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E-Commerce and export promotion policies for Small- and Medium-Sized Enterprises: East Asian and Latin American Experiences

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Summary

As in other parts of the world, small- and medium-sized enterprises (SMEs) in Latin America are important generators of employment while contributing to establishing certain social as well as regional “equilibria” in the development process within the country. However, SMEs in Latin America are much less “export-oriented” than their East Asian counterparts. SMEs in Latin America tend to produce import substitutes and non tradables while manufactured exports are still produced by large firms in relatively capital-intensive ways. In contrast, many East Asian SMEs are vertically integrated and produce intermediate goods for large national firms or transnational companies (TNCs), which ultimately are the ones that export to the world markets.

In Latin America, the term, “E-commerce”, has meant basically consumer-oriented on line retail commerce, in comparison to East Asia where it is increasingly involved in a broader range of ICT-enabled business transformations including intranets, extranets, “closed” and “open” EDI, virtual private value-added network, and business applications of networked interactive multimedia. From this perspective, the longer term prosperity of E-commerce in Latin America will require a diversification in a number of directions, including the diffusion of E-commerce capability among SMEs in order to reduce the “digital divide” among enterprises. SMEs should to be an integral part of local knowledge-intensive business networks with large national firms and TNCs and clusters among themselves,

to promote web-based entrepreneurship, and to apply networking based on interactive ICTs. In doing so, SMEs can be key beneficiaries of the Internet and E-commerce.

The expansion of ICT should facilitate the catching-up or even leap-frogging of Latin American SMEs in the area of export promotion, by easing the traditional constraints that they face in the area of market access, information, human resource development, venture capital and credit etc. ICTs should be business tools that not only strengthen SMEs' competitiveness in traditional sectors but also create new markets and develop new productive and management capacity. Therefore, ICTs should enable SMEs to be forward-looking and strategy-oriented rather than focusing on a static environment. To promote exports by way of ICTs, the governments should address the SME programs on E-commerce that cut across traditional support fields (market intelligence, finance, technical and human resources, etc.), in a global and integrated manner.

Chapter I compares the "export-orientation" of SMEs between Latin America and East Asia and calls for a new approach for SME policy making for Latin America, in light of new challenges and opportunities created by ICTs. The second chapter examines the "E-readiness" of Latin American countries with that of East Asia, describes the use of ICT by SMEs, identifies the inhibiting factors for such use, and delineates E-commerce potentials for SME export promotion. The following chapter examines how a range of ICT-enabled business transformations including intranets, extranets, "closed" and "open" EDI, and other business applications are changing the modes of inter-firm relations of SMEs with transnational companies, large national enterprises and among SMEs themselves. Chapter V provides policy actions, at three levels: the private, public and regional/multilateral.

Introduction

Small-and medium-sized enterprises (SMEs) are important generators of employment and are often essential agents in innovation and technology advancement. They also contribute to establishing certain social as well as regional “equilibria” in the development process within the country. On the other hand, SMEs are known to face much greater market failures in information, factor and capital markets than large enterprises. They encounter difficulties in adequately obtaining and processing the information necessary to define their objectives and strategies. In addition, restrictions on access to qualified human resources as well as antiquated management methods and organization make it difficult for SMEs to adapt to a new competitive environment. Currently, a new business instrument has emerged, the so-called information and communication technology (ICT), which may serve either to lessen or intensify each of these constraints faced by SMEs in developing countries, depending on the policies designed and implemented.

SMEs are often characterized as the most disadvantaged and poorest entrepreneurial groups/sectors of developing countries. Moreover, in developing countries the weakness of the domestic industry is often believed to lie in the frailty of SMEs themselves. Another common perception is that domestic SMEs are easily destroyed when an economy is liberalized because they are unable to compete with large national firms and transnational corporations (TNCs). On the other hand, it is increasingly acknowledged that a thriving SME sector is critical in terms of the goods and services that it provides to large firms and to informal micro-enterprises. While the worldwide trend towards the removal of trade and investment barriers

has opened up certain markets previously accessible only to large companies, ICT enables SMEs to target these new markets and to develop and export new products, technologies and processes, either directly or through partnerships with larger firms.

There is an emerging view that SMEs comprise target groups that could benefit most from the Internet and E-commerce.¹ If the prediction that the majority of the growth in E-commerce will arise in business-to-business (B-to-B) transactions holds, it is precisely in this area that SMEs and businesses in developing countries should find their opportunities. This means that SMEs in medium-income developing countries might concentrate initially on a B-to-B E-commerce in which other businesses are the main customers or suppliers.

At present, SMEs in East Asia are much more “export-oriented” than their Latin American counterparts. Many East Asian SMEs produce primarily for the global market, given the small size of their domestic markets and their ability to compete globally. SMEs in Japan and People’s Republic of China are also export-oriented, despite the domestic market being tremendously large. Many SMEs in this region are vertically integrated and produce intermediate goods for large national firms or TNCs, which ultimately are the ones that export to the world markets. Wider use of ICT by large firms and SMEs in the rapidly increasing inter-firm networks enhance the capabilities of Asian SMEs.

In contrast, SMEs in Latin America tend to produce import substitutes and non-tradables that are marketed directly by them or through a marketing agent. Manufactured exports in Latin America were and still are produced by large firms with relatively capital-intensive technology. The East Asian experience of SMEs, that involved drastic increase in the role of SMEs in manufacturing output, employment and exports, therefore, provides an interesting example of what could be attainable in Latin America. Also, the expansion of ICT should facilitate the catching-up or even leap-frogging of Latin American SMEs by easing the traditional constraints that they face in the area of market access, information, human resource development, venture capital, credit, etc.

The ICT revolution changes management concepts and systems of SMEs in various ways. Manpower development and management strategies such as human resource development and improved technology, quality control, automation, accounting, inventory handling and inter-firm association, are already undergoing revolutionary changes, largely due to high-technology advances in ICTs. These business strategies are posing the SMEs important challenges as well as great opportunities to catch up with larger firms and find their own niches in international markets that are much more competitive and global. At the same time, ICT may allow the authorities to address more efficiently the SME programs designed not only to support the most promising enterprises, but also to focus on the smallest and the least advantaged enterprises or those operating in the most remote and least developed areas of the countries.

In Latin America, the term, “E-commerce”, has meant basically consumer-oriented online retail commerce, in comparison to East Asia where it is increasingly involved in a broader range of ICT-enabled business transformations including intranets, extranets, “closed” and “open” EDI, virtual private value-added networks, and business applications of networked interactive multimedia. From this perspective, the longer term prosperity of E-commerce in Latin America will require a diversification in a number of directions, including the diffusion of E-commerce capability among SMEs in order to reduce the “digital divide” among enterprises. It is important for SMEs to be an integral part of local knowledge-intensive business networks with large national firms and TNCs and clusters among themselves, to nurture web-based entrepreneurship and venture investment capital, and to apply networking based on interactive ICTs.

¹ In this paper, the term, E-commerce, is used interchangeably with “E-business”, to mean not only commercial transactions carried out over the Internet but also business operations that make use of network technologies. The latter includes, for example: merchandize planning, order entry, tracking, and fulfillment; warehousing and inventory management; shipping, etc.

I. Small-and medium-sized enterprises (SMEs) in foreign trade

A. SMEs: A heterogeneous group of firms

There is no official or universally accepted definition for an SME. The definitions used vary widely among countries, and depend on the phase of their economic development, the size of the country as well as on the prevailing social conditions. Though various measures/criteria are used to define SMEs --such as number of employees, invested capital, assets, sales volume and production capacity--, employment is the most frequently used. In general, an SME is considered to have fewer than 500 employees, though many countries use a lower threshold, say 300 or 100 employees. The Eurostat definition (fewer than 250 employees) is applied in 19 European countries and it is currently the most widely accepted definition. Although some economies use the same measure to define SMEs, it may result in different classifications in different economies. A Canadian medium-sized manufacturing enterprise is also regarded as a medium-sized enterprise in Australia, whereas it is viewed as a large enterprise in Hong Kong-China.

In any case, the criteria used in the developed world do not seem adequate for Latin America. The average size of Latin American SMEs seems to be about one-tenth of their counterparts in the developed economies (Katz 1993). In the region, the majority of firms are micro in size, and the micro sector is composed mainly of self-employed enterprises, family businesses, and economic units of around 5 to 10 employees. In Latin America, an estimated 50 million units of these micro enterprises exist, which employ more than 150 million people (Moreno 1999). In this paper, unless specified otherwise, SMEs include micro enterprises as well.²

Some countries, such as Malaysia, differentiate between manufacturing and services (in this case, services SMEs are usually defined as smaller than manufacturing SMEs). Often, statistics on SMEs exclude cottage and micro enterprises; for instance, the People's Republic of China (PRC) distinguishes between township and village enterprises (TVEs)³ and SMEs. Singapore distinguishes between local and overseas SMEs. Some countries distinguish between autonomous SMEs and those connected to a large enterprise or group, or identify an SME in terms of management structure. However, regardless of definitional discrepancies, when viewed from a managerial and organizational perspective, SMEs are distinguished from others by the following characteristics: i) they are usually independently owned and operated; ii) they are closely controlled by owners/managers who also contribute most, if not all of, the operating capital; and iii) the principal decision-making functions rest with the owners/managers.

SMEs are, therefore, a group of firms, heterogeneous in size and nature, which, when taken together, has a significant direct and indirect participation in the national product as well as in employment absorption and creation. Therefore, SMEs are also important in terms of equity benefits and distribution of income. The SME sector may comprise over 90% of all enterprises and cover more than 50% of the employment in individual economies. For example, the 40 million SMEs throughout APEC economies account for well over 90% of all enterprises, employ from 32 to 84% of the workforce, contribute from 30 to 60% of the GDP and account for 35% of exports in the region (APEC 1997, p.3). When weighted by GDP, SMEs make up approximately 25% of direct manufactured exports from OECD countries where statistics and estimates are available, compared to about 35% from non-OECD Asian countries. Their indirect contribution to exports is even larger, and is probably close to 50% for APEC Asian economies (Hall 1999) (See Table 1).

The importance of SMEs to long-term economic growth and stability derives from their size and structure, which, under adequate conditions (i.e., well developed factor markets) allow them the flexibility and ability to confront adverse economic conditions. SMEs are generally more labor-intensive than large firms and therefore have lower capital costs associated with job creation (Tommaso and Dubbini 1999). Consequently, SMEs play an important role in fostering income stability, growth, and employment. The development of SMEs is also important for poverty alleviation, and the promotion of more pluralist societies.

Besides, many SME experiences have demonstrated that they have been important agents in innovation and technology advancement (ENSR 1995). For instance, the role of new SMEs as generator of innovations has been well documented in the literature on innovation in the United States (see Box 1). There is a rich literature on the networks of Japanese SMEs surrounding large enterprises, based on lasting relationships and mutual cooperation (Aoki and Dore 1994, Coriat 1992). A prominent position of SMEs in the process of economic development and export push of

² The main feature of an SME is that it is not "large" in the sense that an SME is not in the core of the largest 10 or 20% of firms in that market or industry. This might lead to a rough convention for categorizing SMEs: i) micro; (1-4 employees); ii) very small (5-19); small (20-99); and medium (100-500).

³ TVEs in China include collectively-owned enterprises at the county and village levels, which are part of the cooperation enterprises operated by farmers and the self-employed enterprises operated by peasant families. At the end of 1995, the number of TVEs totaled 22.03 million, with 128.6 million employees and a total output of 145.95 million yuan renminbi (ESCAP 1997, p.99).

Taiwan Province of China has been a showcase of SME success among developing countries (Bielschowsky 1995; Abe and Kawakami 1997).

Box 1

**SMEs IN INNOVATION AND TECHNOLOGICAL ADVANCEMENT:
THE CASE OF THE UNITED STATES**

In the United States, in 1993 58,338 small firms (fewer than 500 employees) provided 28% of jobs in high technology industries and generated receipts in excess of \$170 billion or 18% of the industry total receipts. Of high-tech firms 94% have fewer than 500 employees; 73% have fewer than 20 employees. According to Small Business Administration (SBA), small firms produce 55% of the innovations in the country. They produce twice as many product innovations per employee as large firms. Small firms obtain patents per sales dollar and apparently have more discoveries than large firms, since small R&D firms are quite research intensive: the percentage of employees that are R&D scientists and engineers are 6.4% in small firms and 4.1% in large R&D firms. Moreover, large firms receive 26% of their R&D dollars from the federal government whereas small firms only 11%. A federal R&D funding to a small firm is more than four times as likely to be used for basic research than a federal R&D dollar to a large firm.

Source: United States, Small Business Association, the Facts about Small Businesses, 1997, pp.4-5

Also, rapid growth of “Third Italy” and particularly the SME-based industries were strongly associated with a concentration of firms in sectors and specific localities. Such clusters have been able to establish a strong foothold in world markets of traditional sectors (footwear, handbags, cloth and woven materials, furniture, ceramics, music instruments, foods) and also in supply industries of machinery required for these sectors (Domínguez 1996). Probably the most important detail is that such Italian clusters have had the capacity to improve on production methods, supported by the proximity of suppliers of primary materials, equipment, component producers and subcontractors, together with the combination of intense rivalry, and inter-firm cooperation by way of producers associations.

It should be recalled, however, that not all SMEs are equally dynamic in employment creation and innovation. In the case of OECD countries, about 5 to 10% of SMEs that are the so-called “entrepreneurial engines” contribute to economic growth and growth of employment. This small subset of SMEs create or reengineer products or services to meet new market demands, introduce new organizational approaches to enhance productivity, or develop new techniques to expand sales. Dynamic SMEs are usually found mostly in knowledge-intensive sectors and are integrated into formal and informal networks of firms (OECD 2000f). On the other side of the spectrum, there are groups of SMEs, usually small stores, whose growth rates may be high for some periods of time but their exit and start-up rates are also very high. Therefore, SMEs that grow over time are scarce. In the case of East Asia, those SMEs that have succeeded in expanding from small or micro size (usually about 5 to 10 people) to a size where there are medium-sized (about 20 to 100 people) with a certain formal management structure, are limited in number. As Hall (2000) and Zimmermann (2000b) suggest, there is an evidence of a “missing middle” across the SME spectrum.

In general, the correlation between export intensity and enterprise size for all sectors is positive, but does not seem very strong. In the case of SMEs in 19 European countries, the share of exports in turnover for micro enterprises (less than 10 employees) is 7%, while for small firms (10 - 49 employees) is 13% and medium-sized firms (50-249 employees) is 16%, respectively. For large enterprises, the corresponding figure is 22% (ENSR 2000). However, in the manufacturing sector,

export intensity rises more markedly with the size of the enterprise. Also, SMEs in smaller countries usually have higher export intensities than in larger countries (ENSR 1995), though recent experiences might indicate that those differences are narrowing. Although the exporting behavior of SMEs is often a mixture of learning-by-doing, strategic commitment, and random factors, SMEs situated in industrial districts or regions where they must export to survive are likely to begin exporting by imitating other local enterprises and by using informal information networks to discover the “best practices”. SMEs that are involved in inter-firm cooperation or networking tend to better take advantage of opportunities to improve their export performance. In addition, managers of exporting SMEs learn how to become more professional through their export experience.

SMEs resort to different channels for export, such as direct sales, agents or sale organizations, trading companies, direct representatives, or subsidiaries. The choice of which export channel(s) an SME will select depends heavily on marketing and distribution capabilities of the enterprise itself, the nature of the target market (e.g., a consumer market vs. capital goods market), the importance of user-producer relations and the intensity of exports in overall operations (i.e., export rate) (ENSR 1995).

B. Contribution of SMEs to exports in East Asia

Japan is an industrialized country that has a highly developed subcontracting system. About 60% of all Japanese manufacturers are small and medium subcontractors, and their presence exceeds 80% in manufacturing sub-sectors such as textiles and apparel, general and electric machinery, transportation and precision machinery.⁴ At the beginning of the 1990s, about 30% of Japan’s manufactured exports were reportedly undertaken by SMEs, in addition to their indirect contribution as producers of parts and materials into the export of assembled products (Yamazawa, 1994). Equally well known are the Taiwanese SMEs that have been the driving force of industrialization for the past four decades. They account for over 97% of all business establishments on the island, shipping about two-thirds of its total exports, and employing about 60% of the working population. SMEs are active subcontractors to many large foreign companies operating either on the island or around the world.

Less known are the SMEs of the Republic of Korea. Although both Korea and Taiwan represent successful cases of export-oriented industrialization, the *chaebol*-led Korean economy and the SME-oriented Taiwanese economy have been contrasted to show the importance of SMEs in export promotion (Ernst 2000). Historically, the export drive in Korea has been borne mainly by non-SMEs while in Taiwan it has been carried out by SMEs. When the share of Korean SME exports as a portion of total exports is compared to that of Taiwan, it becomes clear that the share of SME exports has been much higher in Taiwan than in Korea, especially up to the late 1980s. However, since 1982, the SME export ratio has steadily increased, while in Taiwan the share of SME exports to total exports remained at a comparably stable 60% until the 1990s. Since then their share has decreased slightly, and the contrast between the two economies is becoming less sharp (Abe and Kawakami 1997).

The closing-up by Korean SMEs in the export performance gap is due to the Korean government’s policies since the mid 1970s to promote SMEs.⁵ As a result, in 1996, SMEs

⁴ These ratios have remained relatively constant over the years since the Small and Medium Enterprise Basic Law was enacted in 1963. Even in times of economic adversity, SMEs as a whole have consistently performed well (Yamazawa 1994).

⁵ Korean SMEs, defined as companies which employ less than 300 persons and whose assets amount to less than 80 billion won, are more than 2.6 million, account for 99.5% of Korean businesses, and employ 9.1 million persons, 78.5% of total national workforce. There are more than 96,000 SMEs in the manufacturing sector. These SMEs represent 99% of all manufacturing companies and account for 69% of all manufacturing employees. The value of their production and their value-added activities corresponds 47% of

accounted for approximately 20% of the total investment made in the country. They also accounted for 42% of Korea's total exports. Electronics and electric products represented 29% of total SME exports, textiles 23.8%, machinery and transportation equipment 15.8%, plastic, rubber and leather goods 9.9%, iron, steel and metal products, and other 18.3%. Many small but capable subcontractors have emerged in recent years to play an important role in supplying large conglomerates. These SMEs are not only exporting but also investing abroad (Korea, SMBA 1998 www.smba.go.kr).

Singapore initially developed as an entrepôt-based economy but has successfully transformed itself into a strong industrialized economy. The country tapped the resources of large foreign companies while it adopted a balanced policy of supporting viable and innovative domestic SMEs. Today, domestic SMEs account for about 90% of the country's total number of establishments, 44% of its employment, 24% of its value-added, and 16% of its direct exports. SMEs are most actively involved in plastic products, electrical and electronic products, and transport equipment, often as providers of the ancillary support services and subcontracting work required by TNCs (Battat, et. al. 1996).

Equally interesting, but in strong contrast to the Singaporean case, are Chinese SMEs. SMEs in China have enjoyed rapid development since the adoption of the policy of reform and opening-up that started in 1978. Viewed from the perspective of the relation between SMEs and exports, Chinese SMEs (including Town and Village Enterprises (TVEs) and a large number of Sino-foreign joint ventures) in the light industry and textiles sectors have strong links with exports. The total exports of TVEs in 1995, for example, represented 43% of Chinese exports. The breakdown of TVE exports was roughly the following: direct exports (64%), exports by foreign trade companies through the purchase and sale system (45%), and self-operated exports (19%), while the remaining 36% consisted of indirect exports and outward processing trade (ESCAP 1997).

Table 1
INDICATORS OF SMEs IN SELECTED ECONOMIES IN THE MID 1990s

| Country | As % of total enterprises | Employment % | Contribution to GDP | Share of SME exports in total exports |
|---|--|--------------|--|---------------------------------------|
| OECD countries | | | | |
| Australia | 96.0 | 45.0 | 23.0 | |
| Belgium | 99.7 | 72.0 | n.a. | |
| Canada | 99.8 | 60.0 | 57.2 | 9.3* (1990) |
| Denmark | 98.8 | 77.8 | 56.7 | 46 (Mfg. only) |
| Finland | 99.5 | 52.6 | n.a. | 26 (Mfg. only) |
| France | 99.9 | 69.0 | 61.8 | 26 (Mfg. only) |
| Germany | 99.7 | 65.7 | 34.9 | |
| Greece | 99.5 | 73.8 | 27.1 | 19 |
| Ireland | 99.2 | 85.6 | 40.0 | |
| Italy | 99.7 | 49.0 | 40.5 | 53 |
| Japan (1994) | 99.0 (excl. primary industry) | 78.0 | 56.0 (of total value-added in mfg. Sector) | 14 |
| Korea, Rep. of (1996) | 99.1 | 78.5 | | 42 |
| Mexico (1994) (include micro enterprises) | 99.8 (98.8% micro, 0.6% small, 0.4% medium). | 78 | 69 | Less than 20% |
| Portugal | 99.0 | 79.0 | 66.0 | |
| Spain | 99.5 | 63.7 | 64.3 | 41* |
| Sweden | 99.8 | 56.0 | n.a. | 30 |

the nation's totals, respectively. The most active SMEs are those that employ from five to 49 persons, and they represent 59%, 45% and 46% respectively of the employees, production and value-added activities. SMEs engaged in seven manufacturing sectors (i.e., machinery and equipment, fabricated metal products, textiles, apparel and wool products, food and beverages, and rubber and plastics) represent 55% of all manufacturing firms in Korea (Korea, Small and Medium Business Administration, www.smba.go.kr).

Table 1 (concluded)

| Country | As % of total enterprises | Employment % | Contribution to GDP | Share of SME exports in total exports |
|---|--------------------------------|------------------------------------|-------------------------|---------------------------------------|
| Switzerland | 99.0 | 79.3 | n.a. | |
| United Kingdom | 99.9 | 67.2 | 30.3 | |
| USA (SBA, 1997) | 99.7 | 53.7 (private non-farm work force) | 51.0 | |
| Non-OECD countries | | | | |
| Taiwan Prov. Of China (1994) | 97.8 | 81.1 | | 56 |
| People's Republic of China | 98 | 70(mfg. only) | | 40-60 |
| Indonesia | 97 | 42 | | 10.6 |
| Thailand | 98 | n.a. | | 10 |
| Malaysia | 96 | 40 | | 15 |
| Philippines | 99 | 45 | 28% of mfg. Value added | 20 |
| Singapore | 89 | 42 | | 16 |
| Vietnam | 83 | 67 | | 20 |
| Argentina (1994) | 50 (industry only) | 48 (industry only) | 45 (industry. Only) | 15 (1999) |
| Chile (include microenterprises) (1997) | 99.1 | 74 (1993) | 23.7% of sales | 4.8 |
| Colombia (include micro enterprises) (1997) | 93.4 (industrial sectors only) | 54.7 (industrial sectors only) | 36% (of value added) | |

Sources: OECD, Figures for the shares of SME exports in total exports are taken from *Globalization of Economic Activities and the Development of SMEs: Country Reports. European Observatory for SMEs, 1995* for the majority of countries, *OECD Globalisation and SMEs, Synthesis Report, Paris*.

Notes: The export ratios for some selected countries are taken from Chris Hall "The Challenges and Opportunities of E-commerce and International SMEs: Implications for HRM in APEC": for Korea and Mexico, OECD, "SME Profile", Paris; Japan: www.jsbc.go.jp; Chile: Corfo (2000), "La PYME en Chile: Presencia de la PYME en el mercado de exportación de bienes y servicios, 1994-1997", Santiago, Chile; Argentina: *Observatorio Permanente de las PyMIs Argentinas: Informe a las empresas sobre el resultado de la Primera Encuesta Estructural*, Instituto para el Desarrollo Industrial de la Unión Industrial Argentina, Buenos Aires, October, 1997; * For Canada, Domínguez (1996); Philippines: ESCAP (1997) p. 176.

C. Export performance of Latin American SMEs

Contrary to what might be expected, SMEs in Latin America play a greater role in the industrial structure of large economies than in smaller countries, especially with respect to value-added and sales. However, regardless of the size of the economy, SMEs are most concentrated in the chemical and food industries, though in the large countries, their presence is also significant in activities linked to metal products and machinery. Latin American sectors that are usually associated with SMEs, such as garment and shoe production, are not dominant in the total production structure. Foodstuffs and chemicals as well as machinery and equipment produced by SMEs in large countries are mostly domestic-market oriented. Electric machinery and equipment and autos and auto parts, two industries in which Asian SMEs play a crucial role as subcontractors, have a relatively low importance in total SME production. It is in a range of 3% to 6% in Argentina, Brazil and Mexico (Peres and Stumpo 2000). Although the importance of SMEs in the economies of the four Mercosur countries is overwhelming (SMEs account for over 90% of establishments and over 50% of jobs), their participation in foreign trade is insignificant, accounting for less than 3% of total exports.

Table 2

**LATIN AMERICAN SME PARTICIPATION IN THE MANUFACTURING SECTOR:
EMPLOYMENT AND PRODUCTION**

(Percentage)

| Country, Firm Size* | Employment | Production |
|--|------------|------------|
| Argentina (1993) <u>a/</u> <u>b/</u> (6-100) | 44.6 | 35.9 |
| Bolivia (1994) <u>b/</u> (5-15 15-49) | 26.1 | 17.6 |
| Brazil (1997) <u>a/</u> (20-99 100-499) | 66.8 | 60.8 |
| Chile (1996) (10-49 50-199) | 52.7 | 37.1 |
| Colombia (1996) (1-49 50-99) | 52.5 | 33.3 |
| Costa Rica (1997) <u>a/</u> <u>b/</u> (31-100) | 13.2 | 12.6 |
| Ecuador (1993) (10-49 50-99) | 37.7 | 19.4 |
| El Salvador (1993) <u>b/</u> (21-50 51-100) | 17.6 | 14.8 |
| Mexico (1993) (16-100 101-250) | 44.6 | 31.1 |
| Nicaragua (1994) <u>b/</u> (4-30) | 11.7 | 11.2 |
| Paraguay (1994) <u>b/</u> (6-20 21-100) | 41.0 | 31.0 |
| Peru (1994) <u>b/</u> (11-20 21-200) | 52.5 | 36.1 |
| Trinidad and Tobago (1996) <u>b/</u> (6-100) | 57.0 | 22.6 |
| Uruguay (1995) (5-99) | 57.9 | 39.7 |
| Venezuela (1995) (5-20 21-100) | 39.5 | 13.8 |

Source: Peres, Wilson and Giovanni Stumpo (2000), "Small and Medium-Sized Manufacturing Enterprises in Latin America and the Caribbean under the New Economic Model", *World Development*, Vol.28, No. 9, pp. 1643-1655.

Notes: */ Firm sizes are defined according to employment. When one size range is presented, it corresponds to small- and medium- sized enterprises. When two ranges are presented, the first corresponds to small enterprises and the second to medium-sized firms. a/ The information on production refers to total sales. b/ Total manufacturing employment and value-added include micro enterprises. c/ Small firms (i.e., between 20 and 99 workers) account for 29.5% of employment and 20.9% of production. d/ According to preliminary census data for 1998 the share of SMEs in employment was 39.9%.

1. Effects of trade liberalization on Latin American SMEs

In Latin America, throughout the 1950s and early 1960s, SMEs were totally dedicated to the production of domestic substitutes for imported goods, with little concern for quality production efficiency or costs. These firms were not interested in exporting either (Katz 1999). They catered for local demand of non-durables such as textiles and apparels, shoes and leather goods and furniture. The technological frontier of these firms was one or two decades behind that of the world production. In the 1960s and 1970s, some of them gradually upgraded their engineering know-how and production capacities, and moved into exports, with the support of specific government policies to induce such export expansion.

The dismantling of the old regulatory regime for industrialization based on import-substitution and trade liberalization and market deregulation efforts have produced adverse effects on SMEs as a whole, as appreciated by the sharp increase in the number of bankruptcies in the 1980s. The process of technological upgrading of SMEs after trade liberalization and deregulation has been slow, difficult and fragmented. Local subsidiaries of TNCs have significantly reduced the number of products they produce locally. The introduction by industrial firms of changes in production organization (e.g., computer-based technologies and the "just-in-time" production organization principle) and de-verticalization of their production processes has meant a cutback on the number of parts and components, reducing their use of local subcontractors and suppliers and substituting imported intermediate goods for those domestically-produced (Bisang et. al 1996, Chudnovsky et. al. 1996, Katz 1996, Kosacoff 1993).

It should be noted, however, that during the course of economic reform in the late 1980s and in the first half of the 1990s, manufacturing SMEs in Latin America as a whole experienced neither stagnation nor a generalized drop in production, employment or productivity. Although their productivity is much lower than that of larger firms, in some countries the gap has been closed.

Despite the possibility that trade liberalization could have had a negative effect in some countries because of increased imports, Peres and Stumpo (2000) argue that SMEs in the manufacturing sector have not been the “losers” of the reform process. Instead, trade liberalization has led to more polarization within the SME sector. In the wide spectrum of SMEs in the region, there have been “winners” as well as “losers”, and these winners have been largely responsible for the incipient dynamism in exports in some countries.⁶

In the view of Yoguel (1996b), the performance of SMEs during the reform period might be differentiated according to: i) the capacity to react and formulate “adaptive” strategies; ii) the capacity to define new strategy and flexibility within a new environment; iii) the degree of knowledge that the firm achieves with respect to its competitors and the market dynamics in which it operates; iv) the management style; and v) the degree of freedom in designing competitive strategies (see Box 2). Unequal weights of these features among firms led to different effects within a pool of SMEs and distinct speeds of micro adjustment among SMEs to the macroeconomic adjustment and export expansion.

Peres and Stumpo (2000) attribute these varied, heterogeneous responses to the reforms to the depth and complexity of the industrial structure, especially in large economies, where SMEs are strongly linked among themselves in production clusters or with large firms via subcontracting. These linkages are thought to be conducive to the modernization of their technical and managerial skills. Together with easier and less costly access to technical and market information, all these inter-firm relationships strengthened the SMEs’ capabilities to withstand competition and made them more flexible to react to adverse economic environments.⁷ As a matter of fact, the most dynamic export-oriented SMEs were found in those sectors that can be characterized by intra-industrial and intra-firm trade. Distinct levels of entrepreneurial capabilities and competence among firms and sectors have also led to different degrees in taking advantage of the amplified market size resulting from regional trade agreements, and in adjusting their organization towards a trend of lesser verticalization of the firms, greater intra-SME cooperation and more enhanced inter-firm relations with large enterprises (see various articles in SOCMA 1998).

2. Small SME exports: Some country cases

In the case of Argentina, a country for which census data on SMEs’ exports are available, a very recent study (Koenig et. al. 2001) suggests that there were 10,136 industrial goods exporters, with total exports of US\$ 16.4 billion (Table 3). Of these firms, 668 were large firms whose annual exports exceeded US\$ 7.5 million, accounting for 85% of total industrial goods exports. There were 3,834 SME exporters, which represented close to 15% of total exports. In addition, there were 5,634 micro firms which accounted for 0.5% of the total. The average export value of SMEs in that year was roughly US\$ 600,000, while the estimated export coefficients (export values against total sales) of these SMEs situated around 4.4%, in contrast to 18.2% of large firms. Across the SME spectrum, the majority of SME exporters exported sporadically only to the neighboring Mercosur countries, whereas there were almost 790 firms whose exports were destined not only to Mercosur

⁶ The recent crisis in East Asia has underlined some negative aspects of liberalization, affecting severely the SME sector in the region. Aggregate demand for goods and services contracted severely because of lower production and reduced public sector demand. Higher import prices due to steep currency devaluation, lower subsidies for public facilities and services, and higher cost of bank financing produced a combined effect of domestic inflation and increases in basic food prices. The burden of servicing domestic debt became much heavier due to sharp increases in interest rates in the formal financial sector, whereas those in the “curb” market or informal market (the main sources of finance for micro firms and SMEs) reached prohibitive levels (UNCTAD 1998c). Regnier (1999) maintains, however, that those SMEs catering largely for export markets and relying mostly on local materials and inputs, have managed even to raise their production and export earnings.

⁷ Katz (1999) argues that surviving SMEs that were part of the economy’s fast-growing industries have tended to improve their performance relative to large-scale companies. Meanwhile, the performance of SMEs operating in slow-growing industries has deteriorated in comparison to that of large-scale firms. The implication of this is that the sectoral environment and externalities, rather than the internal factors of the firms themselves, have been determinant in SME performance.

markets but also the United States and Europe, in a more sustainable manner. It should be noted that by relying strongly on imported inputs, the Argentinean SME sector as a whole registered a trade deficit close to US\$500 million, while large firms reported a surplus of US\$ 6 billion.⁸

Table 3
INDUSTRIAL EXPORTS OF ARGENTINA, BY FIRM SIZE (1999)

| Firm-Size | No. of Firms | Industrial Exports (US\$ Million) | Ave. Value of Exports (US\$ Million) | Estimated Export Coefficients |
|--------------|----------------------|--------------------------------------|---|----------------------------------|
| | | | | Only for Exporting Firms |
| Large | 668 (7%) | 13,919 (85%) | 20.8 | 18.2 |
| SMEs | 3,834 (38%) | 2,377 (14.5%) | 0.6 | 4.4 |
| Micro | 5,634 (55%) | 79 (0.5%) | 0.014 | n.a. |
| Total | 10,136 (100%) | 16,375 (100%) | 1.6 | 15.7 |

Source: Virginia Moori Koenig et. al. eds. (2001), *Ventajas competitivas dinámicas: las PYMES exportadoras exitosas argentinas*, Fundes Argentina, Buenos Aires, May.

The principal export sectors of SMEs in that year were related to the processing of foods, drinks and tobacco, with close to 33% of SME exports in industrial products, chemicals and plastics (19%), machinery and metal-working (16%), and apparatus and equipment (14%). The traditional sectors such as textiles and clothing (7%), leather and shoes (6%) and wood and paper (6%) were less important in SME exports. Though still limited in terms of contribution to total exports of the country, SMEs are playing an important role in the product and market diversification process (Koenig et. al. 2001).

There are several reasons for low export values and export coefficients of SMEs in Argentina. They include, among others, lack of market information, of potential demand and human resources; uncompetitive prices (that are also related to overvalued exchange rates); reduced economies of scale; delay in drawback payments, high costs of custom procedures, and lack of government support.⁹

Box 2

**REACTIONS OF SMEs TO TRADE LIBERALIZATION AND DEREGULATION
IN ARGENTINA**

Examining specifically Argentinean SMEs, the depressed industrial production of the economy as a whole and particularly of SMEs that was registered particularly for the inter census period (1984-1993) had led to basically three different reactions to trade liberalization (Yoguel 1998, Gatto 1998).

1) At one extreme, there is a small group of SMEs (less than 1% of the total number) of excellence in production and trade. They are able to adapt to the new rules of game, not only in their own techno-productive trajectory but also in developing their offensive strategies. These SMEs have adequate management capacity that allows them to introduce substantive changes in their production and/or trade schemes, adapting and incorporating new products with new export platforms, and at the same time complying with international norms of quality and introducing innovation. These activities generated half of the production value of "SME production space" and represented a relatively equilibrated trade balance.

⁸ Another study (Gutman 1999) shows that in 1997, only 143 out of some 600 SMEs were exporters. In addition, the annual value of exports for a large proportion (42%) of the 143 firms did not reach US\$ 300,000, with only 12 firms exporting more than US\$ 2 million annually. For this group of SMEs as a whole, the export coefficient was 10%, with the average export value of US\$ 1.27 million. These export figures of 1997 were greater than those reported by earlier studies (CEP 1998, Moor Koenig and Yoguel 1996, Gatto and Ferrero 1997).

⁹ The SME firms surveyed express that trade liberalization did not improve competitive conditions in their respective markets. For some SMEs, greater and cheaper imports have tended to strengthen their competitiveness, while for others imports did not have positive effects and imports with "dumped" prices have created sharpened competitive pressures (Gutman 2000, p.52).

Box 2 (concluded)

The predominant activities in this group can be categorized as “intra-industrial”. Among the goods produced by these SMEs, the most important are machinery and equipment, car parts, light chemicals, leather manufactures, and certain plastics, with certain degrees of product differentiation. Some of these firms have developed cooperation agreements with foreign firms, especially in Brazil, taking advantage of tariff preferences and sectoral protocols. They adopt the strategy of product specialization and pursue scale economies with foreign partners. They are usually successful exporters, selling more than 25% of total production to foreign markets such as the United States, European Union and Brazil. They take advantage of trade liberalization by incorporating more imported inputs.

2) The second group, which accounts for roughly two-thirds of the total SMEs in the country, is characterized by several problems in production and management that preceded market reforms and globalization, but was also aggravated by them. The majority of the SMEs in this group, regardless of sectors, face marked technological backwardness. Though in recent years some SMEs have intensified efforts in export promotion and local market expansion, the limited investment made in the past severely conditions their outward orientation and limits their participation in local markets in face of the competition coming from imports. These SMEs’ efforts in innovation are much less complex than those undertaken by the first group, due to the level of training and lack of interaction with other economic agents. A limited number of SMEs in this group have tried to develop cooperation agreements with Brazilian firms.

3) The last group of SMEs, approximately one-third in number, has a limited probability of survival in the market. These firms lack information to design a successful adaptive strategy, and in the most part, are affected by productive and managerial constraints that carry from the pre-reform period and are present in those sectors that have enjoyed a greater protection before opening. Export-oriented firms in this group are small in number, and are exporters who take advantage of sporadic opportunities in foreign markets. Some of these SMEs have tried to develop cooperation schemes with foreign agents but have usually failed due to the lack of clear objectives.

Therefore, on the one hand, there exist a small group of Argentinean SMEs that are in condition to redesign their business strategies and activities in such a way that they will transform themselves into reliable suppliers for the Mercosur markets. On the other, there is a large number of SMEs that would require not only an accelerated technological change and significant internal adjustments within themselves (technologies, human resources, managerial support, etc.), but also new inter-firm relations with large national companies or transnational corporations. It seems very difficult for some sectors and firms to reach international standards because of their prevailing backwardness in technological and managerial fields. In other cases, the competitive pressure has stimulated the adaptation process and learning by doing, especially in the area of product engineering, getting the firms closer to international standards.

For Argentinean SMEs, the Mercosur market has been the most important export destination, representing 40% of SMEs’ total exports. Brazil was the largest market that absorbed more than 17% and 20% of total SME exports in 1993 and 1995, respectively. Uruguay and Chile were also significant markets for Argentinean SMEs.¹⁰ These observations tend to support the view quite often expressed in the business and academic circles that the neighboring regional markets constitute a “testing field” or “stepping stone” for a subsequent extra-regional export push for SMEs (Kosacoff and López, 1998, Gatto 1998).

Unfortunately, Brazil does not provide export statistics by size of firms. Nevertheless, Brazilian SMEs, that employ 60% of manpower, are reported to export only 6% of the country’s total exports (Brazil Ministry of Science and Technology 2000). A study (Motta Veiga, Bosco, and Cordeiro de Carvalho 1999) on small- and micro-enterprises of the State of Sao Paulo also reveals that these firms do not play a significant role in exports.¹¹ In 1996 a group of almost 2,000 SMEs exported only US\$ 293 million, equivalent to 1.8% of total exports of the State. Only 11% of these

¹⁰ For a geographic distribution of exports by Argentinean industrial SMEs, by their size (micro vs. small and medium-sized), see Instituto para el Desarrollo Industrial de la Unión Industrial Argentina (1997).

¹¹ A sample of small and micro export enterprises was collected with the following criteria: a firm of employees less than 100 and a value of exports less than US\$ 3 million.

SMEs represented 65% of total export value, each exporting on average more than US\$ 400,000 a year, while 81% were responsible for only 20% (with less than US\$ 200,000). The destination of their exports were ones similar to those of larger firms, but the weights of Latin American Integration Association (LAIA) and Mercosur countries were greater for the SMEs. The most important sector was machinery and tractors, followed by electric materials, automobile parts, refined petroleum, various kinds of chemicals, shoes, etc.

Even in Chile, a country of high export-orientation, the participation of SMEs in exports is marginal. In 1997, according to Chile's Corporación de Fomento de la Producción (Corfo 2000c), some 3,000 SMEs (636 micro enterprises and 2,916 SMEs) out of 5,795 exporting firms of all sizes were involved in exports. These 3,000 firms, that accounted for roughly 3.3% of micro and SMEs registered in the country, exported US\$ 794 million, equivalent to 4.8% of total exports. Chilean SMEs are also not export-oriented; exports accounted for only 2.3% of their total sales. It should be also noted that during the period of 1994 and 1997, not only the number of micro but also that of SMEs dedicating to exports declined and the contribution of these firms to total exports correspondingly declined from 6.5% to 4.8%. Chilean SMEs are reported as facing problems of efficiency and competitiveness, especially in shoes and textiles, whereas SMEs in sectors such as metalworking and services have better indicators (Márquez and Tapia 1997).

Mexico's estimated 2.4 million SMEs (mostly micro enterprises) employ roughly 78% of the economically active population and contribute to 69% of GDP and 43% of total sales. The participation of the SMEs in total direct exports is estimated to be less than 2% (Correa 2000). Moreno (1999) stated that around 8.8% of Mexican SMEs are not interested in exporting, 68.8% have not exported, and only 13.5% do export. The major problems faced by Mexican SMEs include, among others, lack of skill and management expertise and knowledge about the procedures for entering foreign markets.

Regarding several other Central American countries, a study by ECLAC (1998) showed that SMEs in these countries are very important generators of employment and GDP. Depending on the country, SMEs created between 20% and 25% of employment and contributed to between 20% and 50% of GDP, the most important sector being commerce. The role of these firms in exports cannot be quantified, but they do participate in exports, mainly through subcontracting activities, concessions, or as intermediates by wholesale merchants.

D. Redefining government programs on SMEs through ICT

As is well known, exports by SMEs are constrained by a combination of internal and external factors. The former includes lack of capital, inadequate information, and insufficient management skills, while the latter includes trade restrictions and bureaucratic procedures. Marketing and distribution problems, high transportation costs and communication problems might be also included as external factors (Katz and Stumpo 2001). SMEs face serious problems with identifying and getting information on customers, including their credit-worthiness, finding suitable representation in the target market and establishing relationships of trust, arranging transport means to the market, and overcoming communication problems that include different languages. A sincere aspiration of governments and SMEs themselves is that adequate access to and efficient use of ICTs by SMEs can effectively lessen these constraints, without SMEs having to resort to the services of trading companies.

In the cases of major exporting countries in East Asia, the above-mentioned "market failures" that SMEs face in the international markets have historically been lessened by trade-related services of intermediation by general trading companies (GTCs). Private-sector initiatives coming from these companies have complemented well the government programs on SME

promotion. In contrast, in Latin America trading companies that transact in different regions of the world involving a large number of products and services are rare, which might have been helpful in correcting market failures of SMEs in information, production factors and transfers of property rights.

It should be pointed out, however, that GTCs are useful mainly in reinforcing the competitiveness of existing products and services in existing markets. Information and communication technologies (ICTs) are business tools that not only reinforce this traditional competitiveness but also create new markets and develop new productive capacity in advance to meet this newly generated demand. Therefore, ICTs enable SMEs to be more forward-looking and strategy-oriented rather than focusing on a static environment (OECD 2000g). ICTs tend to facilitate establishment by individual SMEs of local and international partnerships moving up the value-chain. However, E-commerce is horizontal in nature, and the SME programs on E-commerce cut across traditional support fields (market intelligence, financial and credit mechanisms, technical and human resources, etc.). In order for these potential benefits to be fully reaped, therefore, it is important for the governments to address these support programs in a global and integrated manner.

1. Reasons for high participation of general trading companies in SME exports

An essential force behind the export drive of Japan, the Republic of Korea and Taiwan Province of China has been the general trading companies (GTCs). Especially in the early periods, GTCs and SMEs produced complementary forces for the national export engine: SMEs were good suppliers of competitive products, while GTCs provided expertise on management, financial support such as investment funds and loans, and the supply of raw materials for production. The participation of major Japanese trading companies in total exports of the country, though declining rapidly in recent years, stood at 24% in 1998, with the corresponding figure in imports at 33% (Keizai Koho Center 2001, Table 3-18). In 1995, close to 46% and 19% of Korean exports and imports, respectively, were handled by 13 Korean GTCs (ESCAP 1997). Bielschowsky (1995) emphasizes the role of GTCs in export promotion by SMEs in Taiwan as well. Emulating the successful and pivotal role played by GTCs in these economies, some other countries such as Malaysia¹² and the Philippines have established such companies.

The dominant position of GTCs in the export expansion carried out by Asian SMEs is due to their ability to correct “market failures” that SMEs often encounter in their access to information and knowledge, production factors and capital markets. With respect to information, for instance, for markets to allocate resources efficiently, all market participants must have the same relevant information, a situation that is difficult to be met by SMEs. Beyond its nature as a public good and source of market failure, the fixed cost of acquiring information can create a cost-disadvantage for SMEs. The ability of these firms, especially those in developing countries, to enter and compete effectively in export markets is undermined by the high fixed cost of acquiring, processing and reorganizing information related to foreign buyers, distribution channels, quality standards, and new technologies (Hallberg 2000). Access to information about policy changes, trade and investment regimes and fiscal incentives, as well as to the legal and bureaucratic procedures in

¹² In 1994, for instance, the Government of Malaysia has selected in 1994 four state-owned GTCs to enhance national trade and economic links with other regions; Guthrie Malaysia Trading Corporation (GMTC) has been appointed to cover several market segments of the Latin American region. These firms support SMIs and SMEs by representing Malaysian industries overseas via promotional activities, and by acting as a centralized marketing and distribution outlet, and by minimizing risks and costs. Their promotional activities include, among others, i) participation in overseas trade missions and exhibitions organized by the Government; ii) the dissemination of enquires to participating companies regarding the supply of goods and services in the markets of those countries; iii) the provision of documentation confirming the credibility and capability of the participating companies; iv) the identification and the execution of possible competitive sourcing of materials and other imports required by Malaysian industries (ESCAP 1997).

trade areas is also limited. Being involved in many transactions, among different products and geographical markets, GTCs are well placed to distribute a fixed initial cost and to enjoy a decreasing marginal cost in information collection and marketing.

The limited ability of SMEs to provide a number of services in the transfer of private property rights between economic agents (e.g., contract negotiation and enforcement) and obtaining transportation services also invites the participation of trading companies. Even if GTCs do not provide the transportation means, they can pool a large order from various SME producers, coordinating shipping times and locations to reduce the cost per unit of goods transported. Transportation costs are also reduced because of facilities and arrangements made at ports of origin and destination. Such facilities and arrangements can also be characterized as having a large fixed cost and small marginal costs. Resort by SMEs to E-commerce should reduce transaction costs involved in transport and customs procedures, thereby facilitating trade.

In credit markets, SMEs' access to the formal financial sector is constrained by the high risks and transaction costs, real or perceived, that are associated with that segment of the market. Lenders are faced with a lack of reliable information on borrowers, difficulties in enforcing contracts, and the lack of appropriate instruments for managing risks (Hallberg 2000). GTCs have traditionally acted as financial intermediaries, guarantors and/or providers of credits to SMEs thanks both to their own creditworthiness and by being able to pool risks among agents, products and geographical markets. GTCs can also minimize exchange rate risks.¹³ ICTs are, on the other hand, providing SMEs with new sources of venture capital and other forms of capital associations among themselves and with large firms.

Increasing availability of information and communications technology (ICT) and its use by SMEs in their businesses and E-commerce transactions in particular can be efficient tools for SMEs to overcome the above-mentioned market failures, without resorting to services of GTCs. While GTCs themselves seek to incorporate ICT in new business areas to their own advantage, the disadvantageous positions of SMEs in markets of information, technology, and market access, finance and so forth in comparison to GTCs could be reverted by SMEs' increasing use of ICT and E-commerce. As discussed later, such constraints on SME growth can be alleviated through sub-contracting, production sharing arrangements and franchises, by producing inputs or different finished products for larger firms or through cluster arrangements among themselves. Tie-ins with domestic and foreign firms help solve the information problem and the growth of the Internet and other electronic communications even further by reducing the costs that are associated with these constraints.

2. Government programs on SMEs: Need for a new focus

In the past, the high potential benefits that SMEs could provide to the development process, coupled with an increasing concern over the present situation of and prospects for SMEs, resulted in the proliferation of government initiatives in areas such as financing, technical assistance, information and others. There have been successful export promotion strategies in East Asian countries that have gone beyond economic liberalization measures. Efforts have been made particularly to integrate technological,¹⁴ manpower training, and financing support,¹⁵ which the market by itself might not provide in its early stage of development.

¹³ GTCs reduce exchange rate risk by that: i) the net transfer of cash through clearing arrangements to settle interregional or interbank accounts is only a small fraction of total transactions; and ii) they deal both in importing and exporting, reducing transactions across currencies to a fraction of the total import and export business. These GTCs can also participate in the international forward markets to hedge the risks involved in exchange rate fluctuations at relatively less costs than SMEs that are single export manufacturer or import user dealing in a small number and quantity of goods.

¹⁴ East Asian countries have established central institutions to shepherd advances in the field and to provide technological services that SMEs can seldom perform themselves, such as testing of materials, inspections and certification of quality control standards.

However, these initiatives have had in general, for different reasons, difficulties in complying with the original objectives. This has been particularly so in the case of Latin America. Public policies aimed at supporting and fostering SME development in this region seem to have little impact on the enhancement of employment, production and productivity. The evidence from a series of national studies on SMEs in Latin America (Peres and Stumpo 2000) suggests that these policies had little impact, perhaps with the exception of the cases of the Brazilian Service for Enterprise Assistance (SEBRAE)¹⁶ and the Mexican industrial development bank, Nacional Financiera (NAFIN).

Past experiences have suggested that support measures on SMEs should be integrated or bundled together (i.e., training with innovation, information on partnering and finance, etc.) (UNCTAD 1998a). Although each category of technology, training, and financial assistance plays an important role in upgrading SME capabilities, the key to success is good coordination and coherence among the various government programs (Battat et. al.1996). It is also necessary for the SME-oriented programs to achieve public visibility through advertising, educational events such as conferences and seminars, and large-scale meetings between public and private organizations. Many programs do not last long enough to be known to the public. Now there appears a new area of promotion and support for SMEs, ICTs, which has to be bundled together and coordinated with other policy areas.

In addition, initiatives have to be defined and implemented with a bottom-up involvement of the main local interest groups, both public and private (OECD 2000g). Recipients should be in charge of the need assessment and design process, and not just be involved in the program as end-users. At the same time, SME-related projects should be evaluated by certain performance criteria, such as cost-effectiveness, sustainability, outreach, replicability, and demand-side orientation. The old criteria of financial assistance that helped SMEs to survive have shifted to more stringent ones that are based on demonstrated ambition, ability and commitment (UNCTAD 1999e). Often, export-oriented activities are given top priority. ICT in general and E-commerce are likely to help SMEs incorporate these performance criteria.

3. ICT-Related programs on export promotion

Asia offers some interesting cases of ICT-related programs on export promotion. The example of the Republic of Korea (see Box 3) is a case in point. Another illustrative case is Taiwan province of China. To create an environment that will assist the industries to have the capability to implement E-commerce, since July 1999 the government has implemented a series of projects. One of those projects is “Internet Commerce Project” organized by the Department of Commerce, originally aimed at promoting an integrated supply chain management application to connect 40 industries as well as 50,000 enterprise users. With this program, by the end of the year 2001, Taiwan’s annual E-commerce turnover is projected to exceed US\$ 16 billion. The Ministry of Economic Affairs plans to aid at least 20,000 domestic firms, 80% of which are SMEs, to conduct

calibration of measuring instruments, establishment of repositories of technical information, patent registration, research and design, and technical training. In addition, technical consulting services and customized troubleshooting services have been established, being especially useful to SMEs. While some of the technological services provided by public agencies are free, others are made available through subsidized rates (Battat et. al. 1996).

¹⁵ In the area of training programs, governments in Singapore and Korea have played a leading role in introducing ISO standards and factory automation, and in helping SMEs to install and implement the new systems through massive training and consulting services. In the field of financial assistance, important tasks such as market research, information collection about technology, purchase of machinery, manpower and management training, securing of customers, and perfecting of the process—cannot be financed by loans alone, but require risk capital. The various financing schemes included subsidized credit, tax incentives, and guarantee funds (Battat et. al. 1996).

¹⁶ For an evaluation of some SME programs in Brazil, see (Mueller 1999).

B-to-B E-commerce business over next three years. The government provides tax incentives to encourage companies to adopt B-to-B solutions.

In Sri Lanka, since 1998, with the support of the Export Development Board, SMEs had been able to import new technologies duty free under the Advanced Technology Incentive Scheme (ATIS). A five-year tax exemption was also offered to investors providing more than 50 or more jobs. Priority had been given to ICT and E-commerce. The Board set up an IT hub and cyber trader facilities in the capital. A number of regional E-commerce centers had also been established. These facilities provided updated market and trade information and business promotion services, including B-to-B link-ups and web advertising services to SMEs that were unable to invest in ICT-related equipment and services. Free web advertising for a period of six months was offered to those SMEs that were judged to be export-ready or potential winners.

Though still at an incipient stage, the governments of many Latin American countries have initiated programs on export-promotion with a focus on E-commerce. For instance, in the case of Costa Rica, the government has taken an important step towards promoting ICT development by removing import taxes on computer-related equipment. ICT facilities in schools and universities have been upgraded. The governments of Latin America are currently spending a large amount of funds to increase the number of professionals in the education system and to improve the country's intellectual property regime. In Argentina and Chile, a greater access of the Internet has been introduced for the enhancement of a knowledge-based society, from the bottom-up. In Chile, the website "Enlaces.cl" had by mid-2000 more than 4,000 schools interconnected among themselves and with the world through the Internet. Some countries are reforming their legislation to strengthen security issues and consumer protection.

Box 3**RECENT SME PROMOTION POLICY IN KOREA**

Assistance to the internationalization of Korean SMEs consists of a variety of measures. The Small and Medium Business Administration provides multi-faceted assistance to help SMEs integrate into the new emerging global economic order, especially in trade, foreign investment and technological cooperation. With respect to export promotion, the administration provides services such as trade practices, overseas market surveys, and trade missions and exhibitions. An Internet home page has been established for foreign buyers to gain access to a list of promising SMEs and their products available for sale. Regarding in-bound FDI, the government provides tax incentives, financial assistance and factory sites to foreign firms investing in Korea. A series of onerous regulations hindering FDI are rapidly being removed. A one-stop service system is now available at the Korea Trade and Investment Promotion Agency (KOTRA) to help multilateral companies invest in the country without having to face layers of red tape. In addition, the administration dispatches missions overseas to locate ideal sites for investment and gathers information on investment climates and procedures in foreign countries. (SMBA, pp.1-2).

The Government of the Republic of Korea promotes the development of ICT through various legislative measures. Taking into consideration the growing importance of the knowledge-based economy and the explosion of the Internet, the government initiated in April 1999 "Cyber Korea 21", a blueprint for the promotion of the development of Telecommunication and IT by the year 2002. The pillars of this program are: i) early completion of the Korea Information Infrastructure (KII); ii) enhancement of national productivity by using KII; and iii) promotion of new businesses related to information structure.

Box 3 (concluded)

In addition, a significant effort is underway to establish a national public key infrastructure, which will enable the widespread use of digital signatures and encryption, promoting trust and confidence in E-business and government interactions. Digital signatures were made legal in 1999. Three private sectors and one government organization have been certified by the government to issue and manage signature keys.

Assistance is provided to SMEs with the aim of promoting computerized factories and office automation. In preparation for the wider practice of E-commerce, Commerce At Light Speed (CALs) standards are being established and more educational programs are offered for the implementation of point of sale (POS) systems. The government also provides support to those who wish to start new venture businesses and to SMEs desiring to convert into venture businesses in technology and knowledge-intensive fields. The government also plans to have all government procurement activities carried out electronically by 2001.

There have been new initiatives on E-commerce by SMEs. SEBRAE, the Brazilian agency for upgrading SMEs, has launched a website (www.viasebrae.com.br) as a market place for B-to-B and B-to-C transactions. Telefômoça Brazil has recently teamed up with Terra Networks to set up a portal for SMEs (www.topnegocios.com.br). Under the joint leadership of public officials and private entrepreneurs, Venezuela has created a remarkable entity, CAVECOM-e (www.cavecome.org.ve), whose tasks include, among others, the promotion of E-commerce at home and abroad, and the improvement of the local legal and normative frameworks related to E-commerce (UNCTAD 1999). Some programs specifically designed to promote SMEs in countries, such as Chile (Corfo and Prochile) and Colombia (PRODES), have been very successful in training and export expansion, with a focus on ICT. Prochile promotes E-commerce through sites such as Virtual Marketing Office, Trade Maps Chile, Face-to-Face Japan, and offers other services in tourism, Chilean movies, and university information (www.prochile.cl, www.chileinfo.cl). In the case of PRODES of Colombia, for example, more than 100 firms are already members of the recently created Expopyme, of Proexport (Pallares 2000). Peruvian Export Promotion Commission has a website (www.prompex.gob.pe) which provides a list of exportables of the country, a service of extreme importance for Peruvian SMEs. In Uruguay, Algoa.com is the first B-to-B market place site to offer exchange services for SMEs. But in general, the number of government programs which are directed to the enhancement of E-commerce as a tool for export promotion specifically by SMEs are few in number and limited in their scope.¹⁷

E. “Disintermediation” or “Reintermediation” ?

A major difference between doing business through traditional methods and through E-commerce is that the latter tends to reduce the degree of “intermediation”. In traditional business practices, the merchandize is managed, transported, stored several times by distinct agents before getting to the final destination. Different financial services are also required through diverse stages of the sales chain, while one particular piece of information gets fragmented and loses its quality and utility at each stage. The goods and services that are “digitalized” constitute the most extreme case of E-commerce, because the producer can deliver the good directly to the consumer, eliminating all possible forms of intermediation. In the case of “non-digitalized” goods, E-commerce permits a more efficient form of transfer than traditional businesses.

¹⁷ For various programs that are related to the diffusion of Internet in Latin America, see Sáenz (2000), IDB (2001), Ca’ Zorzi (2000).

It can also be pointed out that through strategic alliances and enhanced information exchange, distinct enterprises can act as if they were one firm, optimizing the use of resources. In this case, it does not lead to eliminating all intermediaries but of those that do not add value (Gariboldi 1999). E-commerce changes the cost structure that shapes a firm's relationships with other businesses. At every stage of the value-added chain, an intermediary often performs a service that facilitates the process, by adding value but also adding cost (OECD 1999a, Chapter 2). In many cases, this service is information-intensive and often involves some type of risk sharing.

Though E-commerce has allowed a significant shortening of production and delivery chains, and allowed measurable reductions in transaction costs, it does not necessarily lead to the disappearance of “intermediation” (US Department of Commerce, 2000b). Rather, E-commerce, in some cases, favors the emergence of “new intermediaries” along the delivery chain. This is because a long list of web pages, URLs and information sources creates confusion and loss of time and money for the average E-commerce user, especially the smaller ones like SMEs. While E-commerce tends to shift negotiation power from sellers to buyers by reducing the cost of switching suppliers and by distributing an enormous amount of information on prices and products, most E-commerce/internet users are overwhelmed by “information overflows”. A new kind of intermediation offers a service, or a range of services that help E-commerce users to select relevant information through a series of portals or customized services. Informediaries sit in the middle between buyers and sellers, collect information, add value to it and distribute it to those who will find it most useful. The participation of informediaries allows a greater degree of product differentiation, which can be practically performed and delivered to the specific requirements of any individual customer.

Therefore, while some intermediate transaction costs tend to disappear in network-based industries, informediaries either generate or address new types of transaction costs. In this sense, B-to-B promises to be the segment of E-commerce in which “informediaries” will become particularly important players.¹⁸ The need for informediaries is also related to the fact that many potential users of E-commerce, especially SMEs, are still reluctant to embark on web-based strategies due to the insecurity of the Internet as a business instrument and as a basis for contracts. There is a perception that certain portals or hosts can handle risk better by consolidating millions of individual transactions (UNCTAD 2000f).

The issue of disintermediation vs. reintermediation raises a series of important questions regarding the prescription of promotion policies on SMEs. It is now desirable to conceive policies for each stage of a new “supply chain” that is being rapidly modified by ICT and E-commerce (see Box 4).

Box 4

E-COMMERCE SUPPLY CHAIN AND E-COMMERCE POLICY CHAIN OF UNCTAD

Managers of SMEs are concerned with differences between their “normal supply chain” and the “E-commerce supply chain”. UNCTAD (2000f, p.14) provided the “MSDP” model, that is focused on the following sequence of E-commerce transactions; marketing (M), sales (S), delivery (D), and invoice/payment (P). The necessary tools for each stage are: Website/brochure ware for M; E-com enabled website for S; digital delivery (e.g., MP3) or link with suppliers for D; and E-payment or link with third party (a credit card) for P. This conceptual framework provides enterprises with a simple “check list” that will facilitate their management's task in identifying opportunities and obstacles when considering embarking

¹⁸ Informediaries will account for more than a quarter of all B-to-B Internet commerce revenues by the year 2002, and the gross value of transactions completed by B-to-B informediaries will reach \$211 billion in 2002 from a \$750 million level in 1998.

Box 4 (concluded)

on e-commerce strategies. This model also facilitates entrepreneurs to see the value chain for each of their e-commerce transactions.

From the perspective of policy, it is also interesting to examine another model (IMBSA model) of E-commerce suggested by UNCTAD, which stresses the operational role of the various parties involved. The first component, I as in Infrastructure (namely telecommunication infrastructure); second, M as in message, consisted of the standardization and harmonization of the electronic messages that will be exchanged through E-commerce; B as in basic rules, that are largely of an international nature and embrace a domain much larger than that of E-commerce (e.g., trade rules such as those related to WTO, intellectual property rights, as well as generic regulations on the content of electronic messages across borders; S as in Special rules, that can be of a great variety in nature and scope and applicability (e.g., aspects of security, authentication and encryption of banking operations); and A as in Application, which involves the designing of efficient websites, implementation of adequate corporate strategies, etc. This way of conceptualizing E-commerce will offer the Governments a “check list” in terms of providing a successful E-commerce policy. This will also provide a roadmap for the work of those international bodies involved in the process of setting up guidelines, rules and standards and regulations on E-commerce (UNCTAD 2000, p.17).

The new business strategy that is conceived along the MSDP model has a series of important economic implications. It provides opportunities for smaller producers (individuals, firms and countries) to reach final consumers worldwide in a more efficient manner, while it heightens the importance of those “intermediaries” that create (and brand) the websites (and portals) which will attract a critical mass of customers and hence advertisement revenues.

It should be stressed, however, that establishing an efficient supply chain goes much further than fluid information flows, on which many dot.com firms have concentrated up to now. It requires additional elements to be efficient: physical movements of goods (infrastructure) and integration of financial services (Punto-com, Feb. 2001, pp.60-61). The key is the integration of at least three processes, fulfillment, delivery and clearing (Punto-com. January, 2001, p.35). This means that in order for E-commerce to be an effective means of business for SMEs, there is an urgent need to integrate E-commerce within the overall production chain and to bring about substantial improvements in related areas, such as transportation and financial services.

II. E-Commerce promotion for SMEs

A. Internet connectivity

Surveys relating to the number of online computers abound, and estimates vary widely. However, many of the published surveys over the last two years give an “educated guess” of 378 million online users as of September 2000. The United States and Canada represented almost 40% of this total, while Europe and Asia-Pacific occupied 28% and 24%, respectively. Latin America and the Caribbean (LAC) as a whole represented 4 to 5% of the world total (www.nua.ie/surveys).

1. Asia-Pacific

The countries in Asia and the Pacific in general have higher Internet penetration rates than those in Latin America and the Caribbean. In addition to Australia and New Zealand, which have a rate higher than 35%, the newly industrializing economies in the region such as Hong Kong-China, Republic of Korea, Singapore, and Taiwan Province of China show a markedly high rate of Internet penetration. Their rates are higher than that of Japan, estimated at 21%.

The third tier ASEAN countries (i.e., Indonesia, Malaysia, the Philippines, and Thailand) and China register much lower rates (Table 4). In the case of China, even though penetration rate is low, Internet users are expected to have reached 20 million by the end of 2000 (ITC 2000c).

Table 4

| INTERNET CONNECTION IN THE ASIA-PACIFIC | | | | |
|---|-------------|------------------|-----------------|--------------------------------------|
| Country | Date | Number (million) | % of population | Source |
| Australia | August 2000 | 7.8 | 40.5 | Nielsen NetRatings |
| China | July 2000 | 16.9 | 1.3 | CNNIC |
| Hong Kong, China | June | 1.6 | 26.0 | Iamasia |
| India | March 2000 | 4.5 | 0.45 | IMRBINT |
| Indonesia | July 2000 | 0.4 | 0.18 | ITU |
| Japan | May 2000 | 27.1 | 21.4 | Min. of Posts and Telecommunications |
| Malaysia | July 2000 | 1.5 | 6.9 | ITU |
| New Zealand | August 2000 | 1.3 | 35.1 | Nielsen NetRatings |
| Philippines | July 2000 | 0.5 | 0.6 | ITU |
| Singapore | May 2000 | 1.7 | 41.9 | Nielsen NetRatings |
| Korea, Rep. Of | July 2000 | 15.3 | 32.3 | Min. of Information and Comm. |
| Taiwan Prov. Of | July 2000 | 6.4 | 28.8 | Iamasia |
| China | | | | |
| Thailand | March 2000 | 1.0 | 1.7 | Newsbytes Asia |
| Vietnam | July 2000 | 0.1 | 0.1 | ITU |

Source: Nua (www.nua.ie/surveys/how_many_online/asia.html)

2. Latin America and the Caribbean

In recent years, Latin America and the Caribbean has shown a strong increase in fixed line teledensity, thanks mainly to the reforms in the telecommunication industry. However, there exists a significant disparity in Internet use and E-commerce among the countries in the region. Only 15 of every 100 Latin Americans have fixed phone lines, as compared to 66 of every 100 residents of the United States and Canada. In Latin America and the Caribbean, the fixed line teledensity per 100 inhabitants ranged in 1999, for example, from 3.0 of Nicaragua, 3.9 of Cuba, 6.2 of Bolivia, 12.5 of Mexico, 14.9 of Brazil, 16.0 of Colombia, 20.7 of Chile, to 20.4 of Costa Rica to 21.5 of Argentina. The Caribbean countries usually have a higher density rate than their Latin American counterparts (ITU 2001a). Therefore, in terms of teledensity, the most advanced Latin American counties are still far below of the North American standards.

With respect to Internet connectivity, some 52% of the United States citizens are already online, while Latin American countries have less than 5% of their population using the Internet. In the region, none of the 38 countries included in Table 5 reports a rate higher than 10% of Internet penetration. The Caribbean countries in general have a relatively higher rate than countries in South and Central America, except Brazil, Chile, Costa Rica, and Uruguay.

It should be stressed that Latin America has been the region with the most rapid growth in Internet use. Though estimates vary, it is expected to have as many as 20 to 34 million Internet users by year-end 2003, a huge jump from only 14 million by year-end 2000 (IDC, 2000 <http://www.idc.com/Press/default.htm>). With this rate of growth, the participation of Latin America in the worldwide Internet use would rise from 5% to 10% during the same period. At the beginning of 1999, the number of Internet hosts in Latin America and the Caribbean doubled to 491,000¹⁹ and the number of Web pages published nearly tripled to 2.7 million (Arnum, 2000, www.iabin.org/document/internet/report.html).²⁰ By January of 2001, the respective numbers increased enormously, at least for the major ICT countries in the region, as can be appreciated in Table 6. Also important is the point that Latin America is a young region where 68% of the

¹⁹ In the eleven largest Latin American countries, the number of Internet hosts increased at an annual rate of 144 percent between 1993 and 1997 (Network Wizards, Internet Domain Survey, 1999 at <http://www.nw.com>).

²⁰ In these figures, the national two-letter domains are included, while the three-letter COM, NET, ORG domains are excluded.

population are under 35 years of age, compared with 49% in the United States. These young people are the “E-generation”.

Though still not at the level of the United States and Canada, the per-capita size of the Internet infrastructures in Uruguay, Chile, Argentina, Costa Rica, Mexico, Brazil and several Caribbean countries is reported to be roughly in the same range of the corresponding figures for Eastern and Central European countries, and is far ahead of Africa. Brazil and Mexico lead in the region, with respect to: i) the supply of domains containing Internet hosts and Web pages; ii) per capita Internet infrastructures; and iii) the low costs of Internet service provision. There are at least 300 or 400 Internet Service Providers (ISPs) giving access in Latin America, most of which are found in Brazil, Mexico, Argentina, Colombia, Honduras and Chile. The least expensive ISPs are found in Peru, Suriname, Belize, French Guinea, Mexico and Brazil (Arnum 2000). In addition, it is expected that more than half of all Internet users in 2005 will be using a language other than English (FTAA 1999, pp.3-4).

Table 5
INTERNET CONNECTION IN LATIN AMERICA AND THE CARIBBEAN

| Country | Date | Number | % of population | Source |
|---------------------|----------------|-------------|-----------------|---------------|
| Antigua & Barbuda | April 2000 | 8,000 | 5.5 | ITU |
| Argentina | April 2000 | 900,000 | 2.4 | ITU |
| Aruba | April 2000 | 4,000 | 5.8 | ITU |
| Bahamas | July 2000 | 15,000 | 5.1 | ITU |
| Barbados | April 2000 | 6,000 | 2.2 | ITU |
| Belize | July 2000 | 12,000 | 4.8 | ITU |
| Bolivia | April 2000 | 35,000 | 0.4 | ITU |
| Brazil | September 2000 | 8.7 million | 5.0 | Media Metrix |
| Chile | April 2000 | 625,000 | 4.1 | ITU |
| Colombia | April 2000 | 600,000 | 1.5 | ITU |
| Costa Rica | April 2000 | 150,000 | 4.0 | ITU |
| Cuba | April 2000 | 60,000 | 0.5 | ITU |
| Dominica | April 2000 | 2,000 | 2.8 | ITU |
| Dominican Rep. | April 1999 | 25,000 | - | IABIN |
| Ecuador | April 2000 | 20,000 | 0.2 | ITU |
| El Salvador | April 2000 | 40,000 | 0.7 | ITU |
| French Guyana | April 2000 | 2,000 | 1.1 | ITU |
| Grenada | April 2000 | 2,000 | 2.2 | ITU |
| Guadeloupe | April 2000 | 4,000 | 0.9 | ITU |
| Guatemala | April 2000 | 65,000 | 0.5 | ITU |
| Guyana | April 2000 | 3,000 | 0.4 | ITU |
| Haiti | April 2000 | 6,000 | 0.1 | ITU |
| Honduras | April 2000 | 20,000 | 0.3 | ITU |
| Jamaica | April 2000 | 20,000 | 2.3 | ITU |
| Martinique | April 2000 | 5,000 | 1.2 | ITU |
| Mexico | July 2000 | 2.5 million | 2.5 | ITU |
| Netherland Antilles | April 2000 | 2000 | 1.0 | ITU |
| Panama | April 2000 | 45,000 | 1.6 | ITU |
| Paraguay | April 2000 | 20,000 | 0.4 | ITU |
| Peru | February 2000 | 400,000 | 1.5 | Jupiter Comm. |
| Puerto Rico | April 2000 | 110,000 | 2.8 | ITU |
| St. Kitts & Nevis | April 2000 | 2,000 | 5.2 | ITU |
| St. Lucia | April 2000 | 5,000 | 3.2 | ITU |
| St. Vincent | April 2000 | 2,000 | 1.7 | ITU |
| Trinidad & Tobago | July 2000 | 30,000 | 2.6 | ITU |
| Uruguay | July 2000 | 300,000 | 9.0 | ITU |
| Venezuela | April 2000 | 400,000 | 1.7 | ITU |
| Virgin Islands | April 2000 | 12,000 | 9.9 | ITU |

Source: Nua (www.nua.ie/surveys/how_many_online/asia.html)

Table 6

NUMBER OF HOSTS AND WEB PAGES IN SELECTED LAC COUNTRIES

| Country | Hosts | | Web pages | |
|-----------|--------------|--------------|--------------|--------------|
| | January 1999 | January 2001 | January 1999 | January 2001 |
| Brazil | 215,086 | 585,033 | 1,465,289 | 5,143,164 |
| Mexico | 112,620 | 306,326 | 557,846 | 1,958,039 |
| Argentina | 66,454 | 180,754 | 243,333 | 854,098 |
| Chile | 30,103 | 81,880 | 141,164 | 495,485 |
| Colombia | 16,200 | 44,064 | 66,533 | 233,530 |

Sources: 1999, IABIN, 2001 Pronóstico de MCM TELECOM, both cited in Punto-com February 2001, p.59

During much of the 1990s, Latin America enthusiastically privatized the telecommunications industry. In fact, of the 89 incumbent public telephone operators worldwide that had been privatized by the end of 1999, one quarter were found in the Americas region. However, the consensus view is that productivity gains that resulted from the privatization of the sector have not always been passed on to consumers via the pricing system. In many countries of the region, the State-owned monopolies were replaced by private monopolies (ECLAC 2001b). The privatization process has been accompanied by a lack of the public sector's regulatory capacity. But, generally speaking, the Latin American telecommunications industry is characterized by a low competitive environment in the fixed line segment, while a relatively marked competition in the mobile segment²¹ and a greater competition in the Internet market. Many analysts expect, therefore, that fixed-line networks will adopt a more competitive pricing system similar to that of the mobile market. Efforts to strengthen competition in both fixed-line and mobile segments have been most successful in cases where a telecommunications act has provided for an integrated regulatory system with the independence.

On the other hand, the progress towards a competitive environment of the Internet infrastructure in the region can be offset by the rising concentration in recent years of the software provision industry (e-mail, portals, m-commerce, etc.) and of the supply of content (entertainment, transactions etc.). This industry has experienced an explosion of strategic alliances, mergers and takeovers. There are reportedly 79 cases of mergers/takeovers up to March of 2000, especially in Brazil, Argentina and Mexico. By sector, 33 cases of these alliances and mergers corresponded to ISPs, while 23 were related to subject portals. There were 11 reported cases involving horizontal portals, whereas 7 cases were in the area of E-commerce. By country of origin, 53 of the 73 cases corresponded to the United States (e.g., in the case of ISPs, IFX, PSINet, funds such as Chase Capital Partners), though other nationalities, such as Argentinean or Spanish, also actively participated. Added to these are 23 cases of strategic alliances (e.g., between AOL, Microsoft and StarMedia Networks) (Camara de Comercio de Santiago, 2000). The ascending tendency in mergers/takeovers involving Latin American enterprises continued throughout the year 2000 (Estrategia 2000). This reorganization of the software industry has been further accelerated since the stock market turmoil in the high-tech sectors in recent years.

The above observations suggest that despite recent progress, Latin America still have a long way to go in terms of connectivity. In the region, IT and telecommunications infrastructure between countries as well as regions within a country vary from nonexistent to rudimentary to adequate to relatively well advanced in some major cities. Furthermore, Latin America, as other developing

²¹ The experience of Latin America in cellular mobile telephony has been quite positive, particularly since the introduction of PCS licensing. Mobile services began to be offered in the early 1990s in Argentina, Brazil, Chile and Mexico. Subscriber numbers rose strongly overall, and by 2000 they had reached high figures (15 million in Brazil, 7.6 million in Mexico, 4.4 million in Argentina and 2.3 million in Chile), making mobile telephony a real alternative to fixed-line service (ECLAC 2000b).

regions, lacks adequate bandwidth to optimally manage the routing of Internet traffic and develop network-based businesses and relationships. Furthermore, more than 90% of all traffic originates, terminates or transits in the United States (Hilbert 2001a), as a result of the fact that Latin America has had few major Internet backbones, interconnection points, and Internet access points. IT-related investments made in the region in relation to GDP have been modest, and to reach a similar level of the United States, some US\$ 30 billion must be invested in the sector (United States, Department of Commerce 2000a). However, the communications transmission capacity of the region is expected to increase dramatically when the planned projects to install undersea and land networks of fiber-optic cable connection are completed in the coming two years or so. By the year 2002, there will be 15 times as much telecommunications bandwidth capacity available as there is now.²²

B. E-Commerce

There is no universally accepted definition of E-commerce at present.²³ E-commerce is generally understood as all kinds of commercial transactions that are concluded over an electronic medium or network, mostly the Internet, without direct contact between the agents.²⁴ A broad understanding of E-commerce might even include those operations that, though originated from published offers in catalogues or other graphic means, or advertised through the television or radio, are finalized by communication means such as telephones and fax. When narrowly defined, the concept refers to those E-commerce operations entirely through digital means of communication such as Internet, Intranets, Extranets, or electronic data interchange (EDI). In the “trade facilitation” sphere, E-commerce is often reduced to EDI, while in the WTO-related circles, it is considered mainly from the restricted angle of trade in services. In other cases, E-commerce is not a new form of commerce, but includes a series of tools that make it more efficient.

Though estimates vary widely, E-commerce is projected to grow at an increasing rate over the coming years. Several OECD countries, especially the United States and Europe, are expected to remain the most active players in this process, thanks to the continued expansion of E-commerce within their respective domestic markets. Global E-commerce, estimated at US\$ 100 billion at present, is expected to grow exponentially to about US\$2-3 trillion by 2005. The number of Internet users worldwide is forecast to reach 345 million in 2005, from a level of 171 million in 1999 (FTAA 1999).

In terms of international trade, transactions through E-commerce are estimated to become a major component of cross-border flows, ranging from 10 and 25% of world trade by the year 2003 (UNCTAD 2000b). This is particularly important to developing countries whose exports still rely strongly on commodities, and semi-manufactured and manufactured goods. As UNCTAD (2000b, p.10) concludes, “if developing countries can become beneficiaries of the development of e-commerce, it will be largely through lower transaction costs (especially through more efficient

²² Local telecommunications operators in Latin America are investing heavily to provide the region’s main cities with fibre optic rings, in order to enhance and increase their data, voice and video transmission capabilities. A major problem arises, however, with transmissions beginning or ending outside the local market, as these transfers have to be sent via satellites. This has been a costly and inefficient option and the problem has been compounded by the growth of the Internet. To address this problem, Telefónica, Global Crossing and the Globenet Communications Group are jointly investing US\$ 4.6 billion to install submarine and land networks of fibre-optic cable connecting Latin America with the rest of the world. As a result, the communication transmission capacity of the region will increase substantially over the next few years, from a state of scarcity to abundance (Punto-com.com/NR/exeres/671EEC38, ECLAC 2001b).

²³ For a summary of definitions, see, for instance, UNCTAD (2000b), OECD (1999a), and Singh 1999).

²⁴ In the WTO Work Program on Electronic Commerce, E-commerce means the production, distribution, marketing, sale or delivery of goods and services by electronic means. A commercial transaction can be divided into three main stages: the advertising and searching stage, the ordering and payment stage and the delivery stage. Any or all of these may be carried out electronically and may therefore be covered by the concept of E-commerce. APEC adopts a relatively wide definition of E-commerce, which includes all business activity conducted by using a combination of electronic communications and information processing technology.

trade-supporting services), and by reaching new levels of international competitiveness in the goods sector”.

1. Asia-Pacific

In Japan, business-to-business (B-to-B) E-commerce was estimated at US\$ 3.2 billion in 1999, corresponding to a 420% increase from the previous year (US\$ 610 million), and is projected to reach \$651 billion in 2003. A number of joint efforts between the government and the private sector, such as the Electronic Commerce Promotion Council of Japan (ECOM) sponsored by the MITI, are helping to facilitate the expansion of E-commerce in the country by working to build online trust and confidence and promote innovative methods to reach Japanese users and consumers.

The Republic of Korea's E-commerce market is also growing rapidly. As of May 2000, there were 15.3 million users and the number of Internet domains, estimated at 400,175, was ranked 5th in the world, just behind the United States, Germany, England and the Netherlands (see Table 6). The number of “.com” domains was ranked in 2nd following the United States. According to Alexa.com's survey (cited in Digital Bridges 2001), 76 of the world's top 1,000 sites were Korean. Besides, the country's market capacity for portal services, online sales, brokerage and contents amounted to 410 billion won, and is estimated to increase over the coming years to 718 billion won in 2000 and 3.6 trillion won (roughly US\$ 3 billion) in 2003. The government has introduced a comprehensive ICT program that includes: the building of a high speed backbone for the Internet, technology development and standardization, human resource development, creating legal framework for E-commerce, cooperation with other regional and multilateral organizations, and an implementation plan for the Digital Signature Act (see again Box 3).

Estimates put the number of Web users in Taiwan at between 5.7 million and 6.4 million. Another one million Web users gather information from the Internet before making offline purchases. The number of Taiwanese Internet users who shop online surged 127%, reaching more than 500,000 in 2000 (Cyberatlas Nov.27, 2000). In the Asia-Pacific, Taiwan is behind Singapore, Hong Kong-China, Japan and Korea, whose E-commerce infrastructures and linkages are stronger. Security, quality and delivery concerns deter many Internet users from buying goods or services over the Web.

The officially predicted level of E-commerce use in the People's Republic of China stood at 800 million yuan (US \$96.6 million) in transactions for the year 2000, which could go as high as 10 billion yuan (\$1.2 billion) in 2002. Over 1,000 Web sites in China are now devoted to E-commerce online. Business in China is still plagued by consumer suspicion of security and a dearth of credit cards. China's E-commerce readiness is known to be in the range of those of India, the Philippines and Sri Lanka (CommerceNet Taiwan, 2000, October, www.commercenet.org.tw). Within the ten member countries of ASEAN, there are currently roughly 7 million users who have online access.

The lack of legislation on E-commerce and hardware is known to be a major obstacle in developing Internet business in the ASEAN region. Aware of the high potential in E-commerce and other ICT-related areas, in November 2000, the ASEAN Leaders signed an E-ASEAN agreement that involves the adoption and harmonization of laws and policies to stimulate the development and use of IT for commerce and for social purposes. It entails the training of ASEAN's people to enable them to use and develop ICT.

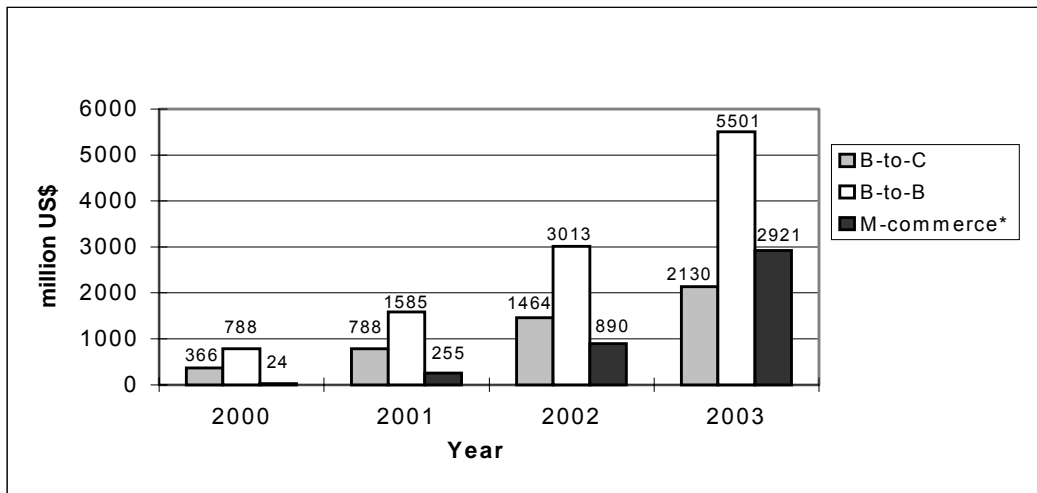
2. Latin America and the Caribbean

The magnitude of E-commerce in Latin America reached nearly US\$ 167 million in 1998, a jump of 360% from the 1997 level. Various estimates suggest that E-commerce in Latin America in

1999 reached US\$ 460 million, of which US\$ 250 million were the B-to-B type (Camara de Comercio de Santiago, 2000). Although B-to-B E-commerce is still in its infancy in Latin America, it is expected to grow rapidly. According to several sources, as can be appreciated in Graph I, E-commerce in the region in 2000 was estimated to have reached over US\$ 1 billion, and more than 70% of this corresponded to B-to-B transactions. While transactions of B-to-C type also increase, the most dynamic sectors will be B-to-B and M-commerce that is mobile commerce based on the WAP (Wireless Application Protocol) system. Observers state that Latin America is more suited to B-to-B E-commerce than for B-to-C. Low credit card use, high local phone charges, and cultural issues are the factors hindering B-to-C, but are less significant barriers for B-to-B. In fact, estimates suggest that the B-to-B sector will account for 93% of total growth in Latin American E-commerce in the coming years (US Department of Commerce 2000a, p. 19).

Total consumer online sales in Latin America, in both domestic and international sites, stood at roughly US\$ 580 million in 2000, an increase of 400% from the previous year. Though Brazil is the major E-commerce market, Mexico and Argentina have begun to expand in this area, capturing in 2000 US\$ 91 million and 82 million, respectively. As barriers to E-commerce continue to go down, this market could grow as high as US\$ 3.8 billion by 2003 (Boston Consulting Group 1999).

Graphic 1
E-COMMERCE IN LATIN AMERICA



Source: MSDW/GS Research, PYRAMID, IDC OVUM, cited in Punt-Com, October 2000, p.114
*Mobile Commerce

Table 7

NUMBER OF RETAILERS' SITES IN LATIN AMERICA BY CATEGORY, JULY 2000

| Category | Argentina | Brazil | Mexico | Other LA* | Total |
|------------------------|------------|------------|------------|------------|--------------|
| Books/Music/Video | 22 | 83 | 33 | 28 | 166 |
| Flours/Cards/Gifts | 17 | 83 | 14 | 24 | 138 |
| Hardware/Software | 15 | 68 | 28 | 24 | 135 |
| Multi-categories | 15 | 40 | 30 | 41 | 126 |
| Clothes/Sporting goods | 11 | 94 | 13 | 7 | 125 |
| Foods/Drinks | 12 | 55 | 7 | 26 | 100 |
| Truism | 13 | 29 | 7 | 33 | 82 |
| Electronic Apparatus | 6 | 32 | 14 | 8 | 60 |
| Decoration | 5 | 40 | 8 | 5 | 58 |
| Financial Services | 13 | 22 | 5 | 17 | 57 |
| Auctions | 7 | 15 | 11 | 19 | 52 |
| Beauty/Health | 3 | 36 | 5 | 3 | 47 |
| Automobiles | 8 | 20 | 4 | 10 | 42 |
| Portals | 2 | 6 | 16 | 2 | 26 |
| Tickets for Events | 1 | 8 | 4 | 0 | 13 |
| Others | 16 | 56 | 18 | 21 | 111 |
| Total | 166 | 687 | 217 | 268 | 1,338 |

* / Chile, Colombia, Peru and Venezuela.

Source: Boston Consulting Group, cited in Punto-com, January 2000, p.32

In comparison with the United States, the Latin American market is still fragmented and cluttered with many small players with unappealing shopping sites. As the majority of online retailers have only launched their sites in recent years, online product selection is still limited. As shown in Table 7, Latin American purchases are concentrated in the categories of books, computers, electronics and groceries, which make up 77% of total online domestic sales. As traditional “bricks and mortar” firms enter these markets, competition will be even more severe, and probably only the competent ones will survive. On the other hand, as no major retailer has yet been able to dominate a product category, many unexploded market segments still remain. With its fragmented base and significant cultural differences between countries, portals and content sites are playing a pivotal role in the development of E-commerce in the region (Boston Consulting Group 1999).

A large number of websites does not mean, however, that shoppers actually purchase online. The sites are basically used for their search functions and product information. The site features that are most likely to increase the likelihood that an online shopper will make an online purchase at that site are precisely those features that make the online shopping experience more like “on-land” shopping: online consumers should have immediate access to availability, must be able to compare products, ask other shoppers their opinions and seek out customer service representatives when additional assistance is needed. At the same time, e-retailers should monitor how consumers use current site features closely and remove those that do not expedite or add value to the shopping process.

In order for online retailing to continue to grow, there are a series of prerequisites to be met: first of all, internet access costs (telephone rates, internet service provider charges, and PC costs) need to fall closer to international levels. Second, retailers and payment platform providers will need to address the consumers’ lack of confidence in online payments, and third, there are strong needs for a more reliable and cost-effective delivery infrastructure in order to ensure that products ordered online will indeed be delivered to the consumer’s home on time.

C. The benefits of ICTs and E-Commerce for SMEs

Information and Communication Technologies (ICTs), particularly those related to E-commerce, offer opportunities and potential benefits for SMEs that include the strengthening

customer relationships, reaching of new markets, optimization of business processes and procedures, cost reductions, improving of business knowledge, attraction of investment and creation of new products and services. Therefore, E-commerce enables SMEs to be more responsive to, and interact with, customer needs. In addition, E-commerce allows SMEs to be better focused in their customer communications; to realize cost reductions in inventories, as well as in advertising and product promotion. As a result, enterprises can assure long-term consumer loyalty. Distribution costs can also be significantly reduced, especially for digital products. ICTs may provide access to SMEs in public procurement, which up to now has been mostly reserved for large national firms.

Among several benefits, E-commerce allows SMEs to better gather and compile market intelligence regarding general customers, suppliers and competitors. Also, as business moves to “build-to-order” processing and just-in-time inventories, a premium is placed on timely, accurate inbound and outbound logistics. On the consumer side, there is greater demand by final consumers for fast order fulfillment. Hence, the ability to track an order, as it is being processed and delivered, becomes essential. As they develop their sales and service capabilities over the Internet, SMEs will be able to use the medium not just to promote existing products and services but also to identify and provide greater customization of products and services.

From the perspective of international trade, the Internet potentially enlarges geographical and sectored markets by cutting through many of the distribution and marketing barriers that usually prevent SMEs from entering foreign markets. By eliminating traditional barriers such as distance, time-zone differences, communication costs and access to international markets that usually prevent SMEs from competing with large firms, SMEs can diversify markets in terms of geography and products. By conducting business online, SMEs in developing countries can also enhance the image of the country and the company and also develop brands (OECD 2000b, PricewaterhouseCoopers, 1999). These potential benefits of E-commerce are especially great for land-locked countries like Bolivia and Paraguay in Latin America and Nepal in Asia, helping overcome distance- and time-barriers to markets and sell their products and establish contacts (ITC 2000b). Raising the awareness and understanding of these and other opportunities and benefits is an important means of increasing the uptake and use of E-commerce among SME's.²⁵

It should be reminded, however, that these benefits might be counter-balanced by a series of potentially negative aspects of ICT and E-commerce that might reduce those benefits, if not carried out in an appropriate corporate environment, or not accompanied by suitable policies (Singh 1999; ITC 2000b).

D. “E-Readiness” and E-Commerce in Asia-Pacific and Latin America and the Caribbean

Whether an SME can undertake an E-commerce venture depends on not only their own capabilities and Internet connectivity, but also other factors. A report by McConnell International (2000), in collaboration with the World Information Technology and Services Alliance (WITSA), rates the degree of “E-readiness” of the countries in Latin America and East Asia by measuring the following five attributes: i) the level of Internet connectivity and the easiness and affordability of access to, and use of, the Internet; ii) e-leadership, understood as how seriously e-readiness is taken

²⁵ The relative ease of setting up website stores might result in establishing and/or strengthening a brandname and thus generating consumer familiarity and trust. On the other hand, one of the disadvantages to becoming a global player through E-commerce is that competitors are also global, necessitating advertising that is also global in reach. This can be expensive, especially for SMEs and start-up companies. Many E-commerce traders use portals, that are search engines like Yahoo!, browsers like Netscape Communicator, and large Internet access providers like America Online (AOL).

as a national priority by the government (e.g., the development of e-society on a national level, e-government including efforts to automate governmental processes and services); iii) information society regarding the strength of legal protections (e.g., legal protections for E-commerce and progress in protection intellectual property rights, and privacy and consumer interests); iv) human capital from the viewpoint of quality of and participation levels in the educational system, with emphasis on efforts to create and support a knowledge-based society; and v) e-business climate involving the questions of existence of effective competition among ICT service providers, transparency and predictability of regulatory implementation, openness to financial and personal participation by foreign investors in the ICT business, and the ability of the financial system to support E-commerce transactions.

The above-mentioned survey ranks eight selected Latin American countries (see Table 8) relatively high in the area of e-leadership. For instance, the Brazilian e-leadership is reflected in the fact that a quarter of the electorate voted electronically for the Presidential Election in 1998 (the government aspires for 100% electronic voting for the next election in 2002). Later in November 2000, the elections for mayor positions were conducted by electronic means. Tax declarations via electronic data transmission have been commonplace since 1995 and over the Internet since as far back as 1997, and the status of applications to public authorities can be checked at home on the computer. Peru has made substantial progress in automating its government processes, and is making an effort to extend the telecommunications network to remote areas. In Chile the government tax agency has allowed income tax returns to be filed on the web since 1998. In terms of connectivity, Brazil, Costa Rica and Chile are leading the way; while Argentina ranks slightly higher in terms of multimedia access. Chile's existing telecommunications infrastructure is of first rate. Although the telecommunications network is still government-owned, Costa Rica's local, domestic long-distance, and wireless access rates are the lowest among the eight selected countries.

One of the Asia's greatest strengths has also been e-leadership. Six of the ten economies considered in the report, especially Malaysia, Taiwan and Korea, rank relatively high in this area. Asia also ranks high in human capital resources. Sufficiently skilled workforces are forthcoming to drive e-business forward. Korea, for example, has implemented the "gold card" immigration policy that is designed to make immigration as easy and smooth a process as possible for the recruiting of high-tech experts, especially software engineers from India.

However, the lack of adequate information security remains to be the region's greatest drawback, and the issue of information security has not been adequately addressed. Though some countries show relatively high connectivity rates, others still suffer from the lack of telecommunications infrastructure. India, for instance, despite its reputation as a software powerhouse, has one of the lowest tele-densities in the world. Indonesia, Pakistan and Vietnam, in particular, are yet to address numerous investment obstacles.

Table 8

**E-READINESS OF SELECTED LATIN AMERICAN AND ASIAN COUNTRIES,
AS OF AUGUST 2000**

| Country | Connectivity | E-Leadership | Information Security | Human Capital | E-business Climate |
|----------------------|--------------|--------------|----------------------|---------------|--------------------|
| Latin America | | | | | |
| Argentina | 2+ | 2 | 2 | 2 | 2+ |
| Brazil | 2 | 2+ | 2 | 2 | 3+ |
| Chile | 2 | 2 | 2+ | 2 | 2+ |
| Costa Rica | 2 | 2+ | 3+ | 1 | 1 |
| Ecuador | 3 | 3 | 3 | 3 | 3+ |

Table 8 (concluded)

| Country | Connectivity | E-Leadership | Information Security | Human Capital | E-business Climate |
|---------------------|--------------|--------------|----------------------|---------------|--------------------|
| Mexico | 3 + | 2 | 2+ | 2 | 2 |
| Peru | 3 | 2+ | 2 | 3 | 2 |
| Venezuela | 3+ | 3+ | 3+ | 2 | 3+ |
| East Asia | | | | | |
| China | 3 | 2 | 3 | 2 | 2 |
| India | 3 | 2+ | 2+ | 2 | 2 |
| Indonesia | 3 | 3+ | 3 | 3+ | 3 |
| Malaysia | 3+ | 1 | 2 | 2 | 2+ |
| Pakistan | 3 | 3+ | 3 | 3 | 3 |
| Philippines | 3 | 3+ | 3+ | 2 | 3+ |
| Korea, Rep. | 2+ | 2+ | 2+ | 1 | 1 |
| Taiwan, Prov. China | 2+ | 1 | 2+ | 1 | 1 |
| Thailand | 3 | 2 | 3 | 3+ | 3+ |
| Vietnam | 3 | 3+ | 3 | 3 | 3 |

Source: Adapted from Risk E-Business: Seizing the Opportunity of Global E-Readiness, a report prepared by McConnell International LLC and Witsa, August 2000 (www.mcconnellinternational.com)

Notes:

1. ► Indicates the majority of conditions are suitable to the conduct of e-business and e-government.
- 2 ► Indicates improvement needed in the conditions necessary to support e-business and e-government.
- 3 ► Indicates substantial improvement needed in the conditions necessary to support e-business and e-government.
- + ► Indicates improving relative to prior time periods.

E. The use of the Internet and E-commerce by SMEs

Data on the use of Internet by SMEs are scarce. Estimates on Internet penetration rates by firm size in several OECD countries (OECD, 2000e) suggest that Internet uptake is lower in smaller firms than in large firms, though smaller firms are catching up quite rapidly. Besides, although SMEs generally adopt technologies at a lower rate than average, they seem to be adopting ICTs at a rate faster than other technologies. In Europe also, the percentage of SMEs connected to the Internet is increasing by size of enterprise (ENSR 2000). When enterprises in developing countries are examined, there does not seem to exist strong evidence that connectivity is related to size of firm (Daly and Miller 1998).

1. The adoption of the Internet and E-commerce by SMEs

The share of SMEs that have direct access to the Internet in Europe is around 42% of the total. This percentage is highest in Sweden and Iceland, followed by Finland and Norway. The lowest percentages are found in Portugal and Greece. Distribution of information on their products or services is by far the most widespread use of the Internet for commercial purposes. The share of SMEs that actually distribute their product or service itself on the web is only 7%. According to ENSR (2000) E-commerce for European SMEs does not seem to have really taken off yet. Another

study by Datamonitor and Microsoft (2000, cited in [nua.ie/surveys/index.cgi](http://www.nua.ie/surveys/index.cgi)) suggests that E-commerce revenues for European SMEs will increase by 800% to 3.2 billion euros by 2003. Today, of the 2 million SMEs online in Germany, France and Italy, the Netherlands, Sweden and the United Kingdom, only 5000 are capable of accepting online payments. But this situation will be changed, as more SMEs adopt packaged software applications that enable them to actively engage in E-commerce.²⁶

A recent US National Association of Manufacturers survey found that 68% of US manufacturers are not yet using E-commerce to conduct business transactions. While 80% of the firms surveyed reported having a website, far fewer firms reported using the Internet for business processes such as requests for proposals, purchasing, etc. In contrast, a recent survey by Purchasing Magazine shows that 38% of buyers currently use the web to conduct at least some of their company's transactions and that the remaining firms will intend to do so within the next few years (US Department of Commerce, 2000b, p.16). More specifically on SMEs, according to Giga Information Group, less than 2% of the 6.5 million SMEs in the United States are doing business with E-commerce, and sales through this means by SMEs reach only \$25 million annually. However, the number of SMEs using E-commerce is increasing rapidly, and there will roughly be 2 million SME users in 2002, in contrast to 126,000 users in 1998, with an annual rate of increase of 102% (<http://mercadeo.com>).²⁷

A recent survey by IBM Japan (cited in Cyberaltas May 8, 2000) shows that about 56% of Japanese SMEs now have an Internet presence, but only about half of them are actively conducting business online. The comparative results place Japan in the middle of the G7 nations in terms of SMEs that have an online presence. Japan trailed the U.S. (75%), Germany (68%), and Italy (65%) but was slightly ahead of the U.K. (55%), France (53%), and Canada (49%). Just about 27% of the Japanese companies surveyed were actively using the Internet to conduct business, ranking Japan sixth among the G7 nations (ahead of Italy's 19%). Interestingly, almost as many of the Japanese companies (23%) reported that "the Internet has become indispensable for business success," about double the seven-country average (12%). Among the G7 nations, Japan had the largest ratio (73%) of sites offering business-to-consumer (B-to-C) services. Two-fifths (42%) of the Japanese SMEs with B-to-C sites said they take orders online, placing Japan second among the G7 nations (behind Germany's 48%).

In the case of Taiwan as well, there is a "digital gap" between SMEs and large firms: 14% of the companies with a capital of more than NT\$100 million do not use Internet at all for the purpose of searching information or conducting the procurement process. Meanwhile, close to 46% of companies of capital less than NT\$ 5 million do not conduct business on the Internet. Of the some 200 SMEs surveyed, 90% of them have Internet access or use the Internet for information search, whereas only 23% of them actually make transactions online, and 37% believe that it would not be

²⁶ The results of the 1999 Italian Census covering the entire population of the firms in the country point out that a large majority of the smaller firms (1 to 19 employees) had no ICT equipment and among the 30% that did have it, only a small portion (3.7%) was connected to external networks. These low figures should be assessed in light of the fact that at the end of 1997, there were 3.3 million enterprises employing between 1 and 9 workers, out of a total of 3.5 million enterprises. The majority of Italian micro-enterprises operate in the wholesale and retail trade and repair of motor vehicles, personal and household goods sectors where in general Internet use is less developed. In contrast, France, which showed a relatively low rate of adoption of the Internet by SMEs up to 1997, has increased its use in an impressive manner: in 1999, 61% of French SMEs were connected to the Internet, and furthermore, SMEs with fewer than 9 employees had an access rate of 58% while SMEs with more than 100 employees achieved a rate of 70%. (OECD 2000e). A survey of SME E-commerce in the United Kingdom has revealed that out of 800 SMEs interviewed, 90% of SMEs had an Internet connection, and that this would rise to 96% by August 2001, with a compound annual growth rate of 20% between 1997 and 2002. The average spending to date per company on E-commerce applications and services was estimated at roughly US\$ 27,000 (Durlacher Research Ltd., 2000, cited in www.nua.ie/surveys/index.cgi).

²⁷ According to a study by Cyber Dialogue (2000, cited in www.nua.ie/surveys/index.cgi) small businesses in the United States spent a total of US\$ 45.2 billion in the 12 months ending March 2000, a 138% increase on the previous year. The company estimates that about 3.4 million non-residential small businesses now have Internet access, along with 7.4 million small business branch offices. They warn, however, that SMEs are increasingly dissatisfied with customer service offerings from B-to-B vendors.

necessary to conduct business via Internet in the future (CommerceNet, Taiwan, January 2001, www.coommercenet.org.tw).

Information on the use of Internet by Latin American SMEs is even scarcer. In the case of Argentina, the Internet connectivity of SMEs is slightly lower than that of big firms (Table 9), while the Internet access of micro-enterprises, which includes the majority of the number of enterprises in the country, is reported to be below 28%. A small percentage of micro-enterprises have a website. Similarly, a high percentage of large firms possess own websites, while the corresponding figures for SMEs and micro-enterprises are much more reduced. In other countries such as Mexico and Brazil, the majority of large firms and SMEs are already online: 80% of SMEs in Mexico and Brazil have at least one person with access to the Internet (Hilbert 2001a).

Table 9
ARGENTINEAN FIRMS AND THE INTERNET

| Type of firm according to number of employees | Number of shops | Internet Access | Own Website |
|---|-----------------|-----------------|-------------|
| Big (more than 500) | 900 | 94% | 80% |
| Medium (between 100 and 500) | 17,000 | 87% | 66% |
| Small (Between 15 and 100) | 160,000 | 60% | 30% |
| Micro (less than 15) | 700,000 | 28% | 2% |
| Total | 877,900 | 32% | 3% |

Source: Bianco et.al. (2000).

In the case of Chile, only 13% of micro-enterprises, 21% of small ones, 36% of medium-sized enterprises, and 63% of large firms have a site on the Internet, though 58% of small enterprises, 77% of the medium-sized and 93% of the large firms have Internet access. The estimates by the Camara de Comercio de Santiago (2001) suggest that the B-to-B commerce reached US\$ 426 million, five times greater than the preceding year. As can be noticed from Table 10, the larger the firm size is, the greater the proportion of Chilean firms that use the Internet for their purchases increases. But it is interesting that the percentage of online purchases against total purchases rises in an inverse relation to the firm size. This may be related to a less complex nature of products and inputs that SMEs purchase online.

Table 10
TRANSACTION USE OF THE INTERNET BY CHILEAN FIRMS, BY FIRM SIZE
(As of March 2001)

| Firm-Size | Sales on Internet | Share of firms that Purchase online | Share of online purchase in total purchase |
|--------------|-------------------|-------------------------------------|--|
| Micro | 4.1 | 9.9 | 20.0 |
| Small | 13.9 | 15.9 | 8.3 |
| Medium | 20.0 | 20.0 | 7.5 |
| Large | 29.4 | 27.1 | 5.0 |
| Total | 6.1 | 11.1 | 17.9 |

Source: Extracted from Camara de Comercio de Santiago. La economía digital en Chile 2001.

The principal reasons that SMEs in Chile do not resort to the Internet include, in order of importance: a) high costs; b) no clear benefits from its use; c) “does not care”; d) little knowledge on the issue of Internet; e) lack of technology and infrastructure; f) no specific reasons; and g) security concerns (Sáenz 2000).

A survey conducted by the Andean Community, covering more than 1,000 firms of all sizes, indicated that more than 36% of the sample firms considered Internet as a very important business tool, with an additional 33% evaluating it as important. The lack of the Internet culture, inadequate

government policies, high connection rates, inadequate technology infrastructure and insufficient legal security were found as major deterrents to its increased use. Given this recognition, the XII President Council of the Community decided to include the topic of Internet in the work program for the period 2000–2001 (www.comunidadandina.org).

2. Inhibiting factors for the adoption of E-commerce by SMEs

One of the most significant barriers to E-commerce adoption for participating SMEs is the low use of E-commerce by the firm's main customers. That is, until sufficient numbers of their main local customers or suppliers participate in online commerce activities, there is little incentive for individual SMEs to become engaged in E-commerce themselves. In order for E-commerce to be an effective means of business transactions, there should be a critical mass of E-commerce users involving other actors besides SMEs themselves, particularly an installed base of potential consumers. For example, the environment of electronic catalogs (by the Internet, CD-ROM, floppy discs, extranets or VAN) can be greatly improved if not just a limited number of suppliers but the majority of them uses E-commerce, thus giving incentives to the buyer side to utilize it (JETRO 2000a). This problem is also related to that fact that SMEs usually associate E-commerce mainly with direct selling to consumers, not aware of the opportunities of B-to-B applications (OECD 2000d).

Higher costs of computer and networking technologies on the one hand, and inadequate quality of telecommunications services, on the other, still inhibit greater adoption of E-commerce by SMEs in Developing Asia (PriceWaterhouseCoopers, 1999, pp.18-25). Though the costs of access to E-commerce technologies such as the Internet are declining, the ongoing cost of ICT support represents a large investment for SMEs. Even SMEs in the United States suffer from lack of funds for up-front implementation costs and lack of monthly cashflows to maintain their sites.

As discussed earlier, in the majority of Latin American countries, the per-minute pricing remains to be a major problem. Lower per-minute cost or especially flat-rate prices for local services that are adopted in some countries in the region are significantly increasing both the number of individuals online and the time each user spends online. Flat-rate charges for local calls, special reduced rates for Internet dial-ups, reduced rates for second lines to the home and other innovative charging regimes are thought to stimulate Internet use and the development of creative applications in business as well (Hilbert 2001a).²⁸ As Arnum (2000) suggests, possible solutions to this problem might include, among others: i) the use of the special 0610 dialing code to gain discounts of 30% to 50% in their calls to ISPs, as has been done in Argentina; ii) the local telephone companies adopting a flat rate option for local phone calls; iii) ISPs simplifying their tariff rates (e.g., three tier plans, by minute use); iv) emulating the COM, NET, ORG, GOV and EDU nomenclature used by most Internet hosts in North America.

Limited access to international "bandwidth", the high-capacity connections needed to transmit the large quantities of digitized information required for full Internet services, is another constraint in developing countries. Unless this bottleneck is removed, especially for those SMEs located in rural and isolated areas, e-mail is likely to remain the dominant use of the Internet in those countries. Some countries might try to leapfrog from traditional copper- and fiber-based

²⁸ A major factor explaining the low Internet penetration ratio in Latin America is high fixed and variable costs involved in using Internet services. The average price of a personal computer still represents as much as half of the per capita annual income in many countries. In addition, the monthly cost of Internet access, which ranges from US\$ 12 in Peru to more than US\$ 50 in Venezuela, and a monthly charge for telephone service, which ranges from US\$ 3 in Brazil, Colombia and Venezuela to US\$ 15 in Chile, are deterrents of further Internet use. The cost of telephone subscription for businesses is known to be higher than the residential rate, and in many countries, additional variable charges are levied on use of telephone lines, on a per minute basis. Furthermore, the average cost of registration of a domain name, the cost of design for a Web page, expenditures on maintenance and updating of a commercial web site is substantial, particularly for SMEs (Stephenson and Ivasucanu 1999).

landlines to wireless technologies that blend voice and data over the same networks. Major recent wireless network projects have been concluded in Shanghai and Fujian in China, Peru, Indonesia and Ethiopia. A small Ericsson partner, Ecuador-based Bismark, even found a blooming business using wireless data networks to manage remote alarm systems (Goldstein and O'Connor 2000).

Weak internal firm capabilities such as limited coverage of E-commerce functions and business applications and technologies are also constraining its wider use of E-commerce. There seems to be sufficient information regarding product descriptions and specifications, product photos, tables and graphs, inquiry contact points (customer service desk phone numbers) and product numbers. Efforts are still to be made to distinguish the product information furnished by suppliers from paper media catalogs. Information regarding similar products, inventory status, shipping methods, and delivery schedules is also still limited. In addition, buyers would look for price negotiation functions and search function using product specifications (JETRO 2000a, p. 1-21). In the area of parts procurement, very few buyers would purchase products at the prices indicated by suppliers.

Another inhibiting factor is the lack of appropriate human resources, in terms of technical and/or managerial staff familiar with the ICT environment. While in some countries there is already a shortage of employees with appropriate skills, SMEs do not usually react adequately to this situation by providing ICT training for their employees (OECD 2000a). In order for E-commerce to function as an effective business tool for SMEs, there are successive stages of capability building that firms evolve through, confronting different issues at each stage. First, those SMEs with very basic or no online capabilities must develop a website with no advance capabilities. The second stage of development consists of being able to take orders and provide customer service on their website. And the capability at the last stage will allow SMEs to complete transactions and receive payment on their website (PricewaterhouseCoopers, 1999). Thus, at each stage, problems should be identified, and policies and actions should be taken to rectify those problems.

A survey covering some 580 companies from five CommerceNet Asian members²⁹ provides a valuable first-look at Asian corporate experiences and perceptions of electronic procurement issues. The study (JETRO 2000a) which summarizes the survey indicates that electronic catalogs and Internet-based procurement are in use by only about half of the responding companies, and those which use the Internet do so for only a small fraction of their total procurement. Besides, electronic catalogs are being used almost exclusively for reference, rather than realizing their full potential as an interface for E-commerce, through which prices are negotiated, orders are placed, and customer services is provided. By a two to one margin, respondents would like to increase their use of the Internet for procurement, but only about half think that it will happen. In the respondents' view, the complexities of procurement can be better handled through person-to-person interactions. Despite considerable differences among the countries, the survey results suggest that while there are significant opportunities for growth in electronic procurement, Internet-based procurement efforts would supplement and facilitate, rather than replace, person-to-person functions in the very near future.

Lack of trust and confidence in areas such as security and legal and liability issues has been identified as a major inhibitor of E-commerce by SMEs. The major issues include, among others, recognition of digital signatures and electronic documents, protection of intellectual property, the protection of privacy, consumer protection, taxes and tariff collection (FTAA 2000c). For SMEs, problems concerning credit risk, payment and other factors pose the most important issue in this respect. Due to their small size and limited financial resources, however, SMEs are not equipped to

²⁹ The coverage of countries and sectors are: China including the Hong Kong Special Administrative Region, Japan, Singapore, Republic of Korea and Taiwan Province of China, operating in a variety of industries, including computer hardware and software, construction, consulting, consumer electronics, education, government services health care, retail, telecommunications and others.

tackle the kinds of risks that larger firms can handle with a more ease. This problem is eminent when no face-to-face meetings are held between a buyer and seller. JETRO (2000a) suggests that there is also a need to clarify the degree of security and other specifics in the event of troubles, and reach agreements with buyers in advance. It is preferable that E-commerce transactions be conducted only after such steps are taken. Getting underway are member-limited procurement site services open to companies that pass set inspections, in which neutral companies holding credit information on a multiple number of companies extend credit to suppliers over the Internet. The governments of Latin America, in general, are not seriously behind in passing E-commerce-focused legislation compared to the developed countries (See Box 5).³⁰

Box 5

**LEGISLATION RELATED TO ICT AND E-COMMERCE IN SOME
LATIN AMERICAN COUNTRIES**

The governments of Latin America have already passed, or are moving fast towards passing, E-commerce-related legislation. This need arises from the recognition that older regulations cannot address the complexities and nuances of the Internet and web technologies.

The first country in the region to actually introduce and adopt an entire UNCITRAL*/inspired E-commerce package is Colombia. The country did this before the issue even was raised in other countries of the region. The Law provides for legal definitions for data messages, E-commerce, digital signatures, certification entities, issued certificates, electronic data interchange (EDI), and information systems. It allows data messages and digital signatures to be used for authorization purposes as well as their use for admissibility in legal proceedings. It validates the communication of data messages, while it establishes the rights and obligations of those using digital signatures. It stipulates on contractual standards relating to the delivery of merchandise purchased via E-commerce, requiring documentation, invoicing, and communication of contractual terms and delivery notification. It authorizes the Superintendent of Industry and Commerce to oversee and impose sanctions on the certification entities, subjecting the above provisions to existing regulations related to consumer protection.

In Brazil, the E-commerce regulatory project (No.1589-99), *Proyecto de Regulamentação de Comércio Electorônico*, is currently under revision in the Congress. The main provisions are tied strongly to the UNCITRAL model law and are similar to the package passed in Colombia, with some added provisions on consumer protection. Topics include: recognition of the legality of E-commerce transactions, data messages, electronic certification, and digital signatures, and stipulations regarding the necessary supply of information from the online merchants. The additional consumer protections provide for allowing the Internet to be used to confirm receipt of orders and to notify sellers of any violations of the transaction agreement, and the establishment of the oversight bodies.

The government of Chile has begun a process of evaluating its legislative options, including those specified by the UNCITRAL model and others. The *Proyecto de Ley sobre Documentos Electorónicos*, presented to the Parliament on 9th August 2000, recognizes e-documents (validity, legal effects, enforcement, etc.). A document signed with a digital signature is recognized and produces legal effects. Digital signatures shall be created with the public key methods (public and private keys). An e-document shall be considered as the original if some requirements are fulfilled. Notaries can undertake their responsibilities by electronic means. The law would recognize e-transaction. CAs are recognized, but only Notaries and their equivalents can become CAs. Until these types of legislative packages apply also to the public sector, Chile's private sector E-commerce will be regulated by pre-existing commerce laws, which stipulate that transactions must be accompanied with signed original purchase orders and invoices. Chile signed a bilateral pact with the United States that is designed to lock in Chile's commitment to the promotion of E-commerce. At the time of writing, the Law on Electronic Signature waits for approval in the Congress.

³⁰ For the legislative process on E-commerce related issues in Asian countries, see ITU(2001b).

Box 5 (continue)

Mexico's Chamber of Deputies approved the country's first E-commerce-focused legislation in April 2000. Included in the Electronic Commerce Act are provisions on legalizing electronic messages and E-commerce transactions as well as enhancements to existing consumer protection laws and definitions of online fraud. This legislation, however, does not present entirely new laws concerning E-commerce, but instead offers adjustments to pre-existing commerce and consumer protection regulations in Mexican law. An Electronic System for Government Contracting (COMPRANET) has been developed to diffuse information on the federal bidding process and allows users to make inquiries and download applications for public bidding. The Government of Mexico also created an EDI Committee, a joint effort between public entities, business organizations, banks, and educational institutions, to promote the electronic data exchange and transaction between companies by way of standard billing and projects on electronic billing.

Venezuela's new law (Decree No. 1024; Ley de Reconocimiento Legal de Mensajes de Datos y Firmas Electrónicas), put in effect February 2001, recognizes the efficiency and legal validity of digital signatures and any electronic message, electronic information, etc. This approval put an end to the debate on the need of an E-commerce regulation package. The need for new legislation that at least addresses similar concepts as those included in the UNCITRAL arose from the fact that the E-commerce activity earlier was regulated by a 1969 commerce law. The primary concern among local E-commerce participants was the "illegality" of electronic-based invoices and contracts. Also of great concern was the lack of E-commerce-related consumer protections.

In Argentina, there have been important steps towards legislating on E-commerce, though in the traditional regulatory framework. Among the dispositions regarding the promotion of E-commerce and Internet, there is Resolution 412/99 of the Economic Ministry, which promotes the use of E-commerce in distinct areas of National Public Administration. By the National Executive Power Decree 554/97, the establishment of equal Internet access across different social and geographical conditions is declared as a national interest. Later, Decree 1018/98 establishes the so-called program "Argentina Internet para Todos" which seeks a universal access to the telecommunication infrastructure, the promotion of universal access to the Internet, and the construction of community technology centers. Decree 268/98 establishes the liberalization plan of the telecommunications sector. Resolution 2814/97 approves the 0610 the special dialing code, with which ISPs can differentiate common telephone calls from Internet connections. With respect to protection of consumer interests, Decree 1279/97 stipulates that Internet service is under protection covered by Article 14 of the Constitution, which guarantees the freedom of expression, giving it the same protection as other means of social communication. Regarding privacy protection of electronic transactions, the verdict of the Supreme Court ("Lanata case") establishes a precedence to equate the content of an e-mail to the concept of correspondence and its reading, without consent, as a violation of privacy.

Validity of electronic contracts, digital signatures and certification of authenticity are covered by Law 24,624 (Article 30 modified of Article 49 of Law 11672), Decree 428/98, Resolution 194/98 and Resolution 212/98. The protection of intellectual property rights is covered by Law of Intellectual Property Rights (modified Articles 1, 4,9 and 57 of No.11723). By Law 24624, Article 30 mentioned above stipulates that first generation documents drawn up on indelible electronic or optical support or reproduced from any type of originals or resident in that same type of medium, are deemed to be originals by their signature. The Presidential Decree 427/98 of April 1998 (Firmas Digitales para la Administración Pública Nacional) addresses the use of digital signatures by the public administration and sets requirements and conditions for the operation of a licensed CA in the digital-signature infrastructure of the public sector. This Decree provides digital signatures with the same legal effects as recognized for handwriting signature within the scope of Civil Service. A bill on digital signatures (Antiproyecto de Ley de Firma Digital) was presented to the Congress in August 1999. This bill proposes, among other things, the recognition of digital signatures (public key) and the regulation by law of E-commerce, and e-payment.

Box 5 (concluded)

The Congress of Peru passed Law 27269 “Ley de firmas y Certificados Digitales” in May 28, 2000. The Law regulates the use of electronic signatures, giving it the same validity and judiciary efficiency as that of manuscript signatures or other analog signatures.

In Uruguay, there is no specific law on digital signatures. According to Article 129 and 130 of Law 16002 of 1988, all government documents transmitted electronically are considered authentic for any legal purpose. In 1995, Article 694 to 698 of the five-year national budget law extended the application to all documents.

Source: ALADI, Situación actual y perspectivas del comercio electrónico en los países miembros de la ALADI, Parte I and Parte II, 2000. FTAA, “Legal and Commercial Framework for Electronic Commerce” (FTAA.ecom/inf/21), November 9, 2000; “Legislación relacionada con Comercio Electrónico”, Sistema de Información sobre Comercio Exterior (SICE), OAS, “Developing and Least Developed Countries Legal Framework on E-commerce, digital signatures, E-certification, E-transactions, CAs and Ras, EC-DC Project Participant Countries”, ITU, Summary, February, 2001

Note *: United Nations Commission on International Trade Law (UNCITRAL) is the core legal body of the United Nations system in the field of international trade law. In 1985, UNCITRAL issued a recommendation (later endorsed by the General Assembly) on the legal value of computer records. In 1987, UNCITRAL published a legal guide on electronic funds transfer. In 1992, it adopted the UNCITRAL Model Law on International Credit Transfers (endorsed by the General Assembly and used as a basis for the preparation of a European Union Directive). The UNCITRAL Model Law on Electronic Commerce was adopted and endorsed by the General Assembly in 1996, and that instrument is in process of being implemented as part of national legislation in many countries and is generally regarded as useful reference by legislators throughout the world.

Last, but not least, is the lack of efficient physical infrastructure. In addition to a minimum level of connectivity (e.g., more telephone lines), E-commerce requires efficient systems of transport, customs and airports, which allow sellers to deliver a good to consumers “just in time”. The competitiveness of E-commerce traders depends greatly on the “systemic competitiveness” of the country in question or even the region to which the country belongs.

F. Potential E-Commerce areas for SMEs

As experts on the subject of E-commerce suggest, there are at least four different channels through which E-commerce may impact on exports of SMEs in developing countries:

- Making it easier for artisans and SMEs to access B-to-C world markets;
- Facilitating activity on the global market for agricultural and tropical products;
- Allowing service-providing SMEs in developing countries to operate more efficiently and to provide certain services directly to customers anywhere in the world; and
- Allowing firms to tap into the B-to-B supply chains.

Each category except the last will be briefly examined from the viewpoint of East Asia and Latin America. The last category will be discussed in more detail in Chapter III.

1. Exports by Artisans and SMEs

This type of E-commerce would require the least technological complexity in hardware and software, as well as investment and working capital. Nevertheless, human resource requirements from the viewpoint of the potential user would be the most demanding.

One of the examples in the first category is Bolivia Mall (www.bolivimall.com), which sells Bolivian products such as music, videos, food items, souvenirs and handicrafts primarily to Bolivians living abroad. Bolivia Mall works with DHL to ship the orders received (ITU 2001c). Another interesting Latin American case that might fall in this category is Tortaperu (ITC 2000b). This firm targets the two million Peruvians living abroad who might wish to surprise family and friends back home with a homemade cake. Taking advantage of growing Internet usage and technical support from the two Peruvian NGOs, Tortasperu, previously a Lima-based operation, expanded to include a network of housewives who fill orders from Peruvians abroad, which are delivered from seven Peruvian cities. One of the two NGOs mentioned is the Red Científica Peruana (RCP). With the establishment of public Internet cafés, with each equipped with 20 PCs, RCP provides low cost Internet access. Based on a franchise model, the network now has more than 1,000 booths and accounts for about 40% of all Internet use in the country, though largely confined to e-mail. This same system is currently being introduced, with RCP assistance, in El Salvador.

The countries in Latin America as well as Asia have great potential for expanding E-commerce in the first category of handicrafts and eco-tourism. However, there are a host of problems for websites to become truly E-commerce operational. For example, in the case of Bolivia, in spite of high potential, the country has a limited number of websites that can be truly categorized as E-commerce enabled. There are a few initiatives to promote online trade for Bolivian companies through the establishment of directories on the web (e.g., Bolivia Business Online, www.boliviabiz.com and BoliviaNet www.bolivianet.com) (ITU 2001c). Most of the sites in the first case do not offer the possibility of carrying out a full E-commerce transaction such as payments of products or services over the web. In the case of BoliviaNet, on the other hand, some companies with a presence on the site offer some sort of E-commerce capability, including, for instance, the possibility of online credit card payment in various hotels.

2. E-Commerce and Primary Commodity Marketing

Many developing countries continue to be primary commodity exporters and ICT may turn out to be an effective marketing vehicle of these export items. The emergence of ICT may not only establish access to new markets but may also serve to stabilize export incomes (see Box 6). In this sphere, both B-to-B and B-to-C applications are being developed. The most illustrative case has been the international tea industry, where ICTs have made it possible to hold auctions for bulk tea at the source in both Africa and Asia, catering principally to the demand of higher-quality brands and organic production methods. This led to the closure of the London Terminal Auction in 1998 (Goldstein and O'Connor 2000).

A word of caution might be in order. Although E-commerce is likely to provide significant benefits to producers by increasing the efficiency of commodity markets, the major benefits might accrue to purchasers more than to producers in developing countries; efficiency gains that arise from E-commerce are likely to accrue to the consumer through lower prices for final products (World Bank 2000). E-commerce may affect the relatively homogenous primary products less than it does the more differentiated products since most of the necessary information is contained in the product price. Commodities already traded in commodity exchanges, with widely disseminated information on prices and centralized trading, may not be greatly affected by E-commerce.

E-COMMERCE AND RISK HEDGING IN COMMODITY EXPORTS

Producers, as opposed to commodity traders, in developed and developing countries alike, have for some time been able to participate in future markets and thereby hedge the risks of export-income shortfalls using ICTs. In this sense, the use of ICTs in commodity trading is not new. But the Internet is changing trading systems of commodity exchanges in some cases, as can be seen below:

The Cochin Oil Merchants Association of India has formed an alliance with the clearing arm of the International Pepper Exchange to offer future contracts in coconut oil and copra. Trade will be screen-based rather than “open outcry”, with the objective of moving over to the Internet trading and creating a B-to-C portal.

The extended use of country-specific, “real time” commodity price indexes (the Westpac Commodity Futures Index), introduced in Australia in May 1999, has improved the prospects for effective insurance for export earnings. The index tracks the minute by minute changes in future prices of 11 major commodities of the country, and then translates them into a single index, weighted by the relative importance of each product in the country’s total commodity exports. Given that the index operates in real time, and fluctuations of the Australian dollar depends heavily on commodity price movements, a clear connection is established between the index and the foreign exchange market.

ITC (2000) reports an interesting experimental case of the first Internet coffee auction. The auction, which took place December 1999, lasted for 48 hours, quoting ten different kinds of Brazilian coffee of a total of 900 bags of 60 kg each. The auction was organized by on a web site of the Specialty Coffee Association of America (SCAA) (www.scaa.org) and the bidders, 23 in number on four continents, were given the opportunities to participate in a trial bidding. Using a password, bidders around the world opened a screen picture with pertinent information (number of bags for sale, the highest bid per pound at any point in time, the secret code for the highest bidder in any point in time, etc.). The auctioned coffees were sold at prices much higher than the New York C-Price, a common benchmark in the coffee sector. One important rationale of the auction was to by-pass the existing distribution system and create a closer link between growers and roasters, who could get access to high-quality coffees that were otherwise difficult to find. Despite some difficulties encountered, the Brazilian parties are determined to offer new auctions in the future, with a larger volume and more consolidated bidding procedures.

Another interesting case, also for coffee, is the Colombian Coffee Federation (FNC) that has jointed bolero.net, a global E-commerce initiative to move trade onto the Internet. At the initial stage, three brands of Colombian coffee will be exported to the United Kingdom. The Bolero System provides secure electronic transmission of business data and documents along the entire trade chain from front end order processing and management to backend trade document exchange. Also, a small company in Costa Rica, Café Britt, carries out the complete cycle of growing, processing, exporting, importing, and selling via its website.

Source: (Goldstein and O’Connor 2000); UNCTAD, [E-commerce and Development: Can E-Commerce be an Engine for the Integration of Developing Countries in the Global Economy?](#), background paper prepared on the occasion of UNCTAD’s Regional Meetings on “E-commerce and Development” (Lima, Nairobi, Colombo, August-October 1999); www.boleroldt.com/news.

3. E-Commerce in the services sector

Some segments of the services sector are particularly suitable for ICT. For example, travel and tourism is an information-intensive industry in which E-commerce is already playing a significant role and where a large number of developing countries have a comparative advantage.³¹

³¹ For more information on this type of E-commerce from the viewpoint of developing countries, see OECD (2001a, Chapter 1).

With the introduction of ICT and E-commerce, travel agents in developing countries may be able to establish themselves as a credible brand with positive consumer recognition and broaden their online offers of comprehensive tourist product lines. UNCTAD (2000c) argues that from the perspective of B-to-C, a tourist may now book online any combination of tourist services with/through any combination of producers or travel agents and other tourism marketing/information agencies (inter/informediaries). The B-to-B dimension of tourism increases markedly as each producer and inter/informediary starts linking their proprietary booking systems with one another. When a small hotel does not have the technological and managerial capabilities to set up and maintain its own website for electronic reservations, it might make sense to team up with other hotels in a region or country to set up a collective Internet-based reservation system, as in the case of HotelNet in Argentina (Zimmermann 2000b).

Another services segment amenable to the introduction of ICT in developing countries is digitized data processing. Already, offshore data processing centers in developing countries provide data transcription and “back-office” functions for insurance companies, airlines, credit card companies, banks and other service enterprises in OECD countries. India and the Philippines have developed into major locations for offshore data entry and computer programming, while India already possesses a sophisticated software development capability (Goldstein and O’Connor 2000).³² One notable Latin American case in software development is Softek, a Mexican firm located in Monterrey, which has obtained contracts from several international firms (UNCTAD 1999a).

³² India’s total software exports have doubled in recent years and the 10- year target (for 2008) anticipates exports worth more than US\$ 50 billion. In 1998, some 700 firms were engaged in export. Roughly 60% of exports go to the United States and another 25% to Europe. The importance of this trade is reflected in the fact that about 200 of the Fortune list of top 500 global firms now use software made in India (UNCTAD 1999c).

III. SMEs' export promotion in the age of globalization

One of the effects of globalization is that advances in automation and ICTs have made production processes “finely spliced” and distributed among different parts of the world. Semi-finished goods, components and parts can be transported across borders to be combined with other partly finished goods resulting into finished products (Krugman 1995). In this sense, globalization can be understood as a process that integrates the international value-added activities of the firm, in such a way that the prosperity of one firm heavily depends on efficiency of its foreign production and marketing activities. Reflecting this trend, the “processing trade” has gained importance and often played a crucial part in the overall trade performance of countries such as Mexico, China, Tunisia, Dominican Republic, El Salvador, the Philippines and Bangladesh. Their exports have expanded well ahead of the global average in the 1990s (WTO 2000).

Another facet of globalization has been the increase in the knowledge-intensity of production in many areas such as product design, process engineering, quality control, new management routines and organization of production. Under this context, continuous improvement in product, process, technology and organization have become the keys to sustained competitiveness.

Also, globalization promotes cost reductions in moving goods and services and cuts down the speed with which information circulates.

While micro and SMEs are increasingly under pressure to innovate and change, these entities often do not possess the resources necessary to do so (UNCTAD 1998c).

A. Increasing parts and components trade in East Asia and Latin America and the Caribbean

As a piece of evidence for the increasingly “sliced-up” production process, East Asian trade in parts and components has expanded over the years, totaling US\$ 178 billion in 1996. Exports of these products grew faster than any other major product group over the period of 1985-1996, at an annual rate of 15%. Furthermore, intra-regional trade outpaced the rapid expansion in global components exports, as the share of this exchange in total trade almost doubled to 46%. This type of trade now constitutes one-fifth of East Asian manufactures’ exports (Ng and Yeats 1999). It is precisely in this type of trade where most dynamic Asian SMEs participate in production and exports and where great potential and benefits of the ICT and B-to-B E-commerce are expected.

It is important to note that parts and components are now a substantive part of Latin American and Caribbean trade as a whole. In 2000 almost 45% of total regional exports originated from Mexico, and almost half of this Mexican trade was maquiladora activities. Mexican maquiladora trade is basically exports of finished or semi-finished products with their major parts and components imported from abroad. Other Central American and Caribbean countries, which depend strongly on the United States market, also often resort to this type of processing trade (ECLAC 2001a).

Though in a lesser degree than in East Asia, intra-industry trade by Latin America has increased rapidly in the 1990s. Intra-industry trade for the eleven Latin American Integration Association (LAIA) member countries, excluding Cuba which became a member of LAIA in August 1999, reached US\$ 139 billion in 1998, which accounted for 26% of this region’s trade. Of this total, 78% have the United States and Canada as a trade partner, and 15% corresponded to intra-LAIA trade. Close to 43% of Mexican trade can be characterized as intra-industry. Over 16% of Brazilian and Argentinean trade are intra-industry. Within LAIA, almost one third is accounted for by flows between Argentina and Brazil, while bilateral intra-industry flows between Colombia and Venezuela, Argentina and Chile, Brazil and Mexico and Argentina and Uruguay, represent between 4 and 7% of the total each. By sector, the most important are machinery and transport equipment, various manufactured articles, and chemicals (ALADI 2000a). These are precisely the sectors in developed economies and Asian countries, where high potential of B-to-B E-commerce lies and where many SMEs participate as secondary or tertiary components and parts suppliers. In the case of Latin America and the Caribbean, however, SMEs’ participation has not yet reached a level similar to that of Asia.

It is also noteworthy that TNCs are the most important group of exporters in the region. Of the 200 largest exporters in Latin America, TNCs have been by far the most dynamic component of this group, with the share of total exports by these leading exporters soaring to 43% in 1998-1999 (Mortimore and Peres 2001). The automotive TNCs’ share in exports by the 200 TNCs surged from 15% to 20% during the period of 1995-1998 (ECLAC, 2000). The sustained growth of TNCs in foreign trade, especially in the automotive sector in several South American countries and electric and electronics in Mexico and possibly other sectors, should bring about dynamic growth of B-to-B E-commerce to the region.

It is true that potential benefits associated with the use of the Internet and E-commerce in networking and clustering will be reaped only by those SMEs that possess a certain level of technical and commercial sophistication (Goldstein and O’Connor 2000, World Bank 2000).

Obviously, these capable SMEs are limited in number; subcontracting SMEs that have integral links with a large foreign firm, or with domestic firm that exports, are relatively few, probably less than 2% of non-agricultural SMEs. However, these SMEs are economically significant because they tend to employ more people on average, and use more sophisticated technology (Hall 1999). Furthermore, they are an important driver of economic *de facto* integration, technology and skill transfer, and make a major contribution to the economic and industrial development of a country and/or a region.

In Latin America, E-commerce has meant primarily web-based consumer-oriented retail commerce. In contrast, In North America and Asia, E-commerce increasingly signifies a broader range of ICT-enabled business transformations including intranets, extranets, “closed” and “open” EDI and permutations such as virtual private value-added networks, and business applications of networked interactive multimedia (Davis 1999). Viewed from this perspective, the longer-term prosperity of E-commerce in the region will require a diversification in a number of directions, including the diffusion of E-commerce capability among SMEs in order to reduce technological exclusion. It is important to promote local knowledge-intensive business clusters, nurture web-based entrepreneurship and venture investment capital, and to apply networking based on interactive ICTs.

B. Increasing B-to-B E-Commerce and SMEs

1. An Overview

The future growth of E-commerce is thought to lie in B-to-B transactions, in relation to B-to-C operations that have grown spectacularly up to now.³³ It is also estimated that services traded electronically will retain a small portion of total “B-to-B” E-commerce, while B-to-B trade in goods will keep on being a major portion of E-commerce transactions. UNCTAD (2000b, p.23) and others (e.g., Coppel 2000, Goldstein and O’Connor 2000) mention that the reversal of importance between B-to-C and B-to-B transactions will entail the increased use of E-commerce by big firms that have traditionally dominated some of the major sectors of the world economy, such as the automobile, chemical and industrial equipment sectors). JETRO also suggests (2000a), one of the merits of B-to-B transactions relates to the use of E-commerce in the parts procurement field, with one case in point being SCM (supply chain management), where SMEs can play an increasing role. Another category, B-to-G, could also be a major source of efficiency for developing countries.³⁴

Several recent studies point to the increasing importance of the B-to-B type. For example, Jupiter Research (2000) predicts that online supply chains will dominate the B-to-B commerce landscape, as online B-to-B commerce increases from 3% to 42% of total B-to-B domestic trade of the United States over the next five years. Examining the trading activities of 12 major industries, the study concludes that five sectors (e.g., aerospace and defense, chemicals, computer and telecommunications equipment, electronics, and motor vehicle and parts) will conduct more than

³³ Estimates of dollar value of B-to-B E-commerce transactions vary widely. According to the Industrial Standard, forecasts for 2003 between US businesses that will be conducted electronically range from \$634 billion to \$2.8 trillion. This discrepancy is due to a combination of methodological and definitional factors, a major one of which is whether or not non-Internet network transactions (e.g., those conducted over EDI systems) are included in the estimate (US Department of Commerce, 2000b, p.15). According to UNCTAD (2000b, p.8), total B-to-B E-commerce of the United States, defined as the value of all goods and services purchased over the Internet by business users (excluding advertising revenues), would reach \$US 843 billion by 2000, from a virtual zero in 1990 and an estimated \$43 billion in 1998.

³⁴ By participating directly in E-commerce transactions, Governments could enhance their efficiency, for instance by way of efficiency gains in public sector procurement, and by establishing cooperation schemes and mutual respect between the private and public sectors. In most European Union Member States, procurement purchases are estimated at 10-15% of GNP, or 25-30% of public expenditure. The equivalent of 20% of Latin America’s GDP is spent by governments on procurement. Procurement in East Asian countries is estimated at anywhere from 20-40% (Enterprise Research Institute 1999).

half their total B-to-B buying and selling online by 2005 (for some sectors see Table 11). The computer and telecommunications sector would become the largest B-to-B market in terms of sales, topping US\$ 1 trillion in 2005, while other four sectors will reach the level of US\$ 500 billion each.

Table 11
UNITED STATES B-TO-B TRADE PROJECTIONS
(US\$ Billion)

| Industry/Sector | 2000 | 2005 |
|-------------------------------------|-----------|------------|
| Computer/Telecom. Equipment | 90 | 1,028 |
| Food and Beverage | 35 | 863 |
| Motor Vehicles and Parts | 21 | 660 |
| Industrial Equipment and Supplies | 20 | 556 |
| Construction and Real Estate | 19 | 528 |

Source: <http://jup.com/company/pressrelease.jsp?doc>. October, 2000.

Possible savings for firms from purchasing over the Internet vary among sectors, ranging from 2% in the coal industry to up to 40% in electronic components (Goldman Sachs 2000). Equally large potential gains are expected in purchases of indirect inputs, such as telephone charges, office equipment and furniture, and electricity, which together account for 30-60% of firms' total non-labor costs. By pooling the buyer power of small businesses, online intermediaries can negotiate discounts. The OECD (2000d) cautions, however, that the development of new networks depends heavily on the structure of existing markets. While markets are concentrated and electronic data interchange (EDI) highly developed, as in the automobile industry, the move to the Internet is likely to depend on corporate strategy vis-à-vis major industry players.

2. Possibilities of EDI-Internet Transactions for SMEs' Exports

EDI, prevalent in industries with large volume supplier/customer relationships (e.g., food manufacturing and car making), has not spread as quickly as its proponents anticipated, because it remained as a cumbersome and relatively expensive means of doing business. It requires a fairly sizeable investment in dedicated hardware and proprietary software and the use of expensive leased telecommunication lines. For many decades, large firms have used EDI to automate routine paperwork on business transactions, to manage arrangements such as automatic inventory replenishment, and to make purchases according to pre-established terms.³⁵ However, as costs of computing power, memory and storage declined drastically throughout the 1990s, the size threshold at which EDI became cost-effective also declined, but still remains too high for many trading applications (US Department of Commerce, 2000b, p.18). For this reason, SMEs remained outside the EDI world and the few SMEs that did adopt it did so under the pressure of the larger firms for which they were suppliers or subcontractees. This has also caused increased concern to the large companies because in order to achieve additional operating efficiencies they need to conduct business electronically with all their trading partners including SMEs.

The Internet, with its open nonproprietary protocols and global reach, has emerged as a platform for spreading the efficiencies achievable through the automation of business processes to firms of all sizes. Now, adoption of Internet protocols and use of the Internet infrastructure are transforming EDI from a communication system, supplied by value-added networks (VANS) operated over leased telephone lines between large firms with an established relationship, to a flexible system that attracts a wider range of firms (Gilbert 1999). EDI over the Internet costs about

³⁵ The EDI based transactions generally require that all trading partners connect to the same proprietary network and maintain their own internal systems based an "industrial grade" for B-to-B E-commerce solutions. As more industry segments began to realize the value of EDI, there was agreement that the transaction sets must be standardized and organization like the American National Standards Institute (ANSI), and the International Standards Organisation (ISO) became responsible for such standardization (Gilbert 1999).

one-tenth that of a VAN and greatly lowers the barriers to adoption.³⁶ Many barriers such as questions of security and reliability, that now limit the extension of Internet EDI to unknown firms, are likely to be overcome in the coming years. Though EDI between organizations is widespread, particularly in the field of electronic and electric products and the auto and auto parts industry, currently, transaction by EDI is not applied to all stages of business activities and is limited to closely connected trading partners (Ohshima 2000). As a result, there will be a significant increase in B-to-B E-commerce as it draws in smaller second- and third-tier suppliers.

Corporate extranets have been growing rapidly in an attempt to extend the reach of organizations with their trading partners and at the same time extend business functionality beyond that of traditional EDI. These corporate extranets are in general proprietary to the enterprises that manage and operate them. One exception to this is the US Automotive Network Exchange (ANX) that makes use of the Transport Control Protocol/Internet Protocol (TCP/IP) to link automotive suppliers to each other and to original equipment manufacturers (OEMs) such as GM, Ford, Daimler Chrysler, Renault and Nissan. Dispensing with the multiple networks and protocols that now link first-tier suppliers to OEMs, the new system will provide a single common system that can be extended to include all suppliers (OECD 1999a, p.37) (see Graphic 2). Any Internet Service Supplier (ISP) software or hardware supplier can participate in the ANX network if they are certified to conform to the standards set by ANX.³⁷ As discussed later, similar networks have been created elsewhere in Europe, Japan, Australia and Korea. Eventually all these country/regional networks will be connected.

3. B-to-B in Latin America

In this region, the most intensive users of B-to-B are large, globalized industries, particularly of affiliates of TNCs. The best examples include Volkswagen's plants in Argentina, Brazil, and Mexico that use the Internet to link with their suppliers, as does the Argentine oil firm, YPF. Business portals are beginning to appear for many vertical sectors such as the agricultural sector and automotive industry, but payments are still made through traditional channels such as invoice, and not transmitted electronically yet. In Argentina, extranet use by SMEs is currently very limited. However, some TNCs are incentivating their suppliers to get on the Internet and use E-commerce, and a few SME-focused B-to-B portals have emerged recently (US Department of Commerce 2000a, p.39). In Brazil, extranet use by SMEs is currently very limited (p. 61) (for an example of B-to-B in the region, see Box 7).

According to a study by IDC (Nov. 8, 2000 idc.com) based on in-depth interviews with 30 Latin American EDI users and 20 providers, the EDI services market in Latin America was poised to grow from US\$ 80 million in 1999 to 107 million in 2001. Close to 73% of incomes of the companies that provide EDI services were concentrated in Brazil in 1999, followed by 9.4% of Mexico and 2.1% of Chile. By sector, financial services accounted for 44%, while transport, commerce and manufacturing represented 7%, 11% and 14%, respectively (cited in Punto-com, Feb.2001, p.96). With the growth of B-to-B, Latin American enterprises are looking into new ways of integrating traditional electronic communication of business transactions including orders, confirmations, invoices, etc, with the Web. Although Internet EDI presently represents a very small portion of the EDI market in Latin America, EDI suppliers estimate 50% of their revenue will be derived from Internet-EDI transactions by 2003.

³⁶ It is reported that one hour of EDI transaction costs between US\$ 150 and 200, but worldly renowned firms can ask their input suppliers to use this mode of information exchange, an option that is rarely available to SMEs (Punto-com, February 2001, p.60).

³⁷ These standards address issues like delivery windows, availability, and business practices.

AN EXAMPLE OF EDI-BASED B-TO-B TRANSACTIONS IN LATIN AMERICA

One of the largest B-to-B operators in Latin America are the Internet Business Communities (IBC) of the Carvajal Group, the largest publishing and graphic arts firm in Colombia. Together with monthly transactions of over 100,000 that proper clients of the Centro Electronico de Negocios (CEN) and others through a private platform called TENET (a private EDI network) generate, IBC transacts close to US\$ 1 billion a year. The CEN connects producers of consumer goods with traders in products such as foods, pharmaceuticals, paper, cosmetics, office accessories and others, from Mexico to the Patagonia. Clients from other Latin American countries resort to their services as well. Since its creation, CEN has affiliated with 165 firms, the majority of which are SMEs, together with giant multinationals such as Nestlé, Proctor and Gamble, and Unilever. At present the TENET has more than 800 local and international users, which include the 20 largest retailers and the major producers of consumer goods in the country. This "supermarket" network carries close to 70% of their purchases through the TENET. An eventual fusion of the EDI-based TENET with the Internet-based CEN in the future would create a greater market access for their clients.

Source: Punto-com 2001, January pp.64-65.

In the view of Punto-com (January 2001, p.35), a specialized magazine on ICT which circulates widely in Latin America, there are in the region already many firms which use the web to find new suppliers and buyers, but few are actually making transactions online. However, several large Mexican corporate groups are already implementing B-to-B schemes (Table 12). Citing the Industry Federation of the Sao Paulo State in Brazil as a source, the magazine states that only 4% of local firms carry out B-to-B transactions online, despite that 83% of them use e-mail for business purposes. Forteza and Liu (2000) maintain, however, that B-to-B markets in Brazil offers large opportunities in many sectors, especially in agribusiness (US\$ 60 billion), chemicals (32 billion), oil, gas and mining (30 billion), fast moving consumer goods (FMCGs)(40 billion), auto and auto parts (30 billion), transportation (10 billion), construction (15 billion), electronics (13 billion), hardware and software (11 billion) and steel (20 billion).

In sum, the impact of E-commerce on firms' internal production and transaction costs falls into three broad categories: the cost of executing the sale, costs associated with the procurement of production inputs, and costs associated with making and delivering the product. Now, Internet-based E-commerce procedures make it possible to apply EDI-type systems to relatively small purchases, thereby drastically reducing errors, ensuring compliance with organizational norms, and speeding up the process. Savings in inventory carrying costs can be substantial: the faster an input can be ordered and delivered, the less the need for a large inventory.³⁸ The impact on costs associated with decreased inventories is most pronounced in industries where the product is subject to fast technological obsolescence or price declines (e.g., computers), or where there is a rapid flow of new products. Saving in inventories made possible by this practice, known as collaborative planning forecasting replenishment (CPFR), are known to be substantial, equivalent to a 20 to 25% reduction in current US inventory levels (OECD 1999a, p.63).

³⁸ OECD (1999a, p.63) cites the example of US Automotive Industry Association Group (AIAG) Manufacturing Assembly Pilot (MAP) Program, which piloted an EDI system across the Internet to a wide spectrum of suppliers and OEMs. This pilot program generated a 58% reduction in lead times, a 24% improvement in inventory levels, and a 75% reduction in error rates.

Table 12

SOME B-TO-B INITIATIVES AMONG LARGE MEXICAN CORPORATE GROUPS

| Company | Annual Sales (US\$ million) | No. of Employees | Initiatives |
|--------------------|-----------------------------|------------------|--|
| Cementos Mexicanos | 4,600 | 21,000 | Latinexus (e-procurement portal with alliance with Alfa, Votoratim and Bradespar), Construmix (B-to-B portal for the construction industry), Neoris (regional web integrator to create B-to-B sites), CxNetworks. |
| Grupo Carso | 16,000 | Over 130,000 | ILatin Holdings (B-to-C and B-to-B incubator), AutoShop (automobile sales portal B-to-C and B-to-B), Dineronet (portal for financial services), eAmigo (B-to-B portal the Hispanic market in the United States), TIMSN (B-to-C portal in alliance with Microsoft), various initiatives of retail companies of the group (Sanborns, MixUp, etc.). |
| Alfa | 4,030 | 35,600 | Latinexus (with Cemex, Votoratim and Bradespar). |
| Femsa | 3,900 | 41,300 | Solistica (initiative on logistics of transport companies). |
| Bimbo | 2,900 | 63,300 | Abastech (initiative to serve their sales points, derived from Bimbo XXI). |
| Comercial Mexicana | 2,800 | 30,000 | Provecomer (connect their suppliers). |
| Vitro | 2,600 | 32,500 | Model Vitro de E-business (serve their clients). |
| Savia | 2,600 | 18,600 | Dextra Technologies y Encanto Networks (provide solutions to B-to-B sites). |
| Soriana | 2,100 | 29,900 | Model of e-business with suppliers. |

Source: [Punto-com](#), February, 2001, p.56. [Punto-com](#), "Reunión de gigantes", January 2001, pp.60-63.

C. Networking and clusters

It is often sustained that inter-firm cooperation, networking³⁹ and clustering⁴⁰ can fill many of the management "resource gaps" that SMEs face, by way of the following two channels. One way is that firms interface internationally via formal partnering arrangements, such as "procurement", "subcontracting" and "local sourcing", or affiliation with transnational corporations. Through these newly conceptualized "backward and forward linkages" (Toftoy 1999, Ballat et. al. 1996, FLACSO 2000), SMEs can play an important role in the development process, especially when they become part of networks of large enterprises, transnational enterprises or large local firms with international reputation. In many developing countries, some domestic companies have become valued suppliers of intermediate manufacturing inputs to foreign-invested firms. Some have succeeded in becoming direct exporters (Battat et. al. 1996, Borrus et. al. 2000). Now foreign affiliates of TNCs are moving on from the stage of "simple" forms (e.g., via outsourcing) to "complex" modalities in which foreign affiliates not only become in charge of productive operations but also assume R&D tasks, strategic planning, marketing decisions and international distribution on their own.

³⁹ Networking, term most often used to describe *arms-length* interactions between firms, may take many forms such as linking firms through knowledge exchange, commercial relationships and competition relationships. The main characteristic of a network is that it does not necessarily require geographical proximity to be efficient: it can link firms whose activities are around the world (UNCTAD 1997). The term describes both international and national production as well as distribution networks; it includes interaction across a value-chain without the necessity of having either formal links or equity participation. Both networks of small firms and international production networks organized through subcontracting and /or foreign direct investment by transnational corporations fall in this category.

⁴⁰ Clusters are a very important vehicle for creating organizational synergies and connectivity with the local systems. Firms are located in proximity to each other, but this does not automatically imply collaboration among them. There is a need to transform these clusters into local/regional growth poles reaping the benefits of both physical proximity and networking, thus raising their competitiveness at both the individual firm and systemic level. Clusters are sector specific (vertical specialization) or market specific (horizontal specialization). A sector specific industrial cluster involves cooperation between vertically specialized firms, e.g., collaboration between small firms, or subcontracting between small and large firms. Horizontal specialization involves collaboration between small firms in order to meet the demands of a larger order.(UNCTAD 1997).

Common types of partnerships that are of importance to developing countries in this category can assume basically two forms. One is the situation where a firm from a developed country finds a partner in a developing country to produce a product whose product cycle is already at a well-developed stage. Such an alliance may take the form of a linkage with the components' suppliers, through arrangements that are more or less stable and of a long-term nature, such as subcontracting, original equipment manufacturing (OEM)⁴¹ and second-sourcing agreements.⁴² The other kind is those related to product development for niche markets. In the case of the latter, firms establish relations with other economic agents –whether other competing companies, suppliers, clients, universities, chambers of commerce and others, etc.—“associativity” which can express itself in a variety of forms. – formal and informal— and cover different stages of production (e.g., innovation, production and marketing).

The other is that domestic firms interface *locally* through clustering and networking. These cooperation agreements are critical to SMEs, particularly in a period in which product cycles are short and products change frequently. By way of creating clusters and networks, SMEs in developing countries can overcome their major weaknesses –isolation and powerlessness- and can raise their competitive potential through the emergence of linkages between firms, providing economies of scale and scope (UNCTAD 1998c). Clustering and networking that regroups similar local SMEs can be instrumental in enabling these firms to export, move into new markets and share the R&D burden.

Though backward-linked networks exist in almost all commercial activities, they are probably most common in manufacturing industries.⁴³ The likelihood of backward linkage appears to be strongest when the final product requires various types of manufactured components (such as metal, plastic, rubber, and glass products needed to assemble automobiles), or involves specific manufacturing skills or technologies (such as casting, machining, plastic injection, printing, or metal or plastic printing). When in-house production is not possible or is too costly, dependence on outsourcing is inevitable. To make the system work, both contractors and subcontractors must be open and responsive to each other's needs and requirements. The system allows participating companies to remain independent entities, but their profitability depends heavily on the good performance of other entities involved in the production chain, and on harmonious relationships among all the firms involved in the chain of production.

Creating effective networks would resolve the complaint typically expressed by foreign companies that the goods and services offered by local suppliers remain for the most part uncompetitive in terms of quality and price with those offered by their traditional suppliers. In general, foreign firms have complained about the lack of adequate response from local suppliers to the following requirements: i) competitive price; ii) quality control (low defect rate); iii) time of

⁴¹ Parts and component supplier networks provide opportunities for strategic partnerships with SMEs. These need not to be high-tech or newly established firms, but are mostly existing firms active in related product areas and/or may already produce the relevant component but need to upgrade the quality to meet the standards required. In such cases, customer firms of OEM offer technical assistance in engineering and manufacturing processes in order to ensure quality and cost efficiency. Moreover, the customer takes responsibility for marketing and distribution, saving the OEM supplier substantial investments in these areas. The SME may, however, become dependent on the OEM relationship and not progress towards developing its own independent brand name and marketing channels (UNCTAD 1997).

⁴² One of the newer and most distinctive forms of licensing in the electronics industry has been the “second-source” licensing, where a firm licenses a product to one or more additional manufacturers because the customers do not want to depend solely on a single source of supply.

⁴³ According to Ballat et. al. (1996, p.6), industries where the prospects for backward linkage are the greatest include the automobile industry (requiring parts and components constituting 70% or more of final sale value), machinery and precision instruments involving primarily assembly activities (50% or more), and the consumer electrical and electronics industries (40 to 50%). The food processing industry is also highly dependent on backward linkages for its agricultural ingredients. Other industries that generate upstream linkages include textiles and pharmaceuticals, which have shown subcontracting shares valued at 5 to 10% of final sales. On the other hand, industries that process raw materials, such as metallurgical and petrochemical industries, rank among the lowest in backward linkages.

delivery (keeping promises); iv) flexibility and speed to change designs/ production; v) ability to design parts and components; and vi) long term commitment. The inability of domestic suppliers to meet these requirements is a particular problem for export-oriented foreign investors.

Strong inter-firm partnership relations between TNCs and SMEs are common in East Asia (Borras, Ernst and Haggard 2000, JETRO 2000, Ueki, 2001) and are more frequent in this region than Latin America (UNCTAD 2000a).⁴⁴ Many TNCs in high-tech sectors operating in East Asia have already been exchanging information electronically through EDI-VAN systems (see some examples in Box 8 and JETRO 2000). But many Asian firms still face difficulties in participating in them because of the need for expensive investment in proprietary software. However, services such as ECnet (see Box 9), are providing solutions to these difficulties of SMEs' access to B-to-B markets.

Speaking specifically of the E-commerce networks in the electric and electronics industry, experts (Ernst 2000, Ohki 2001, Ueki 2001) suggest that the American and Asian firms⁴⁵ have fragmented the value-added chain of their respective productive process in order to relocate each function to places where they can undertake it more efficiently. And as can be appreciated in the case of ECnet (Box 9), networkings and regional clusters involving SMEs in this industry are forged by increasing use of ICTs.

Box 8

EXAMPLES OF SUPPLY CHAIN ENHANCEMENT BY B-TO-B IN EAST ASIA

The supply chains of East Asia spread across many countries with disparate currencies, laws and languages. The sheer distance between companies creates unique e-market challenges for fulfillment, physical logistics and transportation.

Both governments and trading companies in East Asia are promoting B-to-B transactions by SMEs. Customers such as Home Depot and Proctor & Gamble are introducing policies whereby they source their products exclusively from suppliers who manage orders online. Similarly, many Asian governments see B-to-B as a tool to compete globally.

An excellent example in Asia is Alibaba.com of China. Its headquarters is in Hong Kong, with offices in Beijing, Shanghai, Hangzhou, London and Silicon Valley and a joint venture in Seoul, Korea. It offers B-to-B marketplace focusing on SMEs to over 400,000 registered members from over 20 countries, with over 170,000 members in China in 2000, which contribute over 2,000 trade leads to their four sites everyday.

In Shanghai, China Automotive Rainbow Network expects to have 1,000 members including car manufacturers and parts suppliers around China. The network charges both a membership fee and transaction fee for participation, creating a complete supply chain that is designed to offer everything from parts purchasing to after-sales services.

⁴⁴ A great part of these partnership agreements are concentrated in the information technology sector with the rest mainly found in biotechnology, new materials and automobile industry. The East Asian firms have been particularly active in entering into alliances in the field of information technology. Asian firms (excluding the Asian republics of the former Soviet Union) accounted for 61.6% of the total for firms of developing countries and transitional economies. Latin American firms were responsible for 15.5% of the total of alliances listed (UNCTAD 1997, Table 2).

⁴⁵ In the case of Japanese electric and electronics industry, in 1996, some 29,000 SMEs accounted for 98% of the number of firms operating in the industry, absorbed 51% of workers, and represented 27% of production and 31% of value-added, respectively. Based on the figures of 1997, in China, 90% of firms working in the industry are small or medium in size (3,082 out of 3,414). In the sector of electronics components alone, 57% of the companies had less than 100 employees, while 6% had 500 or more. Similarly, there were some 12,000 electric and electronics manufacturers operating in Taiwan as of December 1997. Of these, 93% were SMEs. Production of SMEs accounted for roughly 20% of the overall production of the sector (JETRO 1999). East Asian SMEs in this sector are highly export-oriented.

Box 8 (concluded)

In Shanghai, China Automotive Rainbow Network expects to have 1,000 members including car manufacturers and parts suppliers around China. The network charges both a membership fee and transaction fee for participation, creating a complete supply chain that is designed to offer everything from parts purchasing to after-sales services.

In Korea, the Pohang Steel Company introduced a proprietary EDI system in 1997 for ordinary business procedures. Although this system was not based on the Internet, it was rapidly adopted by many Korean firms. As a result, the number of companies that use it amounted to 13,592 in 1997. However, as the spread of the Internet has gradually accelerated, most companies changed a proprietary EDI system to a web-based system. The utilization of the Internet in the EDI system led companies to use it more frequently and easily.

It should be noted that many trading partners prefer face-to-face dealings. In the steel market for instance, buyer-driven auctions have rarely won significant penetration in Asia. Asian steel buyers prefer to negotiate directly with suppliers, feeling that they can achieve better long-term arrangements on terms such as timing and quality.

Sources: UNCTAD, "Report of the Expert Meeting on the Relationships between SMEs and TNCs to Ensure the Competitiveness of SMEs" (TD/B/Com3/31), December 2000. Goldman Sachs, E-Commerce/Internet: B2B: 2B or Not 2B?, Version 1.1., November, 1999. Republic of Korea, Ministry of Information and Communication, "E-commerce in Korea: Current Status and Future Plans, October 1999; ITC (2000), "B2B in China: Alibaba.com's Unique Experience: A Leading International On-line Market Place Originating in China", Discussion brief for the Export Strategy-Maker, www.intracen.org/execforum/docs/ef2000/db7alibaba.htm; Mitsuhiro Kagami and Masatsugu Tsuji eds, The 'IT' Revolution and Developing Countries: Late-Comer Advantage?, Institute of Developing Economies, 2001, Tokyo, Japan.

Box 9**ECNET, AN EXEMPLIFYING CASE OF B-TO-B AND EDI ADJUSTING TO AN INTERNET ENVIRONMENT**

ECnet Ltd, founded in 1995, and named as Advanced Manufacturing Online (AMO) in Singapore, is now headquartered in the United States. The company started its e-supply chain management services (ECnet) in 1998 and allied with Oracle, Sun Microsystems, DHL, FedEx, HP and other companies. Their services were aimed exclusively at high-tech sectors such as components and semiconductors, contract manufacturing, computer and peripherals, communications and networks, and consumer electronics, including also order management and inventory management. Some 65 multinationals are deployed mainly as buyers and more than 1,300 firms operate as suppliers on ECnet. Customers include AMD, Epson, Siemens, Phillips, Sharp, Hitachi, Motorola, Seagate, JIT, and others. ECnet offers services in the United States, Mexico, Japan, Singapore, Malaysia, Thailand, Korea, Hong Kong, and China, and plans to widen their operations to Ireland and the Netherlands.

ECnet services can be offered by connecting existing EDI or ERP (Enterprise Resource Planning)/MRP (Material Requirements Planning) systems. Users can also make any-to-any translation between such various standards as EDIFACT and XML (Extensible Markup Language), to automatically share data between systems. This is made possible by a standardized Internet browser. This enables the system to deploy rapidly and to eliminate the time-consuming and error-prone manual process.

ECnet also offers ECnet Exchange, an Internet-based market place for electronic components. Registered buyers, more than 600 companies, can participate in this virtual market. Sellers are limited to registered manufacturers of finished products, OEMs, component manufacturers, authorized distributors and trading companies to guarantee the source and quality of the components sold. ECnet Exchange ensures financial transaction security by offering an escrow service and also a logistic service.

Box 9 (concluded)

NatSteel Electronics, one of the world's major contract manufacturers, began to address the question of E-commerce in 1999, by linking its existing ERP system to ECnet. This system enabled an online exchange of 100,000 business transactions (e.g., purchase order, delivery forecast, invoice, credit/debit notice, payment advice for accounts payable trade) per year, among its 200 suppliers. With the introduction of ECnet, the percentage of suppliers connected to NatSteel online increased from 9% in the EDI-VAN environment to 32% in three months. Order lead-time was reduced by 2 to 3 days, while cost reductions in paperwork on purchase orders by 50% and on accounts payable trade by 35%.

Source: Yasushi Ueki, "Electronic Industry in Asia: Changing Supply Chain and the Effects" in Mitsuhiro Kagami and Masatsugu Tsuji, eds. *The 'IT' Revolution and Developing Countries: Late-Comer Advantage?*, Institute of Developing Economies, 2001, Tokyo, Japan.

The most illustrative cases of TNC networking/clusters in Latin America can be found in the auto industry, for example, in Puebla, Ramos Arizpe and Aguascalientes in Mexico, and in Curitiba, Resende, and Juiz de Fora in Brazil. Another large and diversifying TNC cluster exists in Guadalajara, Mexico, and three Intel microprocessor plants in Costa Rica. In Tijuana, Mexico and Manaus, Brazil, large-scale assembly of television sets has induced the establishment of plants producing color picture tubes and other inputs locally.⁴⁶ These clusters are typically dominated by TNCs not only at the final assembly stage but also in parts production; the role of SMEs as suppliers of inputs is still limited and the backward and forward linkages of SMEs with the rest of the economy are weak. As there will be plenty of opportunities in new and traditional sectors that arise from the increasing importance of TNCs in production and trade increases in the region, the enhancement of SMEs' competitiveness depends heavily on how these entities establish inter-firm relations with TNCs operating there.

In Latin America and the Caribbean, SMEs operating in the electric and electronics sector and being conducive to the adaptation of inter-firm networks are yet limited in number and scope. In Mexico, a leader in Latin America that has a strong electric and electronic industry, there have emerged a host of important clusters involving internationally renowned electronics TNCs and OEM producers or contract manufacturers (CM).⁴⁷ There are several institutions, such as CADELEC (Cadena Productiva de la Industria Electorónica A.C.), in Guadalajara Jalisco, and Provee Program in Costa Rica, to assist the integration of local, national and international companies to the suppliers chain of companies already established in the region.⁴⁸ However, in the case of Jalisco, local component firms have been mostly left out of the international production network (Dussel 1999). Major players are foreign equity operations that import almost all parts and components from abroad. In the Maquiladora industry, less than 10% parts used are of Mexican origin.

In Chile, there are reportedly 200 enterprises engaged in electronics manufacturing, and another 200 firms engaged in assembling computers. All domestic companies working in this sector are SMEs. These enterprises are engaged in manufacturing electronic measuring equipment, motor control apparatus, uninterruptible power supplies (UPS), automated service apparatus, monitoring equipment, talk monitoring equipment, and industrial control devices. With the exception of a few parts such as resistors and transformers produced for special purposes, there is no parts industry in

⁴⁶ For more details on these clusters, see (Altenburg and Meyer-Stamer 1999).

⁴⁷ For the analysis on the cluster in Guadalajara, Mexico, see (Kagami 2000). On the "Costa Rica Provee" Program, see Egloff (2001).

⁴⁸ This organization receives support from the State Government, through the Secretariat of Economic Development, the Industrial Integration Program (CONCAMIN-FUNTEC-PNUD), as well as representatives of electronic companies (IBM, LTCP, Intel, HP, Natsteel and Jabil Circuit) (Dussel 1999).

Chile connected with the electronics and computer industries: nearly all parts are imported. However, about 10% of Chilean electronics products are exported, mainly to neighboring Latin American countries (JETRO 1999).

The automotive industry is perhaps the most highly visible example of reorganization of a value chain. American Network Exchange (ANX) mentioned earlier is an outstanding example. Ford, Daimler Chrysler, General Motors, and Renault/Nissan, in partnership with software vendors Oracle and CommerceOne, have pooled resources to develop a global online supply network called Covisint. This global, independent e-business exchange provides the automotive industry with leading collaborative product development, procurement and supply chain tools that give its customers the ability to reduce costs and bring efficiencies to their business operations. The service by Covisint allows automakers to indicate the parts they want to purchase, quantities needed and delivery dates required. Suppliers then place bids for their orders.

Recently, similar exchanges have been created in other parts of the world, including Europe (ENX), Japan (JNX), Australia (AANX) and Korea (KNX). The European Network Exchange (ENX) has 250 manufacturers and suppliers as registered users at present and works closely with the other exchanges existing in the globe (Bolero Ltd. 2001). Japan's top automakers, such as Toyota, Honda, Mitsubishi and Mazda, which are already members of JNX, together with 19 parts manufacturers, are expected to join Covisint in 2001 (Japan Automobile Manufacturers Association 2001). The JNX network expects a membership of about 300 companies by 2002 (JIMA 2000). In Brazil, studies are being carried out to implement its own national network (BANX) (Sindipecas 2001).

As can be appreciated from Graphic 2, in addition to Conisint, there exists extensive online services that connect various agents in the chain from the secondary suppliers, vehicle manufacturers, dealers, financial services, to after-sale customer care. What remains to be seen is who will capture the most value from this cooperation -suppliers, OEMs, or the end customer (Booz, Allen & Hamilton 2001, Davenport et. al. 2001).⁴⁹ The biggest obstacle that Covisint faces is, however, security concerns. Automakers and parts suppliers are wary of transacting business electronically for fear that others will be able to access sensitive information.

Though the automobile chain in either Latin America or Developing Asia may not be as "wired" as the case mentioned above at present, secondary and tertiary parts manufacturers in these regions which are mostly SMEs will be increasingly linked by electronic means. This is the case, for instance, Volkswagen has 5,000 suppliers in Brazil and Argentina, in which the TNC requires its suppliers to bid for procurements online (IDB 2000a).

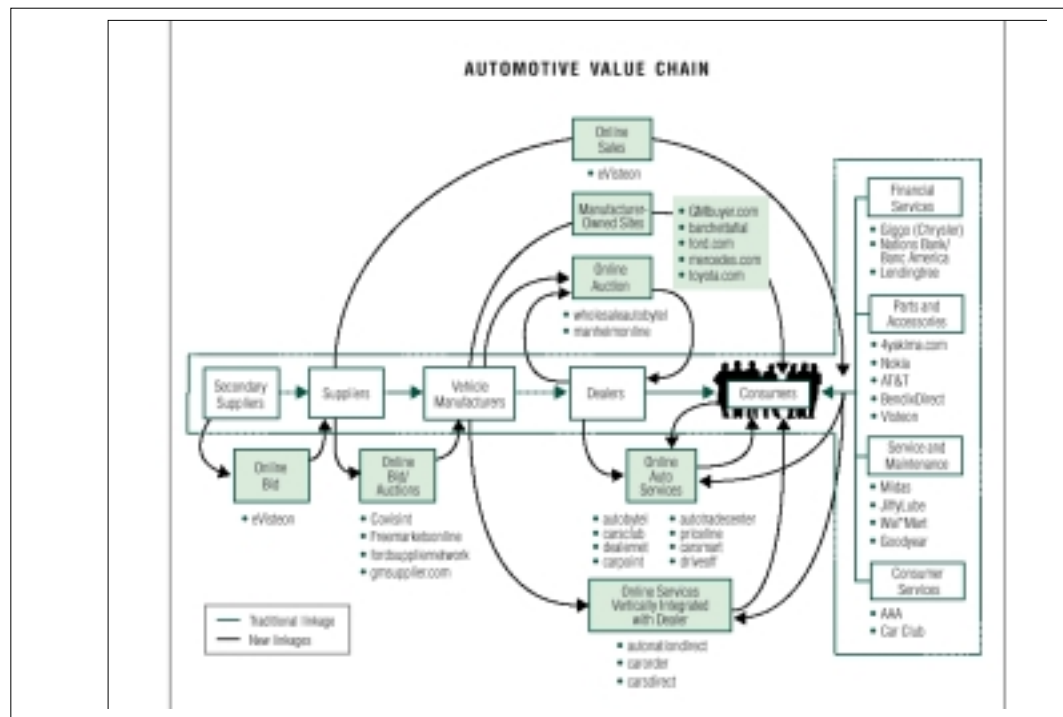
More specifically, in the case of Brazil, top regional automaker, whose vehicle production reaches a similar level of Korea, China and Mexico, there seems to be large potential in adopting an eventual BANX and interconnecting to a global system (GNX). Brazil's auto parts exports and imports reached US\$ 3.6 billion each in 1999. These products were exported to the United States (34.5%), Argentina (27.5%), Germany (8.5%), Mexico (4.3%), the United Kingdom (2.3%), Chile (1.9%) and other destinations (21.0%) in that year. Major autoparts suppliers were the United States (19.4%), Germany (16.2%), Italy (14.4%), Argentina (12.9%), Japan (8.9%), Sweden (5.1%), and others (23.1%).

In addition to numerous autoparts distributors, in 1999 there were 469 autoparts manufacturers in the country that were members of Sindipecas (Sindicato Nacional da Indústria de

⁴⁹ There are similar cases, in other industries. The creation of MetalSite, a web-based marketplace, where the companies can buy and sell steel on their own virtual exchange (Brown 2000) is a case in point. However, these new virtual exchanges of new and traditional products raise important anti-trust questions. B-to-B transactions of this type, in many cases, go much beyond electronic catalogues, and some may offer open bidding, while others are planning one-to-one deals. All are potential subjects of anti-trust attention. There are potentials for price fixing and collusion (Wolffe, et. al. 2000).

Componentes para Veículos Automotores) and represented roughly 95% of all firms in the sector. Of these firms, 64% were national or national majority capital, while 34% foreign or majority foreign capital, and 2% mixed (50% national/50% foreign) (Sindipeças 2000). Some 180 firms of this group have their own website. Monthly meetings are hosted by Anfavea (Associação Nacional dos Fabricantes de Veículos Automotores) and Sindipeças to diffuse information on ANX, EDIFACT (Electronic Data Interchange for Administration, Commerce and Transport), RND (Rede Nacional de Dados), VAN etc. to interested autoparts manufacturers. These organizations also promote benchmarks and technical assistance on quality and control systems and tools, such as ISO 9000, QS 9000, FAEA (Failure Mode and Effect Analysis). These efforts might help autoparts producers elevate their international competitiveness and product quality.

Graphic 2
A NETWORK OF ONLINE BUSINESS IN THE AUTOMOBILE VALUE CHAIN



Source: Booz-Allen & Hamilton, "Getting Past the Hype: Value Chain Restructuring in the e-Economy", 2001.

As examined above, E-commerce, propelled by EDI/Internet, improves possibilities for relocation of production sites: product specifications can be developed where the company’s design/development work is carried out, while production can be undertaken at locations that offer competitive prices of production factors. The flexibility and ability to innovate and adapt to rapid change that some SMEs possess might mean that they are well placed to take advantage of these opportunities. In this environment, the “scalability” of the Internet offers SMEs many of the advantages enjoyed by large firms in terms of expanding the range of e-commerce customers and transactions. These advantages are especially great when SMEs venture to export. Although whether the Internet/EDI systems can be easily adopted in the major sector of Latin American countries is not certain, these electronic methods provide SMEs with options in participating inter-firm association and clusters.

IV. Policy recommendations for enhancing the use of E-Commerce by SMEs

The large potential that arises from the usage of ICTs in creating B-to-C opportunities and strengthening inter-firm association of SMEs might remain out of reach for many SMEs for some time, especially in Latin America and the Caribbean. In order for SMEs to take full advantage of these potential benefits, a certain number of pre-requisites have to be met. Among these are: access to reliable and cost-effective telecommunications infrastructure; ability to master ICTs and E-commerce technologies; ability to introduce national content in the dominant Anglo-Saxon business models; and capacity to provide effective guarantees for payments and safeguards against defaults. Progress in these areas will require joint efforts of the public and private sectors, at the national, regional and multilateral levels.

There are a host of policy issues for developing countries whose challenges are distinct from those facing developed countries. One of the two basic tasks is how to equip the SMEs of developing countries to benefit from and use the Internet as a tool of export promotion and development. The other is to how to ensure and manage the growth and development of the Internet as a public good and utility that would also promote development. The former requires investments in the infrastructure of telecommunications, in ICT industry to ensure the easy and affordable availability of computers and other equipment and software, and in training and Internet literacy.

The latter involves the growth and regulation of the Internet and its facilities on a universal scale. A strategy and policy perspective for developing countries can be envisaged at three different levels (business community, national and international), which has to be coordinated among them. Actions at the three levels should be complementary and mutually reinforcing, rather than merely duplicative.

A. Business community issues and action by individual SMEs

Possible actions at this level might include, among others: i) creating “eWareness”, concept to mean both “eLiteracy” as well as the awareness of the potential of E-commerce for business, and publicizing the benefits and challenges of E-commerce; ii) training and capacity building in ICT and E-commerce; iii) promoting the sharing of experiences between SMEs of developing countries regarding E-commerce; iv) helping SMEs access supply chains and public procurement supply possibilities; v) promoting business and government cooperation; and vi) creating directories and data banks (Singh 1999). These actions should not be sporadic but continuous undertakings by responsible parties over a period of time. Given the limited resources that SMEs have available for these purposes, these policy issues should be addressed as those of individual companies or business associations or in partnership with the government.

Specifically, to enhance the degree of “eWareness”, business communities, in collaboration with the government, should make efforts to disseminate “best-practices” and case studies in E-commerce by SMEs, that highlight potential areas/uses, available options, and benefits/costs of E-commerce from the viewpoint of SMEs in developing countries, in specific industry sectors. A focused understanding of particular opportunities and challenges for SME adoption of E-commerce within an industry (e.g. financial services, transportation, communications, retail sales, software development, manufacturing) would assist not only individual SMEs in envisaging E-commerce strategies but also the government and business association in developing policies or programs to encourage E-commerce uptake among SMEs within that industry.⁵⁰ In addition, studies on appropriate payment systems for SMEs including legal, technical, financial and business aspects would be highly beneficial.

In the sphere of information dissemination, special efforts should be made on the role of E-commerce in facilitating SME involvement in international trade, by providing them with case studies which bring to light the opportunities and impediments for SMEs, in order to develop E-commerce trade policies and programs. In this regard, emphasis can be given on new supply chain relationships between SMEs and large firms that can be facilitated through E-commerce.

B. Tasks of government

There are several policy areas that go beyond private-sector initiatives and correspond more directly to the government. One of the most important is to develop the telecommunications infrastructure to improve access of businesses and consumers to the Internet and to E-commerce. This action is of particular importance for SMEs in lower-GDP countries. Efficient and equitable access by economic agents among different sectors in different geographical locations should be assured. Particularly important is liberalization and regulatory reform to increase competition in the provision of telecommunications services and encourage lower rates and service innovation.

Though certainly not a solution for improving connectivity rates, it might be wise for the countries in Latin America and the Caribbean to consider the importance of the Information

⁵⁰ For a study of various programs by national governments and international agencies, see FTAA (2000a), APEC (1999).

Technology Agreement (ITA), which was signed in 1997 by twenty-eight WTO members and later joined by additional twelve members. These members are now committed to gradually eliminate all import duties on telecommunications equipment, including personal computers and their component parts. In the Western Hemisphere, four countries (i.e., Canada, the United States, Costa Rica and Panama) are signatories of this agreement. Other signatories are European and Asian members, who together represent 92% of global annual ICT trade (FTAA 2000d).

On the other hand, the government should make efforts to enhance the investment climate to attract and retain venture capital and investment in SMEs with a potential for rapid growth in E-commerce. SMEs that could benefit from this type of investment include both new start-up E-business firms and other more traditional enterprises that are now implementing their E-commerce strategies.

Action in this area might involve the issue of taxation on E-commerce, should governments decide to levy such taxes on certain activities. Governments must ensure a fair taxation on business conducted via E-commerce, in relation to tax treatment of non-electronic transactions: transactions conducted using E-commerce should receive neutral tax treatment in comparison to transactions using non-electronic means. Different rules on the application of indirect taxes (e.g., consumption or sales taxes) may have a more adverse effect on E-commerce than direct taxation such as income taxes.⁵¹ Simplicity, clarity, and fairness must be provided in both national tax regimes and supranational tax regimes (e.g., the European Union's value-added tax system). VAT exemptions for industries and firms may inhibit the use of outsourcing for ICT services by creating a price differential between the cost of contracting and performing services in-house (WITSA 2001). In those cases in which cross-border transactions are involved and where such transactions are not covered by treaties designed to prevent double taxation, governments shall avoid doubling the taxation burden.

It is also a task of the government to address security issues to build trust and confidence in the electronic marketplace. Policy measures might range from the insurance of authenticity of electronic documents, the privacy and confidentiality of personal and corporate records, the participation in establishing internationally acceptable rules and guidelines for the recognition of electronic signatures, digital signatures and certification authorities, as well as restrictions imposed on the export of technology, especially with respect to encryption standards, and legal recourse mechanisms in disputes. Issues of confidence and trust are also relevant for B-to-B E-commerce. The creation of extranets to facilitate supplier-seller relationships is usually seen as a positive step in terms of maximizing efficiency, while security concerns remain prevalent. Propriety information sent over networks, that might include trade secrets and company strategies, may be stolen. Thus, businesses that expand their internal networks to include linkages with other firms typically need to develop strong trust relationships (OECD 1999a).

With respect to consumer protection, an adequate protection should be provided against practices such as deceptive advertising, fraud and unlawful content, while providing the same degree of consumer protection for commercial operations through the Internet as for those by conventional means. These measures of security should be created without generating unnecessary barriers to trade.

An area of government action is the empowerment of local SMEs through "trade efficiency" measures. National action is required to ensure that local SMEs actually use the tools of E-commerce to which they might have access. Such tools cover a broad range of instruments, from trade facilitation, customs automation, transport optimization (e.g., through computer-based cargo

⁵¹ Consumption taxes are intended to be borne by consumers while sellers act merely as tax collectors. If not properly administered, sales taxes may impose an economic burden on business (WITSA 20001).

tracking systems), to insurance and banking (including export financing and credit insurance). One important area is electronic treatment of customs documentation. This reduces costs and time involved in the paperwork. Perhaps the outstanding case is Singapore, where the required time for the standardized documentation is now measured in minutes rather than days. UNCTAD's ASYCUDA system offers an important, electronically based method of reducing costs and time. Electronic methods can also contribute to the process by way of prior identification of suspicious cargoes, using information transmitted from foreign as well as domestic sources, electronic tracking and sample selection.

Action in this area might also include the promotion of the use of local languages and practices and of development of local content on the Internet and E-commerce. UNCTAD (2000b, p.122) states that those countries and regions where efforts have been made to facilitate the use of languages other than English have been more successful in awakening local SMEs interests for E-commerce.

As stated above, as an integral part of business initiatives, it is important for the government to contribute to the rising "eWareness" of E-commerce and fostering coordination between businesses in efforts to integrate productive chains through the use of E-commerce. The measures contemplated here might include measures to promote greater awareness of the opportunities and benefits of E-commerce for SMEs, such as training and skills development programs, and the diffusion of best practices.

At the same time, the government should promote its own use of E-commerce, by encouraging government use in areas such as public procurement and the provision of government services that encourage the wider adoption of E-commerce among SMEs and other firms. Barriers to SME participation should be removed so as to create a business and policy environment where SMEs can operate and compete openly. In addition, governments may target procurement-related assistance towards SMEs to enable their participation. This assistance may be neutral, in which case it should not give a particular advantage to SMEs, or it may be subsidized. More controversial may be the idea to set quotas for SMEs (ITC 2000b). It is important to increase efficiency and transparency in the civil services and in the demand and supply of public goods and services by the Internet. Government can play an important role as a model user.

C. Regional or Multilateral Policy and Program Development

Collective measures may be undertaken by a regional integration scheme, or by groups of the member countries, to enhance the environment for E-commerce, in support of SMEs and other users across the region.

The topics of SMEs and E-commerce have been extensively examined within APEC. The nurturing of SMEs has received a high priority of the APEC agenda, and was identified as one of the six priority areas for economic and technical cooperation (ECOTECH) at the Leaders Meeting in Manila in 1996. There is consensus that SMEs are critical for all APEC members' economies as they attempt to achieve the goals of increasing investment, creating employment opportunities and managing sustainable development. The APEC Electronic Commerce Steering Group, established in February 1999, coordinates E-commerce related activities in APEC. The Steering Group encourages member countries to develop a self-assessment tool for E-commerce readiness jointly developed by officials and the business/private sector. It also promotes the development of effective data and indicators of E-commerce uptake in the region. It encourages member countries to consider the United Nations Commission on International Trade Law (UNCITRAL) model in developing their regulatory frameworks. It has initiated work on consumer protection, focusing on

information sharing, benchmarking and best practices. And it develops an APEC-wide plan to support use of E-commerce by SMEs.

Also, APEC's Telecommunications Working Group (TEL) and TEL's Liberalization Steering Group have worked on a list of Principles of Interconnection among the member countries, which would facilitate interconnection under non-discriminatory and transparent terms, with conditions including technical standards and specifications. The commitments by APEC economies to these principles are reflected in the WTO Basic Telecommunications Agreement.

Under the recognition of the role played by SMEs in economic development and intra-regional trade and investment, governments of ASEAN are also eager to raise the performance of their SMEs.⁵² Yet, the rapid growth of industrialization has exposed a fundamental weakness arising from an acute lack of supporting industries to provide parts and components for assembly and processing-type industries, such as the automobile and electrical/electronics industries. The small size of the domestic market, complemented by local content regulation and high tariffs on parts, components and other inputs had hindered the development of SMEs in the ASEAN region. In order to overcome this weakness, the development of strong and competitive SMEs is thought as a prerequisite for continued development and increased competitiveness of the manufacturing sector in ASEAN (Karikomi 1998).

Recently, ASEAN Member States have created the e-ASEAN Task Force to develop a broad and comprehensive action plan for an ASEAN e-space and to develop competencies within the region to compete in the global information economy. The mandates of the task force are to examine the physical, legal, logistical, and economic structure needed to create the basis for ASEAN competitiveness in the 21st century (ASEAN 2000, Romulo 2000).

Within Latin America and the Caribbean, the support programs on SMEs and ICT enhancement include those undertaken not only by the national and sub regional entities, but also by international/regional financial institutions. In the case of Mercosur, for instance, the Common Market Group (GMC) has promoted a number of projects on SMEs, whose objectives are two-fold: one is to incorporate SMEs within a framework of integration efforts and regional development, and the other to strengthen the competitiveness of these entities congruent with the policies of the individual countries. One of the most significant efforts has been the harmonization of the conceptual elements and the statistical indicators. In addition, several mechanisms and instrumentations of support have been implemented to develop management and technological capacity, to eliminate excessive restrictions and limitations related to the market structure, to facilitate and simplify tax treatment, to lesson the problems associated with credit, finance and capitalization, and to articulate and coordinate export-related activities of the public and private sectors. However, while lacking sufficient funds or concrete projects, such regional efforts seem neither to have been implemented effectively nor coordinated well among the countries.

The Plan of Action adopted at the Second Summit of the Americas in April 1998 earmarks also the importance of SMEs. In this declaration, the governments pledge to establish access to financial services to especially to those in low-income countries by the year 2000. They urge to support private-sector providers of non-financial services to enable these firms to expand access to new technologies and training. They also think it necessary to promote partnerships of SMEs to allow them to take advantage of cooperative assistance in doing business and in modernizing business management. In addition, they request to convoke a regional meeting of ministers or senior officials responsible for public policies to support SMEs. Finally, the governments request that regional organizations, government, multilateral and bilateral development agencies assist in

⁵² ASEAN's programs on SMEs under consideration include a match-making workshop involving ASEAN SMEs and those of other countries, attraction of investments specifically in SMEs, a regional export financing and credit guarantee scheme and an investment fund.

policy formulation and invest between US\$ 400 and 500 million over the next three years in SME-related programs, including training and technical assistance. Now, these programs should be coordinated with the works undertaken by the Joint Government-Private Sector Committee of Experts on Electronic Commerce of the FTAA, whose mandate is assist the member countries to examine possible impacts of E-commerce on the Western Hemisphere and policies necessary to promote it.

It might be wise to improve the information infrastructure for E-commerce in Latin America and the Caribbean, by developing physical telecommunications infrastructures, providing universal access at reasonable costs, and elevating the degree of interconnection and interoperability of telecommunications networks and services. An interesting example to follow might be the Asia Pacific Information Infrastructure (APII) programs, and other programs that help to develop the common APEC information infrastructure required for regional and global E-commerce for SMEs and all other users (PriveWaterhouseCoopers 1999).

Regional and international forums might serve to develop common standards to facilitate E-commerce among the countries of a region. Domestic regulation and standards should be based on market-oriented principles that are internationally harmonized and reflect market realities. When internationally harmonized measures are not possible, necessary or even desirable, the negative trade effects of cross-country disparities may be reduced by recognizing the equivalence of trading parties' regulatory measures or the results of conformity assessment performed in other countries.

Regional forums can contribute to building capabilities in E-commerce among SMEs through seminars, workshops, training or other activities that build awareness of the E-commerce issues and particular concerns of SMEs. As has been done in APEC, projects aimed at promoting the growth of B-to-B E-commerce transactions can be implemented by evaluating readily available hardware and software to make Internet-EDI easy to implement even for SMEs (APEC 2000b, p.5). In these efforts aimed at capacity building of developing countries, developed countries should undertake technical cooperation (e.g., setting up the hard and soft infrastructure for E-commerce, trade facilitation) that is intended to achieve wider use of E-commerce in developing countries and share the benefits of global E-commerce with developing countries.

It is urgent to address issues of trust and confidence in E-commerce transactions that are international in character. With regard to the formation of international rules, including intellectual property rights, contract law, electronic signatures and authentication, consumer protection, jurisdiction and others, E-commerce issues have been addressed in other international fora such as WIPO, UNICITRAL, the Hague Conference on Private International Laws, ISO, and others. Each forum should continue to work on these issues as they relate to specific areas of their expertise, while the WTO should consider such undertakings in its own efforts to address various E-commerce issues.

Multilateral actions are likely to be needed in the implementation of common and beneficial trade policies for cross-border E-commerce transactions, within the WTO. Relevant WTO working bodies, in cooperation with private sector experts, should address the question of classification; it may not be wise to prematurely classify all electronic transactions as goods or services. It is important to make sure that existing WTO obligations, rules, disciplines and commitments, including the GATS, GATT and TRIPS agreement are technology neutral (WITSA 2001). In addition, there should not be any "commercial presence" requirements for supplying services on the Internet without justification. This is particularly important for SMEs because they can provide cross-border services and access to global markets without the costs associated with establishing commercial presence in each country's market.

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