answer, and over half of the companies in the sample reported percentages of 90 per cent and higher. It is also interesting to observe that the multinationals mostly employ skilled³¹ labour in their developing countries' facilities: in fact, it represented close to 69 per cent of the total workforce.

The respondents were then asked to specify which policy actions would be desirable in order to increase the number of high-skilled local personnel and improve their competencies (see chart 24).

The companies were of the view that the most important policy action in this regard was developing and expanding local universities, followed by increasing the quality and reach of primary education.

6. Subcontractors

One last important dimension that deserves to be explored is that of the linkages between multinationals and local industry.

The concept of "linkages" was the central theme in UNCTAD's *World Investment Report 2001*, which summarizes its benefits as follows:

"A key factor determining the benefits host countries can derive from FDI are the linkages that foreign affiliates strike with domestically owned firms. Backward linkages from foreign affiliates to domestic firms are important channels through which intangible and tangible assets can be passed on ...

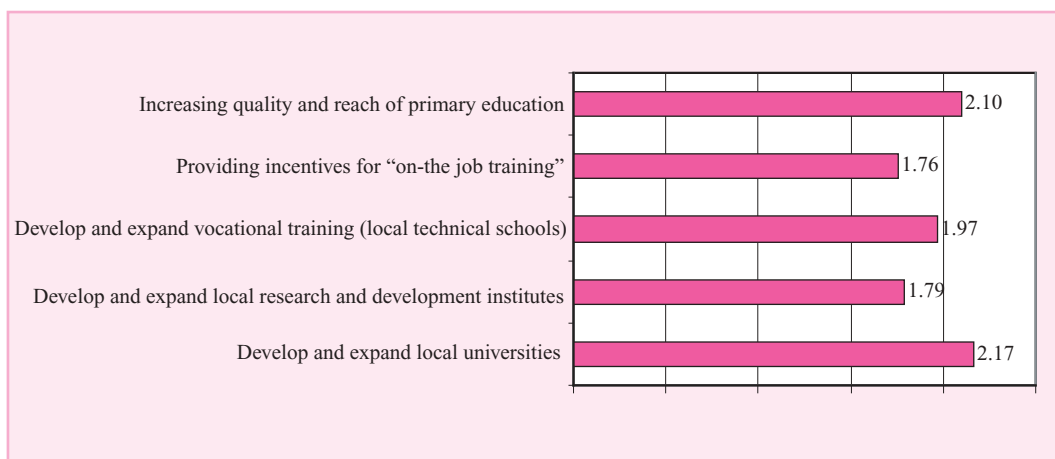
They can contribute to the upgrading of domestic enterprises, provide opportunities for production and employment by domestic suppliers and embed foreign firms more firmly in the host economies".³²

For these reasons, our survey included a question on the linkages that TNCs made with local firms. The companies that responded to our survey maintain intense linkages with local companies in the host countries. In particular, 65 per cent of companies indicated that they were buying generic office supplies from local firms and 56 per cent that they sourced from them direct inputs into the production process. Only 9 per cent of the firms declared that they did not rely on local partners.

Additionally, the respondents were asked to specify which policy actions would encourage them to make further use of local firms. As chart 25 shows, the most important ones are the strengthening of enforcement of contracts either by reinforcing local courts or through international investment agreements, developing the competencies of local firms in the field of IT, improving telecommunication infrastructure and improving information on the stability and financial security of local firms.

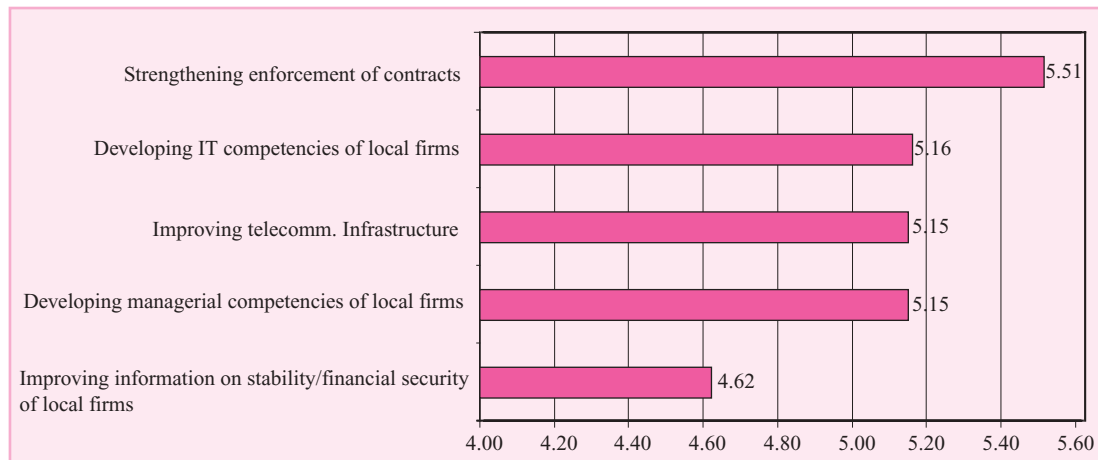
Chart 24

Actions that would help improving the competences of your company's local employees in developing countries



Scale: 1 to 10

Chart 25
Actions that would encourage you to increase your reliance on local subcontractors



Scale: 1 to 10

F. Conclusions

With regard to the question asked in the introduction to this chapter – that is, whether the IT industry, and more particularly investment by IT multinationals in developing countries, can contribute to enhancing a country's capacity to engage in e-business – the answer appears to be a qualified “yes”.

First, it appears from several of the answers in our survey that the TNCs that are investing in the IT sector in developing countries are doing so with a long-term objective. First, the very reasons why the TNCs choose the locations in which they invest have to do with complex, economic and geopolitical factors rather than short-term advantages. Moreover, an important part of the respondent companies reportedly chose 'greenfield' investment as a preferred expansion method, which is clearly a strategy that reflects an intention to create production capacity and establish a presence in the local markets of developing countries in the long term. Finally, the fact that the majority of the workforce employed in the production facilities of the TNCs is local labour, and especially skilled local labour, also shows a long-term commitment, in the light of the difficulty of hiring, training and retaining IT-savvy labour, especially in developing countries.

Second, IT investment in developing countries has a positive spillover effect on the local productive sector, which is significantly involved in the production proc-

ess of the multinationals. The companies also appear to focus on increasing the competences of their local workforce.

Third, the survey also reinforces the intuition that IT companies engage quite intensively in e-commerce, and that they equip many of their subsidiaries in developing countries with e-commerce functionalities. If that is so, IT investment might then make an important contribution to increasing e-commerce in those countries, at the same time boosting data traffic on the Internet, fuelling competition and hence potentially bringing about cost reductions in telecommunication services.

On the other hand, most of the IT companies indicated that the new technologies made only a partial contribution to the setting up and operation of developing countries' facilities. This suggests that developing countries' facilities continue to be managed utilizing ordinary telecommunications tools rather than the new technologies, in view in particular of the still limited availability of ICT in developing countries.

Furthermore, IT investment is still very concentrated in Asia and South-East Asia, even more so than other kinds of investment, which are more dependent on the availability of natural resources. It is also important to emphasize that investment for production and research purposes – which offers the best opportunities for transfer of technology – is even more heavily concentrated in these regions. It would therefore

appear that investment by IT multinationals could be used as a pull factor for the development of e-business only by some of the developing countries.

This finding is reinforced by the analysis of the factors that directed IT investment to specific markets, which reveals that policy incentives can alter multinationals' investment location decisions only in the medium to long term.

However, this picture could change in the coming years, as the new technologies become more widespread, fuelling demand for IT sales and investment in the developing countries. A potential role for the policy makers – in cooperation with the private sector and all the relevant stakeholders – will then be to foster an enabling environment for e-business through the adoption of national e-strategies. The specificities of the e-strategies will differ across countries and regions, but the analysis contained in this chapter highlights the importance of involving the local IT industry and the local branches of the IT multinationals in their definition and implementation.

Government policies might also play an important role in enhancing the positive impact of IT investment on workforce skills – by improving the reach and the quality of university programmes – and in deepening the linkages between the multinationals and the local business sector by strengthening the enforcement of contracts, developing IT competencies of local firms, and improving telecommunications infrastructure.

The industry includes a number of strikingly different economic sectors, some of which are particularly dynamic and were resilient to the recent economic downturn. The high growth of some segments of the industry, combined with the recent liberalization of the sector in the context of the WTO ITA Agreement, appears to provide IT companies from developing countries with important opportunities for exports.

The localization of existing software programs and the customization of IT systems for the benefit of the local business sector as well as for the multinationals that are present in the country, could also constitute an initial entry strategy for software companies of developing countries, which could then build up export capacity targeted at the regional markets. The fact that a large share of the multinationals' investment in the developing countries is directed to distribution and customer support services – which are a proxy for the customization of hardware and software products to the needs of corporate clients – is also indicative of the importance of this market and of its potential. It is important to underline that this strategy is on the borderline between IT production and IT use and as such it at the same time provides opportunities for local IT companies and enhances the local business sector's capacity to engage in e-commerce.

Our analysis also highlights the significant opportunities that may emerge from the development of open-source software and from the adaptation of existing technology to this new environment. In this regard, Governments can play an active role by ensuring that local businesses and the local IT industry can make their choices as regards systems infrastructures which best suits their needs with a full understanding of the issues at stake. Training programmes and the adaptation of university curricula might be needed to ensure that the local IT industry as well as the local business sector can take full advantage of these opportunities. In the dialogue that is taking place at the national and international levels among all the stakeholders involved in the definition of “e-strategies” for developing countries, these opportunities should be adequately addressed.

Notes

- 1 For a description of the products included in this study, see annex 1.
- 2 IDC (2001).
- 3 See IDC (2002): 'Worldwide IT spending growth, which was flat in 2001, is projected to rise to 4.7 per cent in 2002 and to 9.6 per cent in 2003'.
- 4 UNCTAD COMTRADE database.
- 5 Ibidem.
- 6 WTO (2002).
- 7 UNCTAD COMTRADE database.
- 8 See annex 1 for details of the product categories utilized in this study.
- 9 UNCTAD COMTRADE database.
- 10 UNCTAD COMTRADE database.
- 11 UNCTAD COMTRADE database
- 12 ITC (1999, p. 14).
- 13 ITC (1999, p. 52).
- 14 Ibid.
- 15 UNCTAD COMTRADE database.
- 16 ITC (1999, p. 34).
- 17 This problem is, for instance, particularly important for relays, switches, inductors and connectors, which may include some electrical products in addition to electronic ones.
- 18 For a detailed discussion of this trend see Kraemer and Dedrick (1999).
- 19 For an analysis of the impact of ICT on development see Bridges.org (2001), Digital Opportunity Initiative (2001), Department for International Development (DFID) (2002), Goldstein and O'Connor (2000), Kapur (2001), Open Economies Project (2002), UNCTAD (2000b), UNCTAD (2001b), UNCTAD (2002) and UNDP (2001).
- 20 For examples see UNCTAD (2001a), chapter 9, 'E-Commerce in the Least Developed Countries'.
- 21 See UNCTAD (2002). UNCTAD held an Expert Meeting on Electronic Commerce Strategies for Development, from 10 to 12 July 2002. The papers and the presentations from that meeting are available at <http://www.unctad.org/ecommerce>.
- 22 Including Fortune, Datamonitor and Piranhaweb.
- 23 Our estimate of worldwide IT spending includes telecommunication and scientific equipment, for which Fortune 500 does not provide a separate listing, so that the one-third ratio is an underestimate.
- 24 *Fortune magazine*, 15 April 2002, available at www.fortune.com
- 25 UNCTAD (2000a, p.10).
- 26 For an illustration of why M&As might be difficult in emerging markets, see *The Economist* (2002). The article, which notes that the Republic of Korea has many large companies that interest foreign investors, asks why they are so difficult to buy and gives illustrations of difficult negotiations in the field of IT and in other sectors. Apparently, the reasons for these difficulties have to do with local culture, lack of reliable financial information and debt. These problems are not specific to the Republic of Korea, but are illustrative of problems that are quite common in developing countries. Indeed, as reported by the *Wall Street Journal* of 8 May 2002, "Korean FDI in April surged 56.6 per cent from a year earlier".
- 27 For more information on the collection of statistics on e-commerce see UNCTAD (2001b).

- 28 United States Department of Commerce (2002).
- 29 Percentages do not add up owing to the fact that some companies did not respond.
- 30 Multilateral Investment Guarantee Agency (MIGA) (2002).
- 31 The companies were not given a definition of “skilled labour” but were left free to utilize their own definition. It is therefore quite possible that definitions varied across companies, but we preferred to keep the questions as simple as possible to minimize the work required of the respondents.
- 32 UNCTAD (2001a, p. 132).

References

- Bokhari, S. H. and Rehman, R. (1999). “Linux and the developing world”, *IEE Software*, January/February.
- Bridges.org (2001). “Spanning the digital divide”, available at <http://www.bridges.org/projects/reports.html>.
- Department for International Development (DFID) (2002). “The significance of information and telecommunication technologies for reducing poverty”, available at http://www.dfid.gov.uk/Pubs/files/ict_poverty.pdf.
- Digital Opportunity Initiative (2001). “Creating a Development Dynamic”, Final Report of the Digital Opportunity Initiative, UNDP, New York, available at <http://www.opt-init.org/framework.html>.
- Goldstein, A. and O’Connor, D. (2000). “E-Commerce for Development, Prospects and Policy Issues”, Technical Paper No. 164, OECD Development Centre, Paris, September, available at <http://www.oecd.org/pdf/M00006000/M00006196.pdf>.
- International Data Corporation (IDC) (2001). “The market after September 11”, Special IDC Telebriefing, 11 October, available at <http://www.idc.com/getdoc.jhtml?containerId=25758>.
- International Data Corporation (IDC) (2002). “Economic recovery to drive IT market rebound in 2002”, IDC Press Release, available at http://www.idc.com/getdoc.jhtml?containerId=pr2002_04_29_171739.
- ITC (1999). *Trade in Information Technology Products and the WTO Agreements: Current Situation and Views of Exporters in Developing Countries*, Geneva.
- ITU (1999). *Challenges to the Network: Internet for Development*, Geneva.
- ITU (2002). *World Telecommunication Development Report 2002*, Geneva.
- Kapur, S. (2001). “Developing countries in the network economy: a blueprint for success”, presentation made on the occasion of the *International Symposium on Network Economy and Economic Governance*, available at <http://www.econ.bbk.ac.uk/faculty/kapur/personal/pres.html>.
- Kraemer, K. L. and Dedrick J. (1999). “National Policies for the Information Age: IT and Economic Development”, available at <http://www.crito.uci.edu/itr/publications>.
- Mallampally, P. and Sauvart, K. (1999). “Foreign direct investment in developing countries”, *Finance and Development*, March, available at <http://www.imf.org/external/pubs/ft/fandd/1999/03/mallampa.htm>.
- Multilateral Investment Guarantee Agency (MIGA) (2002). *Foreign Direct Investment Survey*, World Bank, Washington, DC, available at <http://www.ipanet.net/fdisurvey>.
- Open Economies Project (2002). “Digital Entrepreneurship and Innovation: A Framework for Policy, Legal and Regulatory Action”, document prepared for the joint meeting of the United Nations ICT Task Force, G-8 Group of Nations DOT Force, and World Economic Forum Global Digital Divide Initiative, New York, 4 February, available at <http://cyber.law.harvard.edu/openeconomies/actionframework.htm>.
- The Economist* (2002). “Dead deals walking: South Korean takeovers”, February.
- Tweney, D. (2002). “Buying Industrial-Strength Tech on the Cheap”, 25 April, available at <http://www.business2.com/>

- UNCTAD (1999). *World Investment Report 1999: Foreign Direct Investment and the Challenge of Investment*, United Nations, Geneva and New York.
- UNCTAD (2000a). *World Investment Report 2000, Cross-border Mergers and Acquisitions and Development*, United Nations, Geneva and New York.
- UNCTAD (2000b). *Building Confidence: Electronic Commerce and Development*, UNCTAD/SDTE/MISC.11, United Nations, New York and Geneva, available at www.unctad.org/ecommerce.
- UNCTAD (2001a) *World Investment Report 2001: Promoting Linkages*, United Nations, Geneva and New York.
- UNCTAD (2001b). *E-Commerce and Development Report 2001*, UNCTAD/SDTE/ECB/1, United Nations publication, sales no. E.01.II.D.30, United Nations, New York and Geneva, available at www.unctad.org/ecommerce.
- UNCTAD (2002). "Electronic Commerce Strategies for Development: The Basic Elements of an Enabling Environment for E-Commerce", TD/B/COM.3/EM.15/2, prepared for the UNCTAD Expert Meeting on Electronic Commerce Strategies for Development, Geneva, 10-12 July 2002, available at www.unctad.org/ecommerce.
- UNDP (2001). *Human Development Report 2001: Making New Technologies Work for Human Development*, New York, available at <http://www.undp.org/hdr2001>.
- United States Department of Commerce (2002). "2000 E-Commerce Multi-Sector Report", 18 March, available at <http://www.census.gov/eos/www/ebusiness614.htm>.
- WTO (1996). Ministerial Declaration on Trade in Information Technology Products, http://www.wto.org/english/tratop_e/inftec_e/itadec_e.htm.
- WTO (2002). *International Trade Statistics*, available online at http://www.wto.org/wto/english/res_e/statis_e/statis_e.htm.

ANNEX I

STATISTICAL DATA ON THE IT SECTOR

The dataset utilized in the analysis of trade flows and tariffs was constructed using the United Nations COM-TRADE database and the UNCTAD TRAINS database, on the basis of a classification provided by ITC in the publication *Trade in Information Technology Products and the WTO Agreements* (ITC, 1999). This definition is close to – although not identical to – the product coverage of the WTO ITA Agreement. The reason for the discrepancy lies in the fact that the ITC definition utilizes Standard International Trade Classification (SITC) codes at the 4-digit-level, whereas in the Annex to the WTO Agreement the product coverage is defined in the Harmonized System (HS) at the 6-digit level.

It also should be noted that in the dataset on trade flows all countries that report data to the United Nations were included in the analysis. Because not all countries reported data for the three years that were included in the analysis, a different subset of reporting countries had to be utilized to cover the entire period.

Annex table 20 below provides a detailed listing of the product codes that were used in the analysis of trade flows and tariffs.

Table 20
Dataset utilized for analysis of trade in the IT sector

Products	SITC codes	Description
Semiconductors	7764, 7763	Discrete semiconductor devices and integrated semiconductor devices. Commonly, transistors, thyristors, diodes, hybrid circuits, microprocessors, memories, A to D and D to A converters, A to D amplifiers and a host of microchip components which form the building block of any electronic system.
EDP	7521, 7522, 7523, 7526, 7527, 7529, 7599	Large, medium and small-scale systems including input/output devices, storage devices and data communication equipment. In common parlance, personal computers, work stations, multi-user servers, keyboards, monitors, printers, modems, LAN cards, hubs, routers, serial and parallel ports, multi-media accessories, cables and other peripherals. Computer software: packaged software in diskettes, magnetic tapes and CD-ROM.
Office equipment	7511, 7512, 7633, 7513, 7591, 7638	Electronic typewriters, electronic calculators, electronic cash registers, electronic accounting machines, dictation equipment and photocopiers.
Telecom equipment	7643, 7641, 76491, 76481	Line telephony/telegraph transmission apparatus, radio telephony/telegraphy receiver, parts and accessories, switching equipment, fax machines, transmission equipment, telephone sets, other telecommunications equipment, accessories and parts.
Other components	7762, 7768, 7711, 7712, 7786, 7723, 7722, 7724, 7725, 7731, 8984	Color television tubes, monochrome television tubes, other display tubes, capacitors, resistors, connectors, plugs and sockets, electrical circuits, switches, transformers, chokes, coils and PCBs.
Other miscellaneous products	7788, 7648, 8743, 8744, 8747, 5985	Measuring and checking devices, chromatographs, spectrometers, optical radiation devices, and electrophoresis equipment and other miscellaneous equipment.

Source: ITC (1999, pp. 164-165).

ANNEX II

QUESTIONNAIRE ON ELECTRONIC COMMERCE AND INVESTMENT IN DEVELOPING COUNTRIES

The survey began with a selection of around 250-300 candidates drawn from databases from Fortune, Datamonitor and Piranhaweb. The questionnaire was sent by e-mail or fax to all these companies, and was then posted on the web to make it easier for the companies to respond. After an intense follow-up that lasted over two months during which the importance of the questionnaire was highlighted, 35 companies responded. The response rate – over 10 per cent – should be considered very satisfactory, since in this kind of questionnaire response rates typically range around 2-5 per cent. Following the survey, the results were uploaded in a database and responses from the companies aggregated to allow not only a simple analysis of answers given to specific questions but also cross-question aggregations.

The questionnaire

1. What is the percentage of your company's sales that take place electronically (i.e. customer's order is placed electronically)?

2. What is the percentage of your company's purchases that take place electronically (i.e. your order is placed electronically)?

3. Does your company currently invest or intend to invest in any of the following regions? For what purpose? Please mark with an x the corresponding cell in the table

	Production for export on world market	Production for local or regional markets	Distribution	R&D	Customer support service	Other (specify)
Africa						
Latin America						
Middle East						
Eastern Europe						
South-East Asia						
Other developing countries in Asia						

4. Within these regions, which country will be the top location of your investment in the coming two years?

5. Please rank from 1 to 4 the factors that your company considers in choosing a developing country as a potential location for investment (1= most important; 4= least important)

	Rank
Develop and expand local universities	
Develop and expand local R&D institutes	
Develop and expand vocational training (local technical schools)	
Providing incentives for "on-the job training"	
Increasing quality and reach of primary education	

6. Please rank from 1 to 4 the sectors in which your company primarily invests (1 = most important; 4 = least important)

Hardware and components	Software	IT Services	Other
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

7. Please rank from 1 to 4 the means your company uses in order to establish a presence in developing countries (1 = most common; 4 = least common):

Build/lease a facility	Mergers & acquisitions	Joint ventures	Contractual with local firms
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. In your company's facilities in developing countries, on average, what is the percentage of local labour in the total workforce?
- _____

9. In your company's facilities in developing countries, on average, what is the percentage of skilled labour in the total workforce?
- _____

10. Please rank from 1 to 4 the actions that would help improve the competences of your company's local employees in developing countries (1 = most important; 4 = least important)

	Rank
Develop and expand local universities	
Develop and expand local R&D institutes	
Develop and expand vocational training (local technical schools)	
Providing incentives for "on-the job training"	
Increasing quality and reach of primary education	

11. When investing in developing countries does your company rely on local partners:

For production don't rely of inputs	For generic office supplies	For other purposes	No, we on local partners
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Please rank from 1 to 4 the actions that would encourage you to increase your reliance on local subcontractors (1 = most important; 4 = least important):

	Rank
Improving telecommunications infrastructure	
Developing IT competencies of local firms	
Developing managerial competencies of local firms	
Improving information on stability/financial security of local firms	
Strengthening enforcement of contracts by local courts/international agreements	

13. Do different aspects of “electronic comerce” facilitate the setting-up and the operation of your facilities in developing countries:

To a great extent	Significantly	Somewhat	Not at all
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

14. What proportion of your facilities in developing countries use the following technologies: (1= all of them; 4 = none of them):

	Rank
Utilize generic e-mail	
Punctually check incoming e-mail	
Operate a local website	
Use online catalogues	
Receive online orders	
Handle online payments	
Integrate into the company's online production system	

Company name

Total turnover from IT products (Thousand US \$)

Contact person

E-mail address.....

Chapter 6

E-FINANCE FOR DEVELOPMENT: GLOBAL TRENDS, NATIONAL EXPERIENCE AND SMEs

A. Introduction

Large enterprises have greater access to finance on competitive terms than do small and medium-sized enterprises (SMEs) and microenterprises. The SMEs of developing and transition economies, which represent the most of these countries' productive capacity, face an even more severe lack of access to finance.

The advent of online electronic finance has brought with it the promise of cheaper, faster and more widely available finance for SMEs. Various types of online financial services that may be available to SMEs have already emerged or are coming on stream.

The Internet is a global phenomenon and so is e-finance. Its deployment is not limited to developed countries, and indeed some developing countries – such as Brazil, India and the Republic of Korea – are experiencing particularly strong growth in e-banking. At the same time, there are significant differences not only among regions but also among countries within the same region. It is interesting to note that, to a large extent, although the initial impetus has often been provided by foreign institutions (Deutsche Bank launched the very first Internet banking project in Latin America in 1996 and Citibank has developed a special “e-toolkit” across all its branches worldwide) local financial institutions have now successfully taken the relay. In many developing and transition economies the local enterprise sector has also developed active Internet and e-commerce strategies, thus matching the e-finance drive of the local financial service providers.

The Dynamics of e-finance in emerging economies, while not dissimilar, are clearly not identical to those of e-finance in the developed countries. It appears that by and large, e-finance in developing countries is driven by Internet banking, e-payments, and e-trade finance. Activity in financial markets is still limited, although in countries such as Mexico and the Republic of Korea online brokerage services appear to be quite

well developed. On the other hand, some e-financial services seem to be specifically tailored to the developing and transition economies. This is the case of microfinance, which will be discussed in the section on SMEs' specific services.

This chapter begins with a review of current trends in e-finance, including Internet banking, e-trade finance and e-credit information, and then looks at the global e-finance platforms. It also provides a review of SME-related e-finance experiences and initiatives in developing countries and, finally, outlines the challenges facing SMEs and related players.

Documentation on e-finance for SMEs is still heterogeneous and fragmented, especially regarding developing and transition economies. In particular, there is a lack of information on the attitudes of users of e-finance services. E-finance suppliers provide a large share of the available documentation. However, in some cases the information is provided to support business initiatives and therefore the data should be used with caution. This chapter is based on published data and information made available by experts participating in two recent UNCTAD e-finance related events, namely the UNCTAD Expert Meeting on Improving Competitiveness of SMEs in Developing Countries: Role of Finance, Including E-Finance to Enhance Enterprise Development, held from October 22 to 24, 2001 in Geneva, and the UNCTAD Side Event “E-Finance for Development”, held on 19 March, 2002 in the framework of the International Conference on Financing for Development convened by the United Nations in Monterrey, Mexico.¹

Throughout the chapter, a narrow definition of e-finance – to mean financial services delivered online through Internet fixed and wireless networks to enterprises and households – will be used.² However, where appropriate, the discussion covers related areas such as the offline use of electronic devices for payment transactions in remote areas.

B. Internet banking

Internet banking refers to the deployment over the Internet of retail and wholesale banking services. It involves individual and corporate clients, and includes bank transfers, payments and settlements, documentary collections and credits, corporate and household lending, card business and some others.

Since its inception Internet banking has experienced strong and sustained growth. According to Jupiter Media, Internet traffic for all United States banks grew by 77.6 per cent between July 2000 and July 2001, compared with overall World Wide Web traffic growth of 19.8 per cent over the same period.³ Another source estimated that the share of United States households using Internet banking will increase from 20 per cent in 2001 to 33 per cent in 2005, and that by 2010 there might be 55 million users.⁴ In France, the number of online banking accounts is recording an annual growth rate of 75 per cent and is forecast to reach 10 million by 2003. Datamonitor forecasts that between 2000 and 2003 the number of online bank accounts in Europe may grow annually by 34 per cent, increasing from 14.3 million in 2000 to 34.2 million in 2003.⁵

Internet banking operations currently represent between 5 per cent and 10 per cent of the total volume of retail banking transactions both in the United States and in Europe. This is less than the share of Internet securities trading, estimated at between 20 and 25 per cent of the total, but much more than overall business-to-consumer (B2C) e-commerce, which represents less than 2 per cent of the total retail trade.

Internet banking is becoming a driving force shaping the future of the banking industry. All banks, including those that were cautious in the past, intend to offer access to their products and services via the Internet, which is seen as a major distribution and communication channel. The current status of Internet banking shows that – contrary to what some analysts initially expected – pure Internet banks have gained only a limited share of the market. In fact, the traditional banks have not been destroyed and, while a few of the pure Net bank models may succeed, no newcomer has been able to penetrate the banking sector on a large scale. The “click and mortar” model – a strategy combining physical and Internet presence – has thus become the dominant model. The traditional banks and other financial service providers have adopted aggressive Internet strategies. At present the entry barriers to Internet banking appear to be much higher for new

entrants than was the case during the early days of this type of banking. The barriers stem from customer attitudes and the very nature of banking services and products. The traditional banks with a strong customer base have a competitive advantage over newcomers. However, to maintain this advantage is not easy. The key to success is to keep abreast of technological change and sophistication; this allows a bank to understand the potential of Internet technologies and to integrate them into a coherent business strategy. For many banks the scale of the requisite operations and investments creates problems of outsourcing or aggregation of services.

For “click and mortar” banks, transforming bank branches into multipurpose advisory centres would also encourage clients to move to Internet banking, since the majority of Internet users also make use of bank branches and automated teller machines (ATMs). The idea is to transform bank branches into “one-stop shops”, i.e. well-networked financial advisory centres for clients.⁶ Thus the prevailing model of Internet banking today is the one that is thoroughly integrated within the existing banking infrastructure, which combines click and mortar systems.

To further develop e-finance, banks need to show customers that they provide the same security standards on the Internet as in traditional banking. Moreover, like credit card associations and companies, banks should assume, at least in the initial stages, full responsibility for covering the costs incurred by clients as a result of a security breach and unauthorized transactions. To encourage migration to Internet banking, the banks should also offer better interest rates and cheaper accounts. The ability to gain customers’ trust thanks to security, willingness to take responsibility and the offer of financial incentives has been an important feature of the most successful pure Net banks.

Online banking for SMEs

Many global financial service providers have developed specialized SME-related Internet banking. For example, Citibusiness, a service of Citigroup, provides online various e-finance services to SMEs, including current, savings and money market accounts and certificates of deposit. Furthermore, SMEs can apply online for lines of credit, loans and mortgages. The service also includes the management of clients’ funds in separate accounts. Other global players, such as HSBC, Deutsche Bank, Standard Chartered Bank are also developing similar services.

C. Internet payments

From closed to open architecture

Payment systems, particularly the wholesale systems used for transactions among financial institutions, have been moving to an electronic infrastructure since the beginning of the 1970s. Electronic payment systems and networks were based on proprietary protocols and dedicated telecommunication infrastructure.

The Internet has radically changed this situation. It is an *open network infrastructure*, involving direct non-hierarchical links between the buyer, the vendor and any intermediaries, as well as between them and the technology providers. The Internet model dissociates the network from the physical infrastructure. It allows interconnection between heterogeneous networks and provides ubiquitous common standards, whose development is no longer controlled by a single entity or even a group of entities. Furthermore, with encryption technology, digital certificates and smart cards, it is now possible to provide security in a modular and flexible fashion. Thus a highly secure environment can be created on the public networks.

Chart 26

Internet payments: a radical value shift

Traditional payment service providers	Internet
Closed network	Open network
Private infrastructure	Public infrastructure
Mono-industry	Cross-industry

As Chart 26 shows, the Internet entails a radical value shift, although this view is not necessarily universally shared. Even leading players such as SWIFT and Visa have not yet transferred their core operations to open systems, and this creates a degree of uncertainty as far as their future operations are concerned. For many payment systems, use of Internet Protocol standards and protocols does not entail a radical change in their business practices and their governance. It remains to be seen whether the full advantages of Internet architecture can be gained without fully accepting the open network model.

Despite numerous attempts aimed at offering innovative alternatives, credit and debit cards and their existing payment network and procedures are still the main payment instruments for B2C transactions. They are

used in more than 90 per cent of online purchases. Small businesses are using them for some of their payments. However, there is a broad recognition that the current credit-card-based payments cannot fully satisfy e-commerce transactions. Most e-tailers consider the current payments structures to be quite expensive. Even the supposed beneficiaries of this situation, namely banks and payment networks, do not particularly like those structures. The card networks point out that Internet transactions represent a disproportionate percentage of charge-backs and fraud. To make payments more secure and to reduce merchant's liabilities for fraud and certain charge-backs, Visa introduced the so-called Verified by Visa (VbyV). It is hoped that the introduction of such applications will increase consumer confidence in Internet-based card payments. At the same time, card-based payments are not yet well suited for either small-value (micro-payments) or large-value payments. Whether the recently introduced smart cards combining the virtues of all cards and other e-banking characteristics (in a chip embedded in a card) will make cards suitable for micro- and large-value payments remains to be seen.

In order to find an alternative to card-based system, a number of alternative Internet payment initiatives have been launched. The first-generation systems (including initiatives such as Digicash, CyberCash and Cyber-com) were wound down after encountering severe problems. Micro-payments, which were also considered in the mid-1990s to be a viable mechanism for transactions of intangible goods (information, online entertainment and others), have not taken off as expected, at least not yet.

The main problem with these first-generation Internet payment initiatives is that they were not focused enough on their customers' behaviour and attitudes. Most of them appeared to be hasty steps in the search for more efficient and lasting solutions. They combined considerable technological sophistication with a degree of marketing and business naivety. They also became trapped in a vicious circle: merchants would not offer e-payment schemes if few customers used them, while customers would not use e-payments if few merchants accepted them.

Despite the poor record of the first wave of e-payment schemes, the development of Internet-based payment has not slowed down but instead has broadened in scope. Online payments continue to attract new entrants, including cyber-entrepreneurs backed by venture capital and well-known IT providers such as Microsoft and Yahoo. The range of proposed solu-

tions is becoming wider and currently includes, virtual points providers (e-centives.com, mypoints.com), P2P (peer-to-peer) payments (PayPal, BillPoint, PayDirect, eCount.com), virtual escrow systems (escrow.com, tradesafe.com), digital wallets (Yahoo Inc., Microsoft Passport), virtual and smart cards (Visa, American Express, Mastercard), and electronic bill payment and presentment or EBPP (e-route, billserv.com, Check-Free Transpoint).

The multiplicity of online payment methods reflects the continuing search for standards in the industry. Moreover, online payments devices are now becoming more diversified by moving from PC workstations to mobile devices and Internet enabled television sets.

One of the successful payments solutions with the potential to organise online payments for small SMEs and microenterprises is Paypal. While still relying on traditional banking accounts and card infrastructure for actual fund transfers, it has managed to capture from the card associations the online P2P payments market. The payment architecture of Paypal combines innovation – the use of e-mail for payment notification and confirmation, account management and its integration into existing payment systems. Using existing networks Paypal plays the role of a merchant by keeping the books of e-mail transactions as its own and settling a large proportion of them. Paypal's income is derived primarily from the float on accounts, which it manages, complemented by fees charged to purchasing customers and service providers. This business model allows Paypal to undercut the traditional merchants, particularly for small businesses. This arises, for instance, in the context of online auctions, where buyers and sellers need a sure, secure and cost-effective payment mechanism to settle their transactions. Paypal has also benefited from having a close association with the leading cyber-auction operator, E-Bay (25 per cent of E-Bay payments go through Paypal). A system such as Paypal can capitalize on viral marketing, as each user of Paypal encourages his or her friends and business acquaintances to open an account.

Further expansion of global e-payments systems: Visa, Identrus and SWIFTNet

While payments card associations such as Visa, Mastercard and American Express were already at the forefront of Internet based payments (and are now moving towards their further diversification), the banking industry was also changing its attitude – from being reactive to proactive. The creation of Identrus

and the migration of SWIFT, the most important global interbank payments network, to the Internet under the SWIFTNet programme were among the most visible examples in that respect.

The largest payment card association, Visa has continued to experience a spectacular growth in its payments traffic. Between 1985 and 1997 Visa transactions increased from \$100 billion to \$1 trillion; they then doubled, reaching \$2 trillion in 2001 (Visa International 2002). However the share of e-commerce related payments is still low and concentrated mainly in the B2C sector. While continuing to upgrade its e-payments modules based on PC workstations, Visa is exploring new payment devices such as mobile phones, palms and computers (m-payments), Internet powered TV sets (t-payments), offline payments between electronic devices in proximity (p-payments) using infrared or Bluetooth technologies, and payments initiated by voice sensitive technologies (v-payments). As far as SME servicing is concerned, Visa has developed several solutions, including Visa Business (permitting SME buyers to have a short-term trade credit limit embedded in the limit of a given card), Visa Distribution (permitting large wholesale suppliers to automate the account receivables from SME buyers), Visa Purchasing (permitting larger enterprises to streamline procurement process) and Visa Commerce (a non-card-based B2B payments model). Such models are *inter alia* helping to integrate SMEs into online payments and in particular familiarizing them with larger company standards. Visa and other card companies were among the leaders in developing a critical technology of the smart card. This technology has been used in South Africa, for instance, to create financial infrastructure for people without banking accounts. In the medium term, the smart card might provide secure and cost-effective support for specialized payment and settlement services, *inter alia* for SMEs, including those operating in the informal sector.

The SWIFT network is a core element of the global payment infrastructure. Like Visa, it is experiencing an impressive growth in the volume of its operations. From 1991 to 2001 SWIFT message traffic increased from less than 0.4 billion to 1.5 billion messages a year. Daily traffic in 2002 peaked at close to 8 million messages a day. Most SWIFT payments are directed towards Europe, while Fedwire continues to dominate payments in the United States. SWIFT has cooperated with European central banks to support their real-time gross settlement systems, serving as a common messaging service for the majority of high value payment

systems in the euro zone. Its role in providing market infrastructures is also expanding, as it is becoming a messaging hub for clearing and settlement in securities, using Global Straight Through Processing (STP), and in foreign exchange trading, using Continuous Linked Settlement (CLS) systems, which are in its turn linked to Real-Time Gross Settlement (RTGS) one.

From the standpoint of the global payment infrastructure, the December 2000 decision of SWIFT to migrate to a new IP-based network, SWIFTNet, represents a major milestone.

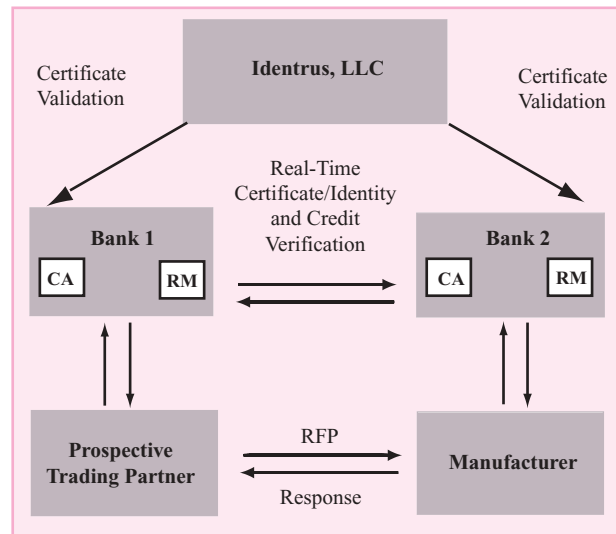
It is expected that SWIFTNet will combine IP standards with highly secure, high-performance networks, owned and operated by SWIFT. The principal SWIFT application, FIN, starts to migrate to SWIFTNet from August 2002 and will form SWIFTNetFIN, a fully IP based application. As a result, all SWIFT customers will have to migrate to the Internet. It is expected that SWIFTNet will offer a wide range of other services, including information, security and payments. SWIFTNetFIN's ambition is to become the infrastructure of choice for the new generation of Internet technologies based payment systems and related services.

To run the above-mentioned systems requires nearly 100 per cent security standards. Many security arrangements have been proposed in order to achieve such a result. The most notable arrangement is Idenrus, a United States based organization created in early 1999 and owned by 42 global financial institutions, which act as Idenrus Certificate Authorities for corporate customers in more than 133 countries. Idenrus seeks to create a global trust infrastructure, based on Public Key Infrastructure (PKI) enabling business-to-business (B2B) commerce among all companies using this infrastructure. The Idenrus network will link in a structured and hierarchical way various security and certification systems created by its member banks. The Idenrus itself will operate a root certificate authority (root CA), an entity at the pinnacle of the electronic identity hierarchy. Idenrus' legal and technical infrastructure is based on a set of uniform system rules, contracts and business practices for comprehensive trust and risk management (UNCTAD, 2001).

In December 2000, four major banks – ABN AMRO Bank, Bank of America, Deutsche Bank and HypoVereinsbank – joined with Idenrus and deployed trust-enabled B2B applications.

In 2000, Idenrus announced a strategic alliance with SWIFT. The introduction of IP standards will allow

Chart 27
The Idenrus scheme



Source: http://www.idenrus.com/story_03.xml

SWIFT members and users to have single interfaces with various infrastructures and services.⁷

Transactions in denominated notes are still the main payments method for SMEs. Although handling cash is extremely expensive and cash balances do not earn interest, cash is still used even in developed countries. For example, at the end of 2001, the total amount of United States dollars in circulation was around \$620 billion (i.e. \$2,200 per capita). Even if one assumes that 75 per cent of that amount was used abroad there is still \$550 per capita for United States residents. The scale of cash transactions is higher in Europe and even more so in Japan, not to mention the developing and transition economies.⁸ In developed countries the ratio of payments to gross national product (GNP) is very high, but in developing countries it is much lower; this indicates that in those countries money circulates less rapidly and that there are lower levels of formal financial intermediation.

The need to participate in e-commerce and the requirements for entering the chain of online payments are constantly pushing SMEs to adopt the culture of online payments. Similarly, the increasing shares of online retail and wholesale payments in overall payments are generating increased SME participation in online payments.⁹

Some of the above-mentioned payments systems, mainly B2C, could also be adapted to SME and micro-enterprises requirements. At the same time B2B payments methods are also making inroads. Medium-sized and large enterprises are seriously considering

using electronic invoice presentment and payment (EIPP, a B2B cousin of EBPP) in inter-enterprise payments. According to experts, online EIPP cuts costs related to online handling of accounts receivable (AR) and accounts payable (AP) in comparison with their paper versions, by more than half. In the European Union and in many other countries, since digital invoices are now legally acceptable, it is possible to process EIPP and EBPP. In many cases these systems are run by banks, to which enterprises outsource their receivables and payables activities. The reason for outsourcing is the reluctance of enterprises to make large investments while establishing those systems in-house. Also, outsourcing enables them to cut even further the costs related to handling the e-invoices traffic.¹⁰

Most SMEs, especially in developing countries, still operate mainly in their national markets. However, this should not prevent them from using the Internet for payments. In fact, the Internet's main use – as far as e-payments are concerned – is for domestic payments. For example, in 1999 domestic payments represented 99 per cent of the volume and 86 per cent of the value of all payments transactions. According to a projection by Boston Consulting Group, while between 1999 and 2009, international payments might experience high growth rates and could increase from \$238 trillion to 510 trillions, their share in overall payments will probably increase by 3 per cent, from 14 to 17 per cent. The same consulting group projects much higher growth rates for domestic payments in developing and transition economies during the same decade (The Boston Consulting Group, 2002).

Developing countries' initiatives

According to a World Bank survey, the average online banking penetration for developing countries by the end of 1999 was close to 5 per cent (World Bank, 2001). For some countries, the penetration was considerably higher and growing rapidly. At the same time, according to a survey by Citibank, United Arab Emirates, user preferences related to banking channels are as follows: bank branch – 12 per cent; ATM – 0 per cent; Telephone banking – 0 per cent; online web based banking – 76 per cent; mobile phones – 12 per cent.¹¹ In other words, the developing countries are also voting for Internet banking.

In Brazil, the number of e-banking users reached 8 million in 2001 and is growing rapidly. Most Brazilian banks have followed the click and mortar strategy and also entered into strategic alliances with leading Internet service providers (ISPs). Thus Banco Itau entered

with AOL into an agreement to bring its customers to AOL services offering free access and customized features facilitating access to e-banking. Today, the majority of the leading Brazilian banks, including Banco do Brazil, BNDES, CEF, Bradesco and Banco Itau are offering advanced e-banking services and nearly a quarter of their client base has already migrated to the Internet. Moreover, SMEs are active users of online banking. Thirty per cent of Banco Itau SME customers are operating online. Unlike in Argentina, Brazilian banks have managed to preserve the real value of their customers' deposits in spite of a period of high inflation rates. As a result, with a high level of banking intermediation (65 per cent of the population) Brazilian banks have espoused Internet banking, which has been well received by both consumers and enterprises, while dollarization and disintermediation in Argentina created a demand side problem for banks and thus discouraged them from investing in Internet banking (Oliveira, 2001). At the same time, increased insecurity in the streets due to social unrest or crime is prompting many users to opt for Internet banking, so as to avoid physically visiting a bank. Thus the crisis in Argentina led to a short-term increase in the use of Internet banking.

Mexico is another leader of Internet banking in Latin America. It adopted legislation providing for the development of both e-commerce and e-finance. One of the local leading banks – Banamex – has over 1.25 million users of Internet banking, including 50,000 companies, mostly SMEs (Martinez-Guerra, 2002). The Mexican subsidiary of the Spanish bank BSCH has launched P-market, an online market place linking SMEs with various suppliers. The bank offers online functionalities to allow SMEs to manage their finance online, and has developed an online procurement system, called Procura Electronica. The bank experienced a rapid increase in the number of its online clients in the first year of operation.

India, one of the leaders in software development, has an advanced online banking system. Over 50 banks offer online services. The example of the largest private bank, ICICI Bank, is really impressive. It has multiplied by four the number of its online banking users, who represent over 15 per cent of the total. Its SME department is a leader in the design of wholesale e-finance credit lines for Indian SMEs. E-banking permits business process re-engineering to achieve zero latency leading to improvements in customer service levels and better risk management because of real-time settlement. While the argument for drastically reducing transaction costs is more debatable in India owing

to low e-banking adoption rates, low labour costs and “free” existing branches, there is a better price discovery process as more and more markets gain integrated real-time and improved access to these trading and data-dissemination platforms. At the same time, however, many changes are still required in technology, access infrastructure and banking regulation. (Mor, 2002; Kumar 2001).

In Bangladesh there is a large gap between the computerization of foreign banks and that of local commercial banks (the gap is particularly great in respect of local public commercial banks) and as regards the state of their intra- and inter-branch online networks. However, 75 per cent of local banks are planning to introduce e-banking, which implies very dynamic improvements in their ICT use indicators. Virtually all banks use banking software at their head offices and during the past few years around one third of local banks has become SWIFT members. Credit card and point of sale services (POS) are already provided by a quarter of local banks, while ATM and internet banking are expanding rapidly especially in major cities (Raihan, 2001).

In regions lacking adequate telecommunication infrastructure, technologies that make it possible to store and transact value in proximity and offline are taking root. Thus smart cards based on Visa Horizon proximity technologies are being introduced in Ghana and some other African countries. The Visa Horizon and Visa Electronic systems could be of particular interest to microenterprises in remote rural areas. In countries with low banking penetration or where there is mistrust towards local banks, the establishment of basic ATM cards for employees, issued by well-known payment card companies, makes it possible to cash salary cheques, and this represents a step towards establishing banking relationships *inter alia* through e-banking.

Finally one of the most impressive records has been achieved by the Republic of Korea, which has higher than the OECD average e-commerce and e-finance indicators. Internet banking in that country has increased at a rapid pace, the number of online users having risen from 2 million in 2000 5.3 million in December 2001. The country is a leader in the region with 54 per cent of users having multiple online banking relationships (Korea Times Infotech, 2002). The Republic of Korea is also leading in online brokerage and in mobile banking. In South-East Asia Internet banking is also developing rapidly in Thailand, Malaysia, Singapore and to a lesser extent, in the Philippines. Apart from North and South Africa the Sub Saharan

Africa is the region that is seriously lagging behind in Internet banking, although it is giving to the rest of the world the good example of microfinance developments.

D. International electronic trade and finance systems

Designed to facilitate the movement of goods and services, trade finance systems rely on complex flows of complicated and traditionally paper-based documents, and this makes the whole process slow, costly and error-prone. Hundreds of billions of dollars are being spent annually on processing the paperwork associated with international trade.

For several years, various participants in international trade have sought to simplify the process and migrate from paper-based to electronic documents. This task has been laborious and often frustrating because of the difficulties in defining common standards.

The advent of Internet technologies has the potential to significantly accelerate the progress towards fully electronic trade finance. However given the fact that trade finance related payments are only a small part of the overall payments traffic, the banks have had to make hard choices either to retain trade payment and finance functions for themselves, or to outsource them and save on transaction costs while keeping the client base.

The need to outsource trade services was the main reason for industry-wide, private initiatives to create global online platforms centralizing the servicing of the trade cycle and in particular the trade finance part. Those platforms have the potential to service the trade and trade finance needs of SMEs. The following is an outline of Bolero, Tradecard and CCEweb.

Platforms for digital trade documents: Bolero, Tradecard and CCE web

Bolero International Ltd. is a United Kingdom based joint venture of SWIFT and the TT Club (an association of freight insurers) created in April 1998. The aim was to create a platform for the secure electronic transfer of commercial trade documentation and data worldwide via the Internet. The platform went live in September 1999, with SWIFT operating the system under contract to Bolero (UNCTAD, 2001).

Bolero maintains that it acts as a neutral and trusted third party that provides the so-called Core Messaging Platform for highly secure delivery and receipt of all trade related electronic documents and payments. In addition to a common technology platform, bolero.net provides a unified legal structure that binds together all parties involved in international trade (importers, exporters, shipping agents, freight forwarders, customs and international banks). The messages between users are validated and acknowledged while the Title Registry application facilitates, online, the transfer of ownership of goods. After extensive consultation with the industries, Bolero issued a Rule-Book, which allows disputes to be resolved in the same way as with paper documentation. In addition Bolero allows for the application of the provisions of eUCP, the electronic version of Uniform Customs and Practice for Documentary Credits (UCP) of the International Chamber of Commerce (ICC). Bolero has also developed a value-added service called SURF, which matches trade documentation online between buyers, sellers and banks in order to accelerate all trade transactions and reduce error rates.

At present, SWIFT operates the Core Messaging Platform on behalf of bolero.net. It is planned to be one of the first services to migrate to SWIFTNet. In order to demonstrate its commitment to Internet technologies and their tangible benefits, Bolero and its users have developed BoleroXML, a set of specifications which describe the standard structure and contents of the electronic version of a common trade document such as Commercial Invoice, Bill of Lading and Packing List. UN/CEFACT has recently endorsed BoleroXML as a migration path to the ebXML standard. Bolero is committed to providing an open solution that runs over the Internet.

TradeCard is a United States company developing an online substitute for the traditional bank-based letter of credit (L/C). It intends to make it a trust building platform for the process of online negotiations in trade transactions and related payments. It was launched in 1997, and went live on the web in 2000 (for more details see UNCTAD, 2001).

TradeCard focuses on what is often considered a critical bottleneck in international trade transactions: lack of an inexpensive and efficient system for cross-border trade payment settlement. In March 2001, TradeCard introduced an automated, collaborative, global trade settlement platform which is intended to streamline and automate the processing of virtually any pay-

ment transaction, whether it is domestic or cross-border, guaranteed or open account, large or small.

Initially, the banks were reluctant to accept the new competitor. But currently TradeCard works with a dozen international banks and has entered into strategic partnerships with Coface as payment insurer, Marsh, the largest broker of cargo insurance, MasterCard and Thomas Cook, as well as with Cap Gemini Ernst & Young.

CCEweb is a Canadian company, which has based its @GlobalTrade - an electronic payment and trade management system - on the eUCP and existing trade services banking infrastructure. The company launched its initiative in September 2000 and has built strategic partnerships with Adobe, CGE&Y, China Systems, Identrus, SITPRO and Visa International. While retaining the existing rules and banking practices to which the trading community is accustomed, it tried to create simplified electronic versions of a letter of credit as well as streamlining the flow of electronic trade related documents. CCEweb states that it has developed arrangements to streamline operations for both exporters and importers. It hopes that the banks will find its centralised platform a useful tool to out-source costly L/C related operations. While it did not challenge the existing practices on L/C unlike TradeCard, and did not create a parallel rules book unlike Bolero, it did try not only to adapt those instruments to the Internet, but also to develop easy and fast-track versions of e-L/Cs. The @GlobalTrade system allows the printing of the original electronic bill of lading and other trade-related documents in countries without enough technological capacity to cope with PKI solutions or legal and insurance structures to support them. CCEWeb also intends to start the use of passwords and pin numbers with clients especially from developing countries that do not yet have possibility to integrate into PKI systems. They will thus have electronic signatures (Katsman, 2002). Passwords and pin numbers are especially important for developing countries' financial service providers and SMEs.

The systems claim to bring about major savings in costs and time through electronic processing of trade and especially trade finance documents. CCEweb might be the most user friendly one, while Bolero is the most secure one. At the same time alternative arrangements implemented by TradeCard introduce more competition into the system and push costs further down.¹²

Bolero was an initiative of major financial industry players, while Tradecard and CCEweb are private ventures. Although all are now operational, none of them has yet become profitable. To remain operational, they still need financing, including venture capital financing and the issuance of new shares or debt financing.

Other companies active in facilitating cross-border trade payments via the Internet include LC Connect, Proponix, Actrade, FinancialOxygen, Qiva, ClearCross and Xign Corp.¹³

E-forfeiting marketplaces: ITFex and LTPTrade

Based in New York and in London respectively, ITFex and LTPTrade are B2B exchanges, created in 2000, that seek to develop an Internet-based secondary market for international trade finance instruments such as forfeiting bills, bankers' acceptances and shipping guarantees.¹⁴

At present, this is an extremely fragmented and illiquid market, with an annual trading volume estimated at \$75 billion in 2000. Celent Communications estimates that Internet technologies will stimulate the emergence of an electronic trade finance instruments market, whose value by 2005 should total over \$700 billion. At the same time, Celent recognizes that the growth of the electronic trade finance market will be slower than that of e-markets for other instruments such as bonds or equities. This is due not only to the disparate nature of trade finance instruments but also to the weaknesses of established automated trading mechanisms, such as matching, and of pricing benchmarks.

It is too early to judge the prospects of ITFex and LTPTrade, their development plans having been adversely affected by the general slowdown in B2B commerce. Both exchanges are now operational. In September 2001, LTPTrade launched a new release of its trade finance transaction and information platform. Key features of the new platform include improved offering and dealing functionality, as well as expanded research and information resources.

Developing countries' experiences

Emerging markets are expected to continue to be the main growth engine for the trade finance sector. Last year, trade finance flows between the United States and Western Europe diminished, whereas in Eastern Europe, Latin America and Asia, trade finance experienced high growth rates.

The total volume of L/Cs received by all Latin American exporters in 1999 reached \$87 billion, in addition to the \$29 billion in documentary collections. Of this total, only \$30 billion came from Latin America's trade with the rest of the world including the United States. Intra-regional trade is often made up of medium sized to large companies that lack open-account trade tools and rely on old-fashioned and expensive L/Cs.

This creates an opportunity for financial institutions seeking to offer electronic trade finance services. Banks such as Bradesco and Banco Itau in Brazil and Banamex in Mexico, seek to develop online wire transfers, online initiation of L/Cs, and other related online services. Sixty-five per cent of Mexican companies surveyed use at least one of the above mentioned products, and more than half of the companies in Mercosur countries turn to high-tech trade finance tools. Argentina used to lead in the proportion of companies using technology products (58 per cent), but Brazilian companies use them more extensively than other Mercosur countries - 2.8 products on average per company in Brazil versus 1.7 products on average per company in the other countries.

However, local banks, large though they may be in their own country, suffer from a lack of global coverage. This explains their interest in global initiatives such as TradeCard and Bolero. Global banks such as Citibank, JP Morgan, Chase and ABN Amro are, of course, very active in this area and offer not only competitive pricing on trade financing products but also access to their networks and platforms. And when they cannot beat their local competitors, they co-opt them. In July 2001, Citibank bought Banamex for \$12.5 billion.

In other parts of the world, e-finance trade initiatives are still in their early stages. In India for instance, Exim Bank, the German-based West LB and IFC (a World Bank affiliate) created in March 2001 a joint venture Global Trade Finance (GTF) Pvt Ltd to offer factoring and forfeiting services to Indian exporters. West LB has a 40 per cent stake in the venture, while Exim Bank has 35 per cent and IFC 25 per cent. In addition, the company has foreign currency lines of credit from both West LB and IFC, as well as a rupee line of credit from Exim Bank. GTF was set to begin operations in autumn 2001. One of its objectives was to allow exporters to initiate their transactions online.

A more ambitious project, Global Trade Finance Network (GTFNet), seeks to facilitate the finance of trade debt receivables generated primarily from emerging

markets, their acquisition and distribution worldwide. It is defined as a cross-territory extranet-based “business to business” network, with headquarters in Singapore and hubs in the United Kingdom, the Middle East and the Americas. Founded by Tara Kimbrell Cole and sponsored by a prestigious board, which is chaired by the former Chief Executive Officer of Standard Chartered Bank, GTFNet is not as yet operational.

E. Online credit information and credit insurance systems

The Internet provides a great deal of information about many companies through the use of search engines. However, relying on this source may not provide reliable information about risk. A proprietary credit information database on companies’ performance, both as payers and suppliers, based on data from partners, experts, and actual transaction and debt collection experiences, is the type of source required to manage the credit and performance risks. Such Internet-based databases are run not only by banks but also by specialized agencies. Some of them are mainly credit information providers such as Dun & Bradstreet and Equifax, while others are credit insurers such as Coface and Gerling NCM. In addition to providing credit information on companies, they cover traders’ risks. Credit insurance is a less expensive alternative to bank-based letters of credit, which permits traders to rely on open account payment operations, thereby moving the counterparty risk to the credit insurer.

Counterparty risk is particularly important in the case of SMEs, as their trade is often hampered by a perceived lack of creditworthiness or of a supply performance record, owing to the absence of reliable data and information about SMEs.

The Internet makes the collection of credit risk information easier but credit risk management tasks more complex. By reducing the cost of information and standardizing data formats, it makes it easier to gather and disseminate credit information. It also facilitates integration of information and transactions. At the same time, the Internet considerably expands the number of potential counterparties and the range of transactions. Businesses active online have to deal with thousands of new buyers and sellers that they know nothing about. There is therefore a need for a quick and up-to-date creditworthiness assessments. The skills required for this activity are highly specialized and cannot be acquired overnight. Prior experience

and accumulated historical data are essential. Barriers to entry are high. Not surprisingly, this segment continues to be dominated by a small group of suppliers, each of which has adopted an aggressive Internet strategy. These strategies have common elements, for example all suppliers make their existing data available via the Internet, but there are also significant differences. Alternative approaches to credit information assessment, using innovative technologies, are also emerging. However, those approaches are being adopted and deployed by the existing suppliers rather than by new entrants.

Online credit information: Dun and Bradstreet, and Equifax

Dun & Bradstreet (D&B) is probably the oldest existing provider of business information (since 1841). It created the so called D-U-N-S Number (Data Universal Numbering System), which has become a standard for keeping track of millions of businesses in the United States. The system is also expanding worldwide. It provides identifiers of single business entities, while linking corporate family structures together. The D-U-N-S Numbers include parents, subsidiaries, headquarters and branches of more than 62 million corporate family members in 120 countries.

D&B is implementing a comprehensive Internet strategy to provide Internet-based services. Among those online services is D&B Global Access Toolkit, an online global data delivery service, and QuickBooks®, a business decision making tool for SMEs. D&B also seeks to become an important player in B2B e-commerce. To achieve this goal, the company entered into strategic partnerships with Oracle, Siebel Systems, SAP and other B2B players to integrate D&B products into their offerings. In August 2001, VeriSign, Inc., the leading provider of Internet trust services and domain name registration services, and Dun & Bradstreet announced an agreement under which e-businesses applying for VeriSign’s Shared Hosting Security service will be automatically authenticated by Dun & Bradstreet using the company’s global database (for more details see UNCTAD 2001).

The core business of Equifax is credit reporting, and enabling and securing global commerce. It has developed a range of diversified services, including transaction processing, direct marketing, customer relationship management and e-commerce security solutions. In July 2001, Equifax spun off its payment services into a separate company, Certegy.

Equifax's principal asset is the world's largest repository of consumer credit information. In January 2001, Equifax launched a new service – the Small Business Financial Exchange. Managed by Equifax, the Exchange brought together initially 15 of the largest United States small-business lenders – such as Bank of America, Bank One and Wells Fargo – in order to provide reports and maintain comprehensive trade data on small businesses. This has become a source of aggregated risk and exposure information on an estimated 25 million small businesses in the United States. The Exchange will enhance lenders' ability to make small business credit decisions and facilitate financing needs for this important segment of the economy.

Equifax Internet based products include Equifax Secure, Checkfree and SunTrust, which permit the identification and authentication of participants in online transactions. Another product, ePORT, tries to lower costs, speed up delivery and increase product penetration for the existing credit information services. Strategic alliances have been formed with Veri-Sign, Paymentech and PricewaterhouseCoopers.

Online credit insurance: Coface and Gerling NCM

The Coface Group, headquartered in Paris, is one of world leaders in export credit insurance and operates in 93 countries on five continents. Coface offers an integrated range of guarantees, including credit insurance, guarantee insurance, exchange risk cover and fidelity insurance, to its client companies worldwide. It also provides receivables management and credit information services. In order to allow its clients to analyse and monitor the financial position of their trading partners throughout the world, Coface has developed a Common Risk System, an online database containing information on 41 million companies, out of which 1.2 million are from developing and transition economies. Coface has a credit exposure of \$150 billion to 2.2 million companies, of which \$15 billion i.e. 10 per cent, is the cover for companies from emerging economies. According to Coface, the overall performance of companies from emerging economies is not worse than that of OECD countries, which indicates the potential for enterprises from the emerging countries to access external finance and e-finance.

In December 1999, Coface launched a web-based rating system, @rating, that allows companies to insure trade debts and obtain credit limits online. The @rating system uses the data from the Common Risk Sys-

tem to develop a simple and easily accessible credit rating system, which allows a company to:

- Check a trading partner's reliability online;
- Protect transactions online. Apply for an @rating Quality Label and obtain a credit limit online;
- Check payment experience online.

@rating provides a method of assessing trade debts of less than six months' duration for amounts between 1,000 and 100,000 Euros, which represent the overwhelming majority of most traditional trade and e-commerce transactions. It offers a simple means for trading partners to protect themselves from the risk of default and to set customer credit limits, based on constantly updated information. For the first time, ratings are generated by an agency, which can in addition insure the risks it is rating. The Coface Group and its partners in Credit Alliance are backing the rating with a guarantee of payment, using credit insurance policies.

To facilitate its risk monitoring capability, Coface expanded @ratings to cover country risks (data on 140 countries are provided and regularly updated). All Coface group products now incorporate the @rating solution. Since its launch, some 350 partners (banks, factors, electronic marketplaces, Chambers of Commerce, etc.) have integrated the @rating in their service offering (UNCTAD, 2001; Cazes, 2001; Boccara, 2002).

Gerling-NCM (G-NCM) emerged at the end of 2001 as one of the largest global credit insurer after the merger of Gerling Namur with Dutch NCM. Gerling Namur was the result of the previous purchase of Belgian Namur by German Gerling. It has an active Internet strategy and its two main services are called E-Service and E-Trade. The E-Service permits the actual or potential insureds, brokers and other interested parties to access the G-NCM credit information database using the Internet based SERV@NET system. The database has information on company performance, policies and so forth. It is complemented by the group's Intranet called SERV@WORK, which gathers information on risks and is used as a tool for underwriting risks in all countries where G-NCM is present.

The E-Trade products represent various types of insurance cover. Those products include Trusted Shops, covering buyers from failed online shops (non-

delivery, non-refund, fraud etc.) and Trusted Trade, providing e-marketplace participants with credit insurance cover against the loss of receivables. Other insurance and financing products to render one-stop-shop financial services to those participants are also in the pipeline. They also include eCredibile, in-sourcing online credit management services from companies and insuring their credit risks, for example verification of buyers, collection of receivables in time, credit monitoring and payment guarantee and Trade Cover, which offers online immediate coverage against risk of non-payment of a buyer or group of buyers (it is not a comprehensive credit insurance against all buyers) and gives the insured a choice of protection level. The eCredibile and Trade Cover are in some ways competing with the Coface @rating system (Rennotte, 2001).

It is important to note that credit information and credit insurance providers are not resolving the problems of market instability. While diminishing the risks of other companies' failures, they themselves could be exposed to the excessive demands arising from their obligation to insureds if their counterparties massively fail to respect contractual obligations in the event of a generalized economic crisis. In that case, credit information providers will find their prestige damaged because of the excessive number of errors in their judgement of credit risks, while the credit insurers might encounter difficulties in meeting their cover obligations even if their capital reserves meet the requirements of insurance regulators.¹⁵

Many developing countries are following the examples of the United States and continental Europe by developing the necessary regulatory framework for setting up of credit information reporting systems. The essential elements of that framework include registration laws, bankruptcy laws, court registers; strict requirements for disclosure by private sector operators; public data dissemination and publishing requirements; the possibility of collecting, processing and disseminating public records, suits and judgements, and permission to access companies track records with banks for authorized institutions, etc. However, the presence of credit bureaux in many countries does not guarantee the presence of exhaustive and updated data on SME payments behaviour and other key risk assessment data. The revolutionary impact of Internet data mining techniques in terms of coverage and reach, rather than transaction costs, could also boost the creation of a credit information industry in those countries, thus achieving a breakthrough in the risk assessments of a host of companies, including SMEs.

One of the most impressive examples of comprehensive credit information services in developing countries is Serasa of Brazil. Established in 1968 by Brazilian banks that realized there was a need to have a common risk data collection and assessment centre, Serasa today has the largest credit information databank on institutional and household borrowers in Latin America. Receiving information from companies and households directly and also gathering information on them from independent sources (including court distributors, protest notaries, boards of trade, Central Bank, public registrars and official publications), Serasa contributes to the majority of decisions by banks, payment card companies and other financial service providers on extending credits to companies and households. All products and reports of Serasa are available online. They include business behaviour reports, credit and analysis reports, and special SME reports. While Serasa has a very aggressive e-credit information programme to expand on the Internet it is also actively using other communications tools as fax, telephone and others (Bedrikow, 2001, 2002).

F. Private equity mobilization

It is a widely shared misconception that, in the early stages of their existence, SMEs could raise capital from venture capital funds. On the contrary, those funds provide equity only to well-established SMEs with a good track record including good financials. Initial capital for a new business comes normally from the businessmen's own pockets or the pockets of their relatives, friends and so-called business angels – wealthy individuals ready to invest in the business plans, which are of interest to them. Normally business angels are organized into associations. They support companies of their choice and pave the way for venture capital funds to invest. The latter take over SMEs having good chances to become large companies and in few years time further finance their expansion in order to prepare them for the initial public offering (IPO), i.e. selling their shares – and making, they hope, a large profit – on the well-established stock exchanges, where the firms become publicly quoted companies.

The Internet has introduced a new dynamism into the functioning of above institutions, permitting them in some cases to go for global initiatives and geographically diversify their portfolios.

All large business angel associations and venture capital funds have functional websites where the SMEs

can look for interested investors by filling in the posted questionnaires and thus establishing initial contact with potential investors.

Linking private equity investors to SMEs in emerging countries is far more challenging than in OECD countries. With few exceptions such as Singapore, there is no local venture capital industry. And business angel networks are often family or ethnically based. Nevertheless, some efforts, spearheaded by international players, have been launched to create Internet-based private equity networks.

EmPower Link

In January 2001, the United Kingdom's International Development Consortium (IDC) established a joint venture called Empower Link Holdings (Pty), with the South African investment fund Omega. The idea was to take the EquityLink, its very successful business angel network created in 1995, into South Africa, linking it with United Kingdom and European opportunities. EmPower Link was supposed to provide support services to South African SMEs, including management development, financial management, business development, sales and marketing, IT, and innovation in technology and design. It was expected to contribute significantly to the development of a comprehensive SME support infrastructure in South Africa.

Softbank Emerging Markets

In February 2000, Softbank, one of world's best-known Internet companies, announced the creation of a joint venture with the International Finance Corporation (IFC) of the World Bank Group to establish start-up Internet companies in as many as 100 developing countries. The joint venture is an investment fund called Softbank Emerging Markets (SBEM), to be based in California's Silicon Valley on a capital base of \$200 million. Seventy-five per cent of this will come from Softbank and the remaining 25 per cent from the IFC.

To begin with, SBEM will act as an incubator, investing in and providing advice to promising local Internet ventures in 10 to 20 countries. SBEM plans to establish a number of holding companies to make investments and oversee operations of local joint ventures in those countries. The first local office was opened in Malaysia.

G. Microfinance initiatives

Microfinance is an arrangement whereby microfinance institutions lend small amounts of money typically to a group of individuals or very small SMEs (with fewer than 10 employees). This process mainly happens within the framework of the informal economy, i.e. outside the formal financial system in developing countries and transition economies. It is estimated that more than half of economic activities in sub-Saharan Africa derive from the informal economy. While the microfinance market requirements are estimated to be \$300 billion, the assets of more than 8000 microfinance institutions worldwide do not exceed \$7 billion. Keeping microenterprises out of the reach of the development community is unacceptable, considering the UN targets for the reduction of world poverty. The approach here should be to consider the poor as an untapped resource rather than a social burden. Developing modern and inclusive microfinance actively using Internet technologies could help partly to implement this paradigm shift.

Pride Africa

Pride Africa is a non-profit United States company with regional offices in Nairobi and operating activities in East and Southern Africa. It is one of the best examples in Africa of a successful and imaginative implementation of microfinance formulas with the active use of modern ICT technologies. With a network of 54 branches servicing more than 100,000 clients from Kenya, Malawi, United Republic of Tanzania, Uganda, and Zambia, Pride Africa has created a replicable franchise, including a proprietary software system, uniform operational processes and training for staff. The financial and information service network provided by Pride Africa offers microfinance opportunities for local people and small enterprises that previously had no access to flexible financing, owing to rigid banking regulations and the information monopolies of government and large businesses (Campaigne 2001, 2002).

Grameen Bank

The famous pioneer of microfinance, the Bangladeshi Grameen Bank, is also at the forefront of the efforts to bring e-finance to remote villages, using its microfinance services. By introducing POS terminals and diffusing smart cards in different villages it enables users to read and record entries, and to deposit and withdraw cash.

Virtual Microfinance Market

The Virtual Microfinance Market (VMM) is an information exchange system designed to facilitate interactions between microfinance institutions (MFIs), private investors, Governments and other participants in the microfinance market. It was developed by the United Nations Conference on Trade and Development (UNCTAD), with the guidance of an advisory board, and in the framework of a technical assistance project financed by the Government of Luxembourg.

VMM also provides contact and financial information on MFIs willing to mobilize commercial funding (“demand”), information on the legal and regulatory conditions of investment and links permitting direct contact with regulatory authorities in each country (“environment”). In addition, it also provides data on investors and financial intermediaries, information on conditions attached to past or current offers (“supply”), and access to sources of knowledge, technical advice and training in state-of-the-art techniques and tools for improving MFIs’ financial management and access to capital markets (“knowledge”).

This project is aimed at creating sustainable market links between the commercial investment world and the microenterprise sector in developing countries. It is expected to permit the investment on commercial terms, of millions of dollars at the grass-roots level and the creation of thousands of jobs. VMM is accessible free of charge to all its members, i.e. to all duly registered information providers (Otero, 2001).

H Lessons from global e-finance experiences

E-finance: it is only the beginning

The above overview of enterprise related e-finance, while far from comprehensive, clearly demonstrates the breadth and the depth of e-finance development. The dotcom crash and the difficulties of B2B marketplace development over the last two years may have changed the public perception of the Internet and slowed somewhat the speed of its deployment but they have not changed the fundamental momentum of e-finance. In the not too distant future the distinction between finance and e-finance might become somewhat blurred as the core financial technology, from user interface through middleware to applications and networks, will probably become Internet-enabled and Internet-based.

However, the process of evolution towards e-finance is still in its early stages. For one thing, Internet technology will continue to evolve towards larger bandwidth, fixed-wireless convergence and terminal access independence.

Four common misconceptions

Beyond the technology, it is essential to understand the business dynamics of e-finance. On this score, it appears that there are four common misconceptions about e-finance, which help to explain some serious strategic errors, frequently committed by overenthusiastic promoters of e-finance.

Cost reduction potential

There is no doubt that the Internet has the potential to reduce financial transaction costs. However, the cost reduction potential has often been exaggerated or misinterpreted. The cost dynamics of e-finance are quite complex. For one thing, in order to achieve the full potential of cost reduction, it is important to create a fully automated system, capable of straight-through processing. Such a system may require large investments in computing power, network building and programming capability. Furthermore, the costs of migration from closed to open i.e. Internet-based architecture are often very high. For that reason, many e-finance enthusiasts favoured a “pure play” model, creating an Internet bank from scratch. The underlying assumption was that the newcomers had a crucial cost advantage. However, this assumption proved false. Whatever cost advantage newcomers may have achieved via technology, it was decisively undermined by the need for heavy client acquisition spending. Furthermore, while technology cost savings were often hypothetical, marketing costs were actual expenditures, amounting to between \$150 and \$300 per customer. While such costs could be justified in online broking, this was not the case for Internet banking. The Internet did not invalidate the basic marketing rule that the cost of selling a new product to an existing customer is 10 per cent of the cost of selling to a new customer. A large part of Internet costs remain invisible at first glance, but they are still there (GEF, 2001b).

Ease of implementation

A related fallacy was ease of implementation. While a basic website can be created cheaply and quickly, to design and implement a fully functional, industrial-

strength application capable of accommodating in a secure manner a large number of complex transactions and a huge variation in volume is a complex and protracted undertaking. In addition, there is limited previous experience to draw on and the necessary skills and know-how are still scarce. Thus, the potential for specification creep and cost overrun is as large with the Internet as it is in the traditional IT environment. This was vividly demonstrated by Vontobel Bank in Switzerland, which in spring 2001 announced a loss exceeding 120 million euros, due entirely to an overly ambitious Internet banking project.

Disintermediation

Contrary to some high-profile pronouncements, the Internet economy is not frictionless. Actually, with a dramatic increase in the number of transactions and expansion of the universe of potential relationships, the overall level of friction is likely to increase. The abundance of information, opportunities and relationships increases the need for new intermediation structures and mechanisms. The challenge to the financial institutions and financial services providers is not disintermediation but the changing nature of intermediation. Thus, e-finance has stimulated the emergence of new categories of intermediaries such as financial portals, transaction aggregators and financial applications services providers.

The e-finance impact

Until 2000 it was commonly thought that e-business would revolutionize the financial industry and destroy the existing “dinosaurs.” However, the evolution of e-finance clearly demonstrates the advantages of suppliers of established financial services, be they banking, transaction processing, credit information or insurance, as long they have the capacity to evolve and to embrace the new approaches and technologies. The dominant business model today is “click and mortar” and an innovation is most likely to succeed if it is adopted by the leading players. This does not mean that financial services will not change, as they have been doing for the last few decades. Rather, the change will be more gradual and will probably take place mainly inside the established systems and structures. While the dynamics of e-finance do not entail a sudden upheaval, it probably will lead to a profound and lasting transformation of financial services. Not only the access be broadened in terms of the number of potential users, but also these services will be available anywhere in the world, 24 hours a day, seven days a

week. E-finance will enhance the information and technology content of financial services and thus further blur the boundaries between finance and technology, information and transaction, and financial institutions and technology providers. This evolution raises, among others, a number of substantive regulatory issues. In particular, banking, securities and insurance regulators should further strengthen cooperation within and between their groups at both national and international levels.

I. E-finance challenges for SMEs

SMEs and e-commerce

Before engaging in e-finance, SMEs have to be already involved in e-commerce. Hence the e-commerce preparedness of SMEs is a measure of their readiness for e-finance. Although the Internet revolution was driven initially more by SME dotcoms than by large corporations, the majority of SMEs in traditional sectors are still lagging behind the large companies in the use of the Internet as a core element of business organization and a channel for developing e-commerce. Various surveys of SME e-preparedness in OECD countries suggest that only less than a quarter of SMEs with web presence actually use it as a business instrument, i.e. for the purpose of active web trading and related e-payments operations. In developing countries this indicator is much lower. The majority of SMEs still limit their activities to maintaining a web page, with various levels of links and advertising. On the Internet they also gather information about markets and competitors, as well as searching for partners, with further negotiations taking place either through e-mails or offline, while successful deals are generally completed in a traditional manner, – that is, with traditional paperwork or through the use of cash. According to some surveys, SMEs cite security concerns, lack of legal guarantees for online transactions, expenses related to hardware, software and maintenance, and the length and cost of training as the major impediments to starting e-commerce.

At the same time there is much less awareness in developing countries of the potential and importance of e-commerce. In that sense it is interesting to note the results of a Citibank survey of a sample of SMEs in Arab Gulf States (Saudi Arabia, United Arab Emirates, Kuwait, Qatar, Bahrain and Oman) and Middle Eastern or Mashreq countries (Egypt, Lebanon and Jordan) that inquired about their e-commerce preparedness. While the majority of SMEs surveyed - 79 per

cent and 73 per cent respectively - had access to the Internet, only 23 per cent and 38 per cent provided the Internet to all their departments, only 13 per cent and 18 per cent provided it to their procurement departments, and only 2.6 and 2.3 per cent had actually ever conducted online trading. Moreover, 45 per cent of Gulf and 25 per cent of Mashreq SMEs did not have a positive approach to e-commerce, considering it less secure and of lower quality, and preferring traditional trade as a better business tool (Krishnan, 2001). In contrast, many SMEs in Latin America and Asia, and North and South Africa, do have access to the Internet. However, what matters is whether they consider it the tool for promising business models. Various surveys suggest that this is increasingly so for the majority of them.

The Internet provides SMEs with a unique opportunity to overcome economies-of-scale limitations by aggregating buyers and suppliers, i.e. linking individual SMEs to each other, to major companies, to e-procurement chains and to other e-marketplaces. For example, a Tunisian start-up, Intelligent DSP, works with the New Delhi office of Analog Devices to develop remote monitoring services for electrical power meters. More broadly, successful e-commerce initiatives facilitate the emergence of new forms of business organizations such as virtual hubs and networks. By streamlining their operations and business relationships e-commerce helps to create a supply chain management for SMEs and overcome the high trade barriers they normally face. Increasing the role of buyer feedback helps to make production more customer-centred and flexible. Creating many portals for SMEs with useful and functional contents greatly contributes to their efforts to access business information at much lower cost and hence to overcome the information asymmetry problem.

Among private sector efforts to facilitate SME access to e-business opportunities, mention may be made of the business portals specially designed to offer rapid and convenient answers to a variety of small business needs. The challenge is to maintain a range of services that are both easy to find and effective. Banks have also launched SME-oriented business portals in order to ensure customer loyalty and create a basis for Internet-based banking services for SMEs.

Despite its recent slowdown, most analysts expect the B2B e-commerce market to grow substantially in the coming years. The Gartner Group forecasts that the worldwide B2B e-commerce market will reach \$7.3 trillion by 2004. Initially, many B2B initiatives focused

on so-called big-ticket deals among large enterprises, thus overlooking the great potential for SME involvement. However, further changes are rapidly correcting this initial miscalculation. Efforts to involve SMEs more actively in B2B markets take two forms: adapting large exchanges to the specific needs of SMEs and developing specific exchanges for SMEs. Although many SMEs see B2B markets as a way for large buyers to put additional pressure on suppliers to lower their prices, they understand the importance of emerging e-markets as supply channels for their products. As a result, many SMEs are doing their best to adapt to the requirements of the global procurement platforms of large manufacturers.

The large e-marketplaces could cover a comprehensive range of B2B services for SMEs. That range includes supply chain management, e-procurement, SME's specific web service providers and exchanges. In particular, those bundled services might include web page creation, hardware and software integration and ISP connection, and low-end security products at affordable prices. One of the key problems of SMEs in the emerging economies is their unfavourable sectoral mix. Most SMEs, which are active in traditional sectors, lack export capability. The lack of high-technology SMEs is certainly a major handicap for many emerging economies and an obstacle to the development of locally based e-commerce. On the other hand, the growth of the Internet provides an opportunity to create new businesses specializing in new technologies. However, in order to realize this opportunity it is necessary to have access to technology and to create an environment capable of nurturing the new businesses. In the OECD countries, successful high-technology businesses are often concentrated (clustered) in small geographical areas, where they can obtain access to a wide range of resources, including technical skills, academic research, financial expertise and development know-how. More importantly, such clustering favours informal as well as formal contacts. Silicon Valley in the United States, Silicon Glen and Cambridge in the United Kingdom, Sophia Antipolis in France are often quoted as examples of high-tech clusters.

Such clusters also exist in developing countries such as India (Bangalore) and Malaysia (Penang). The transition economies are also trying to draw on their relatively developed workforce and education and R&D centres to accelerate the use of the Internet in their economic activities. At the same time other emerging markets are also trying to catch up. Thus, recent projects in Africa and Middle East specifically oriented

towards Internet-based technologies include El Ghazala in Tunisia, Gauteng Innovation Hub in South Africa and Internet City in Dubai (UNDP, 2001a). Given Dubai's role as major trade hub in the region and its liberal trade and investment regime Internet City may become a well-connected multifunctional technology hub. Many well-known foreign hi-tech companies have already opened offices there.

Support to SMEs is being provided at both international and national levels. In this connection, mention may be made of the G8 initiative (Global Marketplace for SMEs) and the EU initiative (Go Digital). There are many other initiatives by national Governments and other public entities. Some of them are of a very general nature, while others are more specific, trying for example to create investors' networks, including business angels and venture capitalists for SMEs, or to provide access to the services of local export financiers (the United States Department of Commerce's Export Finance Matchmaker). Although many of them tend to overlap, they still cannot meet the huge demand from SMEs. Linking those networks together might help to do so. However, neither the Global Information Network for SMEs, nor the European Observatory of SMEs seems to have managed to create a network of networks devoted to e-commerce information for SMEs.

Although the developing countries also have their own programmes for modernizing SMEs, their capacities are much more limited. This makes it important for global and regional organizations, including the UN family, regional development banks, NGOs and others, to further expand their awareness-raising and technical and financial assistance activities in that field to support the SME sector in developing and transition economies. In this connection development of e-commerce with emphasis on SME needs is definitely part of the mandate of the ICT Task Force created by the UN Secretary General. While it is hard to overestimate the advantages of the Internet for SMEs, it will require a great deal of awareness-raising and technical assistance from the international community to facilitate SME's participation in e-commerce.

SMEs and e-finance

E-finance includes Internet banking and payments, e-brokerage, e-insurance and other related services. Internet technologies have now penetrated all aspects of the financial services industry, including retail and wholesale, back office and front office, information and transaction. SMEs also use the bank lending and

trade finance channels and are highly dependent on the quality of credit information related to their performance and financial health. E-finance of immediate interest to SMEs in developing countries includes Internet banking and payments, e-trade finance, online credit information and related e-credit insurance and e-factoring operations. Microfinance shares a number of features with SME finance; it is also similar to household finance and can be considered to be a combination of both those forms of finance.

The e-commerce practices of SMEs in developing countries raise the question of their ability to gain access to Internet banking, online payments, online trade finance and Internet based credit information databases.

In developing and transition economies there are many innovative initiatives to launch or facilitate e-finance for SMEs implemented by local banks, financial companies or other public and private sector based organizations and associations. The following are examples of some successful models and new initiatives.

SMEloan

SMEloan serves mainly the needs of SMEs in Hong Kong, China. The company offers Express Loans of up to HK\$ 1 million, approved within one minute of submitting an online application. This allows business owners to obtain financing instantly. In practice, most SMEs borrow modest amounts. However, SMEloan offers possibilities of borrowing more than HK\$ 1 million, using more time-consuming procedures. The innovative approach of SMEloan was to finance SMEs with lower transaction costs and better results by leveraging Internet resources, thus making it possible to set up scalable lending operations based on knowledge of future cash flows, i.e. receivables of SME borrowers. By providing a home page to each borrower SMEloan requires borrowers to provide business data; these are automatically analysed by its risk diagnostic software, which gives early warning of any unusual operating trends manifested by the borrower. Only selected problematic borrowers are then addressed. The others receive quasi-automatic credit approval similar to that given by a credit card company. In that sense, SMEloan is different from a bank that treats SMEs like other companies and hence incurs higher unit costs from SME lending since it demands from SMEs complex sets of documents and assigns individual managers to each SME borrower. The successful SMEloan model attracted the attention of IFC of the

World Bank Group, which has invested \$20 million in this promising venture.¹⁶

Streamlining SMEs cash flow or pre-financing online

Banks in many developing and transition economies are exploring possibilities of using online finance instruments to streamline the cash flow of SMEs on the basis, for example, of better management of their receivables, especially when the counterparts are the payables of large companies considered by banks to be much better risks. Here banks play the role of a factor discounting the receivables of SMEs. The situation is more complex in the case of trade between SMEs. In this connection, credible and searchable live Internet based databases on SME risks initiated or created by SMEs associations themselves could be a solution. Moreover, the creation of mutual insurance funds by association members could serve to support bank's e-trade finance operations and thus reduce the level of their perceived risks (De la Pardo, 2001; Guglani, 2001).

Smetrix e-trade finance clearinghouse proposal

An interesting initiative is the Smetrix B2B trade and e-trade finance clearing house proposal. Smetrix is a company in the Philippines that is trying to address the problem of more rapid and less costly access by SMEs to trade finance through the creation of a global e-supply chain in which a central clearing house handles the problems of authentication and risk assessment of SMEs. The clearing house, using its own database or partners credit information on SMEs, is expected to be able to create propitious conditions for SMEs either to have their online receivables discounted or receive structured finance (handling the risk of a given transaction) from a participating bank, or to securitize those receivables, capitalizing on the higher corporate rating grades of their trading partners (Pascual, 2001).

Major players are apparently starting to support the idea of financial clearing house based on the Smetrix concept. According to Smetrix it is expected that General Electric will provide the necessary technology support, while IBM will provide the technology support for the clearinghouse and interfaces with banks. The HSBC Capital Markets service might take the lead in terms of developing a real-time trade financing system using large corporations with good credit risk ratings as anchors for enhancing the receivables of their SME suppliers. At the same time Citibank might back-

stop the electronic collections and settlements for those receivables, while Dun & Bradstreet through its Philippines subsidiary could deliver the online credit and evaluate the SME receivables.

The Small Business Guarantee Finance Corporation, which is the Philippine Government's financial institution ensuring financing and guaranteeing for SMEs, is committed to taking the lead in delivering guarantees on the receivables. It is interesting to note that the Philippine Central Bank considers supporting this type of SME access to e-finance to be a part of its microfinancing agenda.

While in some respects the system is reminiscent of Bolero, it has some distinctive features. Like Bolero, the Smetrix clearinghouse is intended to be a hub bringing together all trade related workflows and checking the authenticity of electronic documents. Also, it is expected to reconcile the contents of those documents, and this will permit online negotiations and confirmations between parties, thus facilitating the conclusion of deals and minimizing further disputes. At the same time it is supposed also to be a constantly updated electronic library on credit information related to the trading participants. That library is intended to be constructed through the supply of information from partner banks and credit information and evaluating companies, as well as through the clearinghouse's record of trading partners' successes and failures.

However, the claim that a clearinghouse such as Smetrix one eliminates risks is clearly an overstatement. While it can successfully handle the risks related to the authentication of partners or legal issues related to trade, it cannot fully control the risks related to the supply performance of the seller and the payment commitments of the buyer (in spite of mechanisms for upgrading credit risk). SMEs remain more vulnerable as trade partners because of their higher exposure to the vagaries of the economic cycle.

Policy implications

Promising first signs

The positive signs related to e-finance for SMEs in developing countries include:

- The high level acceptance of technology by customers and financial institutions;
- The many innovative approaches;

- The initial tangible results in terms of market access and revenue generation.

However, most projects have not yet been launched on a large scale. It is therefore too early to determine which ones are likely to be the most successful and provide the “best practice” benchmarks to be replicated in other countries. Many aspects of the key question as to when and how e-finance will fundamentally change the conditions of SME’s access to e-finance still remain to be resolved. Nevertheless, from the experience so far, a number of key challenges can be identified. Some of these challenges are discussed below.

Adapting global technology to local requirements

While Internet technologies are global and standardized, their applications can and need to be adapted to local circumstances. The Internet offers an amazing capability to reconcile global uniformity with local flexibility. It facilitates cross-border links, but at the same time creates new configurations of networks and clusters. Distinctions between proximity and remoteness remain highly pertinent, even if the distance becomes virtual rather than geographical.

The most successful e-finance stories in developing countries, including those of banks such as ICICI Bank of India, Banco Itau of Brazil and Banamex of Mexico, emphasize the ability to respond to local requirements in terms of product mix and delivery channels. The need to localize financial solutions is even greater with regard to e-finance for SMEs, which for the most part operate within a limited geographical area. Furthermore, their characteristics, size, financial structure and sectoral mix can vary considerably even within the same country or region.

Strengthening public support

Most e-finance developments have taken place through the interplay of competitive market forces, with limited public sector intervention. Some of them, particularly in Internet banking, have been launched by foreign institutions. The situation is quite different in the case of e-finance for SMEs, where public sector intervention is quite frequent. It is not only that the public authorities have to create the broad framework for e-commerce development (appropriate legislation and technological infrastructure, to mention the two most important) but also that they need to ensure that SMEs take advantage of the new environment and the

opportunities it creates. The great majority of developing countries SME success stories with regard to involvement in e-commerce were largely the result of initial public sector support.

However, while public sector involvement in e-commerce promotion appears to be of critical importance in many cases, it differs in many respects from traditional government interventions. It is more flexible and proactive and relies less on administrative edicts and more on cooperation with the private sector. Rather than maintaining stability, it promotes innovation. The new modus operandi often entails setting up specialized agencies or decentralizing support measures to local governments, for example in countries such as China and India.

Creating an adequate regulatory and institutional framework

To facilitate the implementation of programmes, developing countries need to play a proactive role in encouraging the rapid adoption of market friendly laws and regulations, including laws on e-commerce, electronic contracts and digital signatures. It is equally important to ensure effective coordination of government agencies, industry associations and other facilitators. At the same time, while e-finance and e-commerce do not eliminate borders, they make them more porous. The Internet may also allow companies and households to circumvent regulations and restrictions. For example, in spite of exchange controls in many developing countries, households and companies still manage to open accounts with foreign banks or brokerage houses via the Internet. The Internet makes the use of offshore companies and banks even easier. The downside is that the Internet offers new opportunities for fraud.

Without a robust regulatory framework, the development of e-finance and e-commerce might be jeopardized. However, if such a framework is too rigid and formal, it may discourage innovation and entrepreneurship and, more importantly, deter the informal sector from engaging in e-commerce. In the end, e-finance and e-commerce will succeed only if they create a stable physical and virtual infrastructure of trust, shared by all parties concerned, including public authorities, local and foreign entrepreneurs, financial services providers and customers, and not the least SMEs.

Creating and maintaining an environment based on trust is essential in order to attract private foreign cap-

ital and know-how, as well as financial and technical assistance from international development agencies and NGOs.

Mainstreaming SMEs towards e-finance

Improved tax regimes and simplified regulations, as well as other support measures, will permit SMEs to move towards the formal economy. This will include comprehensive reporting on their assets and liabilities, thus allowing them to be listed in Internet based credit information databases. That might create a fundamental positive change in the financial community's perception of SMEs as credit risks. In turn, the SMEs will be encouraged to participate in the e-finance revolution and use online banking and payments as part of their common business practices, while as trusted clients they might start to receive online trade finance and eventually investment. This conclusion is valid not only for the overwhelming majority of SMEs in developing countries but also for SMEs in developed countries.

Finally, it is important to mention that the majority of recommendations of the UNCTAD expert meeting on e-finance for SMEs held in 2001 stressed the role of active policies and public-private cooperation in such vital areas as the creation of an adequate regulatory and institutional environment for e-finance, the development of secure and legally binding methods of electronic transmission and the introduction of modern e-finance instruments.¹⁷

J. Conclusions

The critical mass of e-finance and e-commerce resources, know-how and actual operational experience is concentrated in a limited number of large private sector companies, headquartered in OECD countries. Those companies provide key elements of infrastructure, networks, systems and applications. They operate globally, in terms of both sourcing and selling their products and services, and the emerging economies are the natural extension of their outreach. Many developing and transition economies are trying hard to find their niches in this new globally networked economy.

Various global e-finance projects have been created by banks such as Citibank, HSBC and Deutsche Bank, payment card associations such as Visa and Mastercard, and some others. Examples include CitiBusiness and the Visa Business Card. It is worth mentioning

that the financing of households and microenterprises i.e. so-called microfinance initiatives, are also currently under scrutiny by banks and the international development community. For example, Deutsche Bank has created a Microcredit Development Fund, which has contributed to the creation of many microfinance institutions.

One area in which cooperation is essential is the development of global online banking and payments platforms such as SWIFTNet and Identrus, which are the key elements of the emerging new global e-finance architecture. As their design and implementation evolve, they should take into consideration the e-finance requirements of developing countries. So far, those platforms have tended to focus mainly on the needs of global corporations, although payment and settlement services for SMEs operated by trusted banks in developing countries also need to be a part of the global systems. Among other things, careful consideration should be given to the issue of interoperability between global and local e-finance platforms.

Global trade and information platforms such as @ratings and Bolero present a somewhat different challenge. These platforms explicitly cover developing countries and SMEs. However, for the platforms to offer full benefits, both the quantity and the quality of information about the SMEs have to be enhanced. To be listed in platforms such as @ratings, SMEs need to provide reliable figures with timely updates. The Internet offers the means of lowering costs and reducing the length of this task. However, it is still a complex process, particularly for the SMEs. Hence there is a need for closer cooperation with and between existing credit information companies in developing countries, as well as for the creation of companies providing those services in countries where they do not yet exist.

Many experts raise the issue of leapfrogging, which gives countries with underdeveloped financial systems the possibility of moving ahead rapidly. The arguments developed above suggest that while opportunities for leapfrogging exist, it is not certain that they are widespread. Countries with weak financial systems also often suffer from the absence of technological infrastructure and associated skills, which makes the creation of a vibrant e-finance system quite arduous. To build a cyberfinance offer from scratch requires the mobilization of high-level skills in the financial, telecom and IT sectors, which many developing countries do not have and cannot develop without external support. The examples of countries such as Estonia and the Republic of Korea, which have achieved e-finance

sophistication comparable to that of most advanced OECD countries, are not easily replicable. Furthermore, even the more advanced emerging economies have to make large number of improvements in critical systems and applications such as trade finance hubs or financial markets in order to achieve the required level of competitiveness. Nevertheless, it is true that e-finance offers more opportunities for quicker deployment and better coverage than the traditional approaches to financial systems development. Skip-

ping magnetic strip technology in Poland by directly installing smart chip technology and advanced acceptance terminals to backstop online payment systems is an example of leapfrogging. At the same time while the evolution of Internet technologies holds considerable promise for e-finance and e-commerce, it also increases the complexity of the underlying systems and applications. For the developing and transition countries, the challenge ahead will be to build capacities, particularly local expertise to manage these complex systems.

Notes

- 1 The expert papers and the UNCTAD documents are listed in the References. To access them go to those two e-finance events on the UNCTAD e-commerce website www.unctad.org/ecommerce
- 2 See also UNCTAD 2001, Chapter 7, “Managing Payment and Credit Risks Online: New Challenges for Financial Service Providers”, pp 143-169
- 3 See www.jmm.com
- 4 See www.onlinebankingreport.com/resources/sr7.html
- 5 See www.datamonitor.com.
- 6 See, for example, “Reinventing branch banking”, Forrester TechStrategy Report, March 2002.
- 7 See www.visa.com; www.identrus.com; www.swift.com.
- 8 Rogoff (2002, pp. 56-57).
- 9 For a detailed discussion of the mechanics of online payments see UNCTAD (2001, Chapter 7).
- 10 “E-invoicing: ready to take off?” in CFO Europe, Economist Intelligence Unit Country Briefing, 22 April 2002.
- 11 Citibank UAE Newsletter, issue 02, 2002
- 12 See www.bolero.net; www.tradecard.com; www.cceweb.com
- 13 See for example www.lconnect.com; www.proponix.com
- 14 See www.itfex.com; www.ltptrade.com
- 15 See www.dnb.com ; www.equifax.com www.coface.com; www.cofacerating.com; www.gerling.com/credit/
- 16 “IFC Invests US\$20 million in SMEloan (Asia)”, IFC Press Release No. 1/158, 12 December 2001
- 17 See document TD/B/COM.3/EM.13/L.1, 29 October 2001.

References and bibliography

Papers presented at the UNCTAD Expert Meeting on Improving Competitiveness of SMEs in Developing Countries: Role of Finance, Including E-Finance to Enhance Enterprise Development, Geneva, October 22-24 2001 (to download the papers go to “Events” at : www.unctad.org/ecommerce).

Bedrikow R, Legal Manager, Serasa, Brazil. *Serasa of Brazil: a leading credit information provider in Latin America.*

Campaigne J, Executive Director, Pride Africa, Kenya. *Banking on Africa: Commercial Bank Linkages with Microfinance Institutions.*

Cazes J, Managing Director, Coface Group, France. *@Rating An Innovative Way to Enhance Small Business Competitiveness in Emerging Markets.*

Claessens S, Professor of Finance, University of Amsterdam; Glaessner, Thomas, Lead Financial Economist, World Bank; and Daniela Klingebiel, World Bank. *Electronic Finance: A New Approach to Financial Sector Development?*

De la Orta Pardo M, Administrative Director of E-Business, Westbridge University, Mexico. *“Coalition”: A Proposal for Financing SME’s.*

Guglani S, Managing Director, Sakhsham Financial Services Ltd, India. *Future of E-Finance for SMEs.*

Krishnan S; Regional Head of E-Business for Middle East, South Asia and Africa, Citibank, Dubai. *E-Value Propositions to Small and Medium Enterprises (SMEs).*

Kumar S, Head of SME Department, ICICI Bank, India. *E-Finance in a Developing Country Like India.*

- Oliveira A C B, Executive Director, Banco Itaú, Brazil. *E-Finance for SMEs in Brazil*
- O'Mahony D, Professor, Trinity College, Ireland. *Progress in Electronic Payments: Implications for Developing Countries*
- Otero P, Member of Advisory Board, Virtual Microfinance Market, Bolivia. *Presentation of the VMM.*
- Pascual G, Managing Director, Smetrix, Philippines. *Establishing a Regional Business-to-Business Clearinghouse.*
- Raihan A, Research Fellow, Centre for Policy Dialogue, Bangladesh. *The State of E-Finance in Developing Countries: Bangladesh Perspective.*
- Rennotte P, Gerling Namur, Member of Executive Board, Belgium. *E-finance for SMEs in Developing Countries.*
- Sato S, Senior Advisor, BIS, Switzerland. *Creating an "E-Finance Friendly" Regulatory and Institutional Framework.*
- UNCTAD Background Paper, UNCTAD/SITE/Misc.48, October 17, 2001, *E-Finance and Small and Medium-Size Enterprises in Developing and Transition Economies*, prepared in collaboration with Charles Goldfinger and Jean-Christophe Perrin, respectively Managing Director and Associate Consultant, Global Electronic Finance SA, Belgium.
- UNCTAD Issues Paper, TD/B/COM3/EM.13/2, *Finance and E-Finance for SMEs as a Means to Enhance their Operations and Competitiveness.*

Papers and presentations at the UNCTAD Side Event "E-Finance for Development" held in the framework of the International Conference on Finance for Development, Monterrey, Mexico, 19 March 2002 (see: www.unctad.org/ecommerce).

- Boccaro D, CEO, Coface Group-North America, USA. *Improving the Credit of Companies in Emerging Markets : the Coface Group Approach.*
- Campaigne J, Executive Director, Pride Africa, Kenya. *Taking E-finance to the Microlevel: Building Commercial Bank Linkages with Microfinance Institutions in Africa.*
- De la Orta Pardo M, Administrative Director of E-Business, Westbridge University, Mexico. *Mobile E-finance: The New Road for Accessing Financial Services.*
- Goldfinger C, Managing Director, GEF SA, Belgium. *Cyberfinance: Lessons and Prospects,*
- Hawkins J, Senior Economist, Monetary & Economic Department, BIS, Switzerland. *E-Finance and Development: Policy Issues.*
- Martinez Guerra I, Head of Internet Banking, Banamex, Mexico. *E-Finance in México*
- Mor N, Executive Director, ICICI Bank, India. *E-Finance for Development: An Indian Perspective*
- Visa International, USA. *U-Commerce: Electronic Payments, Economic Growth, and Financial Efficiency*, presented by Reid William, Global Product Director, Global Commercial Solutions.

Other sources.

- Bedrikow R (2002). *E-Finance in Brazil*, paper presented at the UNCTAD E-Commerce Workshop in Curacao, 25-27 June 2002.
- Business Week* (2001). "Online Money trading takes off ", 3 September.
- Celent Communications (2001a). *Guide to Electronic Bond Trading Systems*, January.
- Celent Communications (2001b). *Trade Finance: Revolutionizing a Medieval Market*, June.

- Claessens S, Glaessner T and Klingebiel D (2000). *Electronic finance, reshaping the financial landscape around the world*. Financial Sector Discussion Paper no.4, World Bank, Washington, DC. The World Bank
- Claessens S, Glaessner T and Klingebiel D (2001). *E-Finance in Emerging Markets: Is Leapfrogging Possible?* Financial Sector Discussion Paper no.7, World Bank Washington DC.
- The Boston Consulting Group (2002). *Global Payments 2002*
- The Economist* (2000). "The hollow promise of Internet banking", 11 November.
- Emarketer (2002) *The eBrazil report*
- Global Electronic Finance (2001a). *Internet and Securities Markets*, Financial Issues Working Group, February.
- Global Electronic Finance (2001b). *Internet and Payment Systems*. Financial Issues Working Group, March.
- Goldfinger C (2001). *European Financial Services: The Twin Challenge of Eurofinance and E-Finance*. Brussels, 21 March.
- Goldstein A and O'Connor D (2000). *E-commerce for Development: Prospects and Policy Issues*. Technical Paper No. 164, OECD Development Centre.
- Hilton Andrew A (2000). *Internet Banking: a Fragile Flower*. CSFI, London, April.
- International Finance Corporation. (2001). *E-Finance Global Initiative Briefing Note*. Global Financial Markets Group, 12 February.
- Katsman J (2002). "Trade Services 2001 Review". *L/C Monitor*, vol. 4, issue 4, January.
- The Korea Times Infotech* (2002). "Korea's Internet Banking Users hit 5.3 million", 28 May. See: http://www.hankooki.com/kt_tech/200205/t2002052817145145110.htm
- Martin H and Soupizet J F (1998). "The EU and the information society in developing countries". *The Courier ACP-EU*, no. 170, July-August.
- Murdoch A (2001). "Value for money: Magnifying microcredit". *World Link*, September.
- OECD (2001). *Understanding the digital divide*. Paris.
- Pyramid Research (2001). *Africa / Middle East perspective*
- Rao M (2000). "Development: 1,000 ways to close the digital divide". *globalinfo.org*, 18 August.
- Rao M (2001). "Internet ushers in fourth wave of banking and finance innovation". *E-finance summit, Singapore, March*.
- Rogoff S K (2002). "The surprising popularity of paper currency". *Finance and Development*, March.
- UNCTAD (2001). *E-Commerce and Development Report 2001*. United Nations publication, sales no. E01.11.D.30, Geneva and New York.
- UNCTAD (2000). *Building Confidence: E-Commerce and Development Report*. United Nations publication, sales no. E.00.II.D.16, Geneva.
- UNDP (2001a). *Human Development Report*. New York.
- UNDP (2001b). *Digital Opportunity Initiative Report*. Markle Foundation, Accenture.

Internet sites

www.Africa4biz.com; www.Alibaba.com; www.ati.tn; www.banamex.me; www.bnamericas.com; www.bolero.net; www.bondnet.com; www.citicorp.com; www.coface.com; www.datamonitor.com; www.DevelopmentEx.com; www.dnb.com; www.eban.com; www.Eplus.com; www.EquityLink.com; www.FT.com; www.gerling.com/credit/; www.GEXS.com; www.globalfinanceonline.com; www.icici.com; www.Idc.com; www.identrus.com; www.InfoAmericas.com; www.itau.com.br; www.jmm.com; www.mondus.com; www.onlinebankingreport.com; www.planetfinance.com; www.prideafrica.com; www.pyramid.com; www.purchasepro.com; www.serasa.com.br; www.SMEloan.com; www.swift.com; www.TradeCard.com; www.venturesite.co.uk; www.VeriSign.com; www.visa.com; www.watersinfo.com; www.247Customer.com.

Chapter 7

E-COMMERCE AND THE PUBLISHING INDUSTRY

A. Introduction

Publishing is a large industry present in all countries of the world.¹ There are no consistent and reliable global data on the total monetary value (e.g. in terms of actual sales revenue) of the world publishing industry. Even if such data were available, they would necessarily be incomplete, as they would exclude numerous publications that are distributed free of charge. To give a rough indication of the size of the industry, however, table 21 shows world trade in cultural goods, which include publications (printed matter and literature), for 1980 and 1998. Exports of printed matter and literature rose from \$ 7,623 million in 1980 to \$ 25,618 million in 1998. Within this category, exports of books grew from \$ 3,453 million to \$ 10,627 million over the same period.² Table 22 gives data on the number of daily newspapers published and the circulation per 1,000 inhabitants in developed and developing countries. Further data appear in annex I, which shows the total number of records in the ISSN Register for the period 1991 to 2001. The register is a record of periodical publications (serials), including electronic serials. It shows that in 2001 there were over 1 million

records and that new records added annually during 1991-2001 numbered approximately between 40,000 and 60,000.³

The value of the publishing industry to society, cannot, however, be fully assessed from trade figures, the number of publications or similar indicators alone. Vast unquantifiable spillover benefits accrue to users of published materials in the form of education, transfer of technology, advances in science and industry, the creation of new types of employment, and improvements in social services and indeed in the overall economic growth of countries. Major improvements in publishing resulting from the application of Information Technology and e-commerce technologies can be expected to augment these benefits.

Electronic publishing (e-publishing) is the publishing of information in electronic format. It is implemented by creating, maintaining, archiving and distributing documents using computers and networks. Electronically published materials may be created initially only for electronic transfer, or they may have been converted from material originally published on paper.⁴

Table 21
World trade in cultural goods by category

	1980				1998			
	Imports		Exports		Imports		Exports	
	\$ m	%	\$ m	%	\$ m	%	\$ m	%
Printed matter and literature	7 399	15.5	7 623	16.0	25 478	11.9	25 618	14.7
Music	8 557	17.9	9 040	19.0	50 870	23.8	47 618	27.3
Visual arts	4 979	10.4	3 559	7.5	14 992	7.0	9 8558	5.7
Cinema and photography	9 679	20.2	10 213	21.5	29 339	13.7	27 855	16.0
Radio and television	9 615	20.1	10 640	22.4	40 880	19.1	34 740	19.9
Games and sporting goods	7 610	15.9	6 425	13.5	52 096	24.4	28 586	16.4
All countries available	47 839	100	47 501	100	213 655	100	174 272	100

Source: UNESCO (2000), *International flows of selected cultural goods, 1980-98*.

Table 22

Daily newspapers: number published and circulation per 1,000 inhabitants

Year	Number of dailies			Circulation per 1,000 inhabitants		
	Developed countries	Developing countries	World	Developed countries	Developing countries	World
1970	5 266	2 681	7 947	292	29	107
1975	4 525	2 775	7 300	292	32	110
1980	4 488	3 359	7 847	363	37	111
1985	4 396	4 049	8 445	342	40	110
1990	4 229	3 991	8 220	340	42	107
1995	3 967	4 324	8 291	230	58	95
1996	3 972	4 419	8 391	226	60	96

Source: UNESCO (1999), *Annual Statistical Yearbook, 1999*.

E-publishing represents an improvement over print publishing technology and is considered a major development that may revolutionize information-related activities in society. Its rate of growth needs to be interpreted with caution, bearing in mind that many major technological inventions in the past took decades to have a full impact.

The consequences of e-publishing can be compared to those resulting from Gutenberg's invention of the printing press. This invention is considered the origin of mass communication. For the first time, it became possible to disseminate information and knowledge to large numbers of people who could share it simultaneously. Before then, there were only handwritten books made by monks, scholars and scribes and read only by churchmen, government officials and academics. With the introduction of print, intellectual life was no longer restricted to the elite as publications became more widely available to the general population.

E-publishing can bring about major reductions in the cost of producing and distributing publications, thus making it easier for many individuals and enterprises to participate as authors and publishers and for more titles to be published. Because of increased access to publications by readers and the availability of technology that permits more enterprises to enter the industry, e-publishing can foster a higher degree of competition and increased price transparency.

The benefits of e-publishing may be significant for developing countries. These countries lag behind developed countries in access to published material, including educational publications. Furthermore, their imports of published materials are substantially larger than their exports of those materials. By enhancing the

capacity of individuals and enterprises to produce and distribute publications, e-publishing provides great potential for promoting the growth of the publishing industry in developing countries and a reduction in this trade imbalance.

A discussion of e-publishing may touch on issues such as technology, the costs of production and distribution, pricing models, industry structure, the quality of published materials and intellectual property. This chapter provides a brief examination of these issues. With the advent of new technologies, the relationships between publishers, the media and consumers which were traditionally based on contractual licensing agreements with copyright protection, have completely changed in ways that make the situation difficult to control.

B. Publishing Features And Main Issues

This section examines the main features of and developments in e-publishing, using examples involving newspapers, scholarly journals and books (monographs and textbooks). While these categories provide a useful sample for study, it should be borne in mind that there are many other types of publications, including magazines, nonscholarly periodicals, newsletters, pamphlets, booklets, research reports, bulletin boards, catalogues, dictionaries, and encyclopedias. Also, each category may include many subcategories; for example, magazines include general-purpose and specialized ones. Furthermore, even the main categories overlap a great deal in content and format. For example, some books contain chapters contributed by different authors and thus in many ways resemble jour-

nals. In some cases, old journal articles by one or more authors are assembled into a book. There is therefore some degree of competition and interchangeability between different types of publications. Despite this diversity, however, the issues raised in connection with the three selected types of publications are relevant to the other forms as well. The choice is partly based on the fact that newspapers and books have mass markets of a much larger scale than other individual publications. Scholarly journals differ in many ways from the other two types, and also their recent history highlights to a greater degree the economic aspects of publishing, such as cost, pricing models and industry structure.

In each of the selected cases, a general description of the publication is provided in order to give the context in which issues are examined. Also, while the main focus is on economic aspects of e-publishing, brief accounts of technical and other related issues are given in so far as they have economic implications. For example, while the formats in which publications are presented electronically and their functionality are technical matters, at the same time they determine the software and other requirements imposed on users, as well as the searchability and quality of the published materials, and these are important economic dimensions.

1. Newspapers

Newspapers are serials usually issued daily or weekly. Their primary function is to report public news of general interest, although they may also include features, commentary and advertisements. Newspaper publishing enterprises range in size from small, locally based publishers to national and international ones owned by international conglomerates or industrial groups. All countries around the world publish newspapers, but the number of newspapers and the circulation of individual newspapers vary widely.

There is presently a great deal of interest in online newspapers, and numerous newspapers are now posted on the Internet. Some directories of online newspapers list over 10,000 newspapers covering practically every country around the world, including least developed countries (LDCs).⁵ While there is no evidence that all the listed online newspapers are fully functional, the sheer numbers involved demonstrate the overwhelming perception by newspaper publishers of the importance of an online presence and also the existence of demand for electronic newspapers.

The volume and quality of content and the level of sophistication of the browsing functionality vary considerably between newspapers. Most online newspaper publishers maintain print versions alongside the digital versions. The majority of the latter can be accessed through the World Wide Web (WWW) and use the hypertext mark-up language (HTML) format, making them readable with a standard Internet browser. This means that the reader has to be connected to the Internet in order to read the newspaper. An alternative means of distribution for e-newspapers is e-mail. For e-mail distribution, besides HTML, formats such as PDF (portable document format) and plain ASCII text are also used. E-mail distribution avoids the necessity of establishing an Internet connection at the time of reading the newspaper. Further, the PDF format may allow the publisher greater control of layout and content so that material cannot be quickly and easily copied, modified, and then distributed by third parties.

Some newspapers have automated search and archiving capabilities that enable readers to access back issues containing previous related articles and other background information for a given news item. In some cases, news items appearing in a current issue of the print version are reported in greater detail or with additional data in the online version. For example, the latter may contain more pictures, longer narratives, full interviews, and so on. In addition to text, online newspapers may offer other features, such as audio, video, graphics and charts, that enhance the news presentation. Links may give access to online libraries through which readers are connected to various reference sources. Another service is the provision of personalized newspapers, whereby a reader can receive an individualized selection of articles published in a given newspaper. To achieve this, the reader identifies preferred subjects such as current events, sports or cultural and political issues and the newspaper automatically designs a personalized edition containing articles that match the reader's interests. Yet another useful feature of online newspapers is continuous updating of news, something that would be too costly to accomplish for print newspapers. However, in spite of the possible technical and economic viability of a continuous up-dating, apparently at the moment only a few newspapers are providing continuous updates perhaps because most newspapers are still closely linked to their print counterparts in their production systems.⁶

The majority of online newspapers are free and provide unrestricted access to their websites. Some, while free of charge, impose access restrictions by requiring

the reader to enter an ID and password, both of which are issued after the reader has provided a selection of personal information. Other papers employ differentiated pricing whereby parts of the paper are free while other parts that contain special information require a subscription. Some papers even offer two separate online versions, one free and the other subscription-based. Where the entire online version is free, the funding comes from advertisements appearing in the print versions and, in some cases, in the online version as well. Some observers think that online versions are being offered for free merely on an experimental basis to allow publishers to gain information about readers and their Internet habits. In due course, more and more newspapers are expected to charge for access to their websites. While this change is already happening, it has not yet become widespread.

In some cases the online version comprises only selected parts of the print newspaper, which obliges readers to obtain the print version if they wish to access all the articles. Unlike print journalism, where interaction with readers is largely limited to letters to

the editor, online newspapers permit wide-ranging contacts between and among readers, editors and journalists that allow the newspapers to receive feedback from readers.

E-publishing has had an impact on newspaper journalists trained for or experienced in print publishing by obliging them to learn new methods of information collection and reporting. For example, it requires them to use skills needed for online presentation, including the use of video, animation and audio. Journalists are emerging who can combine information technology skills with elements of traditional news reporting.

Very little information is available on the cost of producing newspapers online as compared to that of print production. The example of the French newspaper "Le Monde" that launched in 1998 its web edition, offers an indication of its online strategy and related costs (see box 20). A great deal of discussion has occurred regarding the cost of publishing online scholarly journals, which are examined in the next section. The discussion there applies generally to online newspapers as well.

Box 20

The online strategy of Le Monde

Interview with Bruno Patino, Director General, Le Monde Interactif

Objectives

Created in 1998 to develop the web platform of *Le Monde* (www.lemonde.fr), Le Monde Interactif now offers a wide range of services designed to consolidate readership and attract more readers.

Initially, its implementation was driven by the need to compete with other newspapers that were going online. An online strategy is being progressively put in place to benefit fully from the Internet. The objective is to attract a wider, more varied readership and personalize the newspaper in order to offer individualized services that will match readers' personal preferences. According to Mr. Patino, this is a long process that has just started. The Internet has indeed made it possible to reach readers who would not have been reached otherwise, in particular in foreign countries (48 per cent of the persons who consult Le Monde interactif indeed live outside France, Source: Xiti – May 2002), and young readers. Indeed, figures indicate that the number of visits increased 389 per cent in two years (between April 2000 and April 2002). 60 per cent of the readers of the online version are under age 35, while the printed version attracts only 29 per cent of that age group. There is clearly a need for a newspaper to renew its readership, and every effort is made to offer attractive services to this readership.

The online version of *Le Monde* is designed to complement the printed version in offering dynamic and interactive services. These services include:

- Around-the-clock updates (7j/7, 24h/24) and three daily editions
- Articles from *Le Monde* and its supplements, complemented by site-specific articles, and many multimedia documents
- An edition accessible by subscription for 5 euros per month offering exclusive contents such as a daily morning newspaper (checklist), country information sheets, information kits on specific topics, etc.
- A personalized edition (thematic newsletters, weather forecasts, forums and chats and more than 720,000 archived articles)

Box 20 (continued)

What are the costs of *Le Monde's* Internet strategy?

If “conception, making and distribution” constitutes the traditional problematic of the publishing industry, the online version has dropped the “making” element since readers can decide which articles to print. This reduces the cost, not only of producing but also of distributing the newspaper, in particular abroad, and efficient delivery of the newspaper in good condition, which is not always possible by regular mail. For one euro, readers can get a PDF version of the daily edition that can be downloaded or e-mailed, whereas the printed version costs 1.20 euros. PDF delivery represents the least costly means of distribution, since it involves automated electronic procedures and little human intervention (technical maintenance). But so far sales related to the distribution of PDF files are rather low: about 50 to 500 copies are sold per day.

The online version has generated 8,008,550 site visits and 43,368,550 pages viewed in April 2002 (Source: Cybermétrie), which does not necessarily mean new clients. The cost of maintaining the site is quite high. Apart from the initial technological investment, the main costs are related to the employment of 57 staff members that are currently working for the online edition. According to Bruno Patino, large newspaper groups are using between 40 and 70 staffers to run their online versions. The costs are partly covered by advertising revenue, but the current size of the market and the rates for Internet advertising cannot cover more than 30 per cent to 50 per cent of the human resources costs involved in the online edition. Two additional types of resources come from online sales to professionals (enterprises); these sales cover from 30 to 50 per cent of the costs. To cover the remaining costs, every effort is made to attract more subscribers by offering new services. This requires constant efforts, and results will only be visible in the long run. For instance, the new edition for online subscribers (5 euros) that was launched in May 2002 has gathered thousands of new clients. The strategy is to attract more readers for both editions (online and/or printed), since the two readerships have different reading habits: On average, a reader spends 30 minutes reading a printed newspaper, on public transport or at home or work, whereas on the Internet the average site visit is less than 10 minutes.

According to Mr. Patino, it is impossible to predict the future of the online edition in the medium or long run, as it is technology-driven and technology is evolving rapidly. Wireless technology seems to be the next challenge, but it is worth remembering that recent technologies such as WAP services and GPRS, have not been as successful as was predicted.

2. Scholarly journals

Scholarly journals play a role as channels and sources of information important to society, in fields including scientific discovery, medicine, public policy, business, technology, industrial development, and so on.⁷ Articles in scholarly journals are based on original research and written by experts or scholars in specific academic or professional fields, as opposed to newspaper journalists. A published article is usually identified with the author who derives recognition from it. Journals typically have a review board consisting of peers or other scholars in the field that decide which submitted articles will be accepted for publishing. Unlike newspapers, scholarly journals have limited interest for the general public. However, they have dedicated markets comprising authors and readers who depend on them as publishing outlets for career advancement and as sources of scholarly or professional knowledge. Therefore, individual journals tend to have a higher degree of continuity and less demand elasticity than, for example, newspapers. Furthermore, the major

stakeholders for scholarly journals – journal publishers, scholars, public and private institutions and libraries – are different from those for newspapers, and thus some of the underlying issues in relation to e-publishing are different. On the consumer side, libraries play a pivotal role in the purchasing of scholarly journals, accounting for the bulk of subscription revenue.⁸

Many scholarly journals have traditionally been published by nonprofit academic associations, although there is increased participation by commercial publishers.⁹ In recent years, scholarly journals have faced severe financial problems resulting mainly from escalating subscription prices and from budgetary constraints faced by libraries, which are the major subscribers. Table 23 shows price changes in United States journal prices for the period 1984 to 2000. The budgetary constraints are mainly administrative in that institutions allocate budgets for journals based largely on their overall administrative priorities for given resources rather than on the demand for particular publications.

On the other hand, increases in the prices of journals appear to be the result of a combination of factors including rising production costs and the ability of publishers to charge as much as the market can bear. The latter ability is enhanced by the monopoly enjoyed by certain publishers and by the presence of inelastic demand. It has been suggested that the largest journal publishers may be playing the role of price leaders and influencing the prices of the other publishers. Another possible explanation is that too many journals have

entered the market in recent years, which has led to reduced circulation for individual journals and in turn to an increase in the average fixed costs.¹⁰ Interestingly, as tables 24 and 25 show, journals published by commercial publishers differ substantially from the prices of those published by nonprofit professional associations.

As will be discussed later in this section, observers have suggested that e-publishing could play a role in

Table 23
Price changes in serial (journal) prices in the United States

Year	Number of titles	Average price	Price change %	Index
1984	1 537	295.13	-	100
1985-87	N/A	N/A	N/A	N/A
1988	1 310	341.32	N/A	115.7
1989	1 308	363.20	6.4	123.1
1990	1 308	377.24	3.9	127.8
1991	1 307	412.38	9.3	139.7
1992	1 294	445.37	8.0	150.9
1993	1 294	466.57	4.8	158.1
1994	1 294	489.76	5.0	165.9
1995	1 280	522.01	6.6	176.9
1996	1 280	556.58	6.6	188.6
1997	1 281	578.22	3.9	195.9
1998	1 282	604.31	4.5	204.8
1999	1 286	638.18	5.6	216.2
2000	1 294	671.94	5.3	227.7

Source: *American Libraries*, May 2002.

Table 24
Non-profit journals, issue prices and prices per page (US\$), 1985 and 2001

Journal	Year 1985		Year 2001	
	Price	Price per page	Price	Price per page*
American Econ. Assoc. Journals	160	0.03	140	0.03
Econometrica	139	0.09	241	0.14
Journal of Political Economy	80	0.06	175	0.13
Quarterly Journal of Economics	77	0.06	198	0.13
Journal of Finance	64	0.04	207	0.07
Journal of Consumer Research	90	0.18	99	0.19
Economic Journal	160	0.14	321	0.16
Review of Economic Studies	104	0.14	180	0.24
Review of Economics & Statistics	141	0.20	200	0.27
American J. of Agricultural Econ.	21	0.05	134	0.10
Average	104	0.10	187	0.15

Source: Bergstrom, T. (2001), "Free labor for costly journals?" *Journal of Economic Perspectives*, Summer, pp. 183-198..

* Price per page is the price of the journal divided by the number of published pages.

providing solutions to these problems. They point out that it is not merely the conversion from print publishing to e-publishing that will make a difference but also the ability of e-publishing to enable new publishing business models and technical capabilities that are not possible with print publishing.

Like newspapers and other publications, journals are now embracing electronic publishing. Scholarly or academic electronic journals have shown a very high rate of growth. Table 26 shows the number of scholarly electronic journals and communications listed in the *Directory of Electronic Journals, Newsletter and Academic Discussion lists*.¹¹

Table 25
Journals published by commercial publishers, issue prices and prices per page (US\$), 1985 and 2001

Journal	Year 1985		Year 2001	
	Price	Price per page	Price	Price per page
Journal of Financial Economics	175	0.29	1 429	0.72
Journal of Economic Theory	410	0.34	1 800	0.90
Journal of Econometrics	463	0.39	2 020	0.87
Journal of Monetary Economics	146	0.36	1 078	0.79
Journal of Public Economics	389	0.33	1 546	0.85
World Development	413	0.31	1 548	0.70
European Economic Review	333	0.28	1 189	0.60
J of Env Ec & Manag	78	0.20	650	0.93
Journal of Health Economics	106	0.27	865	0.76
Economic Letters	341	0.28	1 592	1.07
Average	286	0.30	1 372	0.82

Source: Bergstrom (2001).

Table 26
Growth in number of scholarly electronic journals and other communication forums

	Journals and newsletters	Listserve and discussion lists	Total
July 1991	110	517	627
March 1992	133	769	902
April 1993	240	1 152	1 392
May 1994	443	1 784	2 227
May 1995	675	2 480	3 155
May 1996	1687	3 118	4 807
December 1997	3414	3 807	7 221

Source: *Directory of Electronic Journals, Newsletters and Academic Discussion Lists*, various issues, Washington, DC: Association of Research Libraries, Office of Scientific and Academic Publishing. See www.people.virginia.edu/~pm9k/libsci/ejs.html.

Another database, Ulrich's, shows that as of 2000 nearly 20,480 active serials or periodicals were available online.¹² These included academic/scholarly journals, bibliographies, bulletins, consumer journals, directories, government publications, newsletters and newspapers. According to the database, online was the leading single format alternative to print, followed by microform/fiche/film for 13,580 periodicals. Equally significant, Ulrich's reports that as of October 2000 a total of 2,401 online-only serials had been launched, most of which were still active.

E-publishing of scholarly journals is likely to expand readership, especially in developing countries where learning institutions are usually undersupplied with journals for budgetary reasons, and where scholars have limited access to outlets for scholarly publication. It also makes possible the introduction or expansion of advertising, which traditionally has not been a major source of income for scholarly journals.

In many ways, the business models used for electronic journals resemble those for online newspapers. Many journal publishers offer both print and electronic versions of each issue, what is referred to as parallel or dual publishing. At present this model is useful in that it gives users a choice, particularly at a time when e-publishing is still at a formative stage. It seems that many publishers of scholarly journals are unwilling to make a complete shift to electronic only publishing because this new business model is still being tested. It is too risky to abandon print publishing, which continues to be the mainstay of the publishers' cash flow. Similarly, some subscribers (e.g. libraries) prefer to have access to electronic journals without abandoning the print versions, for which they have well-established cataloguing and archiving systems. In some cases, the electronic versions are full-text versions of the print issues, while in others they present tables of contents only, or selected parts or articles of the print version. Presenting the table of contents alone does not constitute true e-publishing, and probably the real objective is to use the electronic version to advertise the print version. On the other hand, presenting selected articles is an attempt to provide free access without jeopardizing the volume of subscriptions. In other cases the electronic journal contains additional information, including raw data used for research, thus allowing other researchers to test the same data in different ways.

Some e-journals provide hypertext links, which are particularly useful in scholarly publishing, given the large number of sources that researchers usually con-

sult in a given research project. Interactivity and searching capability are also being extended to the creation of databases, which bring together texts, indexes and abstracts of articles published in different journals. E-journals employ more or less the same formats for delivering content as those used by newspapers, that is, HTML and PDF. When journals make extensive use of symbols and graphics, these may be inserted into HTML or PDF in their original graphic file formats, of which the GIF and JPEG formats are the most common.

Like newspapers, scholarly journals adopt a variety of pricing and licensing methods. Some publishers bundle the electronic version with the print subscription by providing free access to the electronic version to those who subscribe to the print version, while others charge an additional fee for access to the electronic one. Still others supply the electronic version as the base price, and the price of the print version is added to the electronic one. Yet other publishers use separate pricing for print and electronic versions, as well as charging per article accessed by the reader. In most cases, institutions such as libraries pay a site license fee for electronic access and must then ensure that only entitled persons in the institution get access. The licenses are negotiated separately even in cases where an institution also subscribes to the print version.¹³

The question of the cost of e-publishing is contentious. First-copy costs are high, although the marginal costs of printing additional copies and physical distribution costs are low. On the other hand, the processing of articles, marketing and administrative costs are costly. Some studies have suggested that costs are considerably lower for e-journals than for print journals. For example, a study commissioned by Industry Canada concluded that the production and distribution of a new e-journal could be 28 to 48 percent less expensive than the cost of the print counterpart.¹⁴ However, some publishers contend that set-up costs for e-journals are high and that the largest share of publishing costs is fixed, including editing and marketing costs, which apply to both print and electronic publishing. Also, the additional capabilities that come with e-journals (e.g. search ability and hypertext links) lead to cost increases. Some publishers enter e-publishing with no experience in the business and are obliged either to invest in developing in-house the skills and competencies required for e-publishing or to contract out the technical work of website development and maintenance and to support outside vendors in acquiring the necessary state-of-the-art technology.

Also, users of e-journals see an increase in other fixed costs, for example, involving site licenses, new cataloguing systems, the hiring of extra library staff members to manage journal access, the training of staff members and costumers in the use of the new system, and hardware costs including computers and printers. Some costs (e.g. printing) are actually passed on to end users (Many readers are more likely to print the contents of an electronic journal than read it entirely on screen). Thus, overall, the comparison of costs between e-journals and print journals is inconclusive.¹⁵ This uncertainty clearly presents a dilemma for publishers as well as their main customers. For the publishers, it is not clear which model will prevail in the long run. In the short run, the parallel printing system is proving to be very costly. As e-publishing expands, some readers move to e-journals, thus reducing the subscription base for print journals without the former fully compensating the latter in the form of increased revenue from e-journals. This tends to oblige publishers to increase subscription rates for print journals, which in turn encourages libraries and other institutions to cut back further on subscriptions.

The financial difficulties faced by scholarly journals that were referred to earlier have led to a number of initiatives with implications for e-publishing. Even though there is no general agreement regarding the relative costs of electronic and print versions of journals, some observers have encouraged self-publishing by scholars and the formation by scholars and libraries of network-based electronic publishing projects as a way of bringing down journal prices.¹⁶ Self-publishing by scholars is becoming viable as new technology makes it feasible for authors to format their own papers. It is also significant to note that peer review and editing are usually offered for free by other scholars, and thus self-publishing would not involve prohibitive costs for authors.¹⁷ Partly to implement such a strategy, scholarly and professional associations have been urged to use electronic submission of manuscripts and to distribute journals to subscribers electronically. These initiatives may help account for a large increase in the number of e-journals launched by scholars in recent years.

However, the academic community has not fully accepted e-journals as a form of scholarly publishing. E-journals are considered by some to have lower quality and prestige than print ones, and usually authors of articles in e-journals are denied academic credit for these publications. It has been pointed out, for example, that some e-journals cut costs by eliminating professional copy editing and peer review. However, it

appears that the lack of recognition of e-journals for academic credit is partly due to inertia and uncertainty vis-à-vis a new system. Proponents of e-journals have pointed out that even scholarly print journals evolved over time, at a pace dictated largely by developments in scholarly culture rather than by technological developments. They note that scholars tend to be conservative in their intellectual pursuits. What matters most are the norms and standards being enforced rather than the technology used for publishing and delivery. Technically, manuscript submission and peer reviews can be managed through e-mail. Similarly, editing and correction can be performed electronically. Furthermore, quality can be ensured if publishers and libraries establish codes of best practices for authors regarding such matters as peer review. There is nothing inherent in e-publishing that prevents scholars and publishers from maintaining high publishing standards.¹⁸ Some observers have suggested that electronically managed peer review could be rendered faster, more efficient and more transparent than the traditional process. For example, the use of the Internet could permit contact with a large population of possible peer reviewers and a much faster circulation of manuscripts. It could also allow open peer comments, thus providing a supplementary level of review. Also, available information shows that e-journals do care about quality; for example, a study on e-publishing acceptance rates (for books) revealed that rates for accepted and rejected manuscripts were not lower for e-publications than for print publications.¹⁹

It is significant to note that authors of journal articles are able to circulate the initial drafts of their articles before they are eventually submitted for publishing. Electronic publishing facilitates this process as authors can carry out the distribution more cheaply and to a wider readership online. Authors can use preprint servers to send manuscripts to central databases or post them on directories that are accessible to the general public. Preprints create opportunities for authors and help alleviate the problem of high journal prices, but at the same time they create difficulties for publishers: readers who can access preprints for free have little or no incentive to subscribe to the journal, and budget-constrained libraries, too, may tend to rely largely on free preprints.

3. Books

Books are the single most numerous type of publication outside the category of periodical publications. For statistical purposes UNESCO has defined a

“book” as a “non-periodical printed publication of at least 49 pages, excluding covers”.²⁰

This chapter focuses on electronic books (e-books), which have aroused great interest in the publishing industry, with some expecting that e-books would completely revolutionize book publishing. Particularly note worthy was the publication by a best-selling commercial author, Stephen King, of “Riding the Bullet” as an online-only book in 2000. The considerable demand for the book convinced the industry, including traditional bricks and-mortar publishers, that there was really a potential for e-books.²¹ At the time it was predicted, for example, that sales of digital books (e-books), digital downloads and print-on-demand books would grow from \$9 million in 2000 to \$414 million in 2004.²²

E-books are created as computer files that can be read by various mechanisms – computers, personal digital assistants (PDAs) or special hand-held book reading devices using proprietary software.²³ They can be delivered to the reader either as downloads from the Internet or as e-mail file attachments. E-books can also be made available on diskette and CD-ROM. They use a variety of file formats (e.g. PDF, HTML, RTF) and can be read using various operating systems (e.g. Windows CE and Palm) or in files that are equipped with reading software. As was pointed out in the discussion of e-journals, these various formats provide different functionalities, for example, an e-book created as an HTML file gives the capability to include multimedia features with audio, video and animation.²⁴

Market performance – the supply of and demand for e-books

There is an apparent lack of consensus regarding how well the market for e-books has performed. Some analysts point out that there have been very few commercial success stories between 2000 and 2002. It is pointed out that most established book authors continue to publish with traditional print publishers, and those in the industry who had forecast the rapid growth of e-books no longer support those expectations.²⁵ On the other hand, some industry actors continue to support and invest in e-book-related activities contending that e-books have enjoyed high growth rates and will continue to do so. Furthermore, a number of print publishers are preparing to distribute their existing titles electronically. Other interests such as the Open eBook Forum are promoting e-books by raising reader awareness of the benefits of

e-books.²⁶ Indeed, supporters of e-books suggest that the real issue is not that there is a poor market for e-books but that the initial growth forecasts were exaggerated. A quick look at promotional materials indicates that a large number of e-books are being advertised and points to the existence of an impressive array of e-book distributors, publishers as well as on-demand publishers.²⁷ The problem in making an independent assessment is to determine the actual volume of e-book sales.

Another relatively new distribution format, print on demand (POD), is a sort of combination of e-publishing and print publishing. This technology allows a book to be stored as an electronic copy and be printed and bound only according to the number of copies actually demanded or paid for. For book publishers, printing on demand solves the perennial problem of having to print copies without being certain of the actual number required by the market, and then having to absorb the resulting unrecouped production and storage costs.

Benefits of e-books for authors

It is widely recognized that where the print publishing model prevails, many books that are written are never published. Because of the high cost of editing, formatting and printing, the publishers tend to select only the “best” books, largely on the basis of expected sales. As a result, publishers have tended to dominate the process of deciding which books get published and which do not. E-books allow authors to publish online themselves at an affordable cost. This increase in outlets and opportunities has empowered authors to decide what materials actually get published. Further, as e-publishing increases competition between publishers, e-publishers are more willing to publish books that would have been rejected in print publishing.

Authors may also find that some e-publishers are willing to work more directly and closely with them than traditional publishers would be. Also, some e-book publishers assist authors with the editing and distribution of e-books. The books may be advertised on the publisher’s website, and other services may also be offered – for example, copyright and ISBN registration and registration in the *Books In Print* database as well as with major online book distributors. This generosity may be explained by the fact that many e-publishers are new to the industry and are in the process of establishing business networks.

E-publishing can also provide improved customer service and can allow authors to receive quick feedback from readers about their publications. For example, authors can establish direct contact with readers by providing e-mail addresses and websites through which readers can express their views and suggestions concerning a book. Such information may help authors in preparing updates or new editions of their works. Also, e-publishing has been credited with increasing the royalties paid to authors. It is reported, for example, that on average e-publishers pay authors royalties in the range of 20 to 30 per cent of the net price received from sales of a book, compared to the royalties of 8 to 10 per cent typically paid by print publishers.²⁸ Some e-publishers provide even higher royalties, such as a 50-50 split of royalties with authors.²⁹

As the cost of Internet access declines, e-publishing stands to benefit from an increase in the number of readers to whom publications are distributed without consequential cost increases. The cost of distributing an e-book remains the same regardless of the number of people reading the book, subject to the size of the bandwidth available. Authors who self-publish are able to eliminate intermediaries (publishing houses) and deal directly with readers, thus reducing transaction time and other transaction costs, although they must pay for marketing costs. Thus, overall, e-publishing lowers barriers for new entrants and offers the potential for a much greater number of individuals to publish their books which in turn creates the potential for a large increase in published titles.

Benefits of e-books to publishers and opportunities for e-businesses

Largely due to economies of scale, traditional print publishing requires books to be printed in large numbers in order to maximize opportunities for profitability, although the existing market may not ensure that the whole print run is sold. Printing numerous copies of a book has the disadvantage of tying up capital and also involves considerable costs for shipment, warehousing, inventory and distribution to retailers. The alternative, namely printing fewer copies, poses the risk of running out of stock, which can result lost sales opportunities. Also, small print runs are less profitable than large ones, as unit printing costs tend to decrease with increasing numbers of printed copies.

The tendency towards large print runs is due largely to the difficulty of ascertaining demand. Available information shows that, while book publishers often distribute large numbers of copies of printed books to

retailers, eventually many copies are returned unsold to the publishers.

The above problems can largely be eliminated with e-books. As e-publishing minimizes the amount of printing, the need to determine demand is also minimized. Physical transportation of books is significantly more costly than the distribution of e-books. Similarly, e-publishing reduces or eliminates warehousing and inventory costs.

E-publishing has still other benefits. New editions can be produced more frequently than in print publishing. Publishers can publish shorter titles (those that are longer than magazine or journal articles but shorter than typical print books), reprints and books that are out of print, with few or no overhead costs. E-publishing also makes it possible to sell parts of a book or other publication and thus provide new sales opportunities for a given publication. Length limitations are far less important than in print publication, and authors can include additional content such as annexes, additional data, and so on, which is not always feasible in print versions.

Unlike printed books, which eventually run out of print and tend to remain available in bookstores for relatively short periods of time, e-books can theoretically remain available for any length of time. Generally, e-publications have lower sale prices than their print counterparts. For example, the prices of e-books in a particular category might range from \$1 to \$6 whereas comparable paperbacks might sell for \$6 to \$10.³⁰

Like e-newspapers and e-journals, e-books enable the use of features such as sound, video, automatic cross-referencing and interactivity. They also allow readers, through hyperlinks, to be linked to other texts, audio, video or other digital content outside a book that is accessible on the Internet. Further, they permit publishers to reach global markets more readily.

Disadvantages of e-books

In general, e-books have the disadvantage of being less portable than printed books. An e-book has to be read on a computer screen or using an e-book reader. Generally, text is harder to read on a computer screen than in print form; characters are not as clear, and looking at a screen for extended periods of time can be tiring. As regards e-book readers, consumers have been concerned by their cost and by the fact that all devices are not compatible with all e-book formats. This obliges customers to keep track of which e-books can be read

on their systems, and creates difficulties for publishers in deciding on which formats to use.

Cost comparison between e-books and printed books

The relative costs of online and print publishing are of major concern to publishers because they are a major factor in deciding whether to get involved in e-publishing. At first glance, e-publishing appears to be less expensive than print publishing, since in the former the marginal costs of printing and physical distribution, are low or nonexistent. However, a more meaningful comparison must consider both fixed and variable costs. Fixed costs include the cost of editors and other staff and the technology infrastructure needed for production. Some of these costs may be higher in e-publishing than print publishing. For example, staff costs may rise because of heavy dependence on skilled technology workers. However, today most book "manuscripts" are prepared as computer files and are delivered to the printer in electronic format. Converting these files to the widely used HTML or PDF format should not require substantial additional resources. Also, increased competition may create greater demand not only for high-level customer services but also for high-quality publications with sophisticated functionality. As in the case of journals, therefore, there appears to be no clear consensus, at least in the current run transition atmosphere, as to whether, overall, e-books are less costly than printed books.

Pricing/Revenue models for e-books

Since e-books are a relatively new form of publishing, publishers are still searching for the most appropriate pricing models. Because of this and other factors, including efforts by institutions such as libraries to overcome budgetary constraints, the pricing of e-publications has generally become fairly complex and in many ways contentious. (See the earlier discussion of e-journals.)

C. E-Publishing in Developing Countries

The preceding section outlined the state of the art in e-publishing and the potential benefits this model offers. As regards the actual growth of e-publishing, it was mentioned that some sectors, such as e-journals, have seen much progress in spite of uncertainty caused in part by the ongoing crisis of high journal

prices in the face of limited library budgets. On the other hand, there are clearly opposing perceptions concerning e-books, with some observers feeling that e-books do not yet have a significant presence and are not likely to do so soon, while others think their market role is substantial and growing.

This report takes the view that e-publishing is already having a significant impact, given, for example, the number of online newspapers and e-journals currently in existence. There is therefore justification for taking a positive view of this new technology and supporting e-publishing activities for the benefit of all stakeholders in the publishing chain. This report also shares the view that the slow growth of e-publishing should not be interpreted to mean that this form of publishing has no future. Historically, a number of other technologies, including press printing, have taken decades to have a major impact on society.

The benefits of e-publishing that were described in the preceding section of this chapter may accrue to publisher and users of published materials in all countries, including developing ones. E-publishing uses technology and business models that make it easier for individuals and small enterprises to publish cost-effectively. It also allows their publications to reach a global readership at a minimal cost. The net effect is to enable enterprises in developing countries to compete with established publishers, although initially they may need to rely on niche markets at the national or regional level.

It is evident, however, that publishers and users in developing countries have lagged behind their developed-country counterparts. This lag can be attributed to a variety of factors, including the low level of Internet connectivity, without which e-publishing is not possible.³¹ However, more fundamental problems exist that are directly linked to the publishing industry itself.

Some of the problems concerning publications in developing countries and their implications for the growth of e-publishing are summarized below. The publishing industry as a whole is generally less developed in developing countries than in developed ones.³² Table 22 showed, for example, that developing countries, with a much larger share of the world population, had more or less the same number of newspapers as developed countries. Even more significant, in developed countries the volume of circulation per 1000 inhabitants was more than twice than in developing countries. Annex II, which shows the distribution

of book publishers by country, indicates that publishers are concentrated in only a few countries and that most developing countries have very few book publishers. In this connection, other sources show that in developing countries with a sizable publishing industry the main publishers are branches of major publishing houses in developed countries. Other indicators, such as the number of book trade organizations, show the same uneven distribution across countries.³³

The following summary by the UNESCO Institute for Statistics provides a succinct picture of the uneven distribution of the production of published materials and access to such materials:³⁴

- Over 50 per cent of countries worldwide have an estimated daily newspaper circulation of 50 copies per 1,000 inhabitants.
- In more than half of the world's countries, there are fewer than 10 newspaper titles. Only 8 per cent of countries have over 100 newspapers.
- Around 50 per cent of countries worldwide produce, on average, less than one book per inhabitant per year; 30 per cent produce between one and three books per inhabitant; and 20 per cent produce four or more books per inhabitant annually.
- Around 60 per cent of countries have fewer than 50 copies of school textbooks per 1,000 inhabitants, while just 20 per cent of countries have more than one textbook for every inhabitant.
- Around 70 per cent of countries worldwide provide fewer than 200 public libraries per million inhabitants; 16 per cent provide between 200 and 500 libraries; and 15 per cent provide more than 500.
- In nearly 50 per cent of countries worldwide, all the libraries combined contain less than one book per inhabitant; 20 per cent contain between one and three books per inhabitant and 30 per cent contain four or more books per inhabitant.

The following observations further illustrate the poor state of publishing in developing countries:

- There is limited information on what publications are published in developing countries. For example, only a few articles published in developing countries are listed in the world's major journal indexes and book directories. This lack

of information undermines readers' ability to access these publications and authors' ability to research opportunities for publishing in these countries.

- Partly because of the above and for reasons of quality and prestige, many scholars in developing countries tend to publish with publishers in developed countries, thus failing to contribute to the growth of the local publishing industry or those of other developing countries.
- While many scholars from developing countries strive to publish their work in developed countries, a number of factors such as competition for authorship and biased peer review, make it relatively difficult for developing-country authors to be published. In other words, authors in developing countries fail to realize their full publishing potential due to limited access to publishing outlets or lack of knowledge about the outlets.
- High journal costs have been exacerbated by a proliferation of scholarly journals on different subjects. This means that many journals available on the market are not being purchased and therefore, are not used by readers. Journals published in developing countries thus face particularly stiff competition from those of developed countries. The latter have a larger readership base, which generates a more substantial cash flow, ensuring regular publication and consistent quality.
- Some journals and textbooks produced in developing countries have relied on government and corporate sponsorship, but these sources have decreased with the countries' overall poor economic performance in recent years. Also, limited readership has meant limited advertising revenue.

Some observers have suggested that the problems facing publishing in developing countries can be overcome or reduced by e-publishing. As was mentioned earlier, the technology and business models applied in e-publishing may provide business opportunities for enterprises, including small ones, in developing countries. In recognition of the potential social and economic impact of publications, a number of national and international initiatives have been launched to promote e-publishing and access to e-published materials in developing countries. A listing of some of the initiatives can be found in Annex III.

Such initiatives are new and there is little information regarding their current status and successes or failures. It is notable, however, that the provision of access to e-publications to institutions in developing countries for free or at reduced prices appears to be similar to pricing models that are used by a large number of publishers worldwide, as was mentioned in part B. It was pointed out that free access was at times used as a marketing strategy which could change in due course. On the other hand the initiatives involving the access to publications produced by developing country publishers, if successful, could result in genuine growth of e-publishing in the developing countries.

D. Copyright Issues in the World of E-Publishing

Intellectual property is an intangible form of property and includes four types of human works that are protected by copyright laws: inventions (patents); symbols, names and images (trademarks); designs used in commerce (industrial designs); and literary and artistic works (copyright).³⁵ Copyright law grants the author of a work the exclusive right to reproduce the work, prepare derivative works and perform and display the work publicly. Copyright protects published and unpublished literary, scientific and artistic works in any form of expression. Protection automatically occurs when works are actually created and fixed in a tangible form. Registering copyright may be convenient for commercial or litigation purposes but is generally not necessary to obtain a valid, enforceable copyright.

Since the advent of new technologies in the 1990s, the development of adequate national and international copyright legislation has been of particular concern. Indeed, by making works accessible via the Internet or other digital channels, authors and publishers are losing control over the distribution of their works. The concern of copyright owners has thus taken on new and challenging dimensions.

New technologies enable anyone to make exact copies of a work and share them almost anonymously with others. The Internet allows people to steal contents freely and share them with others using tools such as peer-to-peer technology (P2P). P2P on the Internet is a network that allows computer users with the same type of networking software to access files from one another's hard drives. This was the technology that was employed by millions of Napster³⁶ users.

While basic computer equipment is needed for carrying out piracy, copying and distribution process have been dramatically facilitated by advanced digital tech-

nology. Cases have been recently reported in which books were being illegally translated or copied, sometimes even before their official release. This happened, for example, with J.K. Rowling's famous "Harry Potter" series. Before the advent of the Internet and related technologies, many countries were already facing copyright infringement on a large scale. The illegal copying of books presents a real danger to the survival of the legal publishing industry. For example, the *UNESCO Courier* in its March 2001 edition³⁷ published figures showing that: while the legal publishing industry annual turnover in Latin America and Spain is \$5 billion, the illegal business makes \$8 billion.

The copyright issues related to the publishing industry are similar to those faced by the software and music industries, both of whose products are copyright protected. However, piracy of published works, including books, newspapers and journals, has not yet reached the same level in terms of volume, monetary value and popularity as that of music, for example. Nevertheless, it is likely to become a serious problem as e-publishing takes off. It has been reported that digital piracy (involving software, music, films and books) is responsible for multi-billion-dollar loss annually.³⁸ So far, thousands of books are said to have been illegally exchanged on the Web in 2001; figures or estimates are not available for journals and newspapers.³⁹

This part of the chapter outlines some general issues related to copyrights and their economic importance, taking into consideration the different dimensions they have in developed and developing countries. Unsurprisingly, developed countries, as major exporters of intellectual property, have made great efforts to ensure its protection. Since the 1990s, a worldwide trend toward the harmonization of national laws has been influenced by international negotiations that led, in particular, to the adoption of international agreements such as the WTO Agreement on Trade-Related Aspects of Intellectual Property (TRIPS),⁴⁰ the 1996 WIPO Copyright Treaty⁴¹ and the WIPO Phonogram Treaty,⁴² known as "the WIPO Internet Treaties".

1. The economic impact of copyrights

The increasing economic importance of intellectual property rights makes them a more and more prominent issue in trade relations between countries. The main argument advanced in international debate in support of the protection and enforcement of intellectual property rights is that they lead to greater international trade for the benefit of all. Given that developed countries are the major exporters of intellectual prop-

erty, the intention is clearly to protect their exports by keeping pirated products out of the destination markets.

The main justification of copyright for developed countries has always been economic. The largest exporter of intellectual property rights is the United States. In 1990, the United States formed the International Intellectual Property Alliance (IIPA),⁴³ which divided copyright-based industries into four groups,⁴⁴ and provided statistics on their contribution to gross domestic product (GDP), employment and trade in the United States. The IIPA 2002 Report⁴⁵ confirms the important role of copyright-based industries which represent one of the fastest-growing sectors of the economy, making significant contributions to domestic employment and revenue growth as well as to international trade. The *Report* states that in both developed and developing countries, studies have generally reported contributions to GDP in the range of 3 to 6 per cent. According to the *Report*, it is estimated that in 2001 the core copyright industries⁴⁶ in the United States accounted for 5.24 percent of the country's GDP, or \$535.1 billion – an increase of over \$75 billion from 1999. Over the last 24 years (1977 – 2001), the copyright industries' share of GDP grew

more than twice as fast as the remainder of the U.S. economy (7 per cent vs. 3 per cent).

The IIPA's estimate of the revenues generated by foreign sales/exports of selected U.S. core copyright industries (see Table 27) in 2001 was \$88.97 billion, an increase of over \$52.78 billion from 1991.

To put these figures into perspective, it is necessary to look at the extent the importance of trade losses in the United States due to copyright piracy. IIPA's estimate of total trade losses for 2001 was \$9.4 billion, an increase of \$898 million from 2000. Business software applications represented 29.3 per cent of the total trade losses in 2001, closely followed by record and music, losses related to this sector increased from \$2.9 billion in 2000 to \$3.2 billion in 2001. Estimates related to book losses, which in 2001, represented 10.3 per cent of the total trade losses at \$650.8 million, while their value was \$671.8 million in 2000. IIPA's estimates that worldwide losses due to piracy of United States copyrighted materials are in the annual \$20-22 billion range, and does not include estimates due to Internet piracy. The United States' trade losses from piracy are increasing and are expected to grow even more with the development and expansion of new technologies.

Table 27

Estimated Revenues Generated by Foreign Sales/Exports of selected U.S. Core Copyright Industries, 1991-2001
(Billions of dollars)

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Industry	E	E	E	E	E	E	E	E	R	E	E
Pre-recorded records, tapes, etc	\$6.15	\$6.58	\$7.44	\$8.74	\$9.76	\$9.83	\$10.01	\$9.90	\$10.27	\$9.76	\$9.51
Motion Pictures, TV, Video	\$7.02	\$7.05	\$8.36	\$9.34	\$10.24	\$11.58	\$12.34	\$12.93	\$13.70	\$14.50	\$14.69
Computer software	\$19.65	\$21.94	\$24.32	\$26.44	\$29.14	\$34.81	\$40.28	\$41.87	\$50.65	\$56.88	\$60.74
Newspapers, Books, Periodicals	\$3.36	\$3.62	\$3.67	\$3.79	\$3.97	\$3.96	\$4.22	\$4.51	\$4.79	\$4.33	\$4.03
Total for Selected Industries	\$36.19	\$39.19	\$43.78	\$48.33	\$53.11	\$60.18	\$66.85	\$69.21	\$79.41	\$85.46	\$88.97

E = estimate; R = revised.

Source: IIPA, Copyright industries in the US Economy: the 2002 Report.

Table 28
USTR 2002 "Special 301" Decisions and IIPA estimated U.S.
trade losses due to copyright piracy
(In millions of U.S. dollars)
and estimated levels of copyright piracy for 2000-2001

	Motion Pictures				Records & Music				Business Software Applications ¹				Entertainment Software				Books				
	Loss		Video Piracy		Loss		Piracy		Loss		Piracy		Loss		Piracy		Loss		TOTAL LOSSES		
	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	2001	2000	
PRIORITY FOREIGN COUNTRY																					
Ukraine (GSP)	40.0	40.0	80%	99%	170.0	200.0	85%	95%	46.7	23.7	87%	89%	NA	NA	NA	NA	NA	NA	256.7	263.7	
306 MONITORING																					
Paraguay ²	2.0	2.0	80%	80%	253.6	200.0	99%	90%	3.5	8.5	72%	76%	NA	9.7	NA	99%	3.0	3.0	262.1	223.2	
People's Republic of China	160.0	120.0	88%	90%	47.3	70.0	90%	93%	1140.2	765.1	92%	94%	455.0	NA	92%	99%	130.0	130.0	1932.5	1085.1	
UNRANKED BUT WITH OCR																					
Mexico (OCR)	50.0	50.0	40%	40%	366.8	300.0	61%	63%	146.9	145.7	55%	56%	202.5	NA	83%	90%	40.0	30.0	806.2	525.7	
PRIORITY WATCH LIST																					
Argentina	30.0	32.0	45%	45%	78.2	76.0	47%	46%	72.5	92.9	62%	58%	NA	141.4	95%	94%	8.5	8.5	189.2	350.8	
Brazil ³ (GSP)	120.0	120.0	33%	33%	302.0	300.0	55%	53%	272.3	264.1	56%	58%	NA	248.2	99%	94%	14.0	18.0	708.3	950.3	
Colombia	40.0	40.0	90%	90%	73.0	60.0	65%	60%	19.5	33.2	52%	53%	NA	39.0	NA	85%	5.3	5.0	137.8	177.2	
Dominican Republic (GSP)	2.0	2.0	60%	60%	7.7	2.0	65%	80%	4.0	6.7	64%	68%	NA	6.0	NA	NA	1.0	1.0	14.7	17.7	
Egypt	15.0	15.0	35%	35%	9.2	12.0	41%	48%	14.5	10.0	58%	56%	NA	14.9	90%	94%	32.0	30.0	70.7	81.9	
European Union	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Hungary	18.0	18.0	40%	40%	4.5	3.0	30%	20%	21.3	33.3	48%	51%	43.3	9.6	90%	86%	4.0	4.0	91.1	67.9	
India	70.0	47.0	60%	60%	NA	6.0	40%	40%	256.0	181.6	70%	63%	NA	NA	90%	80%	37.0	36.0	363.0	270.6	
Indonesia (OCR)	27.5	25.0	90%	90%	67.9	21.6	87%	56%	63.1	55.7	88%	89%	NA	NA	NA	99%	30.0	32.0	188.5	134.3	
Israel (OCR)	15.0	15.0	50%	50%	40.0	45.0	25%	30%	36.9	51.3	40%	41%	66.5	52.0	89%	NA	1.0	1.0	159.4	164.3	
Lebanon (GSP petition)	8.0	8.0	80%	60%	2.0	2.0	40%	45%	1.1	1.3	79%	83%	NA	1.5	NA	96%	2.0	2.0	13.1	14.8	
Philippines (OCR)	28.0	25.0	80%	70%	23.9	1.4	36%	33%	19.9	21.8	63%	61%	NA	41.0	99%	98%	44.0	44.0	115.8	133.2	
Russian Federation (GSP)	250.0	250.0	80%	90%	285.0	250.0	64%	70%	90.6	89.0	87%	88%	173.6	NA	90%	94%	48.0	48.0	847.2	637.0	
Taiwan	35.0	30.0	30%	30%	51.7	60.5	48%	44%	106.8	123.9	53%	53%	119.4	319.3	70%	90%	20.0	20.0	332.9	553.7	
Uruguay (GSP petition)	2.0	2.0	40%	65%	4.0	4.0	50%	35%	6.4	7.9	63%	66%	NA	16.3	NA	82%	2.0	2.0	14.4	32.2	
WATCH LIST																					
Armenia (GSP)	NA	NA	NA	NA	4.5	5.0	85%	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.5	5.0	
Azerbaijan	NA	NA	NA	NA	13.0	12.0	85%	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	13.0	12.0	

Bahamas (OCR)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Belarus	NA	NA	NA	NA	20.0	28.0	75%	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	20.0	28.0
Bolivia	2.0	2.0	100%	100%	15.0	15.0	85%	85%	4.9	2.8	77%	81%	NA	1.5	NA	NA	5.5	5.5	27.4	26.8
Canada	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chile	2.0	2.0	40%	40%	12.2	5.0	35%	30%	46.3	33.1	51%	49%	NA	41.0	NA	80%	1.1	1.0	61.6	82.1
Costa Rica (OCR)	2.0	2.0	40%	40%	4.8	3.0	40%	40%	6.9	14.9	64%	68%	NA	0.2	NA	50%	NA	NA	13.7	20.1
Greece	10.0	10.0	15%	20%	NA	10.0	NA	15%	38.9	46.9	64%	66%	NA	38.1	NA	78%	NA	7.0	48.9	112.0
Guatemala	2.0	2.0	60%	60%	NA	4.0	NA	60%	14.1	12.3	73%	77%	NA	0.1	NA	60%	2.5	2.3	18.6	20.7
Italy	140.0	140.0	20%	20%	40.0	50.0	23%	25%	338.8	327.0	45%	46%	NA	NA	74%	65%	23.5	23.5	542.3	540.5
Jamaica	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Kazakhstan (GSP)	NA	NA	NA	NA	25.0	25.0	78%	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	25.0	25.0
Kuwait	9.0	8.0	85%	85%	NA	3.0	50%	50%	4.5	6.6	76%	80%	NA	NA	85%	NA	2.5	2.5	16.0	20.1
Latvia	1.5	1.5	NA	75%	NA	4.0	NA	65%	4.6	NA	59%	77%	NA	NA	NA	NA	NA	NA	6.1	5.5
Lithuania	1.5	1.5	NA	80%	7.0	7.0	85%	85%	3.9	NA	56%	76%	NA	3.5	NA	98%	NA	NA	12.4	12.0
Malaysia	40.0	41.0	80%	80%	148.9	15.6	70%	65%	75.0	75.4	70%	66%	56.4	NA	93%	98%	8.2	8.0	328.5	140.0
New Zealand	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pakistan (GSP petition)	11.0	10.0	NA	60%	60.0	65.0	90%	90%	9.2	24.5	83%	83%	NA	NA	NA	NA	44.0	45.0	124.2	144.5
Peru	4.0	4.0	50%	75%	57.8	55.0	97%	96%	11.2	12.6	60%	61%	NA	3.8	NA	70%	9.0	9.5	82.0	84.9
Poland (OCR)	25.0	25.0	27%	25%	37.0	31.0	30%	30%	77.1	82.7	53%	54%	115.8	103.1	90%	85%	6.5	7.0	261.4	248.8
Qatar	0.5	0.5	30%	25%	NA	0.2	NA	25%	2.2	3.0	78%	79%	NA	NA	NA	NA	0.2	NA	2.9	3.7
Romania	6.0	6.0	65%	60%	14.0	11.0	70%	55%	15.7	17.1	75%	77%	NA	6.9	95%	91%	2.0	2.0	37.7	43.0
Saudi Arabia	30.0	40.0	45%	65%	12.0	8.0	42%	40%	16.4	17.7	52%	59%	115.7	28.0	83%	NA	14.0	14.0	188.1	107.7
Slovak Republic	NA	2.0	NA	20%	NA	0.5	NA	10%	8.1	5.3	46%	45%	NA	7.0	NA	85%	NA	NA	8.1	14.8
South Korea	25.0	20.0	25%	20%	4.0	7.0	14%	19%	100.4	177.2	48%	56%	487.7	157.0	63%	90%	35.0	39.0	652.1	400.2
Tajikistan	NA	NA	NA	NA	3.0	3.0	83%	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3.0	3.0
Thailand (OCR) (GSP petition)	24.0	24.0	65%	60%	16.6	15.6	45%	45%	32.6	42.7	77%	79%	29.1	130.5	93%	98%	28.0	33.0	130.3	245.8
Turkey (GSP)	50.0	50.0	40%	50%	3.5	4.0	35%	40%	22.4	78.6	58%	63%	23.7	116.2	90%	96%	27.0	28.0	126.6	276.8
Turkmenistan	NA	NA	NA	NA	NA	5.0	NA	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	5.0
Uzbekistan (GSP)	NA	NA	NA	NA	NA	30.0	NA	90%	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0	30.0
Venezuela	25.0	25.0	65%	65%	54.0	30.0	62%	62%	25.7	16.9	55%	58%	NA	47.0	NA	78%	20.0	22.0	124.7	140.9
Vietnam	NA	7.0	NA	100%	NA	NA	NA	100%	26.3	13.5	94%	98%	NA	NA	NA	NA	NA	8.0	26.3	28.5
	1323.0	1264.5			2339.1	2065.4			3207.4	2926.5			1888.7	1582.8			650.8	671.8	9409.0	8511.0

¹ BSAs trade loss estimates represent losses to U.S. publishers only, and differ from the BSA trade loss numbers generally released by that as: (a) publishers in that country and (b) losses to distributors/retailers in the country in question. This chart includes BSA' finalized statistics for 2001.

² Paraguay: RIAA report that it estimated losses to the sound recording/music industry include both domestic piracy in Paraguay and estimated losses caused by transshipment.

³ Brazil: RIAA reports the 55% piracy level in Brazil for 2001 reflects an amalgamated rate; the level of audiocassette piracy is 99% and the level of CD piracy is 47%. "GSP" means a GSP IPR Review is being conducted by the GSP Subcommittee; "GSP Petition" means that a petition is pending before that Subcommittee for its acceptance to initiate a Review.

Source: IIPA, USTR 2002 "Special 301" Decisions, including trade loss estimates and piracy levels for 2000-2001.⁴⁷

In most developing countries, copyright issues have not acquired the same urgency because copyright-based industries remain smaller. As was pointed out by the World Bank⁴⁸ in 1999, from the viewpoint of developing countries, the relevance of copyright is usually limited to artistic and literary works and the motion picture and television industries. With the expansion of Internet use, it is expected that copyright-based industries will grow in locations offering adequate IT skills and lower production costs, as has happened in some Asian countries in recent years. Efforts made by developing countries to address issues concerning national and international copyright legislation will occur when the capacity of local industries to generate intellectual property increases.

2. The impact of technology on copyright legislation

Copyright laws have been technology-driven and have tended to follow the development of technologies pioneered by the developed world. In the publishing industry, the invention of the printing press, computers and new technologies has led to reform of copyright legislation. The Statute of Anne, enacted by the British Parliament in 1710, known as the corner stone of copyright, responded in particular to booksellers' fear of their books being counterfeited and illegally distributed. Further to the Statute of Anne, national legislation was enacted in several countries: in 1790 the United States promulgated its first federal copyright statute, and thereafter several Western European countries (France, Germany, Austria and Spain) enacted laws recognizing authors as the owners of rights in their works.

In some developing countries, the laws regarding the protection of intellectual property were modelled on existing laws of developed countries. As the number of copyright-based industries in developing countries is generally quite low, the development of national laws was not high in the development agenda. Even developing countries that have implemented and ratified national and international agreements still do not fully meet their obligations in enforcing these laws. However, with the growth of copyright-based industries facing competition from foreign products, many developing countries have now realized the impact of copyrights and more generally intellectual property rights on their economies following

Copyright protection is provided in the Berne Union of the Protection of Literary and Artistic Property, known as the Berne Convention (1886). The Conven-

tion establishes standards for protection of copyrights in literary and artistic works. It envisages the principle of automatic treatment by providing protection to artistic works and national treatment that allows the courts of a country to apply national laws to offences occurring within that country. To date, 140 member countries have ratified the Berne Convention.⁴⁹

More recently, the concern over digital rights has forced national, regional and international authorities to adapt their legislation to face the new threats posed by virtual and global distribution of contents. The WTO Agreement on TRIPS, which came into effect on 1 January 1995, is the most comprehensive multilateral agreement on intellectual property. The areas of intellectual property covered by TRIPS include copyright and related rights (i.e. the rights of performers, producers of sound recordings and broadcasting organizations), trademarks (including service marks), geographical indications (including appellations of origin), industrial designs, patents (including the protection of new varieties of plants), the layout designs of integrated circuits and undisclosed information (including trade secrets and test data). The international debate on copyright issues in a digital era also led to the adoption in 1996 of the "WIPO Internet Treaties", which entered into force in 2002. The common objectives of these treaties are to protect copyright owners in the digital age, favour the development of human creativity and promote electronic commerce.

The adoption of the TRIPS and WIPO Internet treaties has influenced the adoption by developed and developing countries of national legislation in line with the principles set forth by the two treaties. For example, in adopting the Digital Millennium Copyright Act (DMCA),⁵⁰ the United States updated its copyright law for the digital era and prepared itself for the ratification of the WIPO Internet treaties. The DMCA included provisions concerning the circumvention of copyright protection systems, fair use in a digital environment, and online service provider (OSP) liability. Moreover, the IIPA is responsible for tracking developments in the area of copyright legislation and enforcement in over 80 countries. In doing so, it determines whether the acts, policies or practices of any foreign country infringe on intellectual property rights or fair and equitable market access for individuals in the United States entitled to intellectual property protection. IIPA Country reports are available for 77 countries.⁵¹

The European Union has prepared a European Copyright Directive⁵² which was adopted in April 2002 and allows the European Union and its member States to ratify the WIPO Internet Treaties. This is expected to happen by the end of 2002. By 2004, all European countries will need to have adapted their national legislations in order to extend copyright protection to the Internet and other new media in accordance with this Directive. After many years of legal discussion, to balance the rights of creators and the privacy of users, the Directive offers the possibility for European Union member States to adopt all or part of copyright exceptions that it envisages would allow for copying for technical reasons, personal use and archival purposes.

Modernizing the traditional legal instruments of multilateral copyright conventions and treaties⁵³ is essential, but the costs and benefits of harmonization are not always equally shared. Indeed, as was mentioned earlier in this chapter, developing countries lag behind in terms of producing intellectual property as a whole, including published materials. However, this should not draw attention from the benefits that developing countries stand to gain from ratifying and enforcing copyright legislation.

3. Enforcement of copyright legislation

The adoption of the WIPO treaties in 1996 generated an international pressure on developed and developing countries to comply with international agreements and thus, enforce anti-piracy mechanisms with regard to imported products. Indeed, the recent flurry of implementation of copyright legislation at the national level responds to pressure exerted on Governments by international bodies and local industries to provide effective enforcement of these laws. As part of WIPO's and WTO's joint efforts to help developing countries meet their commitments regarding intellectual property and conform with the WTO agreement on TRIPS, since 1998 technical assistance in preparing legislation, training, institution building, and modernizing intellectual property systems and enforcement has been extended to developing countries.

National legislation has been enacted by the majority of countries worldwide to ensure copyright protection in the digital age, but it is too early to assess the effectiveness of these actions. While software and music piracy remain the most important economic issues for all countries, other works, such as books, are also under threat as advances in digital technologies facili-

tate the expansion of piracy. In one of its country reports,⁵⁴ the IIPA indicates that piracy "is rapidly changing: it is becoming more predominantly digital, moving online, and migrating to dispersed production formats such as CD-Recordable (CDR). Piracy of analog formats – audiocassettes, videocassettes, and books and other printed materials – remains a serious, and in some instances a worsening, problem. But technological and market trends are clearly pushing piracy in a new direction. Simply put, technological advances are increasing the opportunities for piracy, and pirates are taking full advantage of them."

All countries, including developing ones, are urged to comply with international agreements to protect works from piracy for the benefit of exporters of intellectual property products. However, enforcement of intellectual property rights depends on the effective functioning of a country's judicial system.

Beyond legal solutions and actions carried out by the local police, prevention campaigns have recently been launched by developing countries to demonstrate their commitment to fighting copyright infringement. In preparing the present report, the UNCTAD secretariat surveyed a number of copyright and intellectual property offices⁵⁵ in both developed and developing countries. They were asked whether they were affected by e-book piracy and what solutions were being implemented to combat digital piracy. All respondents indicated that they were encountering a certain degree of digital piracy but that the main problem areas were software and music.

In its efforts to promote intellectual property, the Copyright Office of Hong Kong (China) visits schools to create awareness of intellectual property issues. Since 1997, a total of 389 schools including 136,704 students have been visited. The Copyright Office has also launched an anti-piracy advertising campaign aimed at consumers using pirated goods. It is too early to assess the impact of these campaigns.

In the survey responses, three cases of e-publishing piracy were reported. Typical of the answers gathered were those of the Copyright Office of Peru (Box 21) and the United Kingdom Patent Office (Box 22). The Customs of Hong Kong,⁵⁶ the enforcement agency for the protection of intellectual property rights, recently reported a case involving the selling of a pirated version of an English dictionary in CD-R format in retail outlets.

Indeed, creating awareness of intellectual property rights, including copyright issues, has for the past few years been the preoccupation of intellectual property

Box 21

E-publishing and copyright in Peru

In Peru, Mr. Martin Moscoso, computer and communications law attorney at the Copyright Office, National Institute for Promotion of Competition and Protection of Intellectual Property (INDECOPI) says that e-commerce in Peru has developed rapidly thanks to the availability of public Internet access facilities for the fact that few households have personal computers. The legal framework has been implemented to foster e-commerce: electronic contracts are allowed by statute, digital signatures are covered by specific legislation. In particular, the legal framework covering copyright (Legislative Decree 822 from 1992) is updated and includes new technologies. Moreover, Peru has signed the WIPO Internet Treaties. However, e-publishing is still in its early stages. Therefore, just a few cases have reached to Copyright Office and are mainly related to unauthorized reproduction and distribution of photographs through a webpage (*Editora Automás vs. Publimilla SRL*). In short, the legal framework is ready, and the potential problems will increase with the development of e-commerce in Peru. (May 2002)

Box 22

E-publishing and copyright in the United Kingdom

According to Mr. Brian Simpson, assistant director, Copyright Directorate, United Kingdom Patent Office, the United Kingdom Patent Office is not aware of anecdotal information specific to the United Kingdom as regards e-book piracy. There was a certain amount of activity last year following releases of e-books in 2000. He believes Stephen King was first to test the market but the original encryption used was easily hacked. Estimates from late 2001 suggested that around 7000 books protected by copyright were then illegally available on the Internet. The United Kingdom Patent Office has been working to implement many of the recommendations of the Intellectual Property (IP) Group of the United Kingdom's Creative Industries Task Force. They have developed an IP portal, www.intellectual-property.gov.uk, to complement their own Patent Office website (www.patent.gov.uk) by providing more basic information on intellectual property for the general public.

The United Kingdom Patent Office is also working with industry and others (Crimestoppers Trust) to raise awareness of IP crime and its damaging effects for all. Moreover, Mr. Simpson specifies that they are developing a CD-ROM for schools on intellectual property jointly with the UK Institute for Citizenship and the UK National Consumer Council. The CD-ROM is directly related to the introduction of the subject of citizenship into the national schools curriculum in September 2002. (May 2002)

and copyright offices both in developed and developing countries. The advent of new technologies has spurred a large number of countries to reform their national copyright law in order to ensure copyright protection for materials available over the Internet. However, bringing copyright laws into line with the WTO Agreement's and WIPO treaties, and providing effective enforcement of these laws with regard to piracy, counterfeiting and other forms of intellectual property rights infringement has proved to be difficult. Due to the complexity of intellectual property laws and their enforcement, developing countries still lag behind and have still not managed to comply with the TRIPS requirements and enforcement mechanisms. Priority must be given to the development of a

policy framework that allows great flexibility while ensuring implementation of international agreements.

E. Conclusion and Recommendations

1. Conclusion

Publishing is a major industry that has an impact on many aspects of society. Electronic publishing represents a major transformation in publishing methods and business models, and it introduces new products and capabilities into the publishing industry.

An examination of e-publishing approaches to disseminating newspapers, scholarly journals and books has shown that while there are a wide variety of e-publishing models, they share many features such as delivery formats, capabilities and pricing models. Publishers generally offer parallel print and electronic versions of the same publications, although some publish electronic-only versions as well. While parallel or dual publishing has some advantages, it tends to be very expensive and presents publishers with a dilemma, since electronic-only publishing has not yet proved its viability as a business model.

There are a variety of pricing models for e-publications, especially journals and newspapers, including free access to electronic versions for all readers, electronic free versions for print subscribers, access to electronic versions for print subscribers for an extra charge, single article sales and so on. Journal publishers also use site licenses.

While e-publications are considerably cheaper than print publications with respect to printing and to some extent distribution costs, when other fixed costs are taken into account, e-publishing may be as costly as or even more costly than print publishing, at least in the short run.

The quality of e-publications relative to print publications is a contentious issue, especially for scholarly publications. While it is true that print publishing may be more meticulous in controlling quality of content, many e-publishers also apply a high degree of quality control. From a technical point of view, there are no inherent reasons why e-publishing cannot institute the same level of quality control as print publishing.

There is a perception in some publishing circles that e-publications, especially e-books, have so far had dismal success. Other observers, however, take the view that e-publishing has had impressive growth, although initial forecasts may have been overly optimistic. Reinforcing the latter view, some major traditional publishing houses and e-publishing software vendors continue to invest in e-publishing, including e-books.

Developing countries have lagged behind developed ones in publishing and using e-publications because of limited computer Internet access and low levels of participation even in print publishing. Recognition in developing countries of the value of e-publishing has led to a wide variety of national and international initiatives aimed at promoting e-publishing and improving access to e-publications in developing countries. Some

of the initiatives are similar to marketing strategies used by publishers in developed countries. Publishers and users of publications in developing countries may find some of the initiatives to be useful sources of support and opportunities for cooperation when formulating their own e-publishing strategies.

2. Recommended strategies for publishers and users in developing countries

The following are some key questions relating to business models and strategies to be considered. They are outlined here to provide a guide and an indication of the scope of the work involved and the types of investments to be made.

Strategies for prospective publishers and authors

- (a) As e-publishing demands new skills, publishers would need to take measures to train staff members to use new technologies, especially in areas that do not exist in traditional print publishing, such as interactivity and multimedia capability etc. One option is to contract out the technical tasks to technology firms or established e-publishers. If the publishing is to be undertaken in-house, an analysis of the capital and operating costs associated with the required information technology and infrastructure needs to be undertaken.
- (b) Where a publisher is a start-up firm with no existing investment in print publishing, there appears to be a widely held view that such a venture should commence on an electronic-only basis, although this is feasible only where the majority of readers have Internet access. The question is more complex for publishers that have invested in print publishing. The "parallel" model of print publishing combined with electronic publishing appears to be the most prevalent. The decision essentially involves weighing costs against marketing opportunities. The publisher needs to assess the expenditure costs of converting from print publishing to electronic-only publishing and compare them with the expected gains. On the marketing side, if most users can only access print publications (as would be the case in most developing countries), a move to electronic-only publishing may entail a total loss of market.
- (c) Other questions that would need to be addressed include the following:

- (i) Whether to establish on one's own website or be hosted by other sites;
- (ii) What kinds of materials are suitable for e-publishing;
- (iii) Whether to place online the full text, only the table of contents, or only selected chapters;
- (iv) Which distribution channels to use, including institutional buyers (libraries), wholesale and retail stores, specialist document delivery services, etc. A decision also has to be made whether a publication should be delivered online or through a portable device such as a CD-ROM. A CD-ROM may be the better option in developing countries where Internet connectivity is still poor, although the trend is now towards online publishing, and a CD-ROM cannot be updated or easily link readers to Internet sites. E-publishing on CD-ROM should therefore be considered a transitional stage. Online delivery can occur via optical disk systems through public network connections (ISDN) or directly over the Internet. The publisher has various options regarding the format or language to be used, as was discussed in part B of this chapter, including ASCII, HTML and PDF. There are also options with regard to the graphic and audiovisual tools to be used. These choices require a fair amount of knowledge about IT and should also take into account trends in languages used on the Internet in order to ensure compatibility.
- (v) Whether to build own databases as a backup information source;
- (vi) Whether to "bundle" books or journals - that is sell them as a package;
- (vii) Which pricing models to use;
- (viii) How many of the value-added features enabled by e-publishing (e.g. searching capability, multimedia) are to be provided, taking into account the costs involved and the market being targeted;
- (ix) How the publication should be marketed;
- (x) Undertaking copyright, ISBN and other registrations;
- (xi) How to obtain editorial services;
- (xii) Whether the publisher should cooperate with other publishers to gain economies of scale, a factor that has driven some major publishers into mergers and acquisitions; and
- (xiii) Whether an author should engage in self-publishing and what external support is available for this purpose.

A number of guidelines for e-publishing dealing with these types of questions and more technical ones are available and may be consulted.⁵⁷

Strategies for users of e-publications

Users include individual buyers of publications and institutional buyers, essentially libraries of different types. This section focuses on libraries since their purchases are large and hence their buying decisions are more important in terms of expenditures than purchases by individuals. Usually publishers negotiate deals when issuing licenses for publications such as journals to libraries. These arrangements specify prices for various print and electronic versions. A library has to weigh cost against the importance it attaches to print relative to electronic versions for reasons other than cost.

Given fixed budgets, when adopting e-publications users may have to choose not merely between print and electronic versions but also between different types of publications – for example, between e-books and e-journals to the extent that there is scope for substitution between them. In their purchasing and other operational activities, libraries may create or join library consortia in order to gain bargaining power vis-à-vis publishers. Such consortia are now being used widely at the national, regional and international levels.⁵⁸ Their functions include selecting electronic publishing resources and entering into licensing arrangements with publishers in order to rationalize price negotiations. Members monitor the market for publications, obtain offers and evaluate them for negotiating purposes. Collaboration between consortia members also extends to providing joint access to acquired e-publications, which is the equivalent of interlibrary loans for print publications. If a group of libraries wishes to establish a consortium, there are published guidelines that provide information on how to create such an institution.⁵⁹ Libraries may also join existing consortia such as the International Coalition of Library Consortia (ICOLC), which has worldwide membership.

There are a number of other possible strategies for institutional users. For example, while not many titles may currently be available as e-books, such books provide a cost-effective solution to libraries' budgetary constraints in that a library owning an e-book may transfer the content into several readers' e-book devices and thus avoid purchasing several copies of the same book. E-books may also help libraries reduce the delays typically involved in interlibrary loans of printed books – a library can obtain the contents of an e-book from another library in a matter of minutes. However, a decision to purchase e-books format has to take into consideration the present and projected availability of needed titles in e-books and the suitability of the available technology for reading books, as well as its cost.

The role of governments

Most developing countries have traditionally printed many types of official documents. Because of high printing and distribution costs, such documents are usually distributed only within government circles and to a few external outlets. Most governments and government-related institutions in developing countries now have websites or at least make use of other websites and portals to publish various types of information. This means that there is scope for governments to provide their publications online. An expansion of electronic publications by governments would not only widen the distribution of vital government information, it would also provide leadership by example to authors and publishers in the private sector.

To promote e-publishing, some governments in both developed and developing countries have encouraged all government institutions to progressively adopt e-publishing. Some governments have established minimum standards for government e-publications. These standards are intended to ensure the quality and accessibility of the published information.⁶⁰ Developing countries should find these examples a useful guide in establishing their own protocols.

Outside their own publishing activities, governments in developing countries can stimulate the development of electronic publishing in the private sector, in the following ways:

- (a) Providing training in publishing, particularly e-publishing;
- (b) Providing financial support to SMEs or individuals launching projects related to e-publishing;
- (c) Removing excessive regulations that restrict the freedom of publishing;
- (d) Formulating national policies and guidelines concerning e-publishing, including legal deposit of electronic publications in national repositories or archives;
- (e) Providing fiscal incentives such as tax exemptions or reductions for e-publications (many countries already grant such incentives for print publications);
- (f) Providing financing to public and academic libraries to enable them to launch programs for accessing and archiving electronic publications (in many cases, governments are already the main source of funding for libraries);
- (g) Facilitating the linkage of the national and international initiatives (see Annex III) with academic institutions, libraries and publishers in the individual countries concerned;
- (h) Providing clear guidelines regarding copyright laws (as was discussed in part D) and promoting the use of best practices in e-publishing;
- (i) Supporting surveys to gather information about publications produced in the country and disseminating such information online in order to expand awareness of and access to the country's published materials by end users and researchers inside and outside the country;
- (j) Stimulating the promotion of regional cooperation among publishers as well as among libraries, in order to enable them to achieve economies of scale and reduce operating costs;
- (k) Establishing national research councils or similar institutions to provide suitable frameworks for funding projects for research and disseminating the results of such research through publications including e-publications; and
- (l) Raising public awareness about the advantages of electronic publications.

Notes

- 1 In this report, publishing refers to the production and distribution of printed or written literary works or documents such as books, newspapers, journals and other types of publications. It excludes information delivered by radio, television and cinema.
- 2 UNESCO (2000), *International flows of selected cultural goods 1980 and 1998*.
- 3 See annex I.
- 4 Electronic publishing is not to be confused with desktop publishing, which is usually used to create products that are distributed in a noninteractive medium, usually paper or other hard copy.
- 5 See, for example, Onlinenewspapers.com.
- 6 Some real-time information services do provide continuous updates of online news, but these services are not considered here as newspapers.
- 7 For detailed definitions of scholarly journals, see, for example, "Online study guide: Periodicals" at www.ithaca.edu/library/course/periodical.html; "Scholarly journals and magazines" at www.nmus.edu/library/scholar.html and "What is a scholarly journal? A popular magazine? A trade journal?" at [http://camellia.sch.edu/literacy/table version/lessons 5/periodicals.htm](http://camellia.sch.edu/literacy/table%20version/lessons%205/periodicals.htm).
- 8 There are individual subscriptions to scholarly journals as well. However, due to the dominant role of libraries as the main subscribers, in examining e-journals the focus is on issues related to libraries.
- 9 See "Brief history of scholarly journals" at <http://panizzi.shef.ac.uk/elecdis/ed0001/ch0200.html>, "Scholarly societies and their relationship with commercial publishers" at www.scholarly-societies.org/comm_publishers.html; "Scholarly journals: There is no single villain in scholarly publishing's crisis" at <http://pitt.edu/utime/issues/33/001026/13.html>; Bergstrom T (2001), *Free labour for costly journals*, *Journal of Economic Perspectives*, Summer 2001: pp. 183-198.
- 10 For an extended discussion, see Akerson A "University libraries and scholarly communication" in Peak R and Newby G (1996), *Scholarly publishing: The electronic frontier*, MIT Press, Cambridge, Mass.
- 11 Lists of journals are published by many other sources as well, such as Ulrich's International Periodicals Directory and the Gale Database of Publications and Broadcast Media. There is, however, a lack of data on the exact number of journals published around the world. In large part, this results from a lack of uniformity in definitions of the term "journals".
- 12 Bowker's Ulrichsweb, Serial Trends, http://www.ulrichsweb.com/ulrichsweb/ulrichsweb_news/UlrichsSerialsTrends.asp.
- 13 See Spinella M (2000), *Electronic publishing models and the pricing challenge*, <http://www.si.unmich.edu/PEAK-2000/spinella-paper.pdf>; MacKie-Mason J and Riveros J (2000), *Economics and electronic access to scholarly information in* Kahim B and Varian H (eds.), *Internet Publishing and Beyond*, Cambridge, Mass., MIT Press.
- 14 Industry Canada (1995) *Cost and revenue structure of academic journals: Paper-based versus e-journals*. For other discussions of the subject, see for example Odlyzko A *Competition and cooperation: Libraries and publishers in the transition to electronic scholarly journals*, *American Academy of Arts and Sciences*, www.amacad.org/publications/trans13.htm; Odlyzko A *The Economics of electronic journals*, www.firstmonday.dk/issues2_8/odlyzko; Bot M, Burgemeester J and Rees H (1998), *The cost of publishing an electronic journal: A general model and case study*, *D-Lib Magazine*, November, <http://www.dlib.org/november98/11roes.html>.
- 15 For further discussion on the cost of e-journals, see Bergstrom B (2001) *Free labour for costly journals?* *Journal of Economic Perspectives*, Summer, pp. 183-198.
- 16 In addition to looking to e-publishing as a possible solution, some libraries have responded to the crisis by forming buying consortia which enable them to negotiate favorable subscription rates with publishers. Such consortia arrangements are also beneficial to publishers because they enable them to retain customers and also rationalize the selling process.
- 17 For an extended discussion, see "The future of publishers, journals and libraries", www.mathdoc.ujf-grenoble.fr/texte/Odlyzko/amo94/node9.html.
- 18 See, for example, "The interactive potential of the Net", [www-mathdoc.ujf-grnoble.fr/texte/Odlyzko/amo94/node8.html](http://www.mathdoc.ujf-grnoble.fr/texte/Odlyzko/amo94/node8.html).

- 19 Wiesner, Karen, "E-publisher acceptance rates", www.writing-world.com/epublish/wiesner.html.
- 20 UNESCO, Statistical Yearbook, various issues.
- 21 It turned out, however, that most of the downloads of the book were distributed freely by sellers for promotional purposes. It is uncertain whether there would have been great interest in the book if readers had to pay for it.
- 22 IDC, "Electronic publishing forecast and analysis, 2000-2004: Digital Books and Print on Demand". 2000.
- 23 E-book reader is a propriety software with a specific electronic text. The text is read using an e-book device that has a screen and is capable of reading e-books.
- 24 For further discussion on e-books, see for example Lynch, Clifford, "The battle to define the future of the book in the digital world," www.firstmonday.dk/issues/issues6_6/lynch/.
- 25 For example, see "E-book Story Fails to Unfold", www.cbsnews.com/stories/2002/05/14/tech/printable508968.shtml.
- 26 See www.openabebook.org.
- 27 See, for example, eBooks.com and digitalindex.com.
- 28 See www.epubbed.com/article1013.html.
- 29 See the formula suggested by the American National Writers Union for setting the level of royalties, <http://ccat.sasa.unpenn.edu/jod/nwul.html>.
- 30 See www.epubbed.com/article1013.html.
- 31 For a discussion of problems of infrastructure and connectivity see "Building Confidence and Report on E-Commerce and Development 2001." Also see ITU and WIR 2002?
- 32 For further discussion, see for example, Wresch, W., "E-commerce innovations in the book publishing industry: Opportunities for the developing world", www.uwosh.edu/faculty_staff/wresch/ICIS/htm.
- 33 See www.literarymarketplace.com/1mp/int/resourcesGeoList.asp?ID=11.
- 34 UNESCO Institute for Statistics, Facts and Figures 2000.
- 35 According to the definition given by the World Intellectual Property Organisation (WIPO), a copyright is "a legal term describing rights given to creators for their literary and artistic works [...]. The kinds of works covered by copyright include: literary works such as novels, poems, plays, reference works, newspapers and computer programs; databases; films, musical compositions, and choreography; artistic works such as paintings, drawings, photographs and sculpture; architecture; and advertisements, maps and technical drawings."
- 36 Napster is an application that allows people to share music over the Internet without having to purchase their own copy on CD. After downloading Napster, a user can get access to music recorded in the MP3 format from other users who are online at the same time. By simply typing in the name of an artist or song, the users receive a list of what's available, and then download the music from another user's hard drive. In July 2000, the United States District Court prohibited Napster from "engaging in or facilitating others in copying, downloading, uploading, transmitting or distributing plaintiffs' copyrighted works". For more details on Napster litigation, please see the U.S. District Court decision at <http://news.findlaw.com/hdocs/docs/napster/napster022102ord.pdf>.
- 37 "Pirates and the paper chase", by Lucia Iglesias Kuntz, The Courier of Unesco (March 2001)
- 38 www.envisional.com/assettracker.
- 39 www.envisional.com/assettracker.
- 40 www.wto.org/english/tratop_e/trips_e/trips_e.htm.
- 41 WIPO Copyright Treaty: www.wipo.org/eng/diplconf/distrib/94dc.htm.
- 42 WIPO Phonogram Treaty: www.wipo.org/eng/diplconf/distrib/95dc.htm.
- 43 The International Intellectual Property Alliance (IIPA) is a private sector coalition created in 1984 to represent the U.S. copyright-based industries in bilateral and multilateral efforts to improve international protection of copyrighted materials.

- 44 The four groups are: the core industries, partial copyright industries, distribution, the copyright-related industries. Copyright industries in the US Economy: The 1990 Report, www.iipa.com/.
- 45 Siwek S, Copyright industries in the US Economy: The 2002 Report, prepared for the IIPA, available at www.iipa.com/copyright_us_economy.html
- 46 The core industries include newspapers and periodicals, book publishing and related industries, music publishing, radio and television broadcasting, cable television, records and tapes, motion pictures, theatrical productions, advertising and computer software and data processing.
- 47 www.iipa.com/pdf/2002_Jul11_USTRLOSSES.pdf
- 48 'Intellectual property rights and economic development', World Bank, background paper for the World Development Report 1999, Technet Working Paper. www1.worldbank.org/wbiep/trade/papers_2000/bpipr.pdf.
- 49 www.wipo.org/treaties/ip/berne/index.html.
- 50 DMCA, www.loc.gov/copyright/legislation/dmca.pdf.
- 51 www.iipa.com/countryreports.html.
- 52 www.eurorights.org/eudmca/CopyrightDirective.html.
- 53 The Berne Convention for the Protection of Literary and Artistic Work (1886), the Universal Copyright Convention (1952), the Rome Convention for the Protection of Performers, Producers of Phonograms and Broadcasting Organizations (1961), the WTO Agreement on Trade-Related Aspects of Intellectual Property Rights known as TRIPS (1996), the Geneva Phonograms Convention (1971)
- 54 www.iipa.com/rbc/2002/2002SPEC301KOREA.pdf.
- 55 Canada, Colombia, Hong Kong, Mexico, Peru, the United Kingdom, Russia, Singapore, Thailand
- 56 The Customs of Hong Kong also replied to the enquiry sent to Intellectual Property Offices in preparing this chapter.
- 57 See for example, "A Manual for Publishers in Developing Countries"; http://citd.scar.utorornt.ca/Epub_manual/.
- 58 See www.library.yale.edu/consortia/2001currentpractice.htm.
- 59 See <http://alexia.lis.uinc.edu/~b-sloan/consort.htm>.
- 60 For example see guidelines set by the Canadian Government, www.dcita.gov.au/infoaccess/electronic_formats.html.

References and bibliography

- Braga C, Fink C and Sepulveda CP (1999) *Intellectual Property Rights and Economic Development*, World Bank, background paper for the *World Development Report 1999*, Technet Working Paper. Available at http://www1.worldbank.org/wbiep/trade/papers_2000/bpipr.pdf.
- Ciolek T (1997) "ANU E-commerce / E-Publishing Issues". Available at <http://www.ciolek.com/papers/ecommerce/e-issues976.htm>
- Digital Millennium Copyright Act (DMCA). Available at <http://www.loc.gov/copyright/legislation/dmca.pdf>.
- Forrester Research (2000). *Content Out of Control*. Available at <http://www.forrester.com/ER/Research/Report/Summary/0,1338,10020,FF.html>.
- Forrester Research (2001). *The Digital Copyright Standoff*. Available at <http://www.forrester.com/ER/Research/Report/Summary/0,1338,11946,FF.html>.
- Houghton J (2000). *Economics of Scholarly Communication*, Center for Strategic Economic Studies, Victoria University.
- Houghton, J. (2001). *Crisis and Transition: The Economics of Scholarly Communication*. Learned Publishing 14 (July) pp. 167-176.

- IIPA 2002 *Special 301 Reports* (country reports); Available at http://www.iipa.com/copyright_us_economy.html
- IIPA, United States Trade Representatives (USTR) 2002 "Special 301" *Decisions, including trade loss estimates and piracy levels for 2000-2001*. Available at <http://www.iipa.com/statistics.html>.
- Journal of Electronic Publishing (1997). Solving the dilemma of copyright protection online. Available at <http://www.press.umich.edu/jep/03-02/doi.html>.
- Journal of Electronic Publishing (1994). Copyright in a time of change. Available at <http://www.press.umich.edu/jep/04-03/strong.html>
- Kahin B and Hal Varian (eds.) (2000). *Internet Publishing and Beyond*, The MIT Press, Cambridge, Massachusetts.
- Kuntz LI (2001) *Pirates and the paper chase*, Lucía Iglesias, *UNESCO Courier* journalist
- Lall S (2001). *Indicators of the Relative Importance of IPRs in Developing Countries* UNCTAD/ICTSD Capacity Building Project on Intellectual Property Rights and Sustainable Development.
- Lynch C (2001). *The battle to define the future of the book in the digital world*, Firstmonday. Available at http://www.firstmonday.dk/issues/issues6_6/lynch/.
- Peek R and Newby G (eds.) (1996). *Scholarly publishing: The electronic frontier*, The MIT Press Cambridge, Massachusetts.
- Rawlings G (1991). *The new publishing: Technologies impact on the publishing industry over the next decade*, November. Available at <http://www.roxie.org/papers/publishing>.
- Siwek S (2002) *Copyright Industries in the U.S. Economy: The 2002 Report*, prepared for the International Intellectual Property Alliance (IIPA). Available at http://www.iipa.com/copyright_us_economy.html.
- UNCTAD (1996) *The TRIPS Agreement and Developing Countries*, United Nations Publication, UNCTAD/ITE/1, Sales No.: E.96.II.D.10
- UNESCO (1996). *Proceedings of the joint ICSU Press / UNESCO Conference on electronic publishing in Science*, ICSU Press, UNESCO, Paris. Available at <http://users.ox.ac.uk/micsuinfo/confproc.htm>

ANNEX I

STATISTICS OF THE ISSN REGISTER – TOTAL NUMBER OF RECORDS IN THE REGISTER AND NEW ANNUAL ENTRIES

Year	Total number of records in ISSN Register	New record entered in the year
1991	578,315	59,353
1992	619,979	41,664
1993	659,927	39,948
1994	710,734	50,807
1995	755,058	44,324
1996	801,522	46,464
1997	846,858	45,336
1998	894,913	48,055
1999	945,973	51,060
2000	988,969	42,989
2001	1,037,156	48,187

Source: ISSN Statistics: <http://www.issn.org:8080/English/pub/tools/statitics/>

ANNEX II

NUMBER OF BOOK PUBLISHERS IN SELECTED COUNTRIES/TERRITORIES IN 1999

Afghanistan (6)	Guadeloupe (1)	Norway (53)
Albania (5)	Guatemala (5)	Oman (1)
Algeria (3)	Guinea-Bissau (1)	Trinidad and Tobago (12)
Angola (1)	Guyana (6)	Pakistan (44)
Antigua and Bermuda (1)	Haiti (4)	Panama (3)
Argentina (116)	Holy See (Vatican) (5)	Papua New Guinea (13)
Armenia (2)	Honduras (3)	Paraguay (2)
Australia (530)	Hong Kong (China)(73)	Peru (21)
Austria (404)	Hungary (69)	Philippines (47)
Azerbaijan (2)	Iceland (30)	Poland (82)
Bahrain (2)	India (262)	Portugal (136)
Bangladesh (12)	Indonesia (70)	Puerto Rico (12)
Barbados (2)	Iraq (1)	Republic of Korea (117)
Belarus (9)	Ireland (89)	Republic of Moldova (3)
Belgium (181)	Islamic Republic of Iran (3)	Reunion (2)
Benin (2)	Israel (138)	Romania (72)
Bermuda (1)	Italy (607)	Russian Federation (93)
Bolivia (6)	Jamaica (26)	Rwanda (3)
Bosnia and Herzegovina (3)	Japan (243)	Samoa (1)
Botswana (6)	Jordan (4)	Saudi Arabia (8)
Brazil (220)	Kazakstan (6)	Senegal (11)
Brunei (Darussalam) (1)	Kenya (45)	Sierra Leone (4)
Bulgaria (80)	Kuwait (3)	Singapore (44)
Burundi (3)	Laos (2)	Slovakia (33)
Cameroon (5)	Latvia (17)	Slovenia (11)
Cape Verde (1)	Lebanon (17)	South Africa (81)
Chad (1)	Lesotho (3)	Spain (523)
Chile (39)	Libyan Arab Jamahiriya (1)	Sri Lanka (37)
China (121)	Liechtenstein (16)	Sudan (3)
Colombia (56)	Lithuania (31)	Suriname (18)
Costa Rica (35)	Luxembourg (26)	Swaziland (1)
Cote d'Ivoire (7)	Macau (4)	Sweden (126)
Croatia (34)	Madagascar (15)	Switzerland (360)
Cuba (16)	Malawi (6)	Syrian Arab Republic (2)
Cyprus (17)	Malaysia (65)	Taiwan, Province of China (67)
Czech Republic (112)	Maldives (2)	Tajikistan (1)
Democratic Peoples' Republic of Korea (10)	Mali (1)	Thailand (31)
Denmark (105)	Malta (8)	The Democratic Rep. Of Congo (8)
Dominican Republic (5)	Martinique (3)	Macedonia (15)
Ecuador (14)	Mauritania (1)	Togo (5)
Egypt (21)	Mauritius (11)	Tunisia (19)
El Salvador (3)	Mexico (151)	Turkey (52)
Estonia (20)	Monaco (9)	Turkmenistan (1)
Ethiopia (3)	Mongolia (17)	Uganda (5)
Fiji (4)	Mozambique (4)	Ukraine (10)
Finland (58)	Myanmar (9)	United Arab Emirates (2)
France (653)	Namibia (9)	United Kingdom (1113)
French Guana (1)	Nepal (3)	United Rep. Of Tanzania (27)
French Polynesia (3)	Netherlands (222)	Uruguay (27)
Gambia (1)	Netherlands Antilles (3)	Uzbekistan (2)
Georgia	New Caledonia (2)	Venezuela (27)
Germany (1504)	New Zealand (121)	Viet Nam (9)
Ghana (33)	Nicaragua (2)	Yugoslavia (40)
Greece (130)	Niger (1)	Zambia (19)
	Nigeria (62)	Zimbabwe (38)

Source: <http://literarymarketplace.com>

ANNEX III

A BRIEF DESCRIPTION OF ELECTRONIC PUBLISHING INITIATIVES⁶²

1. **Electronic Publishing Trust for Development:** Established in 1996, the trust facilitates open access to the world's scholarly literature and supports the electronic publication of reviewed bioscience journals from countries experiencing difficulties with traditional publication. Its activities include fostering awareness of the benefits of electronic publishing, as well as support in the areas of training and management and distribution. It enables scientific communities in developing countries to take advantage of new communication technologies to disseminate the results of their work internationally, in particular to make scientific journals published in developing countries available on the Internet.
2. **Bioline International:** This not-for-profit electronic publishing service is committed to providing access to research journals published in developing countries and thus reducing the North-South knowledge gap in the area of health. With peer-reviewed journals from Brazil, Cuba, India, Indonesia, Kenya, South Africa, Uganda and Zimbabwe, it makes bioscience information generated in these countries available to the international research community.
3. **Information Program of the Open Society Institute (OSI):** Among other activities, this program has launched an Open Access Initiative supported by projects furthering international research and scholarship – for example, funding for the publication in peer-reviewed online journals of articles by authors residing and working in 67 developing countries and countries with economies in transition.
4. **World Health Organization (WHO):** The WHO and the world's largest medical journal publishers have agreed on an initiative to allow nearly 100 developing countries to access important scientific information that would otherwise be unaffordable to them. Under the agreement, the journal publishers would give medical schools and research institutions in these developing countries access to these publications via the Internet for free or at greatly reduced prices.
5. **Jamaica Overdrive:** This project has been implemented by the e-commerce, software conversion and e-publishing applications company Overdrive, which has established an e-book technology center in Montego Bay, Jamaica, involving 200 e-book editors. The center provides e-publishing services ranging from manuscript editing to conversion of manuscripts for print-on-demand, Adobe and MS Reader e-book format. This project supports the development of e-publishing skills and business opportunities in a developing country.
6. **3BillionBooks:** This is a consortium formed by 3BillionBooks, a private company, and the publishing divisions of UNDP, the World Bank, UNICEF, ECOSOC and similar agencies, with the objectives of (a) creating and managing a digital catalogue of new and backlist Consortium titles and other publications, (b) installing and servicing machines in regional locations chosen by the Consortium, and (c) creating software, distributing and printing content globally in book form and from digital files, and providing worldwide service to these facilities. The project, which is still at the planning stage, will focus on print-on-demand technology, which, it is hoped, will revolutionize the distribution of books worldwide, especially in developing countries.
7. **Africa e-Journals Project:** Under this pilot project to provide global access to selected African scholarly journals, the journals will be published in full-text versions on the Internet under the license of participating collaborators with the African Studies Association, the Association of African Universities and CODESRIA. The project will negotiate copyright regimes and cost a recovery system to be shared between the original African publishers and the project's web publishers. One of the key objectives is to promote the availability of African journals in the United States.
8. **African Journals OnLine (AJOL) :** This pilot project, managed by INASP, aims to promote the use of African-published journals in the sciences by providing access to tables of contents and abstracts on the Internet, along with a document delivery service and a link to the full text of the article or journal.

9. **African Journals OnLine Publishing Project (AJOPP):** This pilot project was created to explore options available in electronic publishing by offering selected journals support in electronic delivery, and to evaluate whether e-publishing increases journal use and sustainability.
- 10 **Scientific Electronic Library Online Project (SciELO):** Initially launched in Brazil and then in other Latin American and Caribbean countries, this project aims to increase the visibility and accessibility of scientific literature published in the region. It facilitates the transition from print to electronic publishing on the Internet by providing tools for the preparation, storage, publication and evaluation of scientific journals. The project envisages the establishment of national and regional websites including the leading journal titles in various areas of science study.
11. **Latindex project:** Created in 1995, this is a bibliographical system for the scientific and technical journals published in Latin America and the Caribbean and also in Portugal and Spain. It collects information from national information centers and put them into an Internet-based database that offers bibliographical information about nearly 7,000 titles from 25 countries.

Chapter 8

E-INSURANCE

A. Introduction

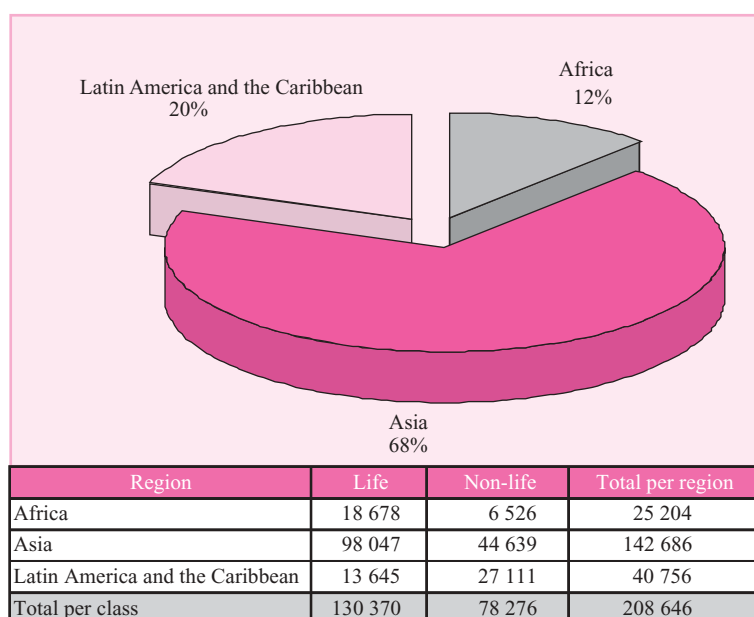
In 2000, insurance companies worldwide wrote \$2,444 billion in direct premiums. In other words, the equivalent of 7.8 per cent of global gross domestic product (GDP) was used to purchase insurance products.¹ During the same year, insurance companies in developing countries generated premiums worth \$209 billion representing 8.5 per cent of global insurance premiums. A regional breakdown of insurance premiums in developing countries is presented in chart 28.

1. Development perspective

A developed and functioning insurance sector is a fundamental condition for economic success.² The objective of insurance is to provide financial stability to individuals, organizations and businesses. As a risk pooling and transfer mechanism, insurance allows the insured to mitigate pure risks (i.e. risks that involve only the possibilities of loss or no loss). Examples of

such risks are fires, flooding, ill health and unintentional damage to a third party.³ Insurance helps business to stay open and individuals to continue their work or education by providing financial compensation if an insured risk occurs and causes damage. Even when no loss occurs, insurance provides peace of mind, a service of considerable, if unquantifiable, value. As a financial sector, insurance is a major investor. Life insurance can stimulate and mobilize personal savings that may, in its absence, become sterile assets. It can also relieve pressure on social welfare systems. Insurance is also needed for trade and commerce where it enhances the creditworthiness of trading partners and can reduce the risk of failure of start-ups and small and medium-sized enterprises (SMEs) as non-diversified risk-takers. The important role of the insurance sector for trade and economic development has been affirmed many times and has been comprehensively analyzed by UNCTAD whose research and policy advice are available at its dedicated Internet website.⁴

Chart 28
Insurance Premium Volumes in Developing Countries
(2000, in millions of dollars)



Source: Sigma (2000)

2. E-insurance

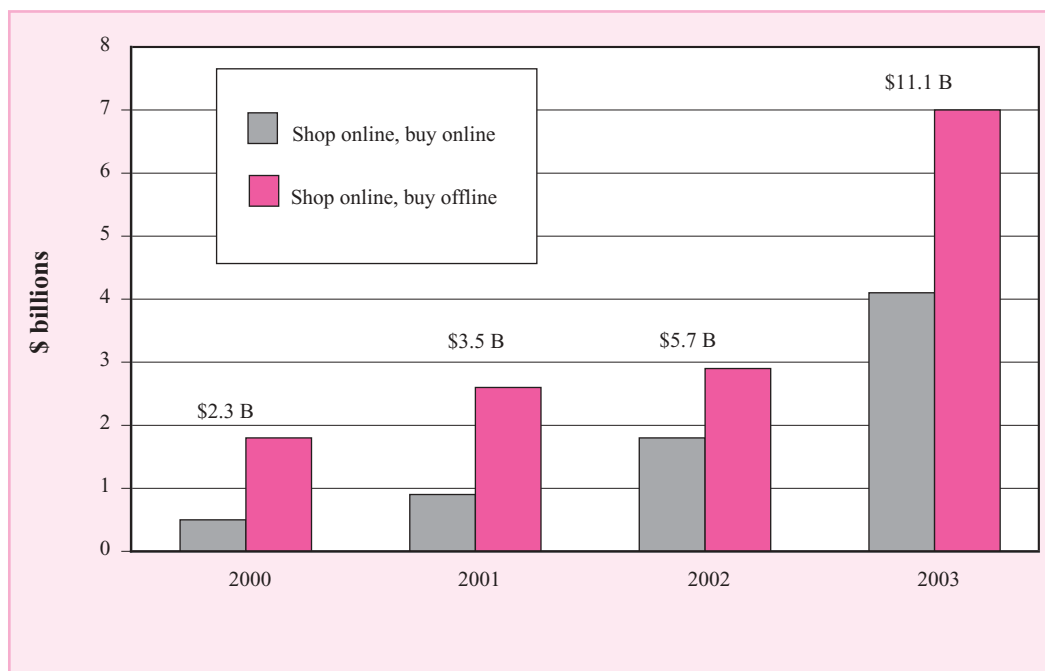
E-insurance can be broadly defined as the application of Internet and related information technologies (IT) to the production and distribution of insurance services. In a narrower sense, it can be defined as the provision of an insurance cover whereby an insurance policy is solicited, offered, negotiated and contracted online. While payment, policy delivery and claims processing may all be done online as well, technical and regulatory constraints may not allow these elements to be subject to full e-commerce application in certain countries.⁵ However, insurance legislation worldwide is being continuously modified to accommodate online payment and policy delivery, and, outside the discussion of e-insurance metrics, these elements should be included in the narrow definition.

The anticipated efficiency effect of e-insurance is two-fold. First, e-insurance should reduce internal administration and management costs by automating business processes, permitting real-time networking of company departments, and improving management information. Secondly, it should reduce the commissions paid to intermediaries since it can be sold directly to clients. For insurance sold to individuals, agents typically receive a commission of 10 to 15 per cent for non-life policy sales and renewals and from 35 to 100 per cent for life insurance policies in the first

policy year, but much less on renewal.⁶ However, some of the income gained in commissions that are not paid to intermediaries must be spent on online customer acquisition and marketing. Assuming cost savings do materialize, in a competitive market they would be passed on to consumers thereby allowing them to buy more insurance, or other products or services. Since insurance penetration⁷ in developing countries is only of that in developed countries, the efficiency gains created by e-insurance may contribute substantially to growth in insurance spending and thus intensify its indisputable role in promoting trade and development.

Of the \$2.5 trillion worth of global insurance premiums, about 1 per cent could qualify as e-insurance, according to the broad definition. Little, if any of the premiums earned in developing countries could be described as e-insurance according to the narrow definition.⁸ In stark contrast, the majority of the \$100 billion global reinsurance business is traded using some form of electronic medium. This general assessment seems almost unchanged in comparison with previous UNCTAD reporting on e-insurance.⁹ Considered along with initial reports¹⁰ indicating that online premium rates are more competitive, this could point to an acceleration in online distribution of insurance covers measured by the overall value of insured assets.

Chart 29
Insurance on the Web
Total Internet Sales



Source: Forrester Research, CSFB.

During the height of the dot.com euphoria, expectations for e-insurance growth were very strong, and many insurance and reinsurance companies and intermediaries have continued to invest in their e-commerce capabilities. Swiss Re's research arm SIGMA estimates that by 2005 e-insurance will have 5 to 10 per cent market share in standardized personal lines insurance. The corresponding figure for Europe is 3 to 5 per cent. While it is difficult to give exact figures,¹¹ online sales of insurance products have been increasing steadily. Already, of the 166 million Internet users in the United States,¹² 25 per cent use the web to find insurance information and 73 per cent of those request rate quotes.¹³ Chart 29 indicates forecasts that 4 per cent of global premiums will qualify as e-insurance by 2003. However, online premium volumes are still modest today, and this begs a number of questions. Are insurance products suitable for e-commerce? Is the insurance industry ready and willing to embrace Internet technology? Is the adoption of e-commerce practice important for insurers operating in developing countries and for their clients? How do clients benefit from purchasing insurance online and what are the pitfalls that require improved regulation?

This chapter will discuss the fundamental suitability of insurance products for e-commerce. It will review existing e-commerce practice in insurance and reinsurance and discuss the use of IT in these industries. Throughout, it will discuss the position of financial intermediaries and the changes IT may bring about in the value chain. It will propose a number of best practice guidelines for companies and will assess the regulatory implications for the sector. Throughout the chapter, where pertinent, reference will be made to issues and initiatives in developing countries. The chapter will also discuss Internet use by insurance companies in Africa and will review the objectives and progress of a joint UNCTAD and African Insurance Organization (AIO) venture aimed at developing operational insurance software.

B. Suitability

If we can establish that the insurance product has the potential to benefit from the application of IT and e-commerce, then we can review e-insurance business and supervisory practice in a cross-comparative manner. We may find it difficult to conclude why certain e-insurance applications work and others do not. However, can we definitely exclude the fallback of unsuitability of insurance products as an explanation

for modest e-commerce growth in the insurance industry?

1. Information and risk

The business of insurance is pure risk. In insurance theory, risk is often defined as the variation between actual losses and expected losses.¹⁴ Insurers' premium rates are based on an assessment of average expected losses and damage.¹⁵ However, premiums collected based on such an average rate may not be sufficient to pay for all the damages in a year, if that year generates greater-than-average losses. Thus, insurers need to have additional funds in reserve.¹⁶ Such reserves are established when an insurer incorporates its business and are often addressed by government insurance regulation and supervision. More importantly, reserves may be replenished during years when losses are less severe than the expected average.

There are several fundamental steps an insurer must take. First, it must calculate a premium rate for the risk it intends to insure against particular causes of damage (e.g. when insuring vehicles or homes against theft or fire). It must also establish adequate reserves to cover deviations from average, expected losses. Finally, the insurer must determine whether any particular clients are likely to attract greater than average misfortune and must decide how to adjust the rates it proposes to them individually.

As this simplified outline shows, the fundamental machinery of insurance involves mathematical treatment and statistical analysis of numerous events and the processing of large amounts of data about existing or potential clients. Not surprisingly the application of proprietary IT is widespread and has been a natural development among insurers in developed countries with competitive financial services markets. Today, IT is widely used to handle communication with intermediaries, policy processing, premium notices, market analysis, sales forecasts, and accounting. Clearly, insurance is an information-intensive enterprise and is thus suitable for e-commerce.

2. The information contract

The establishment of an insurance contract does not require much more than an exchange of information. As long as no damage occurs, most insurance contracts, and their performance as un-invoked promises, remain in the sphere of pure information and are therefore highly amenable to the application of IT. Like any other contract, an insurance contract or pol-

icy needs to satisfy the four basic conditions of legality, capacity, offer and acceptance, and consideration.

To ensure legality the client needs to have an insurable interest: the asset to be insured has to be the property of the client and some information confirming this is usually submitted. The requirement of capacity is satisfied by an exchange of information showing that the insurer, agent or broker is licensed and that the client is not a minor, insane, intoxicated or acting outside the scope of assigned authority.

The condition of offer and acceptance is satisfied by having the insurer offer coverage terms and conditions for an insurable interest, against a loss caused by general or named perils under particular conditions of hazard. The client reciprocates the offer by expressing an acceptance of the proposed contract. (Sometimes the offer is preceded by a *solicitation of an offer* by the client. The *subsequent offer* of the insurer should not be understood as an acceptance: it is the client that must express acceptance.) It is apparent that an enormous amount of information may be exchanged to satisfy this contract condition.

The consideration of the insurer consists of the promise of financial compensation for the loss events defined by the policy. The consideration of the client is to pay a premium. The promise is a non-physical information service. Similarly, the transfer of funds is often electronic, and even cash itself has a nominal value unrelated to its physicality. When a loss occurs, the damage is assessed and a claim is submitted. Large amounts of data are again transmitted between policyholders, intermediaries and insurers.

E-insurance requires modern e-commerce legislation that permits insurers and the insured to safely and unambiguously exchange information, make electronic payments and validate their responsibilities through digital signatures. Insurance-specific legal and regulatory issues are discussed on page 207, while fundamental legal issues pertaining to e-commerce have been dealt with in various UNCTAD publications.¹⁷

3. Is insurance bought or sold?

A frequently cited aspect of insurance that may detract from its suitability for e-commerce is that its products are often said to be “sold rather than bought”. The assumption is that without the sales push of a physical agent, consumers would buy fewer and less valuable insurance policies. Business-to-consumer (B2C) e-insurance is not considered pushy enough, and

potential clients are only a mouse click away from other unrelated Internet content.

Certain issues relating to the legal and regulatory environment of a national insurance market can be overcome by having a system of physical agencies. Insurance is difficult to sell online if some or all of the following conditions exist:

- Electronic signatures are not legal;
- Credit card payment is not accepted for insurance purchases;
- Physical documents (policies) have to be delivered to clients and paper copies archived by the agent and insurer;
- Document formats are over-regulated;
- Agents and insurers have to display their license physically;
- Remuneration of insurance portals or markets is prohibited if they do not possess an agent or broker license;
- Physical proof of coverage is requested by third parties (e.g. law enforcement or estate agents).¹⁸

The agency system is deeply ingrained in the insurance industry, and the insurance agent community supports the notion that insurance is sold, not bought. Insurers do not want to alienate their agents, who remain their most important sales channels. Often, insurers define the agent, not the policyholder, as their customer. It is difficult to predict whether direct Internet purchasing by consumers can replace agents.

The establishment of an insurance contract requires the exchange of large amounts of data, often of a personal nature. While the electronic medium is perfect for data transfer, consumers often worry about the extent to which information submitted by them will be kept private, both at the time of contracting and in the future. When submitting data to an agent, clients assume that they can hold the agent responsible and can seek legal remedy if their privacy is transgressed. The anonymous nature of a website can provoke the opposite assumption in that behind the monitor there is nobody to hold responsible. Clients may also suffer data fatigue when filling out lengthy online forms and may, as a result, give up on soliciting a quote without the coaching of an agent.

Thus, many insurers have opted to provide only policy information and insurance education on their websites

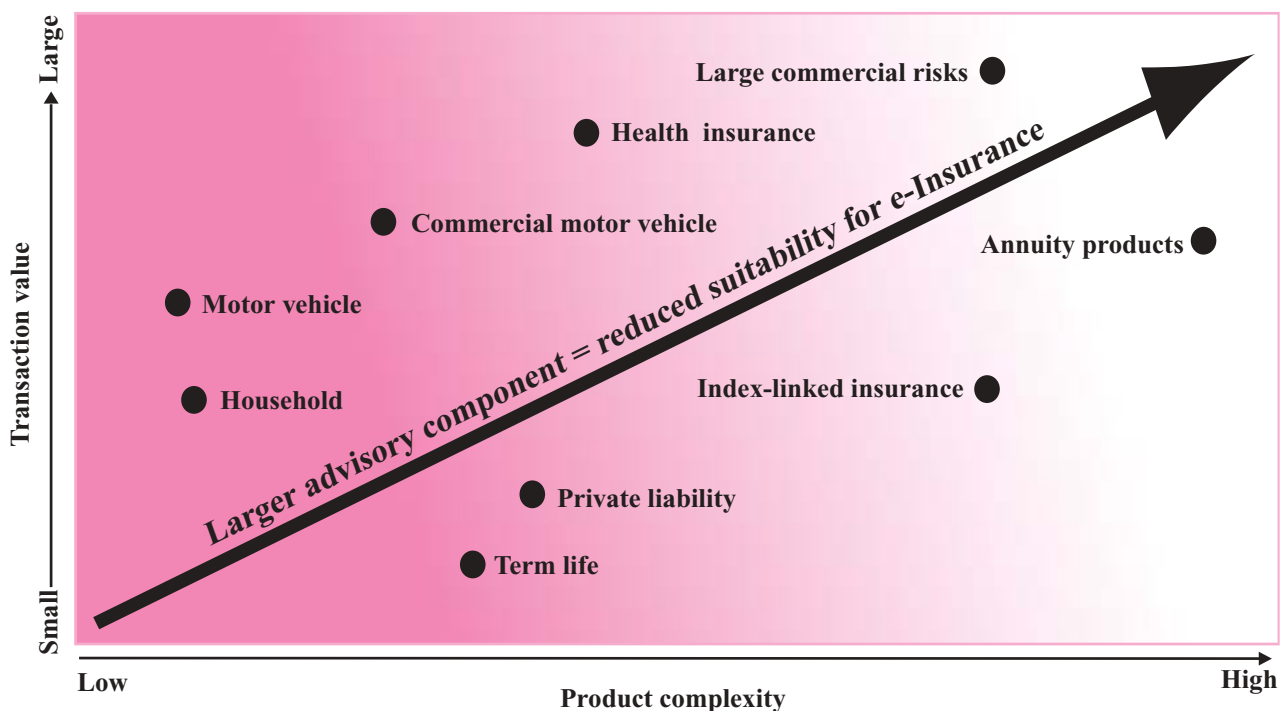
and leave the actual selling to intermediaries. When clients decide to ask for a quote, they are asked for their postal or zip code and are directed to a nearby agent. The problem with this strategy is that insurance agents may not be highly regarded by consumers for their professional honesty and ethics. In the United States, Gallup polls conducted yearly from 1993 to 2000 ranked insurance agents at the very bottom of the credibility scale. Only 9 to 12 per cent of respondents gave insurance agents very high or high marks for honesty and ethics, in comparison with 25 to 37 per cent for bankers and 13 to 19 per cent for stockbrokers, in consecutive polls during the same period.¹⁹ Consumers may be dealing with insurance agents purely for a lack of a better option. This may be their destiny in developing countries for the foreseeable future due to relatively low levels of Internet and credit card penetration.

The modest progress in e-insurance, in developed countries, compared to the online banking sector, can also be explained by the notion that insurance companies consider the use of e-commerce, and its disintermediating effect, a fairly risky business strategy. A recent Swiss Re SIGMA report on e-insurance concluded that “re-engineering traditional business proc-

esses is expensive and often meets with considerable opposition from within the (insurance) company itself.” A similar report by CSFB pointed out that “legacy systems are inflexible and expensive to change... the (insurance) culture is understandably risk averse... (while) the Internet threatens existing distribution systems, creating a thorny channel conflict.”²⁰ A recent survey by KMPG revealed that, while the industry is planning and preparing for e-insurance, for 40 per cent of companies e-business actually a threat because of a lack of strategic vision. Further, a quarter of the 175 insurance executives interviewed affirmed that their companies lacked e-business competencies.²¹ In a recent joint study by the Economist Intelligence Unit and PricewaterhouseCoopers, two-thirds of the insurance managers interviewed said that their own companies do not have sufficient e-business leadership capabilities for success in e-insurance.

The same study noted that few insurers believed they had the requisite in-house technological skills for e-business. It is worth noting that, while insurers employ on average 48 per cent more IT staff than banks do, the majority are used to service and manage unique proprietary IT systems where it is difficult to achieve economies of scale.²²

Chart 30
Product Suitability for e-Insurance



Source: Based on Donaldson, Lufkin and Jenrette (2000), Swiss Re Economic Research & Consulting, Swiss Re Sigma (2000).

It may be true that insurance consumers may find certain products difficult to understand and may be hesitant to buy online. However, the research cited indicates that insurers have not yet found a way to put the “e” into insurance. Results in banking, stock broking and tourism show that the online consumer in developed countries has the technology and willingness to engage in e-commerce.²³

There are ongoing debates about the suitability of individual insurance product for e-commerce. The conventional wisdom is that obligatory, very simple or low-price products do not require a seller’s push and thus can be distributed through e-commerce. The greatest demand is for motor vehicle insurance, followed by health, homeowner’s and term life insurance.²⁴ In line with the general relationship established in chart 30, insurers selling online directly to clients are offering a very restricted portfolio of products. Progressive.com, a leader in the United States online insurance market, is currently offering only motor vehicle insurance and related products. Another prominent online insurer, Allstate.com, is more ambitious and offers motor, homeowner’s, life and small business insurance policies. Amica.com provides only motor and

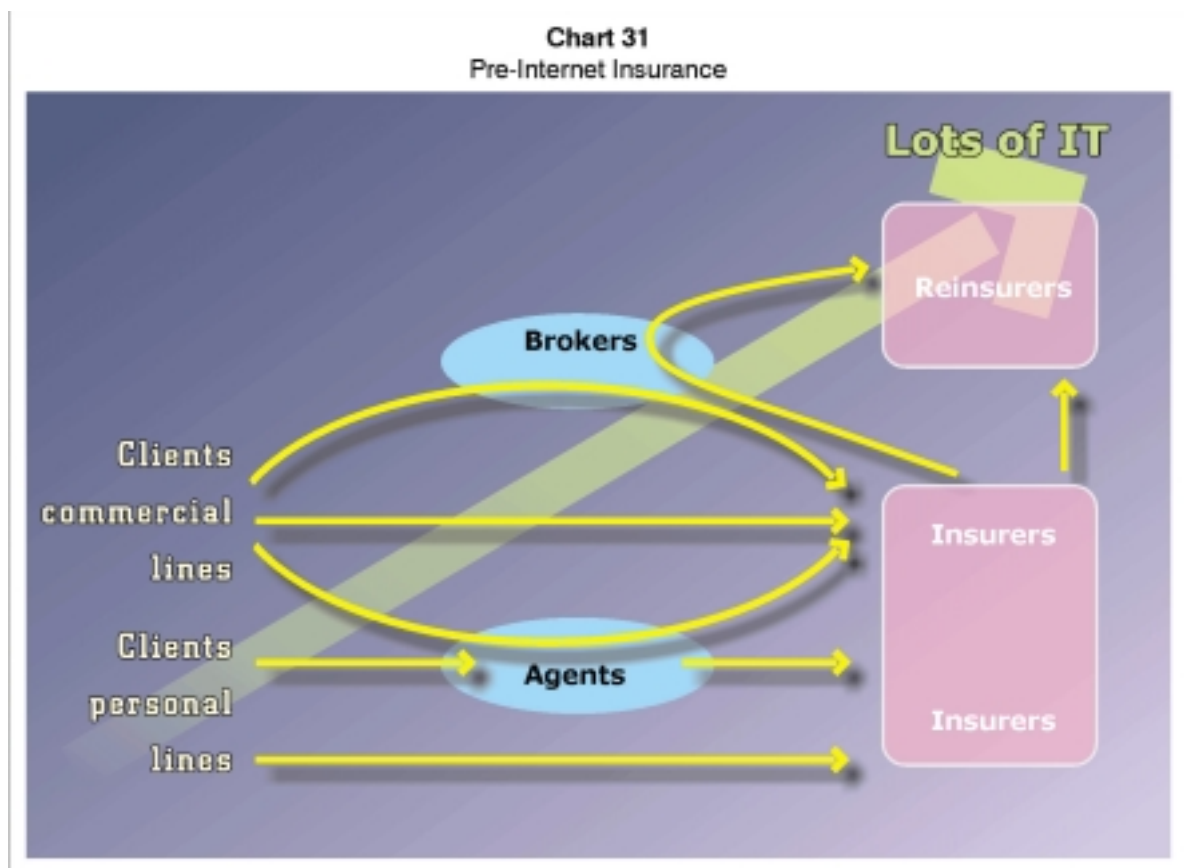
homeowner’s policies, and several types of life insurance. European insurers also vary in the scope of offered insurance policies. For example, Ineas.com provides motor vehicle, homeowner’s and accident insurance while esure.com offers only motor vehicle insurance.

While many insurers continue to rely on their agency networks and cling to the “sold not bought” paradigm, there is little real evidence supporting it, apart from pronouncements about its genuineness that are often articulated by insurance agents and managers. What is needed to bring insurance online is the implementation of best-practice management and technology suited to e-commerce.

C. Best Practice

1. How things have changed

Internet and e-commerce technologies are already changing the structure of the insurance industry. The magnitude of the change can be best appreciated by comparing charts 31 and 32. As chart 31 shows, the



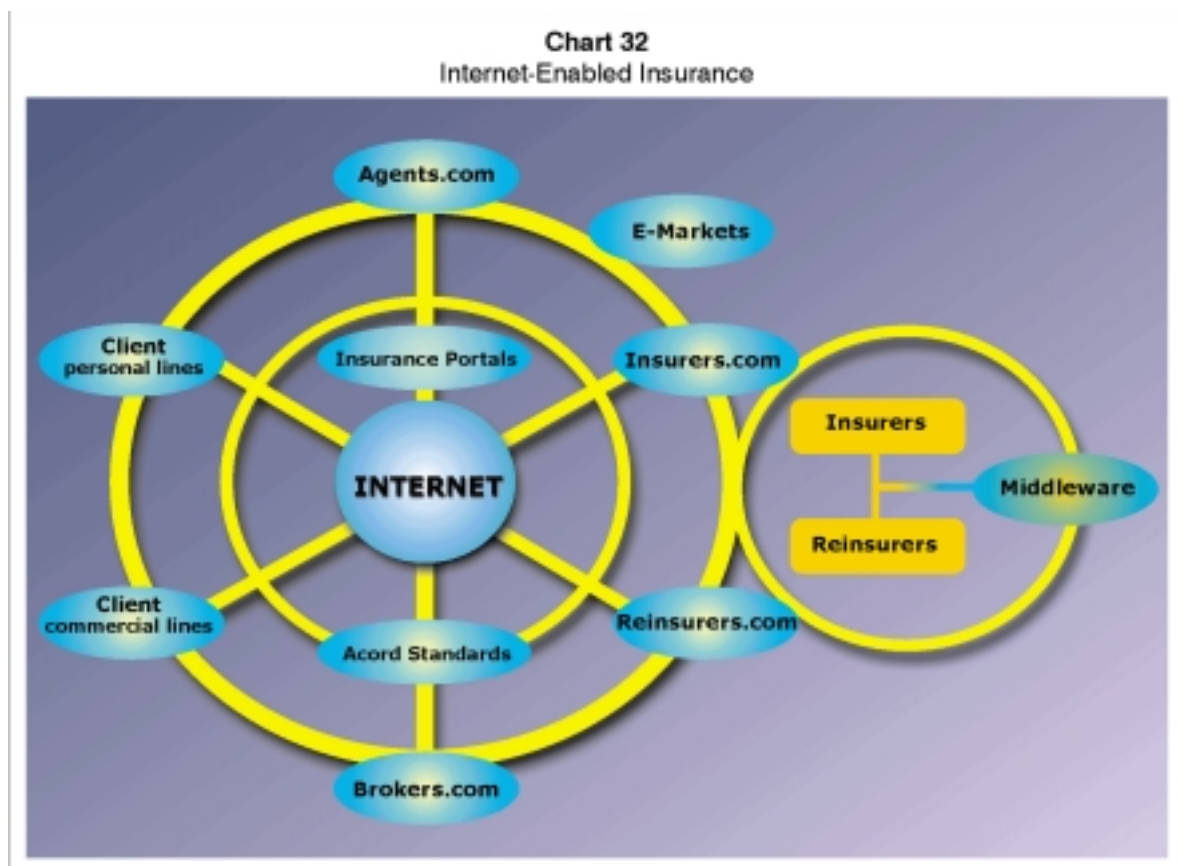
pre-Internet insurance world is largely linear, with individuals (personal lines) or businesses (commercial lines) moving risk to insurers, sometimes directly, but more often through the intermediation of brokers and agents. Intermediaries are responsible for processing more than 90 per cent of all premiums collected. The application of IT increases diagonally down the chart and is most prevalent in the reinsurance sector.

Chart 32 describes an Internet-enabled insurance industry and market. Its main characteristics are that technology can be evenly distributed and information intermediation is no longer a necessity but a preference. Gone is the linear travel of payments and risk information from client to (re)insurer. Buyers of personal and commercial insurance and reinsurance can choose to pursue multiple paths to acquire price and policy information. Insurers and reinsurers have extended their reach through their online incarnations. Brokers and agents may do so as well. Using data standards can positively facilitate the resulting increase in communication and data exchange and a new entity in chart 32 is the

standard-setting body of ACORD, whose role is discussed in box 23. Another novelty is middleware, which provides connectivity between insurers' legacy IT systems and the Internet economy and is briefly discussed on page 206.

Agents and brokers were an irreplaceable link in the pre-Internet insurance industry. Agents intermediated sales of policies to non-businesses, such as personal life insurance, motor vehicle insurance, homeowners insurance and various savings and investment schemes. They also intermediated insurance for small and medium-sized business. Brokers intermediated insurance between large organizations, or businesses, and insurers, as well as between insurers and reinsurers. Their economic role was to enhance market efficiency by diminishing information asymmetries between buyers and sellers caused by any of the following situations:

1. The insurer is not fully informed of the scope of the demand, or the insured is not knowledgeable about the selection of insurance policies and prices available; or



Box 23

ACORD insurance standards

ACORD is a nonprofit insurance association whose mission is to facilitate the development and implementation of data standards for the insurance and related financial services industries. Standards improve efficiency, expand market reach and eliminate friction and cost from the process of contracting and servicing insurance.

Established in 1970, ACORD began by developing paper forms to streamline the distribution system between independent agents and brokers and their markets for property and casualty insurance. The data requirements have remained basically the same as the standards moved from paper to electronic format and as the electronic formats evolved. Today, ACORD standards cover all lines of national and international business (life, non-life and reinsurance), and include all distribution channels and all business models.

After a recent merger with Joint Venture, a standard-setting body for reinsurance and large commercial risks insurance and other organizations in the United Kingdom, United States and Europe, ACORD also established relationships with regional management groups in South Africa and Canada, thus becoming the de facto keeper of global insurance standards. As the goal of global insurance standards can only be achieved through collaboration, ACORD works in partnership with all the standards organizations across the globe to harmonize, assist convergence and build standards on behalf of its collective members.

ACORD works within the United Nations CEFAC community building ebXML (electronic business XML) compliant core components and technology-neutral process models alongside partners in Europe (eEG7) and Canada (CSIO) that will allow interoperability around the globe and across industries.

There are many business drivers fueling interest in standards. E-business and e-commerce expansion is a primary driver. Others include the convergence of financial services, economic globalization and mergers and acquisitions.

Success in standard setting requires the integration several key activities:

- **Cooperation:** It is through cooperative efforts that redundancies in data and process modeling are eliminated and progress is made toward straight through processing.
- **Education:** In the rapidly evolving e-business environment, educating the industry about the application and strategic value of standards is critical.
- **Implementation:** It is not enough to develop standards. Strong implementation campaigns and certification programs are all necessary to drive the implementation numbers to critical mass.
- **Technological neutrality:** Remaining independent of a specific application or system is an important principle. All suppliers and solution providers are encouraged to join in and build the standards into their solutions so that the industry has a broad selection of best-of-breed tools and applications.
- **Cross-industry commitment:** There is no business that the insurance industry does not touch in some way. Because of that, the standards must be able to operate in an international cross-industry environment.

Having released the 1.0 version of its XML standards in August 2001, ACORD will be developing eMerge, a global insurance business message specification based on a technology-neutral model and a common data dictionary.

Source: ACORD

2. The insurer has not fully mastered the technical and economic details of the proposed risk, or the insured does not clearly understand the insurance policy's proposed terms and conditions.

In practice, agents are generally authorized to sell policies from only one or a few insurers. Further, the terms and policy wordings of different insurers, even if distributed by the same agent, often do not match. To clarify these differences and enable cross-compari-

sons is perhaps the most important role of the agent. The obvious question is: can Internet and e-commerce technologies do better than the physical agent-broker system at improving market transparency and competitiveness and educating consumers and insurers about policy and risk technicalities?

The answer is a qualified yes. Online buyers compare a wide range of prices and policy conditions for a particular type of policy and then choose the lowest-

priced product. In theory, this practice should cause overall price decreases in specific insurance product categories. Early research suggests that the price of term life insurance in the United States fell 8 to 15 per cent in the late 1990s, a drop attributable to increasing Internet use by prospecting clients.²⁵ Insurance companies selling online can, on their end, exploit cost efficiencies arising from the application of IT in production or distribution and pass these savings on to consumers, while still staying profitable.

However, research on the relationship between e-commerce and prices is still limited, and the notion that the Internet makes insurance, or any other service or product, cheaper and influences its market to be more competitive should not be treated as an axiom. For example, the ease of price discovery may equally help sellers collude in price fixing. Further, promoting brand names and advertising online services, combined with investments in technology, imposes high fixed operating costs and can lead to market concentration and an overall decrease in competitiveness. Sellers may also pursue different strategies to decrease market homogeneity, from bundling products with “free” services and promoting loyalty schemes, or locking-in clients by offering policy upgrades. Finally, the Internet enables insurers to conduct client profiling and discover their lifestyle and Internet habits, which may push the information balance back in favor of the insurer.²⁶

E-insurance cannot happen if clients, intermediaries and insurers cannot exchange policy data in a meaningful and standardized way. Pre-Internet proprietary IT systems were unique to particular insurers and their agency network. Reincarnating these systems on the Internet requires establishing broadly accepted and public data definitions and standards. A key technology is XML (extensible markup language), which provides a way of labeling data so that they can be exchanged online in a coherent and meaningful way. The insurance industry needs to avoid the technological exclusion of any of the entities in chart 31, and thus steer clear of anti-competitive technology practices that would neutralize the efficiency and welfare gains offered by e-commerce technology.

The following discussion will review recent developments in personal lines and commercial lines business and in the reinsurance sector.

2. Personal lines

Personal lines insurance refers to coverage bought by individuals such as motor vehicle insurance, property insurance, personal liability cover, and health and life insurance. In the pre-Internet scenario, personal lines occupy the least IT-intensive area and are therefore subject to the greatest disruption from the introduction of e-commerce technologies. The disruption level is further increased by the intensity of agents' intermediation in these insurance lines.

Table 29 provides a ranking by Gomez.com of the United States online insurance market based on the quality of its e-commerce websites. The total revenues generated online by both markets and carriers are difficult to assess. Of the markets, Insurweb and QuoteSmith are public companies and reported revenue figures of \$24.9 and \$8.7 million respectively, year on year, in the first quarter of 2002. The listed insurance carriers, which are public companies, do not report separate revenue figures for online business.

Data and analysis for Europe are even less accessible and more fragmented. Table 30 provides an overview of the main players in the European online personal insurance business. None of the listed markets or pure-play²⁷ carriers is a public company, while those insurance companies that are publicly listed do not provide separate data regarding their online or e-insurance revenue or income in their financial statements. Suffice it to say that European insurers generate less than 1 per cent of their premiums online and only one out of twenty has integrated Internet and e-commerce technologies throughout their systems.²⁸

Tables 29 and 30 are not exhaustive and should not imply any permanence in the present scope of players or strategies. Indeed, the sector is in flux, and many businesses are continuously re-examining their business models hoping to strike a profitable and promising balance of online, direct and agency-based distribution. For insurers in developing countries, it may be particularly useful to track these companies, as their fates may indicate promising strategies or dead ends. All the listed insurance markets and carriers can provide product information and at least an unconfirmed quote. Business models begin to vary when a firm quote is requested. Certain insurers will guide the client to an agency for further processing, while Internet pure-play insurers should be able to complete the contract, issue the policy, accept payment online, and handle claims and renewals.

Table 29
Online personal insurance markets and carriers in the United States

Top 10 U.S. Online Insurance Markets*	Top 10 U.S. Online Insurance Carriers**
Insweb	Progressive Insurance
Answer Financial	Allstate
insurance.com	Safeco
Pivot	Amica
YouDecide.com	GE Financial Network
QuickQuote	Geico Insurance
Countrywide	State Farm Insurance
Netinsurance	Nationwide
Quotesmith	Esurance
ReliaQuote.com	Electric Insurance Company

* Insurance markets are online agents that do not have financial underwriting capacity.

** Insurance carriers accept risk and manage premium and reserves funds to assure liquidity for reimbursing claims.

Source: Gomez.com (2001).

Table 30
Selected examples of European online personal insurance markets and carriers

Insurance markets	Direct insurance carriers	Multi-channel insurers**
eInsurance (Germany)	Ineas (Netherlands)*	Allianz (Germany)
Screentrade (United Kingdom)	HUK24 (Germany)*	Royal & SunAlliance (United Kingdom)
Insurancewide (United Kingdom)	eSure (United Kingdom)*	Pohjola (Finland)
Onsecure (Germany)	Elephant (United Kingdom)*	Generali (Italy)
InsuranceCity (Germany)	Genialloyd (Italy)*	R+V (Germany)
Asuro (Germany)	CosmosDirekt (Germany)	LVM (Germany)
Censio (Germany)	Sicher Direkt (Germany)	Sampo (Finland)
eGeas (Italy)	Royal (Italy)	Zurich (Switzerland)
Autocity (Spain)	Norwich Union Direct (United Kingdom)	HUK-Coburg (Germany)
MoneyXtra (United Kingdom/Spain)	Direct Assurance (France)	AXA (France)
Insure (United Kingdom)	L'equite (Italy)	CGNU (United Kingdom)
	okassurance (France)	Cornhill (United Kingdom)
	Reflex (France)	
	DirectSeguros (Spain)	
	Regal (Spain)	
	Direct Line (United Kingdom)	
	Genertel (Italy)	
	Linea Directa (Spain)	

* Internet pure-play insurers.

** Insurers that use a model combining online sales and physical agency distribution.

Source: Datamonitor Corporation (2001).

However modest the progress, many insurers see e-commerce, and its disintermediating effects, as a source of increased competitiveness. This judgement has affected the expectations within the agents community. As a counter-strategy, many physical agents see their future in improving their e-commerce capacities vis-à-vis the carriers they serve. Examples of pro-

agent IT providers are Applied Systems and Doris Inc.. An interesting entity is MarketScout whose business model is outlined in box 24.

The agency system was previously discussed from the point of view of the nature of the insurance product and the role of intermediaries in the industry market

Box 24

MarketScout: An e-market for insurance agents

MarketScout is an independent portal through which agents and brokers can easily find and explore specific insurance products and market segments online. It is an Internet-interactive marketing vehicle based on e-commerce technology that provides an online conduit between the independent agent/broker and MarketScout's approved companies.

The portal is designed to help retail insurance agents locate insurance quotes from insurance companies with proven success in a particular insurance line or coverage class. The approved insurance carriers are designated as "Best of Class". Apart from striving to provide quality carriers to its associated agents and brokers, MarketScout sees its "Best of Class" designations as part of an overall branding strategy. Insurance quotes are provided from over 60 different insurance companies with new ones signing on regularly.

Within MarketScout, specialized insurance line experts work with insurance agents and their clients to define policies and their terms and conditions, and to secure the most favorable insurance quotes from approved insurance carriers.

Source: MarketScout.com

structure. Their position in the online business models that insurance carriers intend to implement is also often debated.

In general, insurers are wary of alienating their agents. In a recent survey in the United States, the majority of insurers confirmed that they were "focusing their technological efforts on upgrading outdated IT infrastructure that strengthens the independent agent distribution channel."²⁹ The same survey found that only 15 per cent of insurance carriers practiced e-insurance, broadly defined. Among agents there is a similar, if not identical, approach. The majority of agents in the United States use the Internet to communicate with insurers, while only 15 per cent use it to generate leads that may bring new business. An UNCTAD analysis in 2000 suggested that the growth of e-insurance would not meet expectations if insurers focused their investment on marketing, customer support and support of intermediaries rather than on establishing Internet sales.³⁰

Whereas many insurers have extensive internal IT applications, policy and client data are not easily accessed outside the physical confines of the company office. Such introverted IT systems have been made possible by the agency distribution system, which has insulated insurers from their policy-holding clients. At the same time, insulated IT has satisfied the need for security, an important consideration since insurers use clients' private and personal data in everyday business. Chart 33 describes how insurers in the United States enable agents to quote premium rates to prospecting clients. It is interesting to note that more

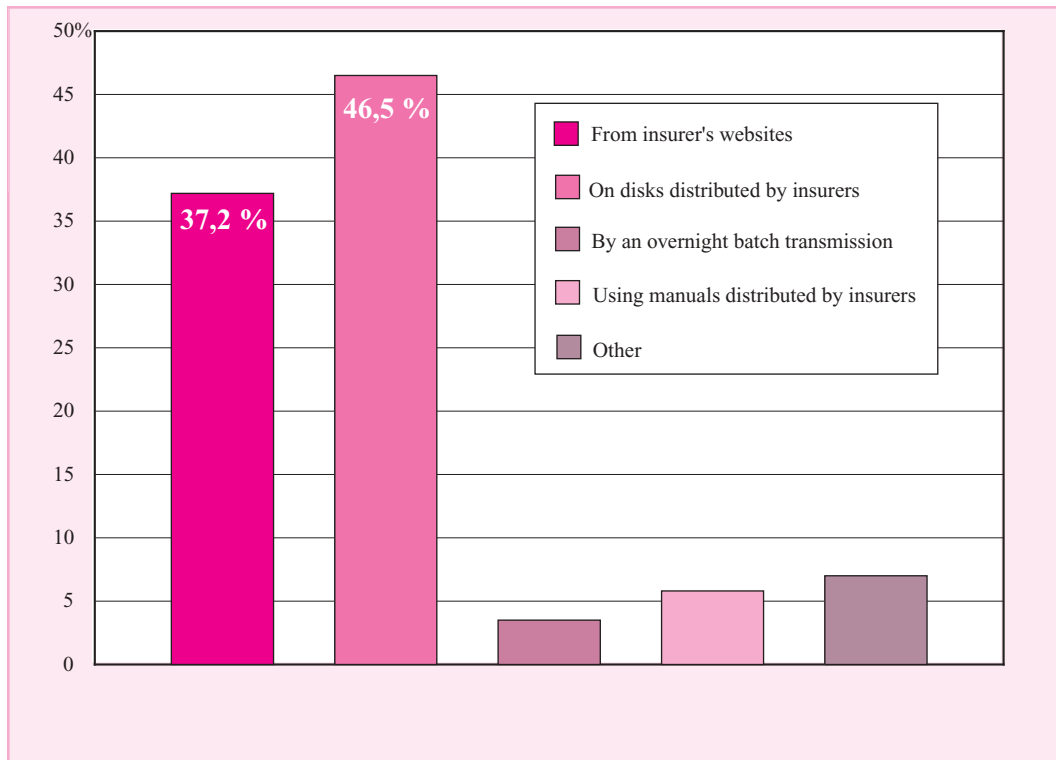
than 50 per cent of agents do not have real-time connectivity with their insurers.

In fact, the physical agency system addresses what is perhaps the greatest weakness of online insurance distribution: the low frequency of website repeat visits. Typically, once a policy is contracted online, the policyholder sees little reason to periodically check the insurer's site: there is little or no account activity between policy renewals, unless the policyholder acquires new assets needing coverage, or submits a claim. A client's contact with an agent for policy renewals is seen as an opportunity to push and sell other insurance products. However, it may well turn out that banks, not the e-insurer, are the insurance agents' worst enemy.

In countries where banks are licensed to sell personal insurance products, insurers and their agents may be under threat. While clients renew insurance policies yearly, they typically check their bank accounts, offline and online, on a daily or weekly basis, thus providing opportunities for banks to promote their own insurance and investment products.

To compete successfully for attention online, insurers and agents must provide clients with reasons to visit their sites. The content should reflect the clients' or communities' interests and lifestyle, as determined by an analysis of data submitted by policyholders for insurance purposes. However, such analysis may raise legal concerns, as policy data is submitted for specific and restricted purposes and often may not be used otherwise. Where regulations permit, insurers may

Chart 33
How Insurers Enable Agents to Quote
 (Figures are for the United States, sample size: 175 insurance company)



Source: Ivans 2001.

explore offering financial products related to mortgages, investments and financing of motor vehicles and durable goods.

In developing countries, the issue of disintermediation in the personal lines business will become critical when access to and use of the Internet, credit cards and other means of online payment increase significantly. As in developed countries, in many developing countries clients do not hold the agency system in high regard. When online insurance and *bancassurance*³¹ become a real alternative, one can expect a decrease in agency-based delivery of insurance products.

Monitoring national and regional Internet user and financial demographics can help insurers in developing countries predict when and how to move in becoming a competitive online player. Even where the figures do not necessarily justify investing in a full-blown e-commerce infrastructure, it is advantageous for all insurers to have a web presence with the following components:

- Corporate and financial information;

- Insurance education and awareness building;
- FAQs;
- Product descriptions;
- Examples of typical policies and prices;
- Contact information;
- A functioning e-mail help desk; and
- Agent locators.

An UNCTAD survey of 249 insurers in Africa found that only 54 had websites. Of these 42 provided insurance and policy information. The rest provided only basic company information and contact details. Twenty-nine insurers had e-mail addresses, but very few seemed to be functional. While this is a start, even considering the underdeveloped IT infrastructure, there is much room for growth in Internet presence.

Insurers in developing countries should not assume that establishing a basic Internet functionality constitutes an e-commerce strategy or presence. When the time comes to adopt a more intense Internet and

e-commerce practice, insurers may find their operational business process IT system out of date or underdeveloped and may be unable to interface it with their website. This problem has been recognized by UNCTAD which, to help remedy such deficiencies, is cooperating with the AIO in developing operational insurance software tailored for small and medium-size insurers in Africa. Part 5 of this subsection will give more details on its significance and progress made to date.

The main threat to insurers in developing countries may come from foreign insurers incorporating locally that have substantial IT budgets and international and regional experience in transplanting their IT solutions. Companies like John Hancock, AIG, Manulife Financial, Prudential Financial, ING and New York Life International have made forays into a number of developing countries. However, implementing IT and e-commerce technology is never a goal in itself. AIG has suggested that it would not implement an IT-based processing solution in a developing country if it were cheaper to hire people to do manual processing.³²

A further issue for insurers in developing countries is the use of business process outsourcing (BPO) by global insurers. Hartford Life has been transferring operations to Argentina, while MetLife has established partnerships to outsource business processes to India. Prudential has been outsourcing to Barbados and India for a number of years.³³ This indicates that, as far as e-readiness is concerned, the human resources needed for e-insurance are within reach in a number of developing countries.

3. Commercial lines

Buyers of commercial insurance often require tailored underwriting as many of them are large businesses operating in multiple locations with varying degrees of hazard, or running sophisticated industrial systems.

Companies with significant assets normally set up their own risk management departments. These departments are knowledgeable about the risk profiles and exposures of their business and are indispensable in coverage negotiations. Due to the size and complexity of commercial risks, few insurers have made progress in offering commercial lines insurance via the Internet. In a recent survey conducted by the fifth largest workers' compensation insurer in the United States, Kemper Insurance, not one of the surveyed SME businesses said it would buy commercial insur-

ance online.³⁴ A similar study by IVANS, a U.S. insurance e-business integrator, found that only 4 per cent of small businesses would definitely buy insurance online, while 51 per cent are interested in using the Internet to research insurance products.³⁵

One of the largest global financial companies and insurers, AIG promotes its commercial insurance activities online but does not actually give quotes. After requesting existing policy information that may be submitted online, AIG follows up with a response from a particular expert or department.³⁶

An important reason for the relatively minor role of e-insurance for commercial lines is that large businesses do not consider the transfer of risk to an insurer by way of a policy to be the only or even the primary motivation for purchasing insurance. A recent study suggests that a "company's purchase of insurance is intended to introduce the external monitoring role of the insurance underwriter, hence inhibiting opportunistic behavior on part of the company and so enhancing the degree of co-operation among stakeholders and reducing transaction costs."³⁷ Large companies may choose to do business with insurers even when they have the financial capacity to self-insure in order to have the insurer as a neutral advisor. Further, insuring own assets with own capital may be imprudent in cases of catastrophic risks.³⁸ Finally, a company's stake- or shareholders may look askance at the insured's diversification into insurance underwriting through self-insurance. Investors can always diversify their portfolios on the securities markets, should they wish to do so.

For all these reasons, commercial lines e-insurance may eventually face the challenge of providing intelligent online risk management consultancy. However, in the near future, its scope may be limited to providing contact and product information and generating leads.

4. Reinsurance

The application of IT in reinsurance has traditionally been intense, both internally and among reinsurers and reinsurance brokers. The three original European networks, Limnet, Rinet and WIN, and Joint Venture merged in 1999 and operated until November 2001 under the name WISE (Worldwide Insurance Electronic Commerce). Before the merger, Limnet estimated that, among its members, 15 per cent of all risks were being handled electronically as opposed to 90 per cent of claims.³⁹ Rinet estimated that 60 per cent of world and 80 per cent of European reinsurance

Box 25

inreon.com

inreon is an independent, Internet-based marketplace founded in December 2000 by the world's two largest reinsurers, Munich Re and Swiss Re, together with Accenture and the Internet Capital Group. inreon is an independent company and its management is separate from that of its founders. inreon's aim has been to build a trading platform that delivers improved efficiency and reduced costs for all participants in the reinsurance sector.

inreon was set up to take better advantage of the enormous efficiency gains that have been achieved in other financial services through the use of IT and standardized instruments and trading practices. While some reinsurance requirements need tailored solutions, in many areas there is considerable scope for a more standardized approach and a more open marketplace where contracts can be freely exchanged.

inreon has developed a simplified trading process using robust and sophisticated technology. Trades are initiated by reinsurance buyers entering submissions for cover. Key parameters for the risk are defined within specific fields. The buyer also chooses the time frame for a response and the sellers to whom it wishes to submit the risk. Sellers may then either decline or quote the risk. All quotes offered to buyers on the platform are binding.

Participation in this electronic marketplace enables improved trading efficiency and immediate, convenient access to a wide variety of new business partners. Comprehensive management information reports and full online administration support allow members to exploit the benefits of online trading.

Initial criticism that inreon was a "sellers" platform was provoked by the fact that the founding partners were the world's two largest reinsurers. The business model was, however, designed to be a market-wide platform to provide value and service to all sections of the reinsurance sector. Acceptance from reinsurance buyers has grown steadily and there are now around 60 brokers and primary insurers operating on the platform. Brokers and insurers have influenced the development of the platform, and inreon aims to widen its initial shareholding to incorporate major reinsurance buying groups.

Concerning trading volumes, to date there have been around 350 submissions on the platform representing an original gross premium of over €255 million. While the majority of inreon members are from developed countries, several insurers, brokers and reinsurers from the Republic of Korea, Taiwan Province of China and Hong Kong (China) have recently joined.

Source: inreon.com

income was transacted through its network, as well as 50 per cent of United States gross reinsurance premium income.⁴⁰

In addition to its basic mission to develop e-commerce solutions for insurers, WISE was involved in developing e-insurance data standards through its Joint Venture activities. In October 2001, WISE merged its standard-setting activities with ACORD. As a result ACORD has become the *de facto* global e-commerce standards body for insurance. WISE's commercial activities have since been acquired by Ins-sure, which provides the London insurance market and European insurers with electronic business processing, policy administration, premium and claim settlement services.

Reinsurance is rapidly coming online. While examples abound, approaches vary. Certain companies are marketing and distributing their own reinsurance products

on their websites. Others have engaged in cooperative strategies and are attempting to set up reinsurance markets or exchanges. The world's second largest reinsurer, Swiss Re, debuted in 2000 with an online reinsurance capacity auction system called Elix. Today, all of its efforts have been thrown behind inreon.com, a joint venture with Munich Re, another global insurance giant. Box 25 provides a brief description of inreon.com.

Other e-market-based or exchange platforms include RI3K, backed by BRIT Insurance Ltd. and assisted by AXA and Citibank; UniRisX, backed by the technology company Unisys and the reinsurance broker Price Forbes; and E-Reinsurer, backed by Chubb. RI3K intends to use the 2002 reinsurance renewals as a test, when it would trade a designated \$100 million. Other prominent reinsurers, such as Frankona GE, St. Paul and AXA-ACS, are developing company-specific e-commerce platforms as well.⁴¹

The essence of the debate in the reinsurance sector is which will prevail: the reinsurance e-markets or the individual reinsurance company portals. While it is too early to judge, the following list of the pros and cons of reinsurance e-markets may give some guidance:

Pros

- Buyers get access to multiple quotes from several reinsurers;
- Capacity can be larger;

Cons

- Few players are fully committed, many are developing own solutions in tandem;
- Standardized products may not satisfy buyers' needs;
- Aside from reinsurers, e-markets need to attract brokers and cedants.

Proprietary reinsurance portals or markets that meet the narrow definition of e-insurance may not be trading more than 1 per cent of global reinsurance premiums by the end of 2002. However, because reinsurers have been operating in an IT-enabled environment for almost two decades, e-insurance is expected to catch on quickly. The fact that reinsurers' clients are ceding insurers and brokers (i.e. insurance professionals) may hasten the adoption of e-commerce in reinsurance.

The implications for developing countries will become material when reinsurance markets and exchanges start trading a significant part of global reinsurance premiums. Developing-country insurers will be expected to work with the e-insurance infrastructure being set up by the market leaders; failing to do so will increase the risk of technological marginalization and may also increase their costs of reinsurance cession and acceptance. There is a need to anticipate these developments and be prepared.

5. IT and insurance

This subsection will touch on a limited number of IT issues that are often discussed in the context of e-insurance.

*M-insurance*⁴²

In the insurance context, the main application for m-insurance (insurance using m-commerce methods) will probably be in enhancing the performance of the field agent or employee. Wireless devices will enable

field staffers to access data resources that will enhance distribution, improve cross-selling, and appreciably speed up loss assessment, claims submissions and reimbursements.

Attitudes to m-insurance vary in line with the general acceptance level of m-commerce technology. In Japan, where wireless communications have made significant progress, the Tokio Marine & Fire Insurance Company has a fully developed m-system. Agents use mobile devices to access the company's Intranet to source quotes, and for e-mail communication. New York Life is also preparing a mobile initiative for implementation in Asia.⁴³

A mobile strategy for insurance agents in developing countries may be a workable proposition especially since it does not necessarily have to be related to a sales oriented e-commerce strategy. The objective is to increase agents' efficiency and enhance their ability to close a contract. Chapter 4 of this report sheds light on the particular issues and potential of m-commerce.

Business process IT

While many insurance carriers in the developed world are concerned about how to bring their proprietary/legacy computer systems online, many insurers in developing countries are still working with paper-form-based administration systems. They are motivated to start building company IT infrastructures for three reasons:

1. Markets are liberalizing, and competitive pressures are forcing insurers to increase productivity and efficiency;
2. Their counterparts in developed countries require Internet-based electronic data interchange for ceding or accepting reinsurance;
3. Any prospective e-commerce strategy needs back-office IT that can communicate with an Internet-based front end or website.

While many IT companies in developed countries produce software for the insurance business, developing countries need not necessarily look very far for suppliers. An interesting example is Infosys, an IT services and consulting company from Bangalore, India. Aetna, Aon Corporation, AXA Online Japan, Fairfax Financial Services, Marsh Canada, New York Life, SunAmerica, Suncorp Metway and Swiss Re have all been listed as insurance clients on the Infosys website. In its most recent collaboration with Northwestern Mutual Life Insurance, Infosys has developed an

online funds transfer option for variable life and annuity policyholders. Customers can now log on and make immediate transfers from their accounts, thus eliminating potential delays associated with processing allocation change and asset transfer requests.⁴⁴

While a number of off-the-shelf products are available in developed countries, due to the differing operating

standards and national regulatory principles, it is no easy task to find an application that works out of the box. Having reviewed the possibilities, the African Insurance Organization and UNCTAD have established a project to produce a fully functional software application for SME African insurance companies. An overview of this venture is presented in box 26.

Box 26

AIS-AIO Insurance Software

The software grew out of the various management and computerization seminars the AIO has organized for its members over the years. These seminars revealed serious deficiencies in the IT capability of the African insurance industry. It was noted that the available software was inadequate and too expensive for a large number of AIO member companies. The AIO Secretariat embarked on developing insurance operations software in collaboration with UNCTAD and a number of African and international Insurers and reinsurers. The software currently covers all non-life (general) insurance classes and is under trial in 3 companies. So far, 20 African insurance companies have indicated that they will join the venture and buy the software.

The objective was to provide AIO members with affordable and functional software that handles underwriting, claims, reinsurance, accounts, and management information and enables e-business capability. AIS is PC-based, runs in the MS Windows operating system environment and was built using Visual C++ and Visual Basic 6 and MS-SQL server 7.0. It is designed to handle multiple languages, currencies, and calendars. It can operate in single- or multi-user mode, is modular, and has user-defined setup options and context-sensitive online help.

AIS was designed for insurance professionals who typically do not have much or any programming knowledge, and it has a uniform presentation and set-up suitable for all classes of insurance business. A detailed operating manual for each class and activity is provided. The software allows the set-up of its main options at the head office level for functions that are common throughout an entire insurance company.

The software provides a uniform approach to performing underwriting operations in 35 classes of insurance arranged into 10 groups. Various codes, rates and underwriting details can be defined in accordance with the specific requirements of the insurer. All standard reports generally required by insurance companies have been predefined, while particular insurers can easily define additional report formats. The system produces all reports and outputs required by an insurance company such as policy documentation; statements for clients, reinsurers, agents and tax authorities; and internal management reports.

AIS enables insurers to maintain up-to-date information on the status of claims, whether paid or outstanding. It also handles allocation of claims to reinsurers and co-insurers, accumulation and analysis.

The system provides treaty set-up procedures for proportional and nonproportional reinsurance. Underwriting and claims transactions are automatically applied to the appropriate reinsurance programme. Quarter-end and year-end procedures, treaty renewal and cancellations, and other similar procedures can be fully handled by the system.

AIS can be used as a stand-alone module, or can be fully integrated with financial accounting software running in an MS Windows environment. Insurance companies can use an accounting module of their picking, while the preferred choice is Microsoft Dynamics, which is currently used by AIO.

The AIO provides general advice and guidelines for insurers converting from an existing information system. Specific assistance with installation, training and maintenance, as well as free upgrades and enhancements, are provided to all users. Data and system security have been addressed at all levels and are continually being reassessed and improved.

Source: www.africaninsurance.com. For more information contact: aio@sprynet.com.

Middleware

Middleware is a general term for software that provides an interface for two separate and usually already existing software applications.⁴⁵ For example, middleware is often used to enable two or more distinct databases to exchange data. The movement in the insurance industry from proprietary IT systems to Internet-based IT and e-business applications for e-insurance may require extensive and robust middleware applications. Apart from e-insurance, mergers and acquisitions and the globalization of the financial services industry also support the demand for middleware. The speed of e-insurance adoption may also depend on how much support integration middleware developers show for the adoption of XML for data transformation, exchange and integration. Those developers that can provide solutions for integrating existing or legacy systems while ensuring that users can easily and cost-effectively transform data between other data formats and XML using Acord standards may have a competitive advantage.⁴⁶

D. Regulatory and supervisory issues and insurance activities on the Internet

The development of e-commerce, particularly on the Internet, presents new challenges and concerns for insurance regulators and supervisors from developed, as well as developing countries.⁴⁷

1. Background

The establishment of Internet-based insurance businesses offers both individual insurance consumers and insurers and intermediaries potential efficiency and cost benefits. E-insurance improves information symmetry and market transparency conditions and may enhance competition that can lead to reduced prices.

For insurance regulators from developing countries, Internet-based supervisory tools may increase efficiency by streamlining and speeding up reporting from insurance enterprises. The possibilities offered by Internet communication can also greatly improve the delivery of information to the public, insurers and local and international investors regarding market conditions, rights and obligations. Also, secure Internet communication could be a major tool for fostering international cooperation among regulators to improve the security of insurance markets.

From the perspective of a supervisory authority in a developing country, major concerns pertaining to e-insurance relate to cross-border activities and how to safeguard the interests of consumers if they contract policies in other jurisdictions. However, as most countries continue to require local licensing for insurers offering products in the domestic market and prohibit cross-border activity, cross-border trade in personal lines and mass insurance products has not expanded. Also, the cost of establishing e-insurance platforms, along with related marketing costs, has deterred financially unsound operators from establishing a significant web presence.

E-insurance provides a new channel for distributing insurance products that accelerates transaction processes, creating more opportunities for fraud. It imposes on supervisors the burden of developing supervision methods that permit quick responses to threats to the interests of insurance consumers. However, the emergence of e-insurance does not fundamentally alter the principles on which today's insurance supervision is based.

For regulators, the essential question relating to e-insurance, as well as to other distribution methods, is how to protect insurance consumers. Supervisors have therefore approached e-insurance operations in the same way they supervise business and market of traditional insurance operations, including rate monitoring, surveying the marketing of insurance products, responding to public complaints, conducting consumer education and fraud monitoring.

To tackle the particularities of e-insurance supervision, the International Association of Insurance Supervisors (IAIS) established a working group on e-commerce and the Internet.⁴⁸ This working group has issued "The Principles on the Supervision of Insurance Activities on the Internet" that were approved by the IAIS at its annual conference in Cape Town on 10 October 2000. The full text of the principles is contained in the annex to this chapter.⁴⁹

More generally, insurance supervisory authorities have the same concerns as those regulating other e-businesses, particularly e-finance businesses: business continuity, personal data privacy, payment procedures and security, electronic signatures and IT platforms.

2. Supervision of established E-insurance operations

E-insurance was once perceived as a distribution channel that would erase national boundaries, since a single e-insurance platform established in one jurisdiction could offer insurance services globally. This has not occurred, since in most countries the establishment of a locally licensed business is required before insurance services can be offered to domestic consumers.

E-insurance platforms thus fall under the laws and regulations of the respective jurisdictions where services are offered. More precisely, existing regulations relating to market conduct determine how insurance providers may conduct their business online. Competition rules and transparency and information requirements form the core of market conduct regulations. Monitoring of rates, marketing of insurance products, handling of public complaints, consumer education and fraud are areas included under this aspect of supervision.

3. Approval of rates, terms, conditions and contractual documentation

In many developing countries, insurers are required to file rates, terms, conditions and contractual documentation for approval by supervisory authorities before the underlying product is offered to the public. E-insurance offerings too, are governed by such requirements.

Often minimum and maximum rates are established for compulsory individual insurance products such as motor vehicle insurance, workmen's compensation and some fire exposures. This is making it difficult for e-insurance operators to undercut prices offered by traditional competitors. Supervisory authorities should pay particular attention to the terms, conditions and contractual documentation that are presented on insurance providers' websites. The supervisory authority should ensure that the contractual relationships have a legal basis that is not prejudicial to the interests of the insured, since the insured does not generally participate in the negotiations relating to policy clauses.

In the case of life insurance, supervisors should require that certain clauses be contained in the policies published on websites. This includes clauses such as incontestability, under which the insurer, after a certain period, can no longer contest statements made by

applicants. Also, a clause on nonforfeiture should be shown. Such a clause protects the cash value of the policy and provides for a grace period after the premium is due, during which the policy cannot lapse. Such a clause is particularly pertinent for Internet transactions where contracting and payment cannot occur at the same time.

In the developing country context, because of a general lack of insurance education and in order to allow consumers to make informed decisions, a large degree of comparability between contracts offered over the web should be maintained during the initial phase of establishing e-insurance operations. Two other problems to be addressed are that (a) because of different hardware and software configurations, information presented on the web may look different to different viewers, and (b) computer proficiency may lead to an unintended contractual result. Certain guidelines regulating basic website content may be needed: for example, companies could be required to inform who is the supervising body and who are the final risk carriers in the cases where purchases are made from an agent's or broker's website.

Electronic signatures are important not only to confirm the existence of a contract but also for specifying the starting date of the purchased insurance coverage. The validity and effectiveness of a contract may be influenced by failures in data transmission. A consumer may be under the impression that a contract is in place, while the insurer may have received corrupted data that does not allow a policy to be issued. The existence of a problem may not be obvious until the insured attempts to make claim under the non-existent policy. Also, after a policy takes effect, it may be necessary to cancel, change or complement it. Possible reasons for such an intervention include the discovery of an error or a fundamental change in the insured's risk profile. In such a case, it may be prudent to ask whether online insurance products should carry a "return or exchange of goods policy" and what kind of security is needed to prevent accidental or unauthorized cancellation.

Also, supervisors should determine whether an insurer posting offerings on the Internet is discriminating against certain categories of consumers. The traditional roles of supervisors - to ensure that compulsory mass products or personal lines are affordable and available, and to ensure the fair treatment of consumers - should be maintained with regard to products offered on the Internet.

4. Marketing of E-insurance products

Supervisory bodies should preserve the fairness of information presented to consumers and should attentively monitor the marketing of e-insurance products. Advertisements should not be misleading, past experience should not be used to predict future results, and products should not misrepresent benefits. Often insurers differentiate their products from those of competitors by inaccurately describing or overstating advantages and benefits. When an intermediary (an agent or broker) offers insurance products over the Internet, such a seller should be required to obtain a license before establishing a presence on the web. The licensing procedure should require the intermediary to undergo competence tests, and the its e-insurance platform and website should be screened in the same way as those established by insurers.

5. Combating fraud

Supervisors and regulators typically maintain that sales over the Internet increase opportunities for insurance fraud, money laundering and the misselling of insurance products.⁵⁰ Some criminal groups engage in mass subscription of single policies under false or given identities, redeeming the policies quickly thereafter in order to launder money. As no direct contact is established between parties to an insurance contract established via the Internet, e-insurance is an obvious target for money laundering operations. Supervisors should ensure that e-insurance providers have sound mechanisms in place for authenticating the identity of policyholders.

Also, to trace unsound or fraudulent operators and consumers, it is paramount that supervisory authorities establish communication networks among themselves to share information on such perpetrators. E-insurance, like other e-finance businesses, is at risk from both internal and external security threats (infiltration, corruption and theft of customer data files). Increased connectivity, in particular the connection of internal networks with the Internet, introduces new vulnerabilities that require the deployment of more advanced and effective security tools.⁵¹ Regulators should take steps to ensure that e-insurance providers have the necessary security in place to protect the integrity of information and the privacy and confidentiality of policyholders' data, whether the data storage is performed by the e-insurance provider or outsourced to Internet service providers.

6. Public Complaints

Internet-based reporting and monitoring of public complaints could prove an indispensable tool for insurance supervisors. In a number of countries, formal offices within the supervisory authority have been established to respond to insurance customers' complaints. Their purpose is to streamline administrative procedures and sometimes to serve as an alternative to judiciary proceedings. For supervisors, the monitoring of complaints provides a very useful source of information for holding insurers responsible for their offered services. To resolve complaints, supervisors should facilitate communication between insurers and complaining customers. They should make sure that companies have complied with the law and have responded promptly and fairly, and they should inform insurers of problems that customers experience with contract language, customer service or technical aspects of the website. Also, websites posting insurance offerings should give contact information for the official authority dealing with consumer complaints, and the site should clearly describe the mechanism for dispute settlement.⁵² One of the simplest and most useful Internet tools is the FAQ (frequently asked questions) page. A well-structured, comprehensive and easily navigable FAQ page can satisfy the vast majority of public queries.

7. Consumer education

To build consumer's awareness and understanding of insurance and to improve market efficiency, consumer education is paramount. E-insurance offerings should include educational material to help consumers understand the products they buy. Also, supervisory authorities should provide guidance and educational material on their websites for consumers interested in purchasing insurance online. Insurance laws, regulations and statistics can be made more easily and widely accessible through the Internet. Most Latin American and Asian as well as many African and Central and Eastern European insurance supervisory authorities have already established websites designed to inform the public.

8. Supervisory efficiency

The advantages that the electronic format offers for compiling and processing data allow supervisors to devote more time and resources to analysing periodic financial reporting by insurers. Many supervisors in developing and emerging markets have dedicated web-

sites for the submission and processing of reporting from insurance companies, and several have developed Internet-based solutions. The Egyptian Insurance Supervisory Authority is offering a financial reporting application, on a cooperative basis to its counterparts in other African countries.

Whenever an insurance provider establishes an e-insurance operation in a country, a continuous dialogue should be established between the e-insurer and the regulatory body to resolve areas of uncertainty before the operation is launched, and to contribute to regulatory development. Authorities should continually adapt their insurance legislation to the needs of their insurance consumers, taking into account shifting consumer interests.

9. Supervising cross-border E-insurance activities

Among factors that have inhibited the development of cross-border e-insurance are the wide variations regulatory and supervisory requirements between national and state jurisdictions. If an e-insurance operator wants to offer services in several jurisdictions, it needs to undergo obtain licenses and comply with the respective jurisdictions' supervisory, tax and other authorities. It may be difficult to incorporate all the different and sometimes contradictory requirements into a single e-insurance platform.

Recent studies have concluded that the actual differences between national approaches are so extensive that e-insurers are unlikely to do business on a multi-country basis in the near future. A more likely development would be increased targeted penetration of national markets, with whose regulatory and supervisory requirements e-insurers are familiar.⁵³

To avoid being indicted by a national supervisory authority for unlawfully offering insurance services in that national market, e-insurers should clearly indicate on their website their identity (address, home country) and the jurisdictions in which they are legally permitted to provide insurance services. Also, e-insurance providers should post strong specific disclaimers and risk warnings directed to citizens of countries where the e-insurer is not authorized to operate. The home country supervisory authority should oblige e-insurers to post such disclaimers and warnings.

The growth of cross-border e-insurance will necessitate a harmonization of regulatory and supervisory frameworks, the recognition by insurers of home

country regulators and of home country complaints and dispute settlement mechanisms. Thus it will require extensive cooperation between regulatory bodies around the world. Such developments could be part of international negotiations on the opening of national financial markets such as those conducted under the aegis of the World Trade Organization.

E. Conclusions

It is evident that the insurance industry is gearing up for e-insurance. Insurers, intermediaries and reinsurers are investing in IT and trying to determine the proper business model to follow. The fundamentally information intensive nature of the insurance product will eventually make full e-business treatment a workable option provided that efficiencies do materialize and are passed on to consumers. To succeed as e-insurance, online personal insurance has to be cheaper *and* better than the traditional offline option. For commercial lines insurance the situation is less clear-cut as covers tend to be less commodified and clients often require bespoke risk management services. The reinsurance industry has been an early adopter of IT, and embracing Internet-based e-insurance technologies should come naturally.

Many insurers and intermediaries have realized that e-insurance is not just about distributing insurance products on the Internet and have incorporated their e-business plans into their overall business strategy. Initial market analyses should consider present and potential structures and partnerships. Adopting e-insurance and introducing change in IT systems is an incremental process, not an event, and should stem from a fundamental need to reengineer and modernize business processes in order to better respond to client demand, as well as to the client's own adoption of Internet technology. Substantial investments may be required and open communication with stakeholders and policyholders should be a given. Insurers should focus on growth as well as on cost reduction. Efficiencies may materialize, but forecasts and calculations must not undermine the costs of online client acquisition and retention, and marketing, in particular if the insurer is of the Internet pure-play type.

E-insurance faces three serious challenges. The first is to redefine relationships with agents and intermediaries. The ideal solution would be to pursue multiple-channel distribution on technologically neutral platforms with open data standards. Each e-insurance actor would then compete for business on the basis of

value added. The second is to bring existing proprietary IT systems out of the back office and online. An important angle of this debate is whether and how to outsource IT development and maintenance. The answer may be related to the universal or niche qualities of an insurer's line of business. The third challenge is to interface the business process into a fully functional website thereby bringing e-insurance to the client's computer screen.

Website functionality is an issue in its own right, requiring a proper definition of customer and product profiles. It also needs precise interlocking with powerful back-office IT. Insurers and intermediaries need to examine how they can achieve the most possible value added through an online presence. A fundamental problem of all insurance websites is the low rate of repeat visits by existing customers: insurance policies are purchased once and then renewed annually, without much contact or interaction between the insurer and the insured. Increasing repeat visits, as well as new traffic, to the insurers website is essential.

Unfortunately, there is no clear recipe for success and e-insurers may have to look very closely at the Internet habits, demographics and lifestyles of their clients to find answers. Once improvements are achieved, the existing e-insurance infrastructure must be used to market financial products related to a customer's insured assets, within the limitations set by insurance and financial regulations of the market. Functionality also depends on planning for system failures and having back-up schemes in place. Regular updates are a requisite feature. Online traffic should be analyzed from the point of view of how it can be converted to income and whether the website and the general IT infrastructure are well matched.

For insurers and intermediaries from developing countries, the adoption of e-insurance practices will most likely be stimulated from abroad. The first push

towards e-insurance will come from business relations with international reinsurers. The subsequent motivating event will probably be the entry and local incorporation of foreign personal lines insurers transplanting tried and tested e-insurance operations. Commercial insurance may be the last to be affected by e-insurance practices; however, this is a broad generalization, and insurers must carefully scrutinize market developments. Achieving efficiency gains is not a simple procedure even in developed countries, although, lacking the burden of proprietary IT systems, insurers in developing countries may leapfrog directly to e-insurance without the problems and costs of re-engineering and middleware.

Having an Internet-ready business process IT system is particularly critical for developing countries. Existing applications may not be well suited for developing countries, in particular for many African insurers, which may be regarded as financial SMEs. A positive e-insurance presence with modest but robust website functionality should, however, already be within the reach of most insurers.

The same applies to insurance supervisors and regulators in developed and developing countries. The power of the Internet should be harnessed to improve consumer protection and education and awareness building. It can also be used to receive and process periodic financial reports, thereby freeing up resources for supervising management and insurance practices. Finally, national insurance supervisors can use Internet technologies to communicate among themselves and coordinate activities related to preventing fraud and money laundering. Once seen as a potentially important regulatory issue for e-insurance, cross-border sales of personal lines have not yet reached significant levels. That said, regulators should stay tuned and actively monitor online offerings from suspect or fraudulent websites.

Notes

- 1 SIGMA (2001), *World Insurance in 2000*, No. 6, Zurich.
- 2 A detailed discussion on the development role of insurance can be found in Outreville, JF (1990), *The economic significance of insurance markets in developing countries*, Journal of Risk and Insurance, 57 (3).
- 3 Pure risks do not provide the risk taker with an upside. Pure risks are always a net loss for society, and a rational way to deal with them is to transfer and pool them and then redistribute them among large number of concerned entities. Business, speculative and gambling risks are considered uninsurable, as someone's loss is another party's profit. These risks are collectively called "speculative risks".
- 4 See www.unctad.org/insuranceprogramme/.
- 5 For example, some national or state regulatory regimes do not allow credit card payment for certain types of cover. Further, regulations sometimes require the physical delivery of a printed policy with a strictly prescribed format. Finally, claims processing may require physical inspection of damage by assessors.
- 6 Bender A and Marks J (2000), *E-Insurance: Revolutionizing Insurance*, CSFB Equity Research; SIGMA (2001), *The Impact Of E-Business on the Insurance Industry: Pressure to Adapt – Chance to Reinvent*, No. 5, Zurich; Frey J (2000), *Hidden Rivers of Incentive: How Agent Commissions Affect Your Insurance Shopping* Insure.com.
- 7 Premiums as a percentage of GDP.
- 8 Forrester Research, quoted in Bender A and Marks J (2000), *E-Insurance: Revolutionizing Insurance*, CSFB Equity Research; SIGMA (2001), *The Impact Of E-Business on the Insurance Industry: Pressure to Adapt – Chance to Reinvent*, No. 5, Zurich.
- 9 UNCTAD (2000), *Building Confidence: Electronic Commerce and Development*, UNCTAD/SDTE/Misc.11, Geneva.
- 10 Brown J R (2000), *Does the Internet Make Markets More Competitive? Evidence from the Life Insurance Industry*, Harvard University, Research Working Papers Series, RWP00-007; and gsbwww.uchicago.edu/news/capideas/win02/lifeinsurance.html.
- 11 Many online brokers are not public companies and do not publicize their financial statements. Insurers, which are mostly public companies, do not report online sales as a separate item in their income statements.
- 12 Nielsen//NetRatings, <http://pm.netratings.com/nnpm/owa/NRpublicreports.usagemonthly>.
- 13 See LOMA Cybertalk, Improving the Internet Distribution System, www.loma.org/cybmay98.htm.
- 14 In insurance practice, the term *iriskī* is also used to describe the insured asset. Thus, an aircraft or an industrial plant is a *iriskī*. The reason for this is that underlying risk characteristics are inseparable from the asset itself. For academic discussions of risk and insurance terminology refer to Green M R and Treischmann J S, *Risk & Insurance*, 6th edition; Reigel R and Miller J S and Williams C A, *Insurance Principles and Practice*, 6th edition; and Rejda G E, *Principles of Risk Management and Insurance*, 7th edition.
- 15 In fact, premium rates are highly subject to supply and demand conditions as well as to conditions prevailing on the international capital markets, to the point where charged rates may sometimes bear little relation to the initial actuarial and statistical calculations.
- 16 To maintain the discussion's focus, the issues of administration and management expenses and investment income have been omitted.
- 17 UNCTAD, *E-commerce and Development Report 2001*, Chapter 6: Overview of selected legal and regulatory developments in electronic commerce, UNCTAD/SDTE/ECB/1, 2000; UNCTAD, *Electronic Commerce: Legal considerations*, UNCTAD/SDTE/BFB/1, 1998.
- 18 Walker T (1999), NAIC Electronic Commerce and Regulation Working Group, NAIC Research Quarterly, 5(2).
- 19 Carlson D K (2000), *Nurses Remain at Top of Honesty and Ethics Poll: Car Salesmen Still Seen As Least Honest and Ethical*, Gallup Poll Analyses, www.gallup.com/poll/releases/pr001127ii.asp.
- 20 Bender A and Marks J (2000), *E-Insurance: Revolutionizing Insurance*, CSFB Equity Research; SIGMA (2001), *The Impact Of E-Business on the Insurance Industry: Pressure to Adapt – Chance to Reinvent*, No. 5, Zurich.

- 21 The results of the KPMG LLP e-insurance survey were reported at www.ivans.com.
- 22 Insurance Networking (2001), *The Business Context for IT Investment*, special issue: 2001 Top Technologies, August.
- 23 Newsfactor.com (2002), *How Big is E-commerce?*, www.newsfactor.com/perl/story/18403.html
- 24 Technology Decisions for Insurance, *The Tangled Webs They Weave*, www.technologydecisions.com/backissue/0102/1_18_02_23.asp.
- 25 Brown J R (2000), *Does the Internet Make Markets More Competitive? Evidence from the Life Insurance Industry*, Harvard University, Research Working Papers Series, RWP00-007; and gsbwww.uchicago.edu/news/capideas/win02/lifeinsurance.html.
- 26 Smith M D, Bailey J and Brynjolfsson E. (1999), *Understanding Digital Markets*, MIT, ecommerce.mit.edu/papers/ude/ude.pdf; and Daripa A and Sandeep K (2001), *Pricing on the Internet*, University of London, Birbeck School of Economics, Economics Working Papers, www.econ.bbk.ac.uk/faculty/kapur/personal/epricing.pdf.
- 27 An Internet pure-play insurer, agent or broker is one that has only an Internet-based operation.
- 28 Datamonitor (2001), *eInsurance Strategies in Europe 2001*, DMFS1406.
- 29 IVANS (2001), *Emerging Strategies in Insurance and Technology*, September.
- 30 UNCTAD (2000), *Building Confidence: Electronic Commerce and Development*, Section IV, E-commerce in Insurance, UNCTAD/SDTE/Misc.11, Geneva.
- 31 Insurance sold by banks at their retail counters or online.
- 32 Helwig D B (2001), *Burning Issues: CIOs Detail Their Top Priorities*, LOMA, www.loma.org.
- 33 Helwig D B (2001), *Burning Issues: CIOs Detail Their Top Priorities*, LOMA, www.loma.org.
- 34 Reported in PropertyandCasualty.com, December 2001.
- 35 BusinessWeek Online (2000), *Wanted: Reassurance about Online Insurance - Business Owners Say They Need Guidance and Trust before Buying Coverage on the Web*, September.
- 36 See www.aigdirect.com.
- 37 Main B G M (2000), *Large Companies and Insurance Purchases: Some Survey Evidence*, The Geneva Papers on Risk and Insurance, 25(2).
- 38 An indicative example is the national earthquake insurance scheme of New Zealand, where regulation expressly forbids the investment of reserves in New Zealand assets or securities.
- 39 Limnet was a consortium of the Institute of London Underwriters, the London International Insurance and Reinsurance Market Association, Lloyd's and Lloyd's Insurance Brokers Committee. Rinet was a Brussels-based association of insurers and reinsurers. Limnet and Rinet were established in the late 1980s. Six prominent insurance brokers established WIN in 1996.
- 40 See UNCTAD (2000), *Building Confidence: Electronic Commerce and Development*, Section IV – E-commerce and Financial Services, UNCTAD/SDTE/Misc.11, Geneva.
- 41 Dyson B (2001), *Online Reinsurance: Exchanges Built on Shifting Sands*, Reactions, October.
- 42 Chapter 4 of this publication deals extensively with m-commerce and the reader is invited to refer to it for definitions and a general discussion.
- 43 Helwig D B (2001), *Burning Issues: CIOs Detail Their Top Priorities*, LOMA, www.loma.org.
- 44 Infosys Press Release, www.infy.com/media/NM_26-Mar-2002.pdf, May 2002.
- 45 See www.whatis.com.
- 46 An extensive discussion on the role of XML and middleware can be found at www.datamirror.com/resourcecenter/download/dbxmlvision/pdfs/dbxmltransform/XML_Solutions.pdf.

- 47 For a comprehensive review of regulatory issues see UNCTAD (1995), *Establishment of effective insurance regulatory and supervisory systems*, TD/B/CN.4/52; Carmichael J and Pomerleano M (2002), *The Development and Regulation of Non-Bank Financial Institutions*, World Bank.; and OECD (1997), *Insurance Guidelines for Economies in Transition*, April.
- 48 The IAIS is an international body that issues guidelines and principles for insurance supervisory authorities worldwide.
- 49 The full text of The Principles on the Supervision of Insurance Activities on the Internet can be found on the IAIS website www.iaisweb.org.
- 50 IAIS (2000), Principles on the Supervision of Insurance Activities on the Internet, www.iaisweb.org.
- 51 OECD (2001), *Electronic Finance: Economics and Institutional Factors*, November.
- 52 IAIS (2000), Principles on the Supervision of Insurance Activities on the Internet, www.iaisweb.org.
- 53 OECD (2002), *Financial Markets Trends*, 81.

ANNEX I

IAIS PRINCIPLES ON THE SUPERVISION OF INSURANCE ACTIVITIES ON THE INTERNET

Contents

1. Background
2. Supervision of insurance activities on the Internet
 - Principle 1: Consistency of approach Principle
 - Principle 2: Transparency and disclosure Principle
 - Principle 3: Effective supervision of Internet activities based on cooperation

1. Background

1. The development of electronic commerce, particularly on the Internet, presents insurance supervisors and regulators with new kinds of opportunities, challenges and questions. The use of the Internet will undoubtedly affect the ways in which insurance companies, intermediaries and insurance supervisors function in the future. For example, the number of cross border insurance transactions will increase.
2. In principle, there are benefits for insurers and consumers alike from the development of the Internet. The use of information networks has the potential to make the offering of insurance products more efficient and less costly than before. Insurance companies and intermediaries are provided with the technical capability to reach many millions of potential policyholders with good quality information on their products and services. Consumers increasingly have access to more and more sophisticated programs for searching for, identifying and purchasing insurance products.
3. However, whilst the Internet creates a new environment in which insurance products can be advertised, sold and delivered, it does not alter the fundamental principles of insurance and insurance supervision. It is a new medium through which to transact business.
4. Current concerns over the security of concluding contracts over the Internet are being addressed, but there remain substantial risks to consumers. Sales over the Internet extend the opportunities for insurance fraud, money laundering and the miss-selling of insurance products. It presents insurance supervisors with new challenges in delivering the level of protection that consumers in their jurisdiction expect. In particular it raises questions for consumers and insurance supervisors alike over the contract law applicable, and means of redress where there is a dispute between the insurer and insured.
5. One of the most important tasks of insurance supervision is the protection of policyholders and potential policyholders. The Internet does not change this basic premise. Where it helps is in offering insurance supervisors a new kind of medium for cooperation.
6. This paper proposes an environment for the supervision of insurance activities on the Internet which aims at ensuring that relevant information is available to consumers, insurers and insurance supervisors. Due to the extremely fast development of electronic commerce, the framework for the supervision of insurance activities on the Internet needs to be regularly reviewed.

2. Supervision of insurance activities on the Internet

7. Insurance supervisors should require that the sale, purchase, and delivery of insurance over the Internet is conducted in a secure environment, and that policyholders are adequately protected. The primary responsibility for the supervision of insurance activities rests with the supervisors of the insurers' home jurisdictions.

8. IAIS members are encouraged to adopt and implement the following principles.

Principle 1: Consistency of approach

The supervisory approach to insurance activities on the Internet should be consistent with that applied to insurance activities through other media.

9. Insurance supervisors should seek to apply standards of consumer protection to Internet related activities equivalent to those applied to the provision of services off-line. They should not constrain the legitimate use of the Internet.
10. Insurance supervisors should be prepared to provide guidance on the circumstances under which they will seek to assert supervisory authority over Internet activities. Factors that may support an assertion of authority may include evidence that:
- a. an internet site is targeted at residents and/or risks within the supervisor's jurisdiction;
 - b. insurance services are, in practice, being provided via the Internet site to residents in the supervisor's jurisdiction; and
 - c. attempts are made to present information to potential policyholders within the supervisor's jurisdiction through proactive means, e.g. e-mail.
11. Factors that may support a decision not to assert supervisory authority over Internet activities may include evidence that:
- a. the insurer or intermediary clearly states that the services are offered to persons and risks outside the supervisor's jurisdiction;
 - b. the Internet site contains a list of those jurisdictions in which the insurer or intermediary is entitled to provide services and the list does not include the supervisor's jurisdiction; and
 - c. the insurer has in place effective systems and procedures that are designed to prevent sales to residents in the supervisor's jurisdiction.

Principle 2: Transparency and disclosure

Insurance supervisors should require insurers and intermediaries over which they exercise jurisdiction to ensure that the principles of transparency and disclosure applied to Internet insurance activities are equivalent to those applied to insurance

12. The level of consumer protection should not be dependent on the medium used for insurance activities. The same basic principles of transparency and disclosure should apply for the Internet as for other media.
13. For example, the information provided to consumers should be broadly equivalent to that which would be expected in a traditional transaction, and should always be adequate for a consumer to make an informed decision on whether or not to avail of the services offered.
14. In order to protect the consumer, insurance supervisors should require that insurers and intermediaries over which they exercise jurisdiction and which offer insurance products over the Internet display certain minimum information on their Internet sites. In addition to the information that is mandatory in the jurisdiction in which services are being offered, the minimum information should generally include:
- a. the address of the insurer's head office, and the contact details for the supervisory authority responsible for the supervision of the head office;

- b. contact details for the insurer, branch or intermediary, and for the supervisory authority responsible for the supervision of the business, if different from the above;
- c. the jurisdictions in which the insurer or intermediary is legally permitted to provide insurance services;
- d. procedures for the submission of claims and a description of the insurer's claims handling procedure; and
- e. contact information on the authority or organisation dealing with consumer complaints.

Principle 3: Effective supervision of Internet activities based on cooperation

Supervisors should cooperate with one another, as necessary, in supervising insurance activities on the Internet.

15. The regulation of Internet activities based purely on actions capable of being taken within a single jurisdiction is often inadequate. It is evident that the regulation and supervision of Internet activities requires a greater degree of cooperation amongst insurance supervisors. Therefore insurance supervisors should have the ability to cooperate with one another, for example in providing assistance when needed or in dealing with cases of abuse in each other's markets.
16. Internet operations are highly dependent on system reliability and integrity and, as a result, are vulnerable to operational risks. Insurance supervisors should require that their supervised companies that offer insurance services over the Internet have sufficient control systems in place (including security, confidentiality, control of personal data, back-up and record-keeping systems) to transact that business in a proper manner. Supervisors should look closely at any outsourcing arrangements to ensure that appropriate contracts are in place and that risks are being addressed effectively.
17. The exchange of information between supervisory authorities is a key element in pursuing effective supervision of Internet activities. The Internet can be an effective tool for exchanging basic information.
18. Insurance supervisors should generally make the information listed below available on their own websites:
 - a. Structure and organisation chart of the supervisory authority, including contact information;
 - b. A listing of relevant insurance legislation;
 - c. A list of supervised insurance and reinsurance companies, including contact information or a central point within the supervisory authority from whom such information can be easily obtained; and
 - d. A link to the website of the IAIS.
19. Insurance supervisors may also consider making available the information listed below available on or through their own website:
 - a. Texts of the relevant insurance legislation;
 - b. A list of licensed intermediaries, including contact information;
 - c. The Annual Report of the supervisory authority;
 - d. Annual insurance statistics;
 - e. Links to the websites of other relevant supervisors in the same jurisdiction; and
 - f. Other information, as the supervisor deems relevant.

Chapter 9

EXPORT PERFORMANCE AND E-SERVICES

A. Introduction

Information and communications technologies (ICT) and electronic commerce (e-commerce) have been particularly influential in the services industries. For example, the Internet makes it possible to sell a variety of services, airline tickets, financial or insurance products, customer support, data processing or legal, health, education or software consultancy, to name only a few, rapidly, around the clock, and from anywhere in the world. This form of e-commerce is profoundly reshaping many of the existing services industries and creating new services as related technologies develop. The increasing demand for ICT has also generated major growth in communication services, which are expanding in all countries. Through e-commerce, the services industries have enjoyed an increase particularly in cross-border trade. The digitization of business processes, coupled with the universality of the Internet, has allowed companies to outsource activities and services to more cost-effective locations as well as to access new clients in foreign markets.

As a result of these changes in the global services market, an increasing number of countries, including developing ones, are directing their efforts towards expanding their services exports. Their objective is to increase export capacities in services that are increasingly in demand on the global market, and to become more competitive in exporting these services. But which sectors have been most affected by these changes? How much are services exports really growing, and in which sectors? Which countries have succeeded in gaining competitive advantage in their services exports?

The role of manufactured goods exports in enhancing a country's global competitiveness has been widely acknowledged, as numerous studies show.¹ Using trade flow analysis as a standard approach for assessing competitiveness, these studies have found that countries which have succeeded in gaining market

share over a sustained time period are also gaining competitive advantage.

By contrast, few studies have examined exports of commercial services as indicators of increasing competitiveness, despite the fact that services trade accounts for 20 per cent of total world trade and has grown as rapidly as merchandise trade (8.5%) over the past 15 years. In particular, the increasing use of ICT in the services sector has played an important role in enhancing international trade in services.

This chapter analyses the contribution of ICT and e-commerce to the services exports and export competitiveness of a country. More specifically, it focuses on services that have been substantially affected by ICT developments (such as computer-related services, financial services or communications services) and identifies their role as dynamic export services contributing to the competitiveness of a country. The chapter also uses examples from developing countries that have developed ICT-related export services and discusses various factors that have led to their success.

The chapter is structured as follows: section B first discusses the role of ICT in services exports and then briefly reviews the concepts and indicators used to assess export competitiveness and their application to the services industries. The empirical part of the chapter begins with section C, which gives an overview of international trade in services data and then applies existing methodologies to measuring export competitiveness in the services sectors, particularly e-services. Section D presents two countries (Costa Rica and India) that have diversified their exports into e-services in the software and IT-enabled services sector. The final section draws some conclusions and gives recommendations regarding the role of services exports in enhancing competitiveness in ICT-based sectors.

B. Information technology and services export performance

Studies on the impact of ICT and e-commerce on productivity growth in the United States have shown that labour productivity growth in the services sectors (measured by value added per full-time employee) has been particularly high in sectors such as wholesale and retail trade and financial and personal services. Other studies based on macroeconomic or computable general equilibrium (CGE) models have supported the argument that e-commerce has a positive impact on productivity and growth (UNCTAD, 2001a).²

Knowledge- and information-based services, such as communications, computer, financial, insurance and royalty services, are contributing an increasing share of GDP in many OECD countries (UNCTAD, 2001b). For example:

- In Canada, the value added of telecommunications services increased by 19 per cent from 1998 to 1999, accounting for 2.5 per cent of total GDP, up from 1.9 per cent in 1990 (Industry Canada, 2000)
- In the Republic of Korea, the share of the IT industry (20 per cent of which is based on IT services) in GDP increased from 8.6 per cent (1997) to 13 per cent (2000)³
- In the Philippines, the share of communication services (combined with transportation and storage) in GDP increased by 4.6 per cent from 1999 to 2000, to 9.9 per cent, largely due to the growing use of cellular phones and the increasing accessibility of Internet and cable services (NSCB, 2000).

Export performance and competitiveness are closely related. Traditionally, the competitiveness of a country has been identified with the performance of its exports. A country's firms and industries are considered competitive in products in which they are increasing world market share. Furthermore, countries that provide a favourable environment for companies to operate in, which allows them to develop innovations and exploit new market opportunities, also tend to be successful exporters (IDB, 2001). The dynamism and performance of exports often explain the conditions under which firms operate and the difficulties they face. As most firms are price takers in international markets, gaining market share over a sustained period of time usually requires the achievement of competi-

tive advantage. In this sense, export performance is a good indicator of competitiveness.

Export performance can be measured in a number of ways. This chapter will use two of the most common approaches and indicators for measuring export competitiveness:

- The revealed comparative advantage (RCA) index, which measures relative export performance by country and industry or product, defined as a country's share of world exports of a good divided by its share of total world trade; and
- Dynamism of demand, measured by changes in the world market shares (WMS) of a given product over a certain period of time; the rate of growth over alternative periods; and the rate of growth in a product's share in world exports.

A detailed description of the calculation and interpretation of the various measures and indicators used in this chapter is provided in annex I.

Services activities contribute a major share to national output. For example, services value added contributed 71 per cent to Europe's GDP in 1999 and 67 per cent to Canada's (World Bank, 2001). While these figures are globally the highest, it can safely be said that the share of services value added increased between 1990 and 1999 in all regions. In 1999, it comprised 62 per cent of GDP in Latin America, 41 per cent in East Asia and 56 per cent in Sub-Saharan Africa. Hence, services activities are an increasingly important sector for economic development and growth.

At the same time, exports of services are becoming increasingly important. Between 1990 and 2000, world trade in services grew at an annual average rate of 6.6 per cent, which almost equals the rate for merchandise trade (6.8%). Growth rates in developing countries' services exports were particularly high, accounting for 10.1 per cent over the 10-year period, compared to 9.5 per cent annual growth in merchandise trade exports (table 31). The share of services in world exports amounted to 19.6 per cent in 1999. Developing countries also account for a growing share of world trade in services. While in 1990 their share in world exports amounted to 15.7 per cent, it had increased to 21.2 per cent by 2000. Over the same period, their share in

Box 27

Limited statistics on international trade in services

Statistics on merchandise trade are collected at the border and reflected in customs returns. These packaged goods are accompanied by detailed information regarding their content (including an international commodity code), quantity, value, origin and destination.

Data on international trade in services, on the other hand, are more difficult to define and collect. The main source of data on international trade in services is currently the International Monetary Fund (IMF) Balance of Payment statistics, which have some limits. For example, countries use different methods for collecting the data, such as surveys, government sources or simply estimates. The data may come from business accounting or be reported by individuals, and the reporting of major flows is often based on net items, such as premiums less claims in insurance transactions.

The international standard for classifying trade in services is currently the fifth edition of the IMF's Balance of Payment Manual (BPM5), which is usually highly aggregated, and disaggregation varies considerably among reporting countries. The OECD and Eurostat are making efforts to improve the quality of the data and have further disaggregated BPM5 in their Joint Classification. A new Manual on Statistics in International Trade in Services has been developed jointly by the United Nations, Eurostat, the IMF, the OECD, the WTO and UNCTAD, introducing the Extended Balance of Payment Services classification (EBOPS) to include the value of services provided through foreign affiliates established abroad (see www.oecd.org).

BPM5 captures mainly one mode of supply used in services trade, namely cross-border, and to some extent consumption abroad and movement of natural persons, whereas the "commercial presence" is not captured. Hence, the vast majority of trade reflected in the statistics is that between residents and non-residents of countries, whereas, for example, foreign affiliate trade in services is not documented (WTO, 2001a).

world imports increased from 20 per cent (1990) to 22.7 per cent (2000).

Given the limitations of currently available statistics on trade in services (box 27), the data on the services exports of developing countries presented in the following sections should be considered as approximations, describing trends rather than providing absolute figures.

C. Measuring export performance in the services sectors

This section will apply to services trade the methodologies previously applied to measuring competitiveness in merchandise trade. First, it will provide an overview of trade flows in international services trade. Then, it will identify dynamic export services, using the above definition, for both developed and developing countries. Next, it will identify ICT-related services, or e-services, among those services previously identified as dynamic. Finally, using the above-mentioned methodologies and indicators (RCA, world market shares, dynamic products), it will assess the countries' competitiveness in these e-services sectors. The data anal-

ysis will largely focus on developing countries, provided the data are available.

1. Services exports: global trends

Table 31 presents data on international trade in goods and services. On the export side, in 2000, developed countries accounted for 79 per cent of world exports in services and 72 per cent of exports in goods. However, their share in both goods and services exports is shrinking as developing countries are gaining international market share. The services exports of the latter grew at an annual average rate of more than 10 per cent between 1990 and 2000, and their merchandise exports at a rate of 9.5 per cent. Developed countries' exports, on the other hand, grew by only 5.9 per cent (merchandise exports) and 5.4 per cent (services exports) during the same period.

As far as imports are concerned, the developing countries' share in the world market is similar to their export share, 27 per cent in merchandise imports and 23.6 per cent in services imports. However, the developing countries' share has not increased as much in imports as in exports over the 10-year period; their annual growth rates for services imports are 7.9 per cent (compared to 10 per cent for exports) and for merchandise imports 8.7 per cent (compared to 9.5%

Table 31
World exports and imports in goods and services

	Merchandise						Services					
	World		Developed countries		Developing countries		World		Developed countries		Developing countries	
	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports	Exports	Imports
Value 2000 (\$ billions)	5 784	6 230	4 50	4 553	1 633	1 677	1 462	1 442	1 154	1 099	308	323
Share of world exports/ imports 2000 (%)	..	..	71.7	73.1	28.2	26.9	..	..	78.9	77.3	21.1	22.7
Value 1990 (\$ billions)	3 137	3 326	2 478	2 616	659	710	797	824	672	659	125	165
Share of world exports/ imports 1990 (%)	..	..	79.0	45.2	21.0	12.3	..	..	84.	14.5	15.7	3.6
1990-2000 annual growth rate	6.8	6.8	5.9	6.2	9.5	8.7	6.6	6.0	5.4	5.2	10.1	7.6
1995-2000 annual growth rate	3.6	4.0	2.8	4.7	5.9	2.4	3.9	3.6	3.7	3.8	5.5	3.5

Source: IMF Balance of Payments Statistics.

for exports). Based on this, we can conclude that developing countries' services exports account for the most dynamic changes in world trade in the past 10 years.

The main exporter of services is the United States, which accounted for 20 per cent of the global market in 2000 (see detailed table in annex II). It is followed by the United Kingdom, Germany, France and Japan, which combined account for almost half of all services exports. Among the developing countries, major services exporters are Hong Kong (China), China, the Republic of Korea, Singapore, Turkey and India. On the importing side, the United States, followed by Germany, Japan, the United Kingdom and France, dominate 44 per cent of the world market. The main developing-country services importers are China, the Republic of Korea, Hong Kong (China), Saudi Arabia, Singapore and India. In fact, developing Asia accounts for almost two-thirds of all developing-country services exports, whereas Africa's share is minimal, partly due to the scant statistics available from the region.

Table 32 shows services exports according to the major categories contained in the BPM5 classification. Travel, transportation and other business services⁴ constitute by far the most important services exports (75% of total trade in services) and also reflect the main services exports in developed countries. In developing countries, travel takes the largest share of exports, followed by other business services and transport services. The table also clearly shows the traditional distribution of services exports in the developing countries, which have very small market shares in

the newly emerging services such as royalties and license fees, computer and information services, and financial and insurance services, whereas they take 23 per cent of the world market in travel services. An interesting exception is the 20 per cent market share of the developing countries in communication services exports, a fairly recent development. This and other dynamic changes in services exports will be discussed in the following sections.

2. Dynamic export services

Exports experiencing above-average growth over a certain time period are considered "dynamic" (see annex I). Table 33 presents average annual growth rates for different types of services exports for the period 1990-2000 and 1995-2000.⁵ For all services exports, these were 6.6 per cent (10 years) and 4 per cent (five years). Based on these averages and the above definition, the following services can be considered to have been dynamic at the global level during the 10-year period (annual growth rates in parentheses):

- Computer-related services⁶ (31%)
- Personal, cultural and recreational services⁷ (20%)
- Communication services⁸ (15%)
- Financial services (10.6%)
- Royalties and license fees⁹ (10.4%)
- Construction services (8.8%).

Table 32
Services exports by major category, 2000

	World	Developing countries		Developed countries		World (AGR)		Developing C.		Developed C.	
	(US\$'000)	(US\$'000)	Market share (%)	(US\$'000)	Market share (%)	10 Years	5 Years	10 Years	5 Years	10 Years	5 Years
Transportation	313 810 084	51 651 558	16.5	262 158 526	83.5	5.1	1.9	5.9	1.2	4.9	2.1
Travel	442 002 946	102 290 473	23.1	339 712 473	76.9	6.3	2.6	8.5	2.9	5.7	2.5
Communication services	28 955 934	5 832 095	20.1	23 123 839	79.9	14.8	5.1	23.2	1.3	13.4	6.1
Construction services	29 039 749	2 402 103	8.3	26 637 647	91.7	8.8	-2.9	17.0	4.4	8.2	-3.5
Insurance services	28 181 323	4 503 820	16.0	23 677 503	84.0	5.4	3.7	6.2	4.6	5.3	3.7
Financial services	79 531 818	2 290 594	2.9	77 241 225	97.1	10.6	13.0	41.1	10.0	10.3	13.1
Computer and information services	30 758 896	811 463	2.6	29 947 433	97.4	31.3	25.6	58.4	45.3	31.1	25.3
Royalties and license fees	72 375 424	1 513 862	2.1	70 861 562	97.9	10.4	5.9	19.6	16.1	10.3	5.7
Other business services	320 998 468	68 813 436	21.4	252 185 032	78.6	6.2	2.4	9.4	-0.5	5.3	3.3
Personal, cultural and recreational services	20 009 693	3 289 496	16.4	16 720 198	83.6	19.7	15.3	53.4	15.5	18.7	15.7
Government services	40 952 452	7 000 529	17.1	33 951 923	82.9	-1.0	-2.3	-0.4	0.2	-1.1	-2.8
SERVICES	1 450 649 731	294 431 941	20.3	1 156 217 790	79.7	6.6	4.0	10.2	5.7	5.8	3.6

Source: IMF Balance of Payments Statistics.

At the five-year level, the same types of services can be identified as dynamic, with the exception of construction services, which experienced negative growth between 1995 and 2000. Overall, export growth slowed during the five-year period, with the exception of financial services exports, which grew at an annual rate of 13 per cent, compared to 10.6 per cent over the 10-year period.

A comparison of developing and developed countries' growth rates for different types of services exports reveals that the developing countries' services growth rates were higher than the world average for all of the dynamic services, and particularly high for three services: computer and information services (58%), personal, cultural and recreational services (53%) and financial services (41%). It is important to keep in mind, though, that the global market shares of developing countries in computer and financial services trade are still very low (less than 3% respectively).

In order to account for high growth rates resulting from a low initial base, growth rates of *shares* in world services exports were considered. As a result, all of the dynamic services saw their shares in world exports increase during the 10-year period, whereas all of the non-dynamic services (i.e. those with below-average value growth rates) saw their shares in the world export market decrease (table 33). Hence, the growth rates of shares confirm the dynamic services identified

based on value growth rates. They also confirm that computer-related services are by far the most dynamic export service: this sector gained 23.3 per cent market share between 1990 and 2000.

3. E-services and export competitiveness

Box 28 compares those services that can be easily provided electronically, and are thus most affected by ICT and e-commerce, with those previously identified as "dynamic" export services.¹⁰

Except for construction services, all of the dynamic services are ones that can easily be provided electronically. Hence one can safely conclude that, except for insurance services¹¹ and other business services,¹² all services that can be provided electronically – so-called "e-services" – are also dynamic export services. This supports the notion that e-commerce and ICT have an important role to play in changing the pattern of international trade in services.

Which countries have a comparative advantage in the export of e-services? Which countries are gaining ground in the international markets for dynamic services? To answer the first question, the following discussion will first present a calculation of the revealed comparative advantage (RCA) index. Then, to address

Table 33
Growth rate of selected service products' share in world export

Service Category	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	10-year growth
Transportation	25.0	25.1	23.9	23.6	24.0	23.7	22.7	22.4	22.1	21.9	22.3	-1.4
Travel	32.9	31.3	32.1	32.2	32.2	32.3	32.5	31.6	31.5	31.9	31.4	-0.2
Communication services	1.0	1.2	1.3	1.3	1.6	1.9	2.0	2.0	2.2	2.1	2.1	7.8
Construction services	1.6	2.2	2.5	2.5	2.6	2.9	2.8	2.9	2.9	2.5	2.1	2.1
Insurance services	2.1	2.0	2.2	2.4	2.1	2.0	2.0	1.9	2.0	2.1	2.0	-1.0
Financial services	3.6	3.5	4.3	3.9	3.4	3.6	3.9	4.2	4.5	5.1	5.7	3.9
Computer and information services	0.3	0.5	0.4	0.5	0.6	0.9	1.1	1.3	2.0	2.2	2.2	23.3
Royalties and license fees	3.6	3.8	3.9	4.1	4.6	4.6	4.7	4.7	4.9	5.1	5.1	3.6
Other business services	23.4	24.4	23.5	23.7	23.9	23.3	23.9	24.6	23.3	22.9	22.8	-0.3
Personal, cultural and recreational services	0.4	0.4	0.7	0.7	0.8	0.9	0.8	1.0	1.3	1.3	1.4	12.4
Government services	6.0	5.7	5.1	4.9	4.2	3.9	3.7	3.4	3.5	3.1	2.9	-7.0

Source: IMF Balance of Payments Statistics.

the second question, it will look at changes in countries' world market shares (WMS) during the five-year period to identify which countries have improved their export competitiveness in dynamic e-services. The services categories focused on include communication, financial, computer, royalties and license fees and personal, cultural and recreational services.

4. Revealed comparative advantage in e-services exports

Table 34 shows developing and developed countries' RCA indices for each of the identified e-service sectors. According to the definition provided earlier (see annex I for details), an RCA of greater than one indicates a region's (country's) specialization or compara-

tive advantage in exporting a particular service.¹³ Interestingly, developing countries (as a group) have a comparative advantage in exporting communication services, whereas developed countries have a comparative advantage in all the other selected services. This also reflects the rapid growth that communication services exports have experienced in the developing countries during the 10-year period (23%). A closer look at the five-year period reveals that in both insurance services and personal, cultural and recreational services, developing countries have an index very close to one, and in some years their RCA was even greater than one. Hence, in these services they are close to gaining comparative advantage, whereas in others, such as computer-related services and royalties, they (as a group) have no comparative advantage.

Box 28

Dynamic e-services

The following e-services saw above-average export growth rates during the 1990-2000 period:

<i>Communication services</i>	<i>dynamic</i>
Insurance services	--
<i>Financial services</i>	<i>dynamic</i>
<i>Computer-related services</i>	<i>dynamic</i>
<i>Royalties and license fees</i>	<i>dynamic</i>
Other business services	--
<i>Personal, cultural and recreational services</i>	<i>dynamic</i>

Table 34
RCA by service sector for developing and developed countries

	1995	1996	1997	1998	1999	2000
Communication services						
Developed countries	0.94	0.95	0.97	0.98	0.98	0.98
Developing countries	1.25	1.22	1.11	1.07	1.07	1.07
Insurance services						
Developed countries	0.98	1.07	1.11	1.03	1.04	1.02
Developing countries	1.07	0.69	0.57	0.85	0.83	0.93
Financial services						
Developed countries	1.19	1.20	1.21	1.19	1.19	1.20
Developing countries	0.21	0.15	0.14	0.17	0.18	0.16
Computer and information services						
Developed countries	1.22	1.22	1.23	1.21	1.20	1.21
Developing countries	0.06	0.04	0.07	0.06	0.1	0.12
Royalties and license fees						
Developed countries	1.22	1.22	1.23	1.20	1.20	1.21
Developing countries	0.07	0.08	0.09	0.09	0.1	0.11
Personal, cultural and recreational services						
Developed countries	0.96	1.11	1.02	0.94	1.00	1.03
Developing countries	1.18	0.55	0.93	1.25	0.98	0.89

Source: IMF Balance of Payment Statistics

Since these figures look only at two very large groupings (developed and developing countries) and do not provide much information on individual countries' comparative advantage in the export of specific services, table 35 provides the RCA index for the year 2000 by country, as well as RCA trend growth rates during the 1995-2000 period.¹⁴ Growth rates of RCA indices demonstrate whether a country has gained or lost comparative advantage in exporting a service over the five-year period. The following can be observed.

First, countries with RCA indices of >1 and positive RCA growth rates are the most competitive in the sector and are discussed separately below. Some countries have low RCA indices but (high) positive growth rates, meaning that they are gaining competitive advantage. Others have RCA indices of >1 but (high) negative growth rates, meaning that they are losing competitiveness. The least competitive countries are those with both RCA indices <1 and (high) negative growth rates.

Second, few developing countries have a comparative advantage in more than one sector. Exceptions include Mexico (communications and personal, cultural and

recreational services), Panama (financial and computer services), Ecuador (communications and personal, cultural and recreational services, but a strong negative trend), and Costa Rica (communications and computer services).

Third, it is important to keep in mind that some countries (mainly from the developing world) do not report in certain services subcategories and hence are not considered here.

Since this chapter aims to identify those developing countries which have gained comparative advantage in e-services exports, Table 36 lists all countries with RCA indices of > 1 and positive RCA growth rates over the five-year period. While in most of the services categories the developed countries clearly dominate, the communications services category includes many developing countries. As was pointed out earlier, developing countries' exports in communications services have grown strongly during the past decade, and, as this table demonstrates, many developing countries have specialized in the export of this service.

Another case worthwhile mentioning is that of the Eastern European countries, including Bulgaria, the

Table 35
RCA indices and growth rates by country

Country	COMMUNICATION SERVICES		FINANCIAL SERVICES		COMPUTER AND INFORMATION SERVICES		ROYALTIES AND LICENSE FEES		PERSONAL, CULTURAL AND RECREATIONAL SERVICES	
	RCA 2000	RCA 5-yr growth (%)	RCA 2000	RCA 5-yr growth (%)	RCA 2000	RCA 5-yr growth (%)	RCA 2000	RCA 5-yr growth (%)	RCA 2000	RCA 5-yr growth (%)
Albania	2.14	-8.14	0.04	-43.60	0.04	-22.49	..	..	..	..
Angola	..	..	..	..	..	..	0.3 *	-28.4 *	..	..
Anguilla	..	..	0.40	..	0.40	..	..	..	..	..
Antigua and Barbuda	..	..	0.24	..	0.24	..	..	..	..	..
Argentina	1.45	-22.18	0.03	-15.02	0.03	21.99	0.1	-0.2	0.08	-13.06
Aruba	0.22	4.10	0.10	-27.97	0.10	-21.01 #	..	..	..	..
Australia	2.43	4.06	0.47	-7.63	0.47	5.71	0.4	4.2	3.36	16.57
Austria	0.78	10.38	0.87	6.74	0.87	-7.08	0.1	-3.2	0.47	-4.43
Bangladesh	1.32	-10.54 #	0.32	-8.4 #	0.32	17.25 #	0.0	..	0.05	20.96 #
Barbados	1.30	-3.07	1.35 *	-3.93 *	0.73 *	-25.45 *	0.0	..	0.02 *	-1.5 *
Belgium+Luxembourg	2.13	6.15	3.31	0.53	3.31	-15.01	0.4	-1.4	1.04	-0.37
Belize	1.94	-13.76	..	..	..	..	..	..	..	..
Benin	2.08	77.24	0.63	-6.90	0.63	..	..	..	0.00	..
Bolivia	7.92	-16.5 #	0.40	6.74 #	0.40	..	0.1	..	0.36	..
Botswana	0.10	125.63 #	0.05	-42.1 #	0.05	..	..	..	..	..
Brazil	0.19	-25.22	0.79	-26.20	0.79	-19.64	0.3	13.3	0.49	-17.60
Bulgaria	1.04	3.7 #	0.12	-57.25 #	0.12	..	0.0	..	0.75	..
Cambodia	7.54	-1.27	..	..	..	..	..	..	..	..
Canada	1.64	-7.53	0.66	-2.22	0.66	-15.49	0.7	15.4	2.42	-6.66
Cape Verde	2.15	-17.99	..	..	..	..	..	..	..	..
Chile	2.60	-1.01	..	..	..	..	0.5	75.3	..	..
China	2.22	7.24	0.05	35.19 #	0.05	29.49 #	0.1	3.0 #	0.03	-18.09 #
Colombia	4.42	-11.87	0.71	-13.70	0.71	-11.08	0.0	64.4 #	0.80	27.26
Costa Rica	3.05	-2.56	0.27	97.75	1.59	919.66 #	0.0	-27.3	..	..
Côte d'Ivoire	4.11	61.97	0.85	-13.13	0.85	-29.22 #	0.0	-6.4	..	..
Cyprus	0.43	14.57	..	..	..	..	..	..	0.01	..
Czech Republic	0.91	-9.27	1.10	29.88	1.10	38.22	0.1	19.6	2.05	16.67
Dominica	..	..	0.20	..	0.20	..	0.0	..	..	..
Dominican Republic	2.16	-19.64	..	..	..	..	..	..	..	..
Ecuador	3.60	-10.30	..	..	..	..	..	..	3.36	-7.02
Egypt	1.57	3.75	0.10	-9.74	0.10	56.06	0.1	-2.0	0.11	29.85
El Salvador	6.42	-10.01	0.20	-12.56 #	0.20	..	0.1	..	0.07	..
Estonia	0.69	-2.36	0.14	3.90	0.14	14.51	0.0	-2.9	0.04	5.34
Ethiopia	1.76	-10.44	0.14	-3.11	0.14	11.90	..	..	0.21	153.89 #
Fiji	0.52	16.85	..	..	..	..	..	..	..	..
Finland	1.68	5.57	0.08	-36.30	0.08	-0.98	3.7	89.2	0.04	-54.32
France	0.81	22.20	0.30	-18.11	0.30	-1.76	0.6	1.9	1.42	-5.05
Gabon	0.28	-8.74	..	..	..	..	..	..	3.25	-2.76
Germany	0.86	-7.44	0.96	2.93	0.96	0.00	0.7	-4.7	0.18	-8.99
Greece	0.67	11.50	0.11	-50.21	0.11	-47.23	0.0	..	0.94	-14.16
Grenada	..	..	0.92	11.59 #	0.92	..	..	..	..	..
Guatemala	0.02	-76.85	0.12	-35.99	0.12	-8.59	..	..	..	..

Table 35 (continued)

Country	COMMUNICATION SERVICES		FINANCIAL SERVICES		COMPUTER AND INFORMATION SERVICES		ROYALTIES AND LICENSE FEES		PERSONAL, CULTURAL AND RECREATIONAL SERVICES	
	RCA 2000	RCA 5-yr growth (%)	RCA 2000	RCA 5-yr growth (%)	RCA 2000	RCA 5-yr growth (%)	RCA 2000	RCA 5-yr growth (%)	RCA 2000	RCA 5-yr growth (%)
Honduras	10.16	-9.32	0.00	..	0.00	..	..	..	..	..
Hungary	0.55	10.84	0.46	-10.53	0.46	-12.5 #	0.4	15.0	2.42	24.26 #
Iceland	0.49	-25.28	..	..	0.00	-8.04 #	..	..	0.76	16.47
India	..	..	..	..	..	..	0.1	59.6	..	..
Indonesia	0.83	-11.45	..	..	..	..	..	..	..	..
Ireland	0.98	9.47	2.43	27.58	2.43	79.79	0.6	2.7	0.71	-4.44
Israel	0.59	-28.85	..	..	..	..	0.7	9.8	..	..
Italy	1.14	33.29	0.15	-38.28	0.15	3.49	0.2	6.3	0.71	-0.18
Jamaica	5.18	-0.97	0.12	3.83	0.12	-16.86	0.1	2.5	0.35	-7.73
Japan	0.60	0.81	0.81	24.19	0.81	-13.08 #	2.9	7.8	0.12	-6.64
Kenya	1.14	-12.21	0.00	..	0.00	..	0.1	-13.7	0.00	..
Korea, Republic of	0.65	-14.12	0.47	30.20	0.47	-14.46	0.5	13.5	0.34	155.36 #
Lao People's Dem. Rep.	0.18	-2.03	..	..	..	..	..	..	..	..
Latvia	1.91	26.98	0.56	-4.78	0.56	93.06	0.0	164.8 #	0.05	51.61
Lithuania	1.67	-8.00	0.06	-11.16	0.06	95.28	0.0	-70 #	0.78	55.93 #
Madagascar	0.89	0.61	0.05	-21.99 #	0.05	..	0.0	-16.4	0.02	..
Maldives	..	..	..	..	..	..	0.2	9.7	..	..
Malta	0.94	2.03	..	..	..	..	..	..	..	..
Mexico	4.42	0.57	..	..	..	..	0.1	-26.5	1.74	120.08
Moldova, Republic of	4.41	28.01	0.22	-28.31	0.22	13.51	0.1	..	0.13	..
Morocco	1.88	10.57	..	..	..	..	0.2	36.6	..	..
Myanmar	0.02	..	..	..	..	..	0.0	..	..	..
Namibia	0.75	-12.76	0.44	3.81	0.44	-16.39	0.4	113.7	..	..
Netherlands	1.34	16.17	0.29	3.33	0.29	-7.25	0.8	-5.7	0.76	-9.01
New Zealand	2.11	..	0.19	11.77	0.19	10.89	0.2	38.9	0.70	6.83
Nicaragua	4.19	-15.67	..	..	..	..	..	..	..	..
Norway	0.95	8.61	0.07	-6.50	0.07	-12.72	0.2	-2.8	0.51	-9.43
Oman	6.44	2 #	..	..	..	..	..	..	..	..
Panama	0.92	-3.76	1.51	8.11	1.51	..	..	..	..	..
Paraguay	0.98	-5.29	0.21	-11.53	0.21	1.77	6.7	5.4	..	..
Peru	2.71	-20.11	..	..	..	..	0.0	..	..	..
Philippines	2.19	..	0.38	..	0.38	..	0.0	..	0.75	..
Poland	1.13	-1.81	0.20	-12.37	0.20	7.28	0.1	33.9	0.36	7.05
Portugal	1.05	-14.80	0.57	-9.17	0.57	-6.93	0.0	1.1	1.17	-7.42
Romania	4.12	12.29	1.23	-1.10	1.23	58.08	0.0	-9.6 #	3.15	0.74
Russian Federation	2.01	-1.39	0.20	3.56	0.20	..	0.2	36.0	..	..
Saint Kitts and Nevis	..	..	1.40	..	1.40	..	..	..	..	..
Saint Vincent and the Grenadines	..	..	2.32	24.46 #	2.32	..	..	..	..	..
Senegal	..	..	..	..	..	..	0.1	54.8	..	..
Slovakia	1.15	-13.30	0.32	-27.09	0.32	32.83 #	0.1	2.5	1.77	10.69 #
Slovenia	0.66	18.02	0.08	-7.60	0.08	11.49	0.1	20.5	0.53	11.64
South Africa	0.56	-0.98	..	..	..	..	0.2	1.4	..	..

Table 35 (concluded)

Country	COMMUNICATION SERVICES		FINANCIAL SERVICES		COMPUTER AND INFORMATION SERVICES		ROYALTIES AND LICENSE FEES		PERSONAL, CULTURAL AND RECREATIONAL SERVICES	
	RCA 2000	RCA 5-yr growth (%)	RCA 2000	RCA 5-yr growth (%)	RCA 2000	RCA 5-yr growth (%)	RCA 2000	RCA 5-yr growth (%)	RCA 2000	RCA 5-yr growth (%)
Spain	0.63	-4.96	0.51	4.46	0.51	-9.95	0.1	6.8	0.73	2.77
Swaziland	1.10	4.18	..	..	..	-44.11	0.1	1.7		
Sweden	1.60	-14.05	0.67	4.45	0.67	34.03	1.2	0.9	0.41	-4.78
Switzerland	1.61	10.31	6.20	-0.16	6.20	..	..	..	0.02	-21.55
Thailand	0.48	-8.42	..	..	..	..	0.0	36.7		
The former Yugoslav Republic of Macedonia	6.45	1.88 #	0.12	-37.98 #	0.12	-10.79	0.2	6.3 #	0.34	-34.38 #
Tunisia	0.22	-14.33	0.24	-1.46	0.24	25.42	0.1	68.4	0.08	-8.85
Turkey			0.41	-0.94	0.41	..	..	..	9.72	-4.31
Ukraine	1.17	-13.79	0.11	-26.29	0.11	..	0.0	..	0.06	..
United Kingdom	1.07	0.92	3.08	-1.30	3.08	-3.97	1.2	-5.4	1.06	-8.27
United Republic of Tanzania	2.18	4.77	0.66	2.27 #	0.66	..	0.0	-60.5 #	0.02	..
United States	0.71	-2.51	1.15	5.02	1.15	-9.11	2.6	-3.1	1.62	4.62
Uruguay	1.16	-13.54	0.92	-4.1 #	0.92	..	0.0	..	0.01	..
Venezuela	0.45	-17.40	..	..	..	..	..	..	..	..
Yemen	16.58	-2.40	..	..	..	..	..	..	..	..

Source: UNCTAD calculation based on IMF Balance-of-Payment Statistics.

Notes: # 3- or 4-year data.

* Year 2000 data estimate.

Czech Republic, Hungary, Latvia, Macedonia, Romania and Slovakia, all of which appear in this most dynamic and competitive group of services exporters.

Finally, it should be noted that many developing countries, while not yet having a comparative advantage in exporting e-services, showed positive RCA growth rates during the five-year period, indicating that they are gaining comparative advantage. Some of them are likely to join the most dynamic group of e-services exporters within a few years.

5. Changes in world market shares

While the RCA index provides information about a country's comparative advantage in exporting a certain product (and changes in the index indicate whether a country gained or lost comparative advantage), the calculation of WMS indices allows the identification of countries that have gained world market shares in the export of specific services during a certain time period. Hence, while the RCA considers only the country's exports and its degree of specialization, the

WMS places these exports in the context of the world market. An increase or decrease in WMS thus indicates whether a country is becoming more or less competitive at the global level.

Table 37 provides the average WMS index over the five-year period, by country and service sector. Recalling the definition of the WMS index and the formula used for its calculation (see annex I), an index of 1 indicates no change in WMS, an index of >1 indicates an increase in WMS and an index of <1 indicates a decrease in WMS. Again, a change in the WMS index as measured here does not reflect the actual percentage share of a country's export product in the world market, but only the factor by which this share has changed. In other words, a country with a very small share in world exports could have a positive or high average WMS index over the five-year period. The purpose of this exercise is not to show which countries are the main exporters but to identify those that gained market share and thus increased their competitiveness.

Table 36
Countries with RCA indices >1 and positive growth rates

COMMUNICATION SERVICES	FINANCIAL SERVICES	COMPUTER AND INFORMATION SERVICES	ROYALTIES AND LICENSE FEES	PERSONAL, CULTURAL AND RECREATIONAL SERVICES
Australia	Belgium and Luxembourg	Costa Rica	Finland	Australia
Belgium and Luxembourg	Czech Republic	Czech Republic	Japan	Czech Republic
Benin	Ireland	Ireland	Paraguay	Hungary
Bulgaria	Panama	Romania	Sweden	Mexico
China	Saint Vincent and the Grenadines			Romania
Côte d'Ivoire	United States			Slovakia
Egypt				United States
Finland				
Italy				
Latvia				
Mexico				
Moldova, Republic of				
Morocco				
Netherlands				
Oman				
Romania				
Swaziland				
Switzerland				
The former Yugoslav Republic of Macedonia				
United Kingdom				
United Republic of Tanzania				

To complement the WMS index indicator, Table 37 also shows the average percentage increases in actual world market shares, measured as a country's share of an export product in the global market for this product.

Many developing countries have WMS indices of > 1 (five-year average), meaning that they have gained WMS in the export of e-services. A number of developing countries have experienced double-digit growth rates in world market share, notably Moldova and Côte d'Ivoire (communications services), China and Costa Rica (financial services), Costa Rica and Egypt (computer services), Chile and Tunisia (royalty services) and Mexico and Ethiopia (personal and cultural services, especially audiovisual services).

As in the earlier analysis of the RCA, the most dynamic countries (i.e. those with average WMS >1 and positive WMS trend growth between 1995 and

2000) have been selected (Table 38). These countries have been the most successful in increasing their WMS in the export of e-services and thus have become more competitive. They include many developing countries, which in particular account for 50 per cent of communications and financial services exports and about 40 per cent of royalty services exports. Also noteworthy is the dominance of the Eastern European countries, many of which have successfully increased their WMS in the export of e-services.

6. Combining comparative advantage and world market shares: identifying the most dynamic e-services exporters

So far this chapter has focused on countries' performance in exporting dynamic e-services as measured by comparative advantage or world market share. The next and final step in the analysis will be to compare

Table 37
WMS 5-year average and growth rates by country

Country	COMMUNICATION SERVICES		FINANCIAL SERVICES		COMPUTER AND INFO SERVICES		ROYALTIES AND LICENSE FEES		PERSONAL, CULTURAL AND REC. SERVICES	
	WMS 5-yr average	WMS 5-yr growth (%)	WMS 5-yr average	WMS 5-yr growth (%)	WMS 5-yr average	WMS 5-yr growth (%)	WMS 5-yr average	WMS 5-yr growth (%)	WMS 5-yr average	WMS 5-yr growth (%)
Albania	1.19	18.41	1.16	-27.30	1.05	-0.09	..	..	..	..
Angola	..	..	..	..	..	..	0.98 *	-30.78 *	..	..
Argentina	0.80	-22.28	0.91	-15.13	1.29	21.83	0.98	-0.30	1.11	-13.17
Aruba	1.15	10.25	2.39	-23.72	1.04 #	-17.02 #	..	..	..	..
Australia	1.02	1.49	0.91	-9.91	1.07	3.10	1.03	1.59	1.38	13.69
Austria	1.05	5.02	1.07	1.56	0.91	-11.59	1.03	-7.89	0.94	-9.07
Bangladesh	1.01 #	-6.57 #	0.97 #	-4.33 #	1.57 #	22.46 #	..	..	1.55 #	26.33 #
Barbados	0.98	-2.36	1 *	-3.23 *	0.79 *	-24.91 *	..	..	1.95 *	-0.61 *
Belgium+Luxembourg	1.09	7.65	1.01	1.95	0.88	-13.81	1.00	0.03	1.04	1.03
Belize	0.94	-12.23	..	..	..	..	..	..	..	..
Benin	9.69	75.89	1.01	-7.60	..	..	..	..	0.39 * #	-69.18 * #
Bolivia	0.79 #	-20.95 #	1.01 #	1.05 #	..	..	..	..	..	..
Botswana	6.13 #	175.1 #	1 #	-29.4 #	..	..	..	..	..	..
Brazil	1.76	-19.71	0.81	-20.76	1.23	-13.72	1.32	21.65	1.09	-11.52
Bulgaria	1.19 #	16.6 #	0.5 #	-51.93 #	..	..	..	..	..	..
Cambodia	1.04	-1.92	..	..	..	..	..	..	..	..
Canada	0.95	-4.40	1.03	1.09	0.88	-12.63	1.29	19.35	0.99	-3.50
Cape Verde	0.87	-13.55	..	..	..	..	..	..	..	..
Chile	0.98	-1.71	..	..	..	..	6.94	74.01	..	..
China	1.38	13.02	1.71 #	41.4 #	1.35 #	35.44 #	1.07 #	7.77 #	1.02 #	-14.32 #
Colombia	0.89	-13.89	0.83	-15.68	0.87	-13.12	1.65 #	35.93 #	1.55	24.34
Costa Rica	1.08	5.64	6.81	114.38	37.81	1'028.90	1.59	-21.14	..	..
Côte d'Ivoire	2.57	52.94	0.82	-17.97	0.67 #	-34.65 #	0.88	-11.60	..	..
Cyprus	1.11	12.99	..	..	..	..	..	..	..	..
Czech Republic	0.94	-13.39	1.39	23.98	1.76	31.94	1.40	14.12	1.15	11.37
Dominican Republic	0.86	-14.39	..	..	..	..	..	..	..	..
Ecuador	0.90	-10.87	..	..	..	..	..	..	1.18	-7.61
Egypt	1.04	2.01	0.89	-11.26	1.89	53.45	1.00	-3.66	1.58	27.67
El Salvador	1.00	-1.86	0.98 #	-3.69 #	..	..	..	..	..	..
Estonia	1.06	4.88	1.68	11.60	1.30	23.00	1.08	4.29	1.20	13.15
Ethiopia	0.93	-6.47	1.27	1.18	1.21	16.86	..	..	25.63 #	166.77 #
Fiji	1.53	9.87	..	..	..	..	..	..	..	..
Finland	0.99	-1.56	0.65	-40.60	0.95	-7.67	2.18	76.41	0.60	-57.40
France	1.18	17.70	0.78	-21.13	0.96	-5.39	0.99	-1.89	0.96	-8.55
Gabon	2.71	-6.48	..	..	..	..	..	..	1.06	-0.35
Germany	0.90	-10.10	0.99	-0.03	1.00	-2.87	0.93	-7.47	0.92	-11.60
Greece	1.35	25.65	0.76	-43.88	0.91	-40.53	..	..	2.91	-3.26
Grenada	..	..	1.24 #	23.23 #	..	..	..	..	..	..
Guatemala	0.70	-76.48	0.84	-34.97	1.15	-7.13	..	..	..	..
Honduras	1.05	0.46	..	..	..	..	..	..	..	..
Hungary	1.11	9.64	1.07	-11.50	0.94 #	-14.33 #	1.37	13.78	1.3 #	21.66 #
Iceland	0.84	-21.68	..	..	1.06 #	-3.83 #	..	..	1.32	22.07

Table 37 (continued)

Country	COMMUNICATION SERVICES		FINANCIAL SERVICES		COMPUTER AND INFO SERVICES		ROYALTIES AND LICENSE FEES		PERSONAL, CULTURAL AND REC. SERVICES	
	WMS 5-yr average	WMS 5-yr growth (%)	WMS 5-yr average	WMS 5-yr growth (%)	WMS 5-yr average	WMS 5-yr growth (%)	WMS 5-yr average	WMS 5-yr growth (%)	WMS 5-yr average	WMS 5-yr growth (%)
Indonesia	1.06	-18.62	..	..	..	..	..	..	..	..
Ireland	1.52	40.90	1.90	64.21	5.84	131.40	1.31	32.14	1.32	22.99
Israel	0.81	-22.65	..	..	..	..	1.26	19.36	..	..
Italy	1.33	25.99	0.72	-41.66	1.00	-2.18	1.00	0.45	0.97	-5.65
Jamaica	1.03	0.97	1.05	5.86	0.86	-15.23	1.07	4.50	0.95	-5.93
Japan	1.20	-2.88	2.34	19.64	0.89 #	-16.23 #	1.05	3.81	0.97	-10.06
Kenya	0.83	-16.06	..	..	..	..	1.96	-17.49	..	..
Korea, Republic of	0.90	-12.94	1.44	32.00	1.13	-13.28	1.19	15.10	2.8 #	158.32 #
Lao People's Dem. Rep.	1.04	4.36	..	..	..	..	..	..	..	..
Latvia	1.88	31.45	1.08	-1.43	3.20	99.85	3.77 #	160.97 #	8.21	56.94
Lithuania	1.08	2.36	1.23	-1.16	7.09	117.26	0.57 #	-70.7 #	3.39 #	52.47 #
Madagascar	1.06	4.23	0.86 #	-16.29 #	..	..	1.01	-13.37	..	..
Maldives	..	..	..	..	..	..	1.30	14.18	..	..
Malta	1.04	0.66	..	..	..	..	..	..	..	..
Mexico	1.04	2.90	..	..	..	..	0.85	-24.80	11.00	125.18
Moldova, Republic of	1.27	28.34	1.30	-28.13	1.27	13.80	..	..	..	..
Morocco	1.15	13.78	..	..	..	..	2.16	40.52	..	..
Myanmar	..	..	..	..	..	..	..	..	..	..
Namibia	0.89	-12.18	1.40	4.51	0.90	-15.83	47.20	115.10	..	..
Netherlands	1.15	15.55	1.05	2.78	0.92	-7.74	0.93	-6.25	0.93	-9.49
New Zealand	..	..	1.12	6.38	1.08	5.54	1.33	32.18	1.03	1.68
Nicaragua	0.96	-4.81	..	..	..	..	..	..	..	..
Norway	1.05	6.58	0.96	-8.25	0.91	-14.36	1.06	-4.61	0.97	-11.13
Oman	1.18 #	2.97 #	..	..	..	..	..	..	..	..
Panama	0.97	-3.30	1.08	8.63	..	..	..	..	..	..
Paraguay	0.93	-8.86	0.95	-14.86	1.04	-2.06	1.02	1.41	..	..
Peru	0.83	-17.99	..	..	..	..	..	..	..	..
Poland	0.93	-6.14	0.91	-16.24	1.23	2.54	1.94	28.01	1.07	2.32
Portugal	0.85	-16.61	0.90	-11.10	0.93	-8.91	1.02	-1.03	0.92	-9.39
Romania	1.13	9.21	1.22	-3.82	1.61	53.74	..	-9.51 #	1.03	-2.02
Russian Federation	0.92	-9.28	1.00	-4.73	..	..	8.22	25.16	..	..
Saint Vincent and the Grenadines	..	..	1.31 #	30.62 #	..	..	..	..	..	..
Senegal	1.07 * #	5.14 * #	2.08 * #	101.79 * #	..	..	17.33	46.52	..	..
Slovakia	1.00	-17.35	0.72	-30.50	1.3 #	29.49 #	1.05	-2.26	1.16 #	7.91 #
Slovenia	1.12	11.77	0.90	-12.49	1.15	5.59	1.22	14.16	1.12	5.73
South Africa	1.06	-2.89	..	..	..	..	1.02	-0.53	..	..
Spain	1.00	-2.48	1.06	7.18	0.93	-7.61	1.10	9.55	1.06	5.45
Swaziland	0.91	-9.38	..	..	0.87	-51.38	0.88	-11.55	..	..
Sweden	0.97	-12.53	1.43	6.30	1.44	36.39	1.02	2.67	1.39	-3.11
Switzerland	1.07	7.96	0.97	-2.29	..	..	..	..	0.84	-23.22
Thailand	0.89	-13.88	..	..	..	..	8.66	28.53	..	..

Table 37 (concluded)

Country	COMMUNICATION SERVICES		FINANCIAL SERVICES		COMPUTER AND INFO SERVICES		ROYALTIES AND LICENSE FEES		PERSONAL, CULTURAL AND REC. SERVICES	
	WMS 5-yr average	WMS 5-yr growth (%)	WMS 5-yr average	WMS 5-yr growth (%)	WMS 5-yr average	WMS 5-yr growth (%)	WMS 5-yr average	WMS 5-yr growth (%)	WMS 5-yr average	WMS 5-yr growth (%)
The former Yugoslav Republic of Macedonia	1.22 #	21.07 #	0.98 #	-26.29 #	1.36 #	6.01 #	1.35 #	26.33 #	0.85 #	-22.02 #
Togo	1.23 * #	1.18 * #	1.41 * #	37.04 * #	..	..	..	..	..	..
Tunisia	0.84	-15.12	0.99	-2.37	1.36	24.25	2.88	66.82	1.03	-9.70
Turkey			1.07	2.31	..	..	..	..	1.03	-1.17
Ukraine	0.84	-15.28	0.77	-27.57	..	..	..	..	..	..
United Kingdom	1.05	5.97	1.04	3.63	1.01	0.83	0.98	-0.69	0.97	-3.68
United Republic of Tanzania	1.08	2.64	1.02 #	1.96 #	..	..	0.42 #	-58.51 #	..	..
United States	1.00	-0.61	1.06	7.07	0.94	-7.34	0.99	-1.20	1.07	6.67
Uruguay	0.82	-17.38	0.96 #	-8.53 #	..	..	..	..	..	..
Venezuela	0.81	-24.73	..	..	..	..	..	..	..	..
Yemen	1.22	-5.11	..	..	..	..	..	..	..	..

Source: UNCTAD calculation based on IMF Balance-of-Payment Statistics.

Notes: # 3- or 4-year data.

* Year 2000 data estimate.

and combine these two indices of export competitiveness. This will allow the ranking of countries' competitiveness as far as their exports of e-services are concerned. Accordingly, those that have gained market share and comparative advantage *and* have values of > 1 for both RCA and (average) WMS indices are the most dynamic and competitive countries for a particular export sector (see table 39). By contrast, those that have lost market share and comparative advantage *and* have values < 1 for both RCA and (average) WMS indices are the least dynamic and least competitive countries for a particular export sector. Most countries, in fact, are somewhere in between, meaning that they are gaining market share or competitiveness but have no revealed comparative advantage (yet), or that they have a declining revealed comparative advantage or are losing market share, or any other combination of the indices provided and discussed in this analysis.

Table 39 lists those countries that are characterized by the optimal combination of all indicators considered here. Accordingly, the countries listed under the specific services category are those that in this particular e-service sector possess a combination of the following indicators: an RCA index of >1, positive RCA growth rates over the five-year period, an average WMS index of >1 and positive WMS growth between

1995 and 2000. These are the "rising stars", the countries which have been the most dynamic and most competitive in these services sector exports during the past five years.

Significantly, table 39 includes almost all countries with an RCA index of >1 and positive RCA growth rates, except for Romania in the personal and recreational services category (see table 36). In other words, all countries that meet these two criteria also have positive WMS indices and are gaining world market share. On the other hand, not all countries meeting the latter two criteria (see table 38) also meet the former two. This seems logical, as countries that have specialized in the export of a particular service (i.e. gained comparative advantage) and have increased these exports must also have gained market share. On the other hand, countries may have gained market share but not comparative advantage if they increased their exports in a number of other services at the same time.

As the table indicates, there are developing countries in all of the services sectors, although the developed countries and Eastern Europe clearly dominate the table. In communication services, both China and Morocco had rapid growth in their comparative advantage and market share indicators during the five

Table 38
Countries with WMS 5-year average >1 and positive growth rates

COMMUNICATION SERVICES	FINANCIAL SERVICES	COMPUTER AND INFORMATION SERVICES	ROYALTIES AND LICENSE FEES	PERSONAL, CULTURAL AND RECREATIONAL SERVICES
Albania	Austria	Argentina	Australia	Australia
Aruba	Belgium and Luxembourg	Australia	Belgium and Luxembourg	Bangladesh
Australia	Bolivia	Bangladesh	Brazil	Belgium and Luxembourg
Austria	Canada	China	Canada	Colombia
Belgium and Luxembourg	China	Costa Rica	Chile	Czech Republic
Benin	Costa Rica	Czech Republic	China	Egypt
Botswana	Czech Republic	Egypt	Colombia	Estonia
Bulgaria	Estonia	Estonia	Czech Republic	Ethiopia
China	Ethiopia	Ethiopia	Estonia	Hungary
Costa Rica	Grenada	Ireland	Finland	Iceland
Côte d'Ivoire	Ireland	Latvia	Hungary	Ireland
Cyprus	Jamaica	Lithuania	Ireland	Latvia
Egypt	Japan	Moldova, Republic of	Israel	Mexico
Estonia	Korea, Republic of	New Zealand	Jamaica	New Zealand
Fiji	Namibia	Poland	Japan	Poland
France	Netherlands	Romania	Korea, Republic of	Slovakia
Greece	New Zealand	Slovakia	Latvia	Slovenia
Honduras	Panama	Slovenia	Maldives	Spain
Hungary	Saint Vincent and the Grenadines	Sweden	Morocco	United States
Ireland	Spain	The former Yugoslav Republic of Macedonia	Namibia	
Italy	Sweden	Tunisia	New Zealand	
Jamaica	Togo	United Kingdom	Paraguay	
Lao People's Dem. Rep.	Turkey		Poland	
Latvia	United Kingdom		Russian Federation	
Lithuania	United Republic of Tanzania		Senegal	
Madagascar	United States		Slovenia	
Malta			Spain	
Mexico			Sweden	
Moldova, Republic of			Thailand	
Morocco			The former Yugoslav Republic of Macedonia	
Netherlands			Tunisia	
Norway				
Oman				
Romania				
Slovenia				
Switzerland				
The former Yugoslav Republic of Macedonia				
United Kingdom				
United Republic of Tanzania				

Table 39
Countries with WMS 5-year average >1, RCA indices >1
and positive growth rates in both

COMMUNICATION SERVICES	FINANCIAL SERVICES	COMPUTER AND INFORMATION SERVICES	ROYALTIES AND LICENSE FEES	PERSONAL, CULTURAL AND RECREATIONAL SERVICES
Australia	Belgium+Luxemburg	Costa Rica	Finland	Australia
Belgium and Luxembourg	Czech Republic	Czech Republic	Japan	Czech Republic
Benin	Ireland	Ireland	Paraguay	Hungary
Bulgaria	Panama	Romania	Sweden	Slovakia
China	Saint Vincent and the Grenadines			United States
Côte d'Ivoire	United States			
Egypt				
Italy				
Latvia				
Mexico				
Moldova, Republic of				
Morocco				
Netherlands				
Oman				
Romania				
Switzerland				
The former Yugoslav Republic of Macedonia				
United Kingdom				
United Republic of Tanzania				

years in question. In financial services, a small island nation – Saint Vincent and the Grenadines – succeeded in substantially increasing its competitiveness in the world market. Among computer and information services, Costa Rica is clearly the outstanding case and will be considered in more detail below. As far as royalty services exports are concerned, the case of Paraguay is special, since its indicators are largely based on the export of hydropower. In the area of personal and cultural services, Mexico has experienced the most dynamic growth in gaining competitiveness and market share (mainly in audiovisual services).

Unlike these “rising stars”, many countries fall in the middle range. They may be gaining competitiveness, characterized by positive growth of either their RCA or their WMS indices; or they may have a comparative

advantage and high market share but negative trends (e.g. losing market share and competitiveness in the short to medium term). Finally, as was mentioned in section C, losses in market share in one product or service may be accompanied by gains in market share in other products; hence, each case needs to be interpreted individually.

7. Summary of main findings

The empirical analysis provided in this section has shown the following:

- Almost all export services that can be defined as dynamic services can also be defined as e-services.

- Developing countries have experienced the highest growth rates in the exports of e-services during the period 1990-2000.
- Computer-related services exports from developing countries were the most dynamic exports during this time period.
- While developed countries have a comparative advantage in the export of most e-services, an increasing number of developing countries are gaining comparative advantage in some e-services.
- A large number of developing countries are gaining world market share (in both relative and absolute terms) in the export of e-services, notably in communications services, financial services and royalty services.
- “Rising stars” (i.e. the most dynamic and competitive exporters) consist largely of developed and transition economies, but also include a few developing countries. However, given the high growth rates in a number of developing countries, their share in this category is expected to increase in the near future.

D. Case studies from developing countries: computer-related services exports

The statistics presented in the previous section demonstrated that computer-related services were the most dynamic services export sector during the past decade, in particular for developing countries and countries in transition. Although developing countries still account for a small share in total exports of these services, their share is growing and will even become more visible once they start to further disaggregate their services statistics (currently in some countries computer-related services are hidden in other categories).¹⁵

Computer-related services play a key role in the development of knowledge-based services because they produce high-value-added services. Although the developed countries dominate the computer industry, some developing countries have been successful in tapping into the computer-related service market, providing software and IT-enabled services, and showing high export growth rates in these sectors (UNCTAD, 2001b; ITU, 2001). Besides their potential role in

export-led growth, computer software and services also play an important economic role in facilitating growth and development in other domestic industries, which increasingly depend on software as a core component in their design, production and distribution processes.

Given the importance of this sector for increasing export competitiveness, this section focuses on two developing countries (Costa Rica and India) that have been successful in developing their computer-related services (and in particular their software and IT-enabled services) and discusses some of their achievements and the difficulties they have faced during this process.

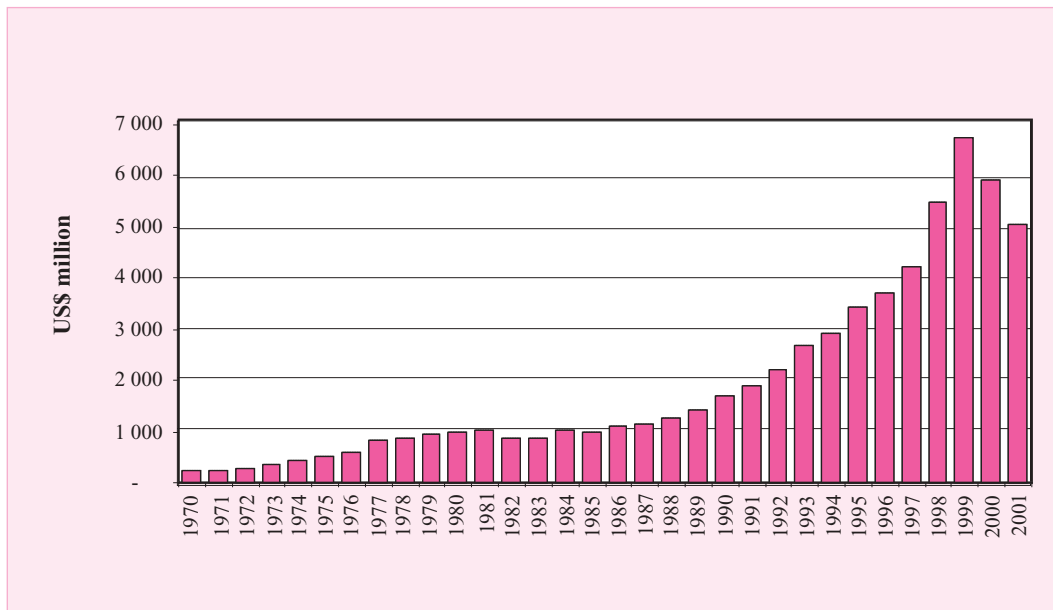
1. Costa Rica: From IT production to IT services

Costa Rica is well known for an export-driven development strategy based on the ICT sector. As chart 34 shows, exports grew exponentially during the 1990s, from \$ 1.6 billion (1990) to \$ 6.7 billion (1999), followed by a decrease in 2001/02. During the same period, there was a clear shift from traditional to non-traditional exports, largely based on the exports of IT-related products, which experienced annual growth rates of up to 500 per cent (1998). While “office and telecommunications equipment” accounted for only 0.1 per cent of exports in 1995, this share had increased to 41 per cent of exports by 1999 (WTO, 2001b). By 2001, one product category (computer parts/modular circuits) accounted for the largest share in exports (15.6%), followed by bananas (10%).¹⁶ This development resulted largely from the establishment in Costa Rica of Intel, one of world’s largest producers of electronic components.¹⁷

The success of the Costa Rican IT industry (and the ability of the country to attract foreign investment in this sector) can be explained by a number of factors, such as the country’s geographic location, its political stability, its educated workforce and its advanced infrastructure, coupled with policies that improved the telecommunications infrastructure and services, attracted foreign investment and, generally, heavily promoted the country’s assets abroad.

While the development and growth of the IT-producing industry in Costa Rica is well researched, little attention has been paid thus far to another fast-growing export sector of the Costa Rican economy: exports of computer- and information-related services. These will be the focus of this section.

Chart 34
Costa Rica: Total exports (1970-2001)



Source: PROCOMER, IMF

The previous analysis (section C) already identified Costa Rica as a rising star in computer-related services exports, one with a strong and rapidly growing revealed comparative advantage in this export sector as well as a sharp increase in world market share over the past five years. More specifically, chart 35 shows the exponential growth of computer-related services exports during the past few years, from \$16,000 (1997) to \$60 million (2000). The share of computer-related services exports in Costa Rica's total services exports has thus increased from almost 0 to 3.2 per cent in just three years. Computer-related services exports account for an important share of total exports and have overtaken sugar exports (their share is double that of sugar exports).

What prompted this extraordinary development? One explanation can be found in the fact that the growth of the domestic IT industry and the favourable environment it brought about also led an increasing number of companies to use ICT in their business activities, moving rapidly into e-commerce, e-banking or e-tourism. In particular, the past decade saw the creation of a significant number of enterprises (small to large) offering computer-related (in particular software) services and products.

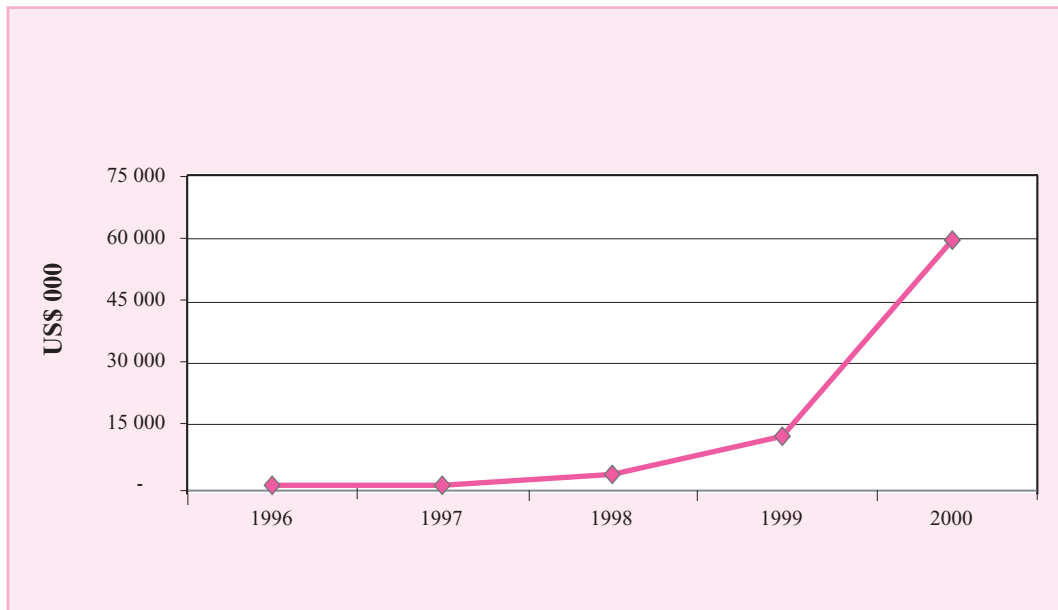
The computer-related service industry started to develop in Costa Rica in the 1980s, but really took off in the early 1990s (IDD, 2001). 30 per cent of the companies were created during the 1980s and 70 per cent

during the 1990s, mainly with domestic capital. Over 80 per cent of the companies are locally owned and about half of them export their services. While initially most of the companies produced for the domestic market, beginning in 1999 they rapidly expanded into the international market.

So far, computer-related services have been dominated by software services.¹⁸ It has been estimated that software production has a national value added exceeding 90 per cent (Mata and Vartanián, 2001). The Costa Rican software production derives mainly from small and medium-sized enterprises producing tailor-made applications or providing advisory services in the area of software development for other companies. A survey by Mata and Vartanián (2001) indicated that 88 per cent of the software companies offer tailor-made software services, 60 per cent software packages, 39 per cent software consulting and 22 per cent other services. The sector is characterized by rapid sales growth: between 1997 and 2000, 30 per cent of the companies doubled their sales. Even faster growth was predicted for the next few years: 55 per cent of the companies expect their sales to double between 2000 and 2003.

Initially, most software companies served the domestic market. As of 2000, half of the companies produced for export, but only 16 per cent (mainly the larger companies) exclusively served the export market. Only 9 per cent of the companies exported more

Chart 35
Costa Rica: Computer-related services exports (1996-2000)



Source: Balance of Payments Department, Central Bank of Costa Rica.

than \$1 million per year (28% exported between \$100,000 and 500,000 and 53% less than \$100,000). Hence, the rapid export growth during the three-year period is likely to be based on exports by large companies. According to the survey, export growth rates accelerated between 1997 and 1999: 14 per cent of the companies increased their exports by more than 100 per cent, 26 per cent by more than 51 per cent and 45 per cent by more than 30 per cent. Estimates for the years 2000-2003 were even higher, and, as the latest figures demonstrate (see chart 35), they probably exceeded all expectations.

The software sector is essentially a knowledge-based industry requiring highly skilled professionals, and a large pool of educated labour has allowed Costa Rican companies to successfully enter this sector. The government has played an important role in creating an educated population by continuously expanding the education system and including IT in the curriculum. This policy has been pursued actively by the government in its channelling of defence spending to education (after abolition of the armed forces in 1949). Costa Rica has a tradition of investing heavily in education and is currently spending 6 per cent of its GDP on education (Tacsan, 2001). According to the survey of software companies cited earlier, the key factors influencing the development of the software sector are the availability of highly skilled employees, possibilities for training and capacity building, the number of IT

professionals available and the legal framework in the country.

Acknowledging the sector's dynamism and growth potential, the Inter-American Development Bank (IDB) in 1999 approved a project to develop the software sector in Costa Rica. The project aims to improve the sector's competitiveness in the global market as well as make local software companies engines of economic development by helping them produce hard-currency revenue and create high-paying jobs. The project emphasizes training and curriculum building for software technicians to improve the overall technical capabilities in the country and to enable local software producers to compete in the international market.¹⁹ The project, which is ongoing, is carried out in cooperation with PROCOMER (Promotora del Comercio Exterior de Costa Rica), CAPROSOFT (Cámara de Productores de Software) and CENAT (Centro de Alta Tecnología), each of which contributes financially to the project and participate actively in it.

Challenges faced by exporting companies

Given the small size of the domestic market, Costa Rican software companies aim at the export market. The advantages enjoyed by Costa Rica in comparison with other Latin American countries also developing their software sector include a pool of low-cost skilled

IT workers and current trade agreements in the North American market.

Nevertheless, software exporters face a number of challenges in their efforts to increase their software services and exports, such as growing competition in the global market, the unavailability of export financing and the lack of an existing structure to support their clients in the export market. The expensive air travel within the region, barriers faced in foreign markets,²⁰ the lack of export marketing and distribution channels and the migration from proprietary systems to open platforms are further obstacles mentioned by software exporters (IDD, 2001).

2. India: business process outsourcing (BPO) – the new panacea?

The Indian software sector has been studied extensively because of its breathtaking growth during the past decade (Heeks, 1998; OECD, 2000; ILO, 2001; DOI, 2001).²¹ As chart 36 shows, exports of software and related services have increased from less than \$500 million (1994/95) to almost \$8 billion (2001/02). Between 1999/00 and 2001/02, exports grew from \$3.9 billion to \$6.2 billion, an increase of almost 60 per cent. Software exports now comprise more than 16 per cent of India's total exports.²² A revised version of an often-cited NASSCOM-McKinsey study estimates

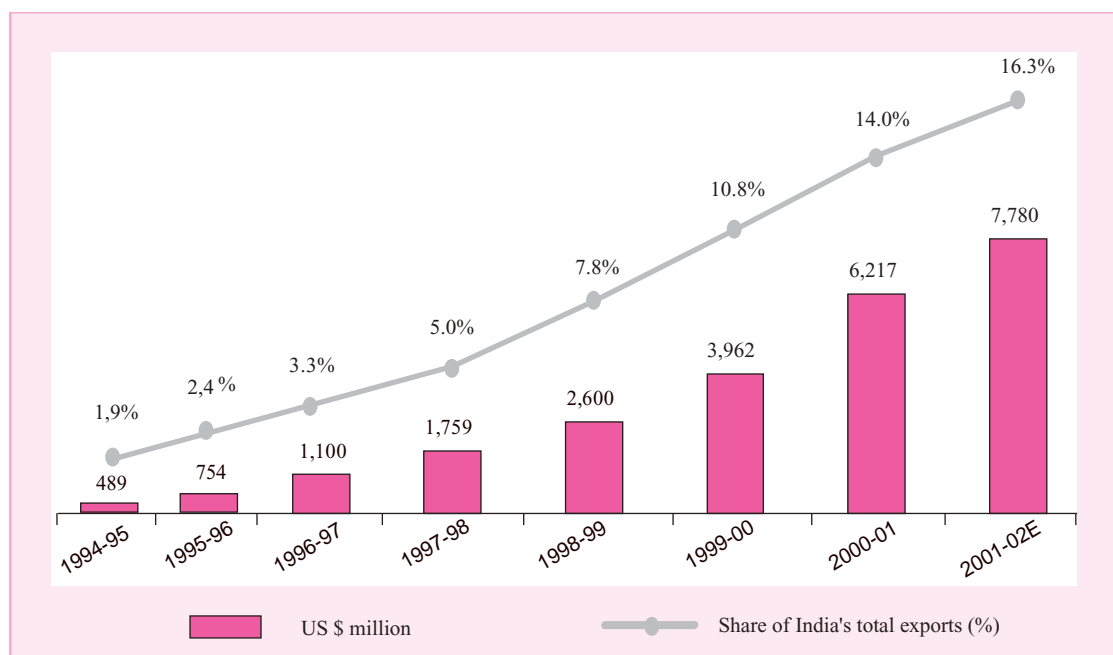
that IT services exports will reach \$77 billion by 2008, contributing 10 per cent to the country's GDP (up from 2% in 2002) and 30 per cent of all foreign exchange (up from 8%) and creating four million new (direct and indirect) jobs.²³

These figures comprise both software services and IT-enabled services²⁴ – increasingly called business process outsourcing (BPO) – such as those related to customer interaction centers, back-office operations, revenue accounting, data entry and transcription services or GIS (geographic information system) services (see table 40). Revenues are expected to reach \$1.5 billion by the end of 2002. IT-enabled services exports grew at over 45 per cent annually in 1999 and 2000 and 70 per cent annually during 2001 and 2002. The number of jobs created by this sector is expected to increase from 107,000 (2001-02) to 1.1 million (2008), generating revenues of \$21 – 24 billion. Hence, this is the most dynamic segment of India's IT-related services export sector and will be the focus of this section.

Business process outsourcing (BPO)

Overshadowed by the exponentially growing software sector during the 1990s, BPO in India received little attention from researchers or the business community until the start of the new millennium. It has now become the new buzzword, reflecting this sector's great potential for creating new business opportunities

Chart 36
India: Software and services exports



Source: www.nasscom.org

Table 40
Indian software and services exports: Key service lines (US\$millions)

	2000-01	2001-02
Software and services	4 750	5 780
Legacy application management, maintenance, migrations	1 700	2 100
Custom application development	1 950	2 350
Packaged software integration	300	350
E-business solutions	550	600
Wireless integration	75	100
System integration	75	110
Network infrastructure management services	50	65
Consulting	50	55
IT-enabled services	900	1 475
Customer interaction centers	185	350
Back-office operations/revenue accounting/data entry and conversion	295	600
GIS/engineering services/content development	350	450
Others	70	75
R&D services	550	575
Total	6 200	7 780

Source: www.nasscom.org

and suggesting that the sector will grow quickly in the short to medium term.

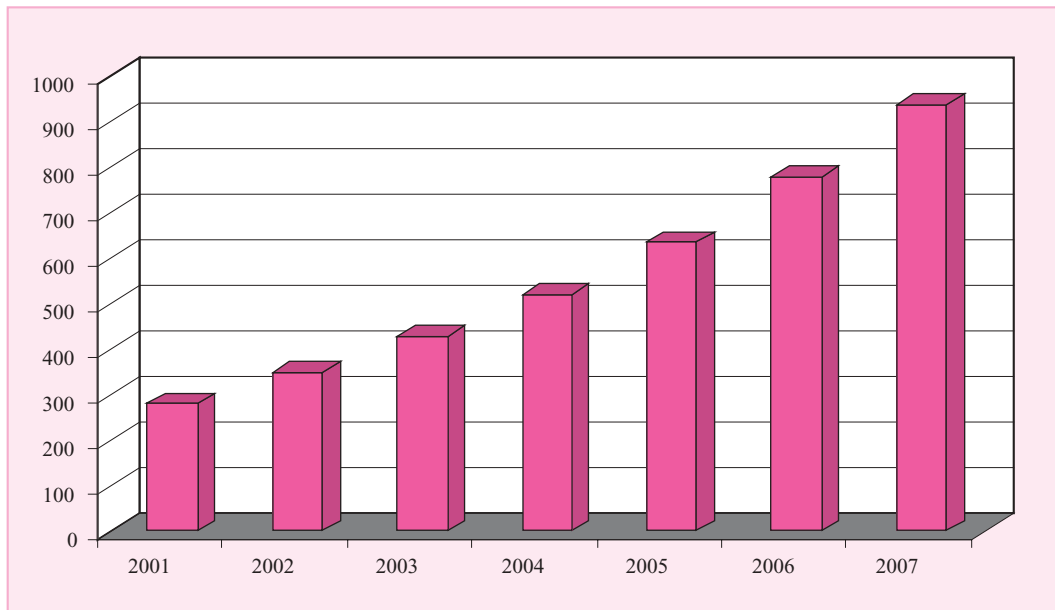
BPO refers to outsourcing (often, but not necessarily, by big multinational companies) of business processes and functions in the areas of administration, finance, human resources, distribution logistics, manufacturing services, sales, marketing and customer care to locations that can provide these services at a lower cost through high-speed data communication links, which guarantee timely delivery of the data and services. BPO often involves large-scale data processing (such as that required by banks, insurance companies and airlines) – for example, in revenue accounting and payroll processing. These IT-intensive outsourced tasks range from routine business processes to strategic tasks directly affecting revenues. As a result of the improved global telecommunications infrastructure, companies now have the choice to outsource their business processes to service providers located (almost) anywhere in the world. This allows management to focus on building core business activities and cut back spending on office facilities and computer systems. While BPO is clearly a cost-driven process, the potential to continuously improve processes as well as service levels is an additional reason for outsourcing.

Projections for the BPO market are extremely high: it is expected to grow from less than \$300 billion (2001)

to close to \$1 trillion by 2007 (chart 37). Today, distribution and logistics take the largest share of the market (29%), followed by human resources (24%) and payment services (16%).²⁵ According to a survey by Forrester (2002) with 57 Global 3,500 firms, more than 50 per cent of the companies reported spending more than \$1 million annually on BPO. Forrester predicts that the BPO market in the United States will increase annually by 70 per cent (2000-6). Even if these figures are exaggerated, there is undoubtedly huge business potential in the BPO market.

India is planning to capture a significant share of the BPO world market by 2007-08.²⁶ However, the Indian BPO sector is still in its initial stages, often capturing outsourced overflow work from international BPO service providers rather than receiving direct contracts.²⁷ Many of the large BPO providers are foreign affiliates working from India (such as GE, Dell or American Express) and staffed and managed by Indians. According to NASSCOM, the IT industry's national association, there are currently 204 Indian companies providing IT-enabled services. Most of them focus on financial, telecommunications and manufacturing services. The latest NASSCOM-McKinsey report cited earlier suggests that the banking and insurance sectors are likely to provide the greatest opportunities in offshore BPO, followed by the telecommunications, retail, utilities, automotive, computer and pharmaceuticals sectors.²⁸

Chart 37
Expected business process outsourcing market (US\$ billion)



Source: Gartner, McKinsey, Dataquest, as cited at www.nasscom.org.

India is building heavily on its already well-established software and IT-enabled service industries. The initial phase of IT-enabled services in India was dominated by customer contact centers (e.g. call centers) and transaction-intensive services (e.g. back-office operations and data processing, medical transcriptions, content development and administration). These services are considered to be lower in the value chain than more specialized services like research and development (R&D) or customized business services. Like the latter, BPO is viewed as being higher in the value chain, since it involves the complete management of a process.²⁹

Indian companies are planning to develop the quality of their BPO services by applying a new business framework created by Carnegie Mellon University (CMU) of the United States. This so-called eServices Capability Model (escm) employs best practices for measuring and improving the value of outsourcing relationships, such as increased productivity, reduced cycle time, decreased transaction costs and improved time to the market (Hyder et al., 2001). CMU also provides certification of service providers' capabilities and performance, which assures clients of high quality and reduced risk when they do business with a certified provider.

Advantages enjoyed by BPO providers in India

Companies based in the United States or Europe increasingly look to India in their efforts to outsource part of their software development to more cost-effective locations. NASSCOM estimates that during the period 2000-2001, one in four of the global majors outsourced its key software development to India; they also report that 82 per cent of United States companies rank India as their first choice for software outsourcing.

The reputation built over the past decade is one key reason why companies look to India for BPO. Other advantages include the large pool of English-speaking IT and engineering graduates, which the Government is augmenting by taking steps, such as establishing Indian Institutes of Technology in various cities, to triple the number of engineering students by 2008. Furthermore, India's time zone vis-à-vis the United States encourages BPO with the latter as it allows, for example, companies based on the United States East Coast to provide customer services 24 hours a day.

The potential for India to become a hub for IT-enabled services (particularly BPO) has been recognized by the Indian Government and NASSOM, both of which have started a dialogue aimed at defining and creating a favourable environment for each segment of the IT-enabled services sector. These efforts include

actions in the areas of tax exemption,³⁰ telecommunications infrastructure, financial assistance for start-ups, establishment of a venture capital (VC) fund, training and the promotion of entrepreneurship and teleworking for women in the IT-enabled sector.

Challenges BPO exporters face

Business based on outsourcing is highly dependent on the volatility of foreign markets. As Indian BPO exporters are largely focused on the United States market, a downturn in their main export market could negatively affect their business. For example, in the software sector (which is equally dependent on the United States market), the Nasdaq crash led to cuts in IT investment, which directly affected Indian programmers and led to an oversupply of IT professionals in India. Fortunately, IT-enabled services were less affected by the recession in the United States because they are the indispensable back-office processes of brick-and-mortar companies. By contrast, the slowdown of the United States economy has prompted an increasing number of companies to outsource to India to maintain their margins.³¹

New market entrants such as China and the Philippines may pose serious competition to Indian BPO providers within a few years' time. In particular, if the BPO business model is based primarily on cost advantage and low labour cost, it can be easily replicated elsewhere, leading to a constant decrease in profit margins. Therefore, Indian companies have a great interest in working continuously to develop more sophisticated, specialized and higher-value-added BPO services to safeguard their current leadership position in the world market. This will require specialists not only in the IT and engineering professions but also in other areas such as medicine, law, accountancy, statistics and human resource management.

International telephony was deregulated on 1 April 2002, and since then prices have dropped significantly, favouring IT-enabled services such as call centres. However, to respond to the needs of the emerging BPO sector, deregulation should go further and allow interconnectivity between networks and different Internet service providers, the establishment of international gateways by the IT-enabling industry and deregulation of international bandwidth to allow companies to buy high-capacity cable and satellite connectivity at competitive prices.

E. Conclusions and policy implications

The empirical research presented in this chapter revealed that most e-services sectors are also dynamic export sectors, characterized by above-average growth rates in the world market. Significantly, developing countries' exports of e-services experienced the highest growth rates during the past decade and computer-related services exports from developing countries were the most dynamic export sector during this period.

At the same time, developing countries' global share in e-services exports is still small and few of them have a comparative advantage in this area. However, many developing countries are gaining world market share in the export of, for example, communication services and, to a lesser extent, financial services and royalty services. This trend, coupled with the rapid growth of e-services exports, is likely to increase the number of developing countries among the "rising stars" (i.e. the most dynamic and competitive exporters worldwide). Although the methods employed in this study do not provide for forecasting, one can assume that developing countries that export dynamic services are less likely to face saturation of their export markets in the short to medium term, compared to those that export services less in demand on the world market. One can also conclude that, given the higher growth rate of services exports in the developing countries, the potential impact of e-commerce is much greater than their current share of world trade or the size of their services trade indicates.

Case studies: lessons learned?

Two rising stars in the export of computer-related services are Costa Rica and India. What do their cases demonstrate, and do they offer lessons for other countries that are currently developing this export sector?

What is remarkable about the two countries is that they greatly differ in size, political structure and institutions, cultural background, geographic location (also vis-à-vis their main export markets, with Costa Rica being close to the United States and India far away) and languages. Despite these differences, both countries have successfully developed their domestic IT capacities and their IT-related export sectors. It is therefore worth noting what both countries have in common: an educated workforce, IT know-how, long-time experience in high-tech development, contacts in their major export markets and a good reputation abroad. In addition, both countries have received large

amounts of foreign capital for establishing a domestic IT sector.

The availability of skilled labour (including employees with foreign-language literacy) is important for all ICT-driven export services, as business processes are increasingly being carried out digitally and are based on the exchange of knowledge and information rather than on activities requiring physical skills. Both Costa Rica and India have benefited from a highly skilled labour force and a large pool of IT professionals. Hence, in their cases, investment in education has proved beneficial for the development of the IT sector.

Business process outsourcing may in the future play an increasingly important role for developing countries. More and more traditional industries, including in the retail, energy, transportation and manufacturing sectors, will outsource parts of their services. This will increase international trade in services, as most of these business processes will be outsourced to foreign providers. These knowledge-intensive services offer a great opportunity to developing countries with abundant labour. But to what extent will companies from developing countries be able to compete for outsourcing contracts with those in industrialized countries and transition economies? Not only do they need skilled labour, world-class telecommunication services and a stable political environment, but identifying new business opportunities abroad will be a challenging task for many companies from poorer countries. Both Costa Rica and India have been able to build a national brand in the global market by heavily advertising their assets abroad. Some companies in India have been able to compete with foreign software companies for direct, higher-value-added contracts, rather than the usual outsourcing that has dominated most of the software services thus far. Most newcomers on the market, however, will depend on subcontracts from foreign firms, which are less stable and less profitable.

Export promotion as a strategy?

Focusing on the export of dynamic services may not always be the best strategy, as it is difficult to predict future demand for particular products and services. Experience in Latin America has shown that the countries with the best export performance do not always owe their success to the export of dynamic products, but often to increased market access opportunities (IDB, 2001). In order for developing countries to increase their services exports by taking advantage of new technologies and e-commerce, open markets are needed in the potential importing countries.³²

Moreover, in certain software services, close interaction with the client is necessary, including on-site visits.³³ While some interaction with clients can be carried out remotely, other services require face-to-face meetings. This could be accomplished by employing foreign workers or temporarily sending local engineers abroad. However, only 4 to 7 per cent of WTO members have made full commitments on market access for the presence of natural persons in computer-related services (WTO, 2002).

Apart from these market entry barriers, e-services exporters face a number of other (domestic) obstacles, including those related to technology, payments, infrastructure (telecommunications) and standards, most of which have been extensively covered in other chapters of this report as well as in the *E-Commerce and Development Report 2001*. While many of the recommendations made for addressing these obstacles could be implemented to support exporters of e-services, Governments would do well to consider the following measures:

- Facilitating foreign investment by reducing regulatory and procedural bottlenecks;
- Reducing customs duties on imports of IT-related products;
- Encouraging the establishment of venture capital funds for IT-related companies;
- Encouraging competition in the telecommunications sector;
- Taking all measures necessary to ensure a fast, high-capacity, reliable and cost-effective data communication infrastructure in the country and setting up technology parks compatible with world-class infrastructure;
- Adopting e-government practices, especially in the procurement of IT services;
- Harmonizing and ensuring consistency in taxation policies;
- Developing the country brand internationally and informing potential export markets and foreign investors of the capacities available domestically; and
- Stepping up efforts to enhance IT literacy, IT education and the number of IT professionals in the country; coordinating with private training institutes to increase course offerings in all technical and engineering fields; and encouraging the specialized training needed by the BPO sector.

Notes

- 1 See, for example, Lall and Wignaraja (1998), OECD (1992), UNCTAD (1997), Lall (2000), Mahmood (1999), Bhattacharyya (2001), IDB (2001) and OECD (1998).
- 2 The latest productivity figures from the United States show 4.2 per cent growth from 2001 to 2002 (first quarter). Since the United States is emerging from a recession, it has been suggested that the increase is based on trend productivity growth linked to investments in the IT sector (The Economist, 11 May 2002).
- 3 Ministry of Information and Communication, Korea. See www.mic.go.kr.
- 4 “Other business services” include merchanting, operational leasing, legal services, accounting, management consulting, advertising, research and development, and architectural agricultural services. A number of developing countries do not yet classify their services using all of the major BPM5 categories; instead, they include many of their services statistics under “other business services”.
- 5 It is important to note that this table excludes Hong Kong (China), which reports only total services, not subcategories. Since Hong Kong is one of the major developing-country services exporter – in 2000 it accounted for \$41 billion (almost 3% of world exports and 14% of developing country exports) – all developing-country export values and market share figures are significantly lower in this table than in the tables providing total services export figures.
- 6 Include computer (hardware- and software-related) and information services. It should be noted that the database does not include countries (e.g. India) which have classified computer-related services as “other business services” and hence do not provide any data under this category.
- 7 Include audiovisual, educational and health services.
- 8 Include postal and courier services and telecommunication services.
- 9 Include franchises and similar rights such as those related to registered trademarks; and payments for the authorized use of copyrights, patents, industrial processes and designs. Furthermore, royalties and license fees include those related to software transactions; hence, some of the computer-related services (i.e. software) are included in royalties. A survey carried out by the OECD on the measurement of software in the national accounts revealed that in the countries responding to the question, royalties as a proportion of total software trade (including software goods) ranged between 6 per cent and 62 per cent (median 25%) (exports) and 22 per cent and 59 per cent (imports) (OECD, 2002). Hence, royalties play an important role in identifying and measuring trade in software services.
- 10 According to the BPM5 classification, purchases by individuals that are paid for by credit card are usually classified as “travel”. Hence, most of the business-to-consumer e-commerce is not captured in the different categories of services trade.
- 11 While the insurance sector has the potential to be greatly transformed by ICT, it is also heavily concentrated on domestic markets, which explains its low export growth rates compared to other e-services. See chapter 8.
- 12 Include merchanting, legal, advertising, accounting, taxation, research, medical, architectural, consulting, agricultural and waste treatment services.
- 13 An RCA of more than indicates services that account for a larger share of the country’s exports than the share these services account for in world trade.
- 14 Much of the following analysis is based on growth rates during the five-year period 1995-2000. It should be noted that during this time period there was a general slowdown in world exports of services, including all of the services discussed here (except for financial services). In addition, many Asian countries were severely affected by the Asian financial crisis of 1997. At the same time, data for the 10-year period are not available for most of the countries; hence the five-year period was chosen.
- 15 Some countries (e.g. India) include computer-related services in “other business services”; or, as was mentioned earlier, the “royalties and license fee” category may also cover software trade to some extent (see OECD, 2002).
- 16 Data provided to UNCTAD by Costa Rica’s Ministry of Foreign Trade.
- 17 In 1998, Intel built a \$500 million, 400,000-square-foot manufacturing plant outside San José, employing 2,000 workers producing primarily Pentium II microprocessors. Other high-tech and IT companies followed, taking advantage of Costa

Rica's investment-friendly environment. For more information on foreign direct investment and Intel's operation in Costa Rica, see DOI (2001), Tacsan (2001), www.offshorecostarica.com and www.american.edu/carmel/LD4718A/Computer.html.

- 18 IT-enabled services are also growing: in 1998, Acer, a computer and IT company based in Taiwan Province of China, moved its technical support call center from California to one of the Costa Rican free export zones, creating employment for around 600 workers.
- 19 The plan aims at obtaining the internationally recognized ISO 9000 quality certification for locally produced software. See www.iadb.org for further details.
- 20 These include discriminatory tax treatment for foreigners, excessive capital transfer and/or repatriation taxes, and restrictions on or excessive requirements for temporary entry and exit of specialized technical personnel (WTO, 2001c).
- 21 India's software industry is largely based on software services. According to an estimate by Heeks (1998), less than 5 per cent of India's software exports are based on packaged software. In 2002, India has only been able to capture 0.2 per cent of the United States software package/product market. Until the late 1990s, the majority of software exports (more than 50%) were provided on-site (i.e. based on the movement of labour to foreign sites); today, an increasing share of software services is being provided "off-shore" (i.e. from within the country) ("NASSCOM forecasts Indian software exports to clock 30% growth in financial year 2002-2003", available at www.nasscom.org).
- 22 In our previous analysis (section C), India does not appear in the statistics. This is explained by the fact that India does not report "computer-related services" as a separate services category; instead, it includes software-related services in the "other business services" category, which, as a result, has experienced average annual growth of 22 per cent (1990-2000) or 47 per cent (1995-2000). In other words, software exports have been India's most dynamic export sector.
- 23 "NASSCOM – McKinsey Report 2002", press release, available at www.nasscom.org
- 24 NASSCOM (2001) defines IT-enabled services as "business processes and services performed or provided from a location different to that of their users to beneficiaries and delivered over telecommunication networks and the Internet".
- 25 See *Indiatimes Infotech* "BPO: Nuts and Bolts", www.infotech.indiatimes.com/enterprise/emergintech/bpo.htm
- 26 Based on IDC estimates (as provided in "The BPO Boom", *Businessworld*, 14 January 2002), India's share could go up to 3.8 per cent; this would be significantly higher than the estimate for IT-enabled services provided by NASSCOM-McKinsey.
- 27 At the end of 2001, General Electric Capital Services India was the largest IT-enabled service provider in India, employing 10,000 workers. See www.renodis.com/media/siliconindia/SiliconIndia 4.htm.
- 28 See www.nasscom.org/mediaroom/press-releases.asp.
- 29 It is expected that in the future firms will outsource, for example, not only their payroll function but their whole human resources department ("IT-enabled services hitch on to BPO bandwagon", 25 March 2002, at www.express-computer.com).
- 30 In September 2000, the Ministry of Finance of the Government of India issued a notification listing a large number of IT-enabled services that would be exempted from income taxation. For details see www.nasscom.org/it_industry/gov_incentives.asp.
- 31 "IT enabled services not perturbed by recession", www.careerindia.com/careerhub/news/may/16shift.html.
- 32 This would require commitments to be taken under the GATS on market access (for example, the removal of quantitative restrictions) and national treatment (for example, the removal of discriminatory taxation). For example, in computer-related services, only about 50 countries made commitments in mode 1 (cross-border supply), and of those only half made full commitments, meaning unrestricted market access and full national treatment (Mattoo and Schuknecht, 2000). In data-processing services, 66 WTO members have made commitments, 61 per cent of which are full commitments; in accounting, auditing and bookkeeping services, 67 members have made commitments, 24 per cent of which are full commitments; and in legal services, 56 members have made commitments, 14 per cent of which are full commitments (Thompson, 1999).
- 33 It has been estimated that the professionals-to-clients ratio in software packages is 1:1000, whereas in software services it is 1:25 (UNCTAD, 2001).

References

- Balassa B (1965). Trade liberalization and “revealed” comparative advantage. *The Manchester School of Economic and Social Studies*, vol.33 (2): 99-124.
- Bhatnagar P (1999). Electronic commerce, trade and development. *Development Policy Review*, vol. 17: 281-291.
- Bhattacharyya B (2001). Export performance: Increasing competitiveness through new sources of productivity growth. Paper presented at ESCAP, Bangkok, March.
- Digital Opportunity Initiative (DOI) (2001). *Creating a Development Dynamic: Final Report of the Digital Opportunity Initiative* See www.opt-init.org/framework.html.
- Forrester (2002). US Outsourcing Decelerates. Techstrategy Report. February. See www.forrester.com.
- Heeks R (1998). The uneven profile of Indian software exports. Development Informatics Working Paper No. 3, October, Institute for Development Policy Management, University of Manchester.
- Hyder E, Kumar B, Mahendra V, Siegel J, Gupta R, Mahaboob H, and Subramanian P (2001). The capability model for IT-enabled outsourcing service providers. School of Computer Science, Carnegie Mellon University, Pittsburgh, Technical Report CMU-CS-01-162, November 19.
- Industry Canada (2000). The Canadian Telecommunications Service Industry 1999-2000. See www.strategis.ic.gc.ca.
- Inter-American Development Bank (IDB) (2001). *Competitiveness: The Business of Growth*. Economic and Social Progress in Latin America, 2001 Report. Washington, D.C, IDB and Johns Hopkins University Press.
- Interamericana de Desarrollo S.A (IDD) (2001). *Estudio sobre la industria de desarrollo de software en Costa Rica*. San José, IDD, March.
- International Labour Organization (ILO) (2001). *Life at Work in the Information Economy. World Employment Report 2001*. Geneva, ILO.
- International Telecommunication Union (ITU) (2001). Various case studies on Internet use in developing countries. See www.itu.int.
- International Trade Centre (ITC) (1999a). Foreign trade statistics: A guide for their use in market research. Research paper, Geneva, ITC.
- International Trade Centre (ITC) (1999b). Tools for strategic market research. Research paper, Geneva, ITC.
- Lall S (2000). Export performance and competitiveness in the Philippines. QEH Working Paper No. 49, August.
- Lall S and Wignaraja G (1998). Mauritius: Dynamising Export Competitiveness. London, Commonwealth Secretariat.
- Mahmood A (1999). Trade liberalisation and Malaysian export competitiveness: Prospects, problems and policy implications. Paper prepared for the International Conference on the Challenges of Globalisation, Thammasat University, Bangkok, Thailand, 21-22 October.
- Mata FJ and Vartanián AJ (2001). *Programa de apoyo a la competitividad del sector de desarrollo de software de Costa Rica. Informe final: estudio de oferta y demanda del recurso humano*. San Jose, Costa Rica, June.
- Mattoo A and Schuknecht L (2000). Trade policies for electronic commerce. World Bank Working Paper No. 2380. Washington, DC.
- Mayer J, Butkevicius A and Kadri A (2002). Dynamic products in world exports. UNCTAD Discussion Paper No. 152.
- National Association of Software and Service Companies (NASSCOM) (2001). IT enabled services. Background and Reference Resource. New Delhi, NASSCOM.
- National Association of Software and Service Companies (NASSCOM) (2002). Software exports. See www.nasscom.org/it_industry/SW_export.asp.
- National Statistical Coordination Board (NSCB) (2000). *Gross Value Added Services. Annual 2000*. Available at www.nscb.gov.ph/sna/2000/4q-2000/2000ser4.htm.

- Organisation for Economic Co-operation and Development (OECD) (1992). *Industrial Policy in OECD Countries: Annual Review 1992*. Paris, OECD.
- Organisation for Economic Co-operation and Development (OECD) (1998). Trends in OECD countries' international competitiveness: the influence of emerging market economies. Economics Department Working Paper No. 195, ECO/WKP(98)8.
- Organisation for Economic Co-operation and Development (OECD) (2000). *Information Technology Outlook: ICTs, E-Commerce and the Information Economy* Paris, OECD.
- Organisation for Economic Co-operation and Development (OECD) (2002). Task force on software measurement in the national accounts: April 22-23, Point 4: Computer software: International trade flows. Paper prepared by Bill Cave. OECD/STD/TIAS 27/03/02.
- Pavitt K (1984). Sectoral patterns of technical change: Towards a taxonomy and a theory. *Research Policy* 13 (6).
- Tacsan R (2001). The potentials of leapfrogging in Costa Rica. Background paper for the *ILO World Employment Report 2001*, Geneva.
- Thompson R (1999). Electronic commerce: Liberalising existing barriers to online services. Paper prepared for the World Services Congress, Atlanta, Georgia, November.
- UNCTAD (2001a). *E-Commerce and Development Report 2001*. Geneva.
- UNCTAD (2001b). Changing dynamics of global computer software and services industry: Implications for developing countries. Paper prepared for the Commission on Science and Technology, E/CN.16/2001/Misc.5.
- UNCTAD (1997). Ways and means for improving the opportunities for the expansion of exports of goods and services from developing countries. TD/B/COM.1/13.
- World Bank (2001). *World Development Indicators 2001*. See www.worldbank.org.
- World Trade Organization (WTO) (2001b). *Computer and Related Services*. Council for Trade in Services. Communication from Costa Rica. S/CSS7W/129, 30 November.
- World Trade Organization (WTO) (2001c). *Trade Policy Review Costa Rica*. Report by the Secretariat. WT/TPR/S/83, 9 April.
- World Trade Organization (WTO) (2001a). *Assessment of Trade in Services: The Participation of Developing Countries*. Council for Trade in Services. Communication from Argentina. S/CSS/W/44, 29 January.
- World Trade Organization (WTO) (2002). *Negotiating Proposal on Computer and Related Services*. Council for Trade in Services. Communication from India. S/CSS/W/141, 22 March.

ANNEX I

METHODOLOGIES EMPLOYED FOR MEASURING EXPORT COMPETITIVENESS

Revealed comparative advantage (RCA)

Revealed comparative advantage (RCA) is an indicator used to demonstrate the relative export performance of a country and an industry or product. It goes back to Balassa (1965), who defines RCA as a country's share of world exports of a good divided by its share of total world exports. RCA indicates the relative specialization and performance of manufacturing export industries.

If x_{ij} is the value of country i 's exports of product j and X_{it} the value of country i 's total exports, then the country's RCA index is calculated as follows:

$$RCA = (x_{ij} / X_{it}) / (X_{wj} / X_{wt})$$

where w denotes the world total. If the RCA is > 1 , the country has a comparative advantage in the export of the product under consideration.

By comparing past export performance, the RCA allows the analysis of changing patterns of exports and thus identification of structural changes in the economy. It indicates shifts in specialization between industries, which, combined with an analysis of export market shares, can provide a good indication of a country's competitiveness.

Of course, the RCA measure has certain limitations. For example, it does not provide any information about future trends and potential shifts or about intra-firm cross-border exchanges, and it is calculated based on current prices. It is best used for products whose export figures are not distorted by incentives or trade barriers, which could affect the country's real comparative advantage. (Similar limitations apply for most trade indicators.)

Dynamic Export Products

Another common approach to measuring export competitiveness is to examine the composition of exports according to dynamism of demand. Goods with high dynamism of demand are considered as enhancing a country's competitiveness, whereas those with low dynamism are considered to negatively affect competitiveness. Dynamic products are defined as export products experiencing above-average growth rates (for all products) over a certain period. Another measure of dynamism is the growth rate of a product's share in world exports (Mayer, Butkevicius and Kadri, 2002). This takes into account the possibility that high growth rates based on export values may simply reflect an initial low base.

Measuring changes in a country's world market share (WMS) of dynamic products is a good way to assess its competitiveness. Changes in WMS are typically calculated as follows (ITC, 1999b, p.32):

$$\text{Changes in WMS}_{C,p,t} = \frac{\text{Exports}_{C,p,t} / \text{World exports}_{p,t}}{\text{Exports}_{C,p,t-1} / \text{World exports}_{p,t-1}}$$

where C is the country, p the product, t the year under review and $t-1$ the previous year. If the index is > 1 , the country has gained world market share, if it is < 1 , it has lost WMS for the product under consideration.

Apart from looking at the change in WMS from one year to another (i.e. the WMS index), it is also useful to compare the actual percentage change in a country's WMS in exports of a particular product and analyse the trend share over a certain period. This analysis, combined with the WMS index, provides good insight into changes in the country's WMS over a certain time period.

“Rising stars” are countries that are gaining market shares in (globally) fast-growing products, the most desirable position according to this measurement. On the other hand, careful interpretation is necessary since in some cases losses in market share for one product can be accompanied by gains in market share for other products and thus a desirable change in competitiveness.

Technology content of exports

Since the early 1980s, high-technology goods have been the most dynamic export products worldwide, and a clear association between technology content and export dynamism has been observed. Therefore, studies analysing trends in manufacturing exports have usually focused on levels of technology as an indicator of competitiveness of industries.

One of the most common ways of characterizing levels of technology is by level of research and development (R&D) intensity, where high-technology industries are characterized by high R&D intensity and vice versa (Pavitt, 1984; OECD, 1992). Another classification used by the OECD is based on major factors affecting competitiveness in particular industries, such as access to natural resources, labour costs, the length of production runs, tailoring of products to demand and application of scientific advances. These variables are then used to classify industries into different groupings and examine changes in their export structure, using the above-mentioned methodologies, as a way of analysing the export competitiveness of particular industries and countries.

ANNEX II

INTERNATIONAL TRADE IN SERVICES, 2000

Country/Economy	Exports			Imports		
	Value (\$ millions)	1990 - 2000 annual growth (%)	Share in world exports (%)	Value (\$ millions)	1990 - 2000 annual growth (%)	Share in world imports (%)
United States	290 880	7.0	20.1	217 070	6.6	15.2
United Kingdom	117 437	8.7	8.1	95 162	7.9	6.7
Germany	83 886	3.6	5.8	134 018	5.5	9.4
France	81 740	0.2	5.6	62 628	0.0	4.4
Japan	69 238	4.8	4.8	116 864	3.7	8.2
Italy	56 116	2.4	3.9	56 172	2.6	3.9
Spain	53 382	7.3	3.7	31 151	6.7	2.2
Netherlands	53 299	6.2	3.7	53 517	5.5	3.8
Belgium	43 743	3.5	3.0	38 701	2.9	2.7
Hong Kong (China)	41 331	..	2.9	25 420	..	1.8
Canada	37 248	7.3	2.6	41 773	3.7	2.9
China	30 431	18.0	2.1	36 031	24.2	2.5
Austria	30 223	2.5	2.1	29 182	8.2	2.0
Korea, Republic of	29 697	13.4	2.1	33 423	12.2	2.3
Switzerland	27 450	4.0	1.9	15 481	4.0	1.1
Singapore	27 040	7.2	1.9	21 408	10.2	1.5
Denmark	20 489	3.4	1.4	18 297	5.9	1.3
Sweden	20 252	4.0	1.4	23 440	3.7	1.6
Turkey	19 484	10.8	1.3	8 149	13.6	0.6
Greece	19 239	..	1.3	11 286	..	0.8
Australia	18 346	6.6	1.3	18 025	3.8	1.3
India	18 331	14.7	1.3	19 913	13.7	1.4
Ireland	16 788	19.1	1.2	28 745	21.2	2.0
Norway	15 114	1.6	1.0	14 625	2.3	1.0
Israel	14 342	10.9	1.0	12 347	9.6	0.9
Luxembourg	13 877	..	1.0	10 520	..	0.7
Thailand	13 868	8.3	1.0	15 460	7.5	1.1
Mexico	13 756	4.6	0.9	17 437	3.6	1.2
Malaysia	13 511	14.7	0.9	16 726	11.8	1.2
Poland	10 392	13.1	0.7	9 000	11.6	0.6
Egypt	9 803	4.1	0.7	7 513	6.8	0.5
Russian Federation	9 632	..	0.7	17 352	..	1.2
Brazil	9 382	9.8	0.6	16 956	9.9	1.2
Portugal	8 415	6.0	0.6	6 652	5.6	0.5
Czech Republic	6 726	..	0.5	5 414	..	0.4
Hungary	6 252	10.3	0.4	4 476	7.8	0.3
Finland	6 061	5.0	0.4	8 347	1.2	0.6
Indonesia	5 213	7.5	0.4	15 011	8.8	1.1
South Africa	5 088	6.1	0.4	5 615	4.6	0.4
Saudi Arabia	4 785	5.6	0.3	25 262	-3.4	1.8
Argentina	4 536	7.4	0.3	8 871	10.0	0.6
New Zealand	4 326	6.5	0.3	4 511	3.9	0.3
Philippines	4 170	6.3	0.3	6 084	20.0	0.4

ANNEX II (continued)

Country/Economy	Exports			Imports		
	Value (\$ millions)	1990 - 2000 annual growth (%)	Share in world exports (%)	Value (\$ millions)	1990 - 2000 annual growth (%)	Share in world imports (%)
Croatia	4 084	..	0.3	1 827	..	0.1
Chile	3 931	8.5	0.3	4 488	8.7	0.3
Ukraine	3 800	..	0.3	3 173	..	0.2
Dominican Republic	3 228	11.3	0.2	1 373	12.6	0.1
Cyprus	3 200	5.1	0.2	1 160	5.9	0.1
Morocco	3 034	5.8	0.2	1 884	3.3	0.1
Tunisia	2 767	6.6	0.2	1 219	3.0	0.1
Viet Nam	2 702	..	0.2	3 252	..	0.2
Slovakia	2 241	..	0.2	1 805	..	0.1
Bulgaria	2 175	12.2	0.2	1 669	9.6	0.1
Colombia	2 058	1.7	0.1	3 295	7.6	0.2
Kuwait	2 041	5.0	0.1	4 939	2.7	0.3
Jamaica	2 026	7.8	0.1	1 432	8.6	0.1
Bahamas	2 023	2.9	0.1	975	7.3	0.1
Slovenia	1 886	..	0.1	1 450	..	0.1
Panama	1 830	5.6	0.1	1 138	4.7	0.1
Romania	1 767	11.2	0.1	2 021	11.4	0.1
Syrian Arab Republic	1 700	5.4	0.1	1 667	5.6	0.1
Peru	1 572	9.3	0.1	2 355	8.4	0.2
Estonia	1 499	..	0.1	959	..	0.1
Uruguay	1 354	9.9	0.1	900	7.9	0.1
Venezuela	1 237	0.9	0.1	4 255	3.7	0.3
Latvia	1 212	..	0.1	770	..	0.1
Kazakhstan	1 135	..	0.1	2 165	..	0.2
Malta	1 104	4.5	0.1	873	5.5	0.1
Mauritius	1 071	8.9	0.1	746	6.0	0.1
Lithuania	1 059	..	0.1	679	..	0.0
Iceland	1 049	7.0	0.1	1 165	7.7	0.1
Aruba	1 032	9.2	0.1	679	21.5	0.0
Belarus	993	..	0.1	432	..	0.0
Kenya	968	-2.1	0.1	725	1.2	0.1
Sri Lanka	939	7.4	0.1	1 621	9.1	0.1
Ecuador	849	3.5	0.1	1 256	4.0	0.1
Bahrain	830	6.8	0.1	683	2.7	0.0
Bangladesh	815	7.3	0.1	1 620	8.6	0.1
Guatemala	810	5.1	0.1	842	8.1	0.1
El Salvador	674	8.0	0.0	952	12.1	0.1
United Republic of Tanzania	615	18.3	0.0	670	11.5	0.0
Paraguay	589	5.2	0.0	425	1.0	0.0
Myanmar	526	25.0	0.0	514	26.9	0.0
Bosnia and Herzegovina	508	..	0.0	347	..	0.0
Ethiopia	506	6.7	0.0	491	4.7	0.0
Nepal	506	12.4	0.0	200	0.6	0.0
Ghana	504	19.0	0.0	597	7.7	0.0
Honduras	462	12.7	0.0	577	9.8	0.0
Albania	448	32.8	0.0	429	20.6	0.0

ANNEX II (concluded)

Country/Economy	Exports			Imports		
	Value (\$ millions)	1990 - 2000 annual growth (%)	Share in world exports (%)	Value (\$ millions)	1990 - 2000 annual growth (%)	Share in world imports (%)
Côte d'Ivoire	436	-1.9	0.0	1,216	-0.6	0.1
Antigua and Barbuda	415	3.3	0.0	164	5.5	0.0
Madagascar	364	9.6	0.0	522	8.2	0.0
Maldives	349	14.4	0.0	110	12.0	0.0
Mozambique	325	10.9	0.0	446	7.4	0.0
Saint Lucia	309	7.9	0.0	118	5.3	0.0
Yugoslavia	303	..	0.0	358	..	0.0
Nicaragua	300	18.5	0.0	339	11.6	0.0
Oman	283	32.8	0.0	1,501	7.8	0.1
Azerbaijan	260	..	0.0	485	..	0.0
Bolivia	224	5.6	0.0	468	4.8	0.0
Georgia	206	..	0.0	216	..	0.0
Belize	172	2.8	0.0	120	5.5	0.0
Cambodia	170	..	0.0	244	..	0.0
Moldova, Republic of	164	..	0.0	207	..	0.0
Grenada	151	8.5	0.0	83	10.0	0.0
Saint Vincent and the Grenadines	126	11.9	0.0	60	8.1	0.0
Saint Kitts and Nevis	97	5.1	0.0	74	9.1	0.0
Suriname	91	10.2	0.0	216	2.4	0.0
Dominica	88	11.9	0.0	51	7.3	0.0
Swaziland	74	-0.7	0.0	177	0.4	0.0
Anguilla	65	5.8	0.0	41	10.0	0.0
Kyrgyzstan	62	..	0.0	149	..	0.0
Rwanda	62	..	0.0	181	6.0	0.0
Lesotho	43	2.9	0.0	43	-6.1	0.0
Sudan	27	-15.0	0.0	648	6.9	0.0
Montserrat	16	-2.7	0.0	19	6.4	0.0
Burundi	6	-12.4	0.0	43	-14.4	0.0
Developing Countries	308 210	10.1	21.1	340 211	7.9	23.6
Developed Countries	1 153 654	5.8	78.9	1 098 811	5.6	76.4
World	1 461 865	6.6	100.0	1 439 022	6.1	100.0

Source: IMF Balance-of-Payments Statistics.