

Chapter 17

Latin America and the Caribbean

NAGIB CALLAOS

Professor, Universidad Simon Bolivar,
Caracas, Venezuela

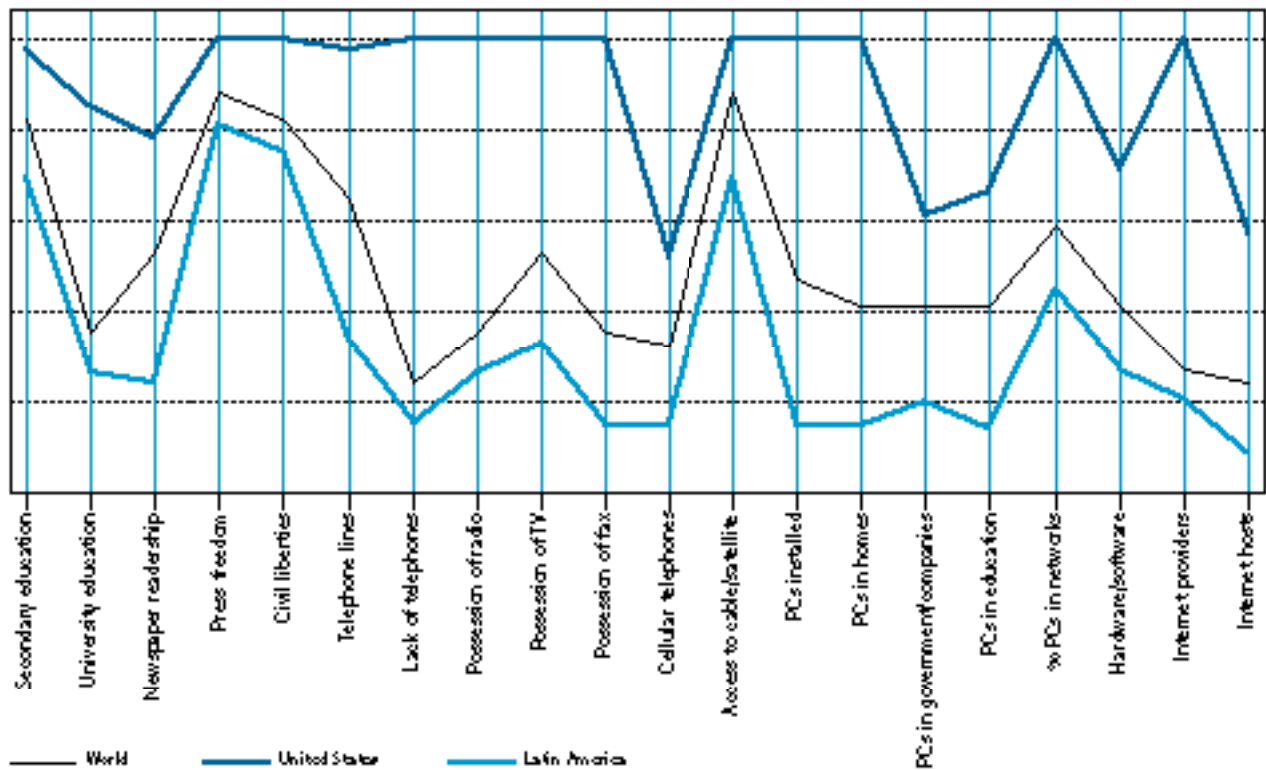
In this regional report, we shall attempt to summarize the most salient aspects of the situation currently existing in Latin America and the Caribbean in the sphere of communication and information. To do this, we shall first deal with the subject of Information Technology (IT), or computing, by looking at the position of the region in a global context with reference to the Information Society Index (ISI), and by describing the investments being made in IT, the markets and market segments that now exist and their distribution. Secondly, we shall describe the situation of information centres and libraries and the networks being set up within Latin America and the Caribbean to link them together, with the support of the Organization of American States (OAS) and the Hemisphere Wide Inter-University Scientific and Technological Information Network (RedHUCyT). Thirdly, we shall consider communications, touching briefly on the situation of mass print media, and referring to the extraordinary growth of telecommunications in the region.

INFORMATION TECHNOLOGIES

The worldwide expansion rate of Information Technologies has been increasing rapidly, and the Latin America and Caribbean region is no exception to this trend, although the regional growth rate is generally below that of the developed countries and of the world as a whole. In the Information Society Index (ISI) designed by International Data Corporation, the region ranks close to the world average for a number of social criteria (freedom of the press, civil liberties and secondary education), for one computing infrastructure criterion (percentage of PCs in networks) and for one information infrastructure criterion (access to cable/satellite). For the remaining factors, it is below the world average, and far below the position of developed countries such as the United States. Figure 17.1 illustrates this.

The position of the ten Latin American countries that are the best situated by comparison with other

Figure 17.1 → Information Society Index (ISI)



Source: International Data Corporation/World Times (Gil, 1998).

countries is shown in Table 17.1. It should be noted that the relative position of these countries improved slightly between 1996 and 1997, rising from 3.92 to 3.9, on average. Venezuela, however, fell from third place to fifth, and from thirty-fourth to thirty-eighth in the world as a whole. The positions of the other countries shifted less. Table 17.2 shows the positions of the ten countries for each of the three types of index, namely, social, information and computing infrastructure.

The IT investments made by Latin American countries correlate quite closely with their ISI rankings, especially in 1997. Figure 17.2 and 17.3 show this correlation. Note that Venezuelan IT investment does not change substantially, as a proportion

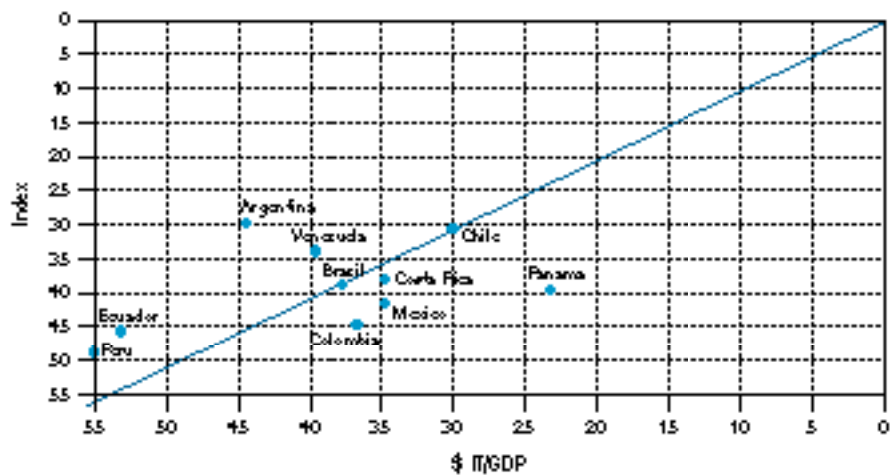
Table 17.1 → Ranking of the top ten Latin American countries in the ISI index

Country position	1996	Country position	1997
Argentina	30	Argentina	31
Chile	31	Chile	32
Venezuela	34	Brazil	36
Brazil	38	Colombia	38
Costa Rica	39	Venezuela	39
Panama	40	Costa Rica	40
Mexico	41	Mexico	41
Colombia	44	Ecuador	42
Ecuador	46	Panama	43
Peru	49	Peru	48

Table 17.2 → Values of three components of the ISI index

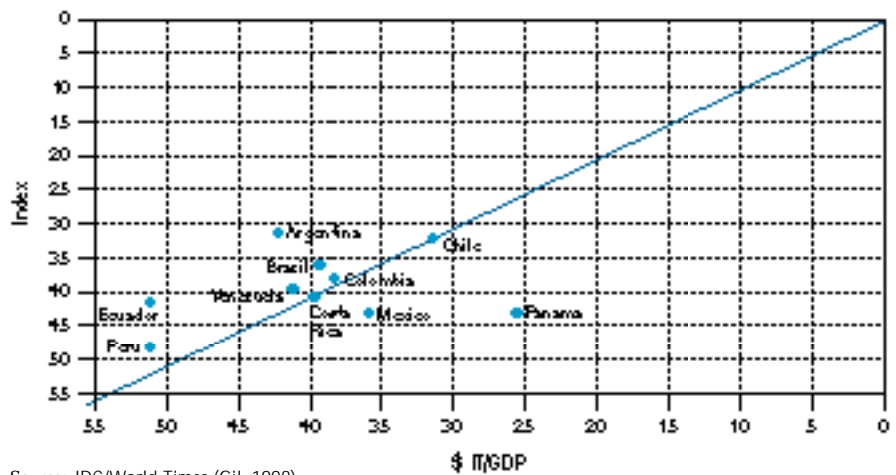
Country	Type of indices					
	Social		Information		Computing	
	96	97	96	97	96	97
Argentina	23	27	30	30	30	37
Chile	24	30	38	38	31	31
Venezuela	35	32	36	37	34	40
Brazil	43	41	37	29	38	35
Costa Rica	26	31	45	42	39	38
Panama	36	36	40	49	40	34
Mexico	44	38	41	36	41	39
Colombia	46	45	46	38	44	29
Ecuador	40	39	39	34	46	42
Peru	41	35	50	48	49	46

Figure 17.2 → ISI versus IT investment, 1996



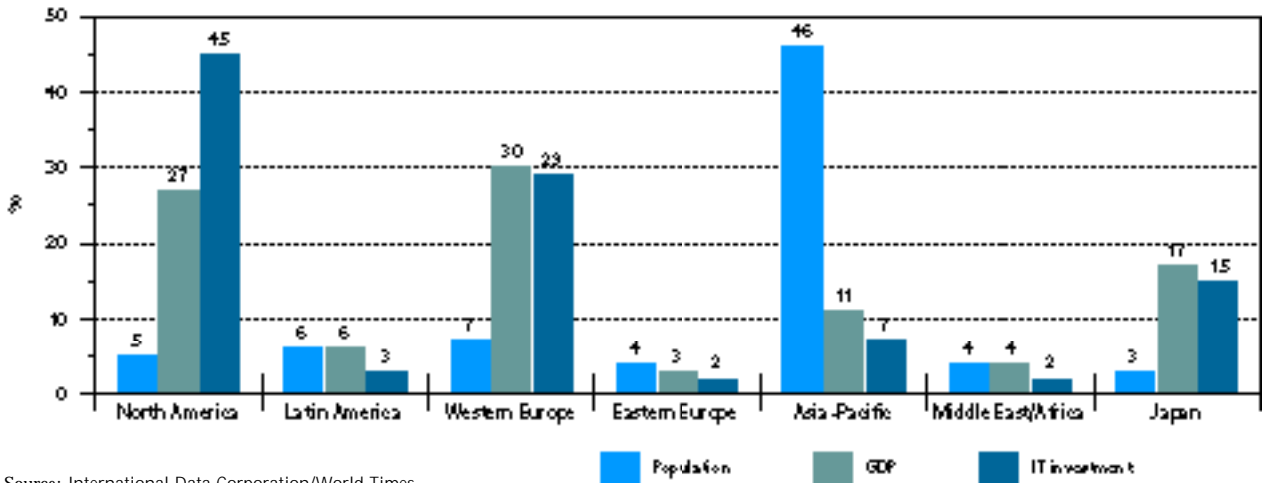
Source: IDC/World Times (Gil, 1998).

Figure 17.3 → ISI versus IT investment, 1997



Source: IDC/World Times (Gil, 1998).

Figure 17.4 → Comparative chart of IT investment, 1997



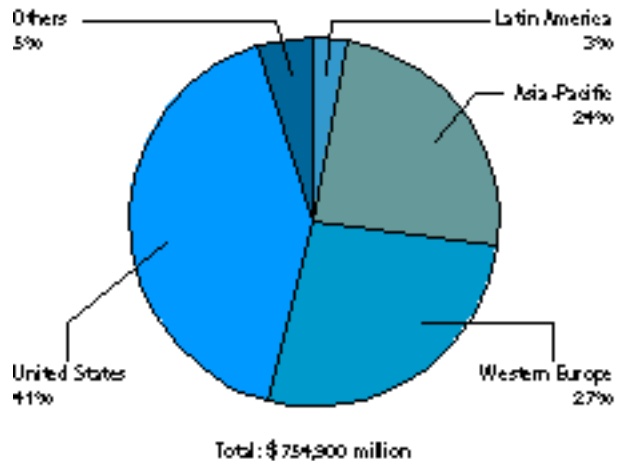
Source: International Data Corporation/World Times.

of GDP, but the country still falls in the world rankings, while in the case of Colombia the opposite occurs. This shows that Venezuelan IT investments were less effective in 1997 than they had been in 1996, while the opposite is true in the case of Colombia. Note, too, the case of Argentina, which ranks first among the Latin American countries in the ISI, even though its level of IT investment is not the highest, being rather around the average. Argentine investment stands at virtually the same level as that of Venezuela, but it is more effective. This would appear to be accounted for mainly by the fact that it has better social infrastructure, as Table 17.2 shows. Panama, meanwhile, would appear to be the least effective in its IT investments.

The Latin American and Caribbean region contains approximately 6% of world population and accounts for 3% of world IT investment, whereas North America, with 5% of the population, accounts for 45% of world IT investment. The relative position of the region in this respect is similar to that of Africa/Middle East. All other regions outstrip Latin America, with the exception of Asia and the Pacific (excluding Japan). Figure 17.4 gives further details.

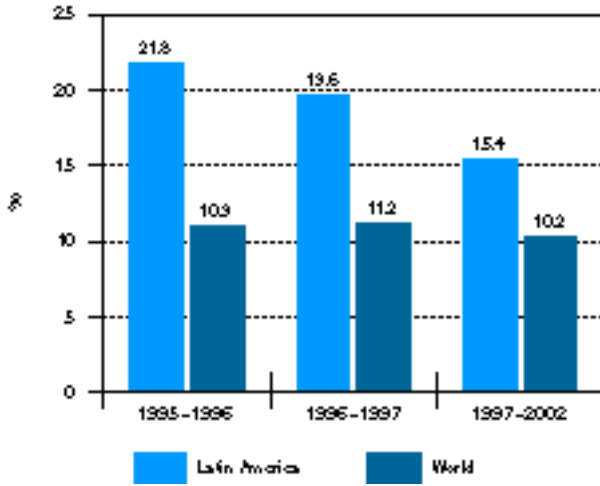
The Latin American IT market represents 3% of the world market (Figure 17.5), but growth in Latin America is above the world average (Figure 17.6), being twice as high in the period 1995–1996, and almost twice as high in 1996–1997. For the period 1997–2002, growth in the Latin American market is forecast to be 51% higher than the world average.

Figure 17.5 → World distribution of the IT market, 1997



Source: IDC Latin America IT Spending Patterns, 1998 (Prothero, 1998).

Figure 17.6 → Growth in the IT market, 1995–2002

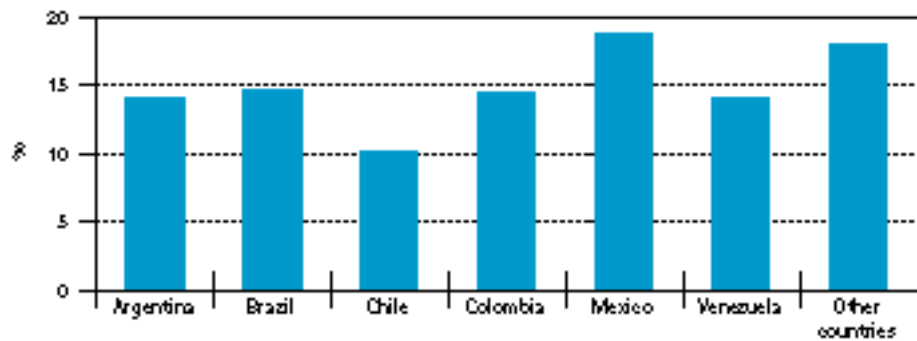


Source: IDC Latin America IT Spending Patterns (Prothero, 1998).

Figure 17.7 shows growth for the period 1997–2002 in a number of countries of the region. The regional market is divided up as shown in Figure 17.8. The market segments are shown in Figure 17.9.

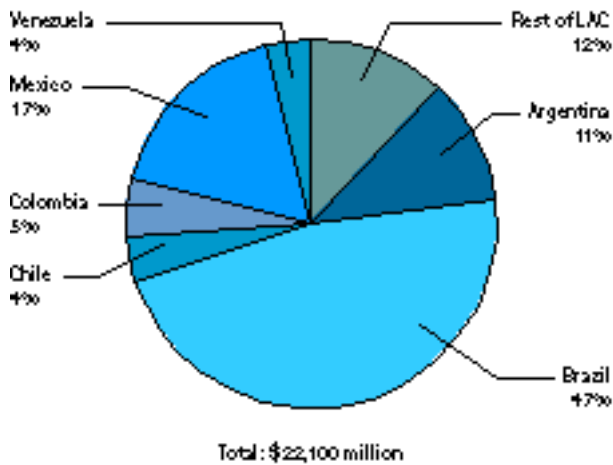
As Figure 17.10 demonstrates, growth in the Latin American software market has become explosive. In three years (1995–1998) it has expanded by some 297%, and by 2002 it is expected to have grown by 303% over the 1998 level. The five most widely used database managers are those produced by Oracle, IBM, SAGA, Informix and Sybase, in that order.

Figure 17.7 → Growth in the IT market by country, 1995–2002



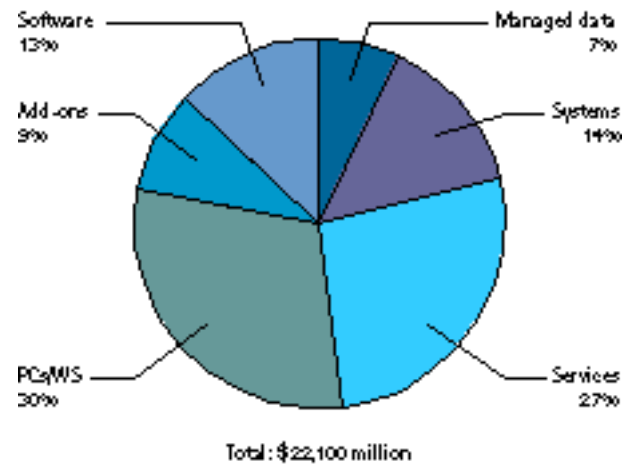
Source: IDC Latin America IT Spending Patterns (Prothero, 1998).

Figure 17.8 → Distribution of the Latin American IT market by country, 1997



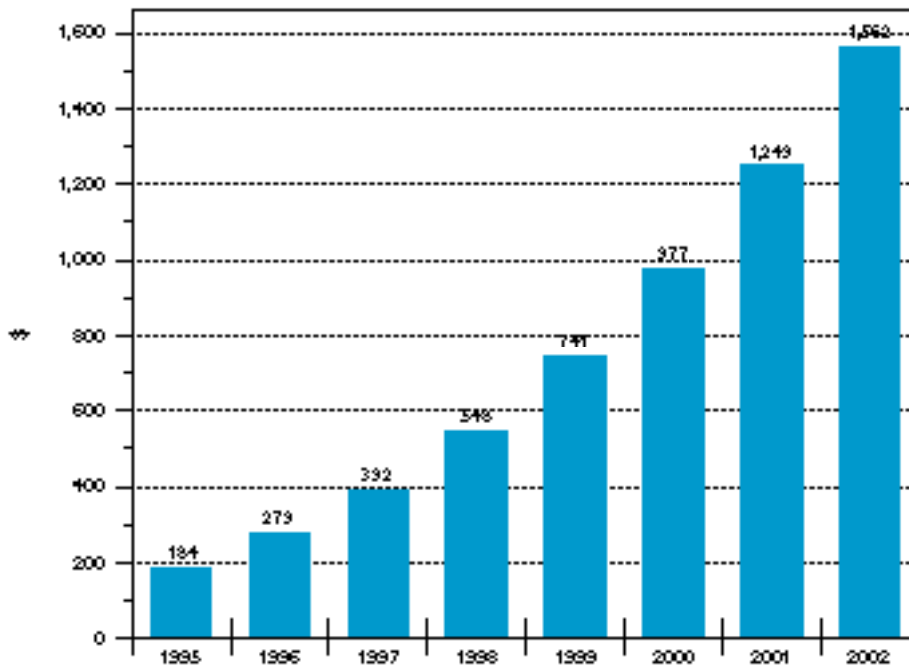
Source: IDC Latin America IT Spending Patterns, 1998 (Prothero, 1998).

Figure 17.9 → IT market segments in Latin America, 1997



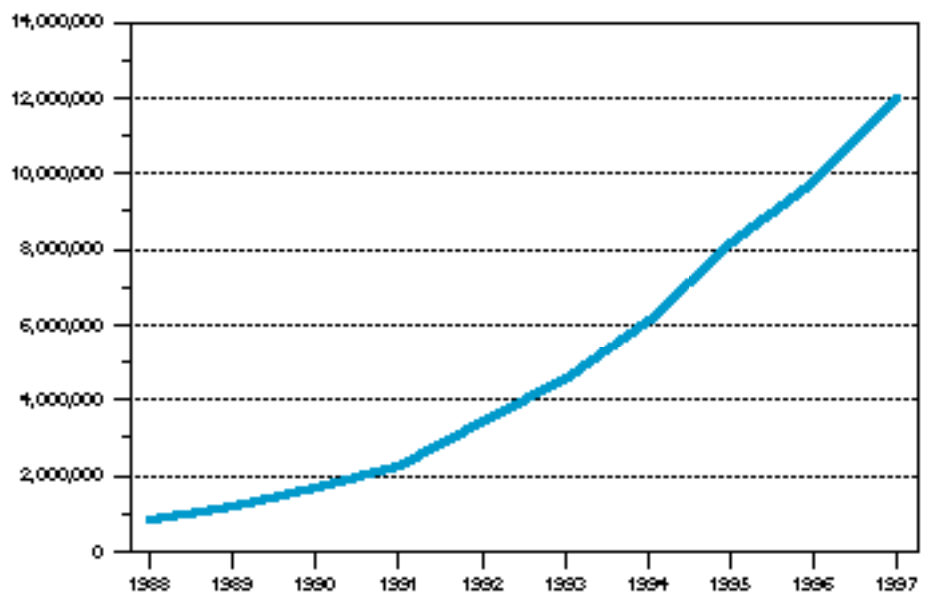
Source: IDC Latin America IT Spending Patterns, 1998 (Prothero, 1998).

Figure 17.10 → Latin American software sales, 1995–2002



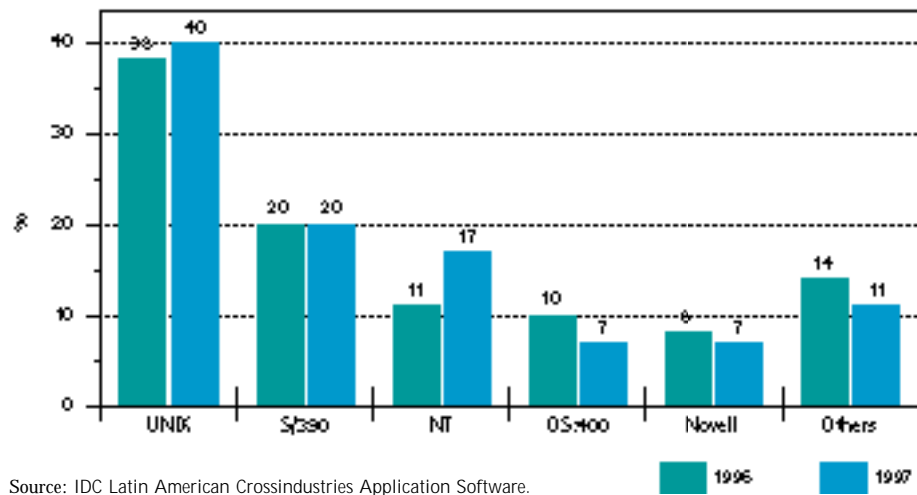
Source: IDC Latin America IT Spending Patterns, 1998 (Prothero, 1998).

Figure 17.11 → PC purchases in Latin American and the Caribbean, 1988–1997



Source: World Communication Indicators.

Figure 17.12 → Distribution of the Latin American market for server operating systems, 1996-1997



The most widely used tools are supplied by IBM, SAGA, Oracle, Informix and Microsoft, in that order. The applications most in demand are SAP, Datasul, Baan, SSA and JDE, also in that order. Figure 17.11 shows how PC purchases have been growing in the region, and Figure 17.12 shows the distribution of the Latin American market for server operating systems in 1996 and 1997.

INFORMATION AND LIBRARY SERVICES

In general, libraries in Latin America and the Caribbean have sought to adapt to new technological developments, while their efforts have been concentrated on meeting local needs. Traditionally, however, co-operation initiatives, which are a top priority for modern information services, have been few and far between.

Institutions such as the OAS and UNESCO have been supporting the creation of networks between libraries in the region, as a way for these to cater for the growing demand for information services in spite of increasingly tight budgets. As a result, there has been progress in setting up local, national and regional consortia to develop library tools and thereby meet more of the requirements that have been created by the Information Age. Academic and research libraries have been the most successful in entering into co-

operation networks and they have received the most international support. It is on the basis of these networks that other libraries will be seeking to create networks among themselves. Consequently, we shall concentrate here on academic and research libraries.

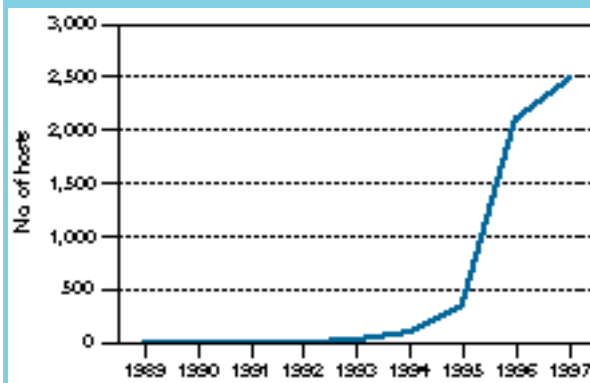
Although the idea of co-operation between libraries was frequently discussed in the 1960s and 1970s, it was a long time before it became a reality in the region, owing to poor telecommunications infrastructure and to restrictions on computer imports in certain countries. These negative factors managed to overwhelm the strong common regional heritage of language, religion and history, which had created a territorial situation probably unique in the world. The following factors have been instrumental in the start of regional co-operation: the recent privatization process in the telecommunications sector and the resulting flow of foreign investment into the region; moves to deregulate the telecommunications industry in certain countries; the technical and political efforts made by libraries to overcome financial and cultural obstacle; and programmes implemented by UNESCO (General Information Programme) and regional institutions, such as ECLAC (Economic Commission for Latin America and the Caribbean) through its CLADES division (Latin American Centre of Economic and Social Documentation) and its Programme of Information Management, which interacts on a permanent

Box 17.1 → The RedHUCyT Project and the telecommunications situation in Central America (excluding Costa Rica)

The Costa Rican National Research Network (CRNet), supported by the RedHUCyT, is the mainstay of the trunk network which will link up the networks of the Central America region. The first connection was made in November 1996: Costa Rica and Nicaragua were interconnected directly by digital link. Since then, the other countries have also been interconnected. RedHUCyT is supporting the process and providing technical consultancy services to El Salvador, Honduras, Nicaragua and Panama. In March 1997, an agreement was signed with the University of Costa Rica to provide technical assistance to other countries in Central America and the Caribbean.

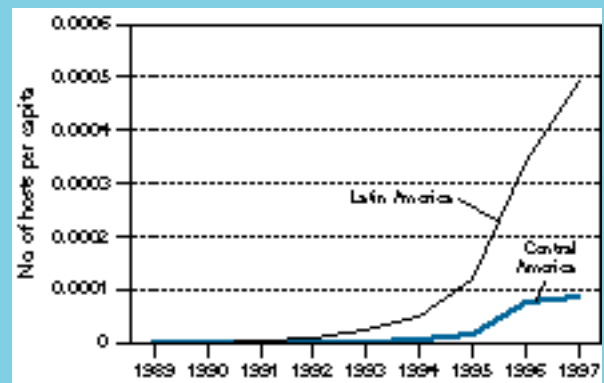
With the process of creating a trunk network thus underway, Internet use has gained momentum, and this has been reflected in the substantial rise in the number of hosts since 1996. Even so, the number of hosts per capita has remained very far below the regional average, and is falling farther behind all the time. Cellular telephony has always been below the regional average, and is likewise dropping ever farther behind. As regards the number of personal computers (PCs) per capita, the gap with the region is very large indeed, although there could be some uncertainty about this as our source does not have data for certain Central American countries.

Internet



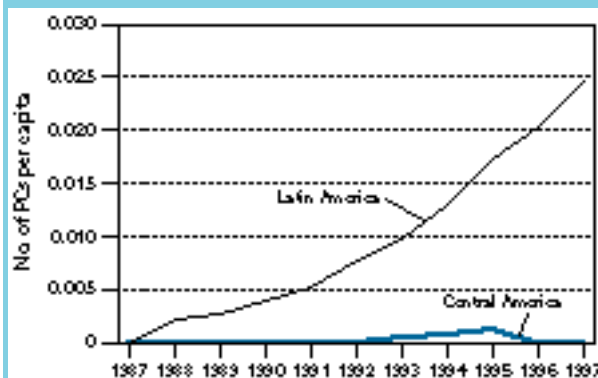
Source: World Telecommunication Indicators, ITU, 1998.

Internet



Source: World Telecommunication Indicators, ITU, 1998.

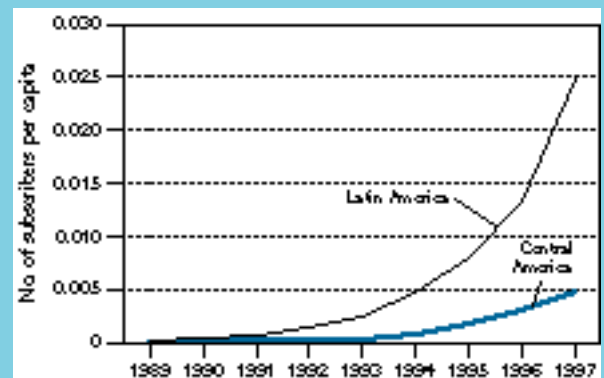
Personal computers



Source: World Telecommunication Indicators, ITU, 1998.

This indicator has not been fully reported for the Central American countries.

Cellular telephony



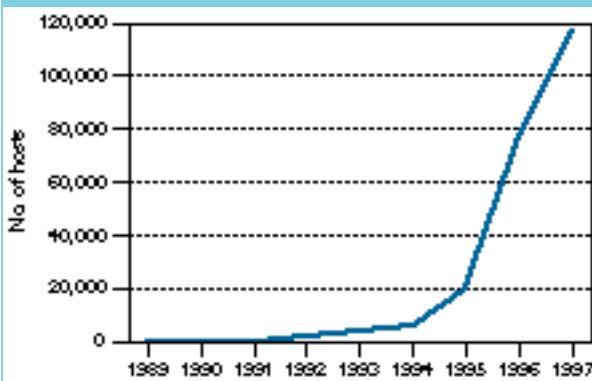
Source: World Telecommunication Indicators, ITU, 1998.

Box 17.2 → The RedHUCyT Project and the telecommunications situation in Brazil

Major contacts and arrangements are currently being made to connect the Universidad Estadual Minas Gerais and other institutions to the Internet with the support of the RedHUCyT project. This network was one of the joint sponsors and organizers of the First Network Forum in Latin America, together with the National Research Council/National Research Network (CNPq/RNP).

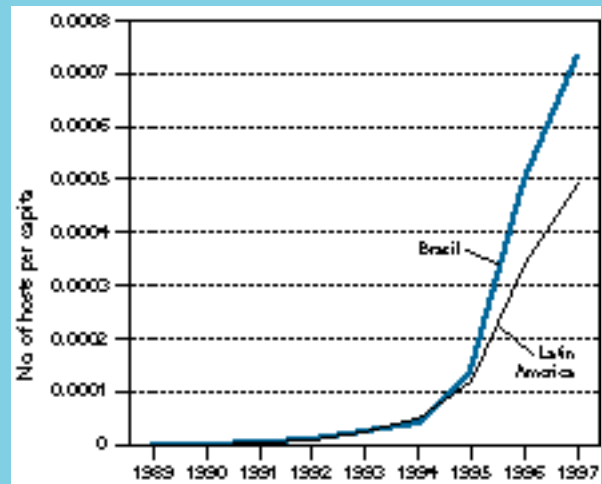
Brazil was formerly below the Latin American region average for personal computers and cellular telephony, but since 1995 it has been slightly above this average, as can be seen from the charts.

Internet



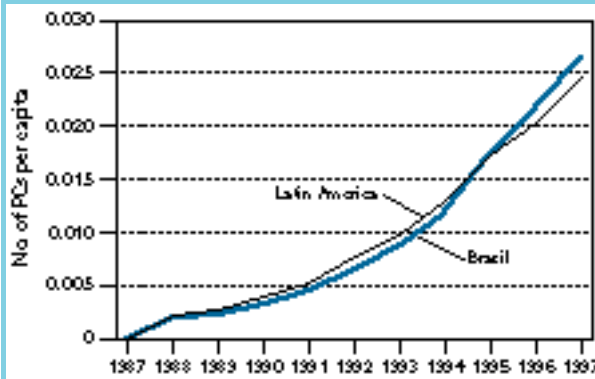
Source: World Telecommunication Indicators, ITU, 1998.

Internet



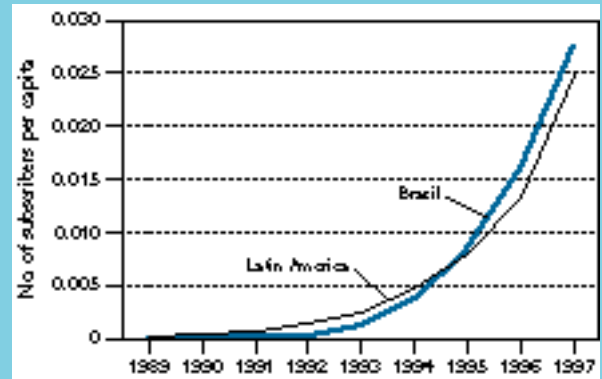
Source: World Telecommunication Indicators, ITU, 1998.

Personal computers



Source: World Telecommunication Indicators, ITU, 1998.

Cellular telephony



Source: World Telecommunication Indicators, ITU, 1998.

basis with more than 180 organizations in 17 countries of Latin America. Thanks to efforts of this kind, a process of co-operation has commenced along the same lines as in the developed countries, although later than these for the reasons given above.

In the process of setting up co-operation mechanisms, a number of information networks have

emerged, with many of them relying on the CDS/ISIS software distributed by UNESCO which was prepared especially for developing countries. Among the new fields of operational information there are networks for public administration (CLAD), social sciences (CLACSO), health sciences (BIREME), education (REDUC), planning (INFOPLAN and CARISPLAN), and

co-operation between national information networks and systems (INFOLAC), population research (DOCPAL) and sanitary engineering (REDIDISCA).

Although progress of this kind had already been achieved before the Internet boom of recent years, the extraordinary growth of Internet use is definitely strengthening co-operation among libraries in these countries. Referring to the Internet, Gazitúa (1997) asserts that the technological environment shows that almost all the limitations have been overcome, and the main responsibility for making progress rests with information agents rather than with technologies.

THE INTER-UNIVERSITY NETWORK

With the new opportunities generated by the Internet have come new initiatives to support the creation of Latin American information networks that can provide the basis for greater co-operation among libraries in the region. Of these initiatives, particular mention should be made of the RedHUCyT project (Hemisphere Wide Inter-University Scientific and Technological Information Network), launched by the OAS, which began in 1991. Its main objective is to 'connect Member States to the Internet, forming an electronic network for the exchange of scientific and technological information. The project provides high-tech equipment and technical support, and sponsors technical workshops and seminars in the region to prepare technical projects, improve skills, share technical knowledge and train network managers in the countries' (RedHUCyT, 1998).

The importance of this type of information infrastructure was recognized by the 34 American heads of State at the Summit of the Americas held in Miami in 1994. The Plan of Action signed by them emphasizes the importance of telecommunications and information infrastructure, an entire chapter being devoted to the subject. They state: 'The telecommunications, information technology and broadcasting infrastructure of a country is an essential component

of political, economic, social and cultural development. Where information infrastructure is concerned, the development needs of the Americas are immense. The Governments of the Americas propose to meet these needs by undertaking a wide range of actions,' in which it is stated, and highlighted in bold, that Governments 'will urge the main universities, libraries, hospitals and governmental organizations to link up to these networks by taking advantage of the OAS Hemisphere Wide Inter-University Scientific and Technological Information Network' (Summit of the Americas Meeting, 1994).

Again, the RedHUCyT has received the backing of Ministers of Science and Technology who, at their Cartagena Meeting in 1996, undertook that their respective countries would 'Promote active participation by the countries of the region in the construction, design and standardization of the Global Information Infrastructure, and encourage them to link up through regional networks such as RedHUCyT' (Meeting of Ministers of Science and Technology, 1996). In turn, the General Assembly of OAS, meeting in Panama on 3 June 1996, once again stressed the importance of RedHUCyT, with the participants resolving to 'Strengthen regional networks such as the Hemisphere Wide Inter-University Scientific and Technological Information Network (RedHUCyT)' (OAS General Assembly, 1996). As a result of the undertakings and support provided on these various occasions, more and more countries in Latin America and the Caribbean have come to participate in the RedHUCyT, constructing their own national networks and connecting them to others. With this ongoing support and encouragement, the RedHUCyT has been carrying out important activities. During the first stage of the project, the focus was on setting up the basic infrastructure needed to provide academic institutions in the region with access to the Internet. Many of these connections are made via the PAS-1 satellite operated by the Panamerican Corporation of Florida, which provides a direct link-up to the NSF node in Florida

for the following countries: Argentina, Costa Rica, Ecuador, Honduras, Paraguay, Peru and Venezuela. The other countries of the region make the connection through operating companies.

The following objectives were set for the second stage of the RedHUCyT project, here quoted verbatim:

- International expansion of Member States' inter-communication and value added networks: the new and increasingly large applications being introduced into electronic networks require high communication speeds. Immediate action is needed on this, as numerous requests for support have already been received.
- Increase in the number of connections and points of presence available nationally for the electronic networks currently in use in member countries. Although most of the countries in the region have some kind of electronic network connectivity, there is a need to create or expand national backbones so that a greater number of institutions can be interconnected. Likewise, local networks within institutions need to be expanded so that a greater number of final users can be reached.
- Assistance for other non-academic sectors, such as: government agencies, particularly those that have databases of interest to the scientific community, and other sectors such as trade, promotion of democracy, human rights, environment and others (RedHUCyT, 1998).

The progress achieved to date is making it easier to incorporate libraries and information services of the region into global library networks. Their Internet connection currently enables them, for example, to use CompuServe Global Data Communication to connect up to the OCLC (Online Computer Library Center) Network. As the RedHUCyT project advances, increasing use will be made of OCLC services in the future. Now that OCLC is using Internet TCP/IP, replacing the proprietary communication protocols with which it began when it was set up in 1970, it is easier and easier to gain low-cost access to libraries connected to the Internet. Information Services and Libraries in Latin America and the Caribbean will turn this advantage to increasingly good effect. Thus,

WorldCat (the OCLC online union catalogue), the Inter-Library Loan System and the FindSearch service, which have yielded such good results in the United States, will be used more and more in the region. According to the OCLC Annual Report for 1996/97, WorldCat contains 1,525,707 records in Spanish and 304,811 in Portuguese. With new opportunities to use OCLC services, access to which is becoming financially viable thanks to the RedHUCyT project and the changeover by OCLC to the TCP/IP protocol, these numbers will rise.

THE MEDIA

The tide of democracy in Latin America and the Caribbean has generated hopes and expectations of greater freedom of expression and an expansion of the press, radio, TV and other mass media. Although the fall of dictatorships and the emergence of governments elected by popular suffrage do not necessarily guarantee adequate press freedom – as is illustrated, for example, by what has been seen in Guatemala, Peru and Venezuela (Buckman, 1996) – they do open the way for a process leading to greater social, political and economic openness, which will gradually foster greater press freedom and freer speech through the media.

Privatization, deregulation and a growing influx of outside capital are acting as catalysts in the process that the tide of democratization made possible and set in train. They are also bringing the countries of the region into the globalization process, which is providing the underpinning for greater expansion of the media and for greater interaction between them and the rest of the world. A good image of this rapid progress towards greater openness to the world may be observed in the juxtaposition of the 150-metre high Entel Tower which dominates the Avenida Bernardo O'Higgins in Santiago, Chile, just two blocks away from the 400-year-old La Moneda Palace. This tower is the voice of the capital; with its satellite and

microwave links, and with its data, video and audio communications network, it connects the capital with the rest of the country and with the world beyond the Andes and the Pacific, the geographical barriers that kept Chile isolated in the past. Something similar is happening, rather slowly perhaps, but steadily, throughout Latin America and the Caribbean.

The rapid development of the mass media in recent years has not diminished the great differences and contrasts found in this sector, and may indeed have increased them. What has come out of this process appears to be an intermixing of the First and Third Worlds. On the one hand, there are the multimedia conglomerates typical of the First World, thriving printed newspapers and magazines, television networks and production companies that export television serials and other material. These large corporations have little reason to envy their northern counterparts. The Industria de Medios Latinoamericana owns two of the world's largest and most profitable television networks. On the other hand, there are newspapers with very low circulation and rural areas that are sometimes served by just a single primitive radio set. Notwithstanding this contrast, the rise of the communications media would appear to be helping small firms that are effective and efficient to grow, while causing less efficient ones to perish or to be absorbed by better-performing ones. Consequently, the trends appear to be very promising; this at least is the opinion of a number of authors who have researched the media situation in Latin America.

Print media in Latin America and the Caribbean do not appear to have grown significantly in the last two decades. In point of fact, growth between 1980 and 1986 stood at 3.81% in the number of daily newspapers, 16% in circulation (number of copies) and -8.35% in the number of copies per head (UNESCO, 1997). If, however, these figures are compared with those for the United States (-12.9%, -8.37% and -21% respectively) and for Canada (-13%, -8.4% and -6.29% respectively), we see that this growth is not

as low as it might appear, but rather the contrary, since the tendency in developed countries is towards negative growth, owing to the new alternatives that are continually coming into being and to the increasing penetration of electronic media: radio, TV and the Internet.

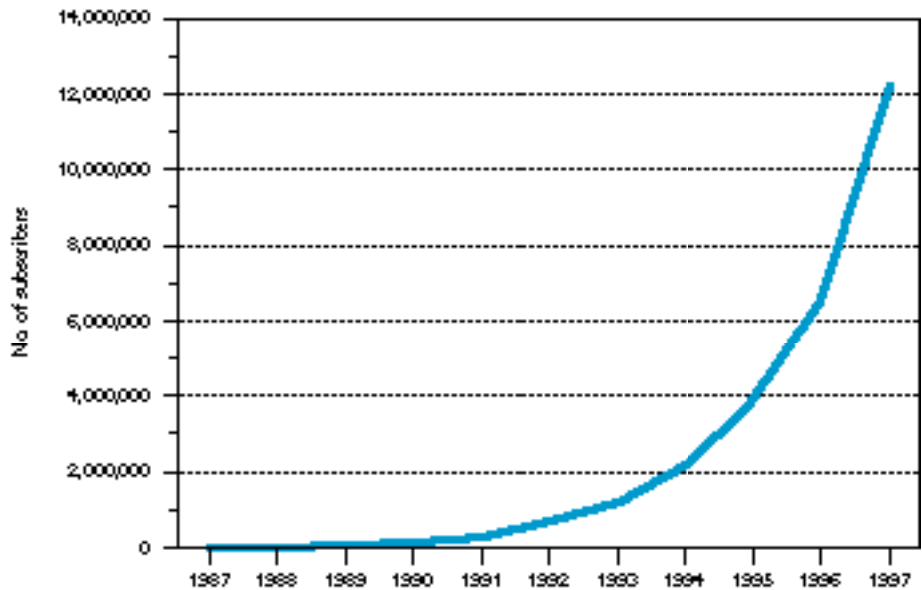
TELECOMMUNICATIONS AND THE INTERNET

The development of Internet telecommunications has been so great that we shall here devote a special section to it.

For the economy of a country or region to mature today, a solid telecommunications infrastructure is not merely desirable, it is absolutely necessary. Nonetheless, the instability of Latin America has meant that the region has failed to attract the amount of domestic or foreign investment needed to consolidate an adequate infrastructure. Some countries, such as Argentina and Chile, have taken firm steps in the right direction; in others, such as Brazil, Colombia, Mexico, Peru and Venezuela significant progress is being made, but prospects are somewhat uncertain and the future is unpredictable enough to discourage the big operating companies from committing greater resources.

However, the great potential of Latin America is attracting more and more attention from operators willing to run the risks involved. Long-term strategies are beginning to take precedence over short-term profits. For example, Robert Meyer, the business development manager for Latin America of BellSouth International, has claimed that 'to be successful here (in Latin America) you need to have patience, and partners that understand the region' (O'Shea, 1996). Arely Castellón, Vice-President and General Manager for the Americas Region of Global One (an alliance between Sprint, Deutsche Telekom and France Télécom), says that 'experts are always talking about the potential of this region (Latin America) and its

Figure 17.13 → Cellular telephony growth in Latin America and the Caribbean, 1987–1997

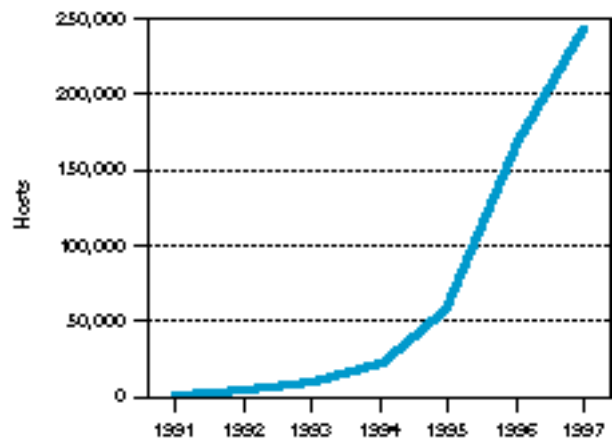


Source: World Telecommunication Indicators, ITU, 1998.

prospects as an emerging market. There is no reason,' he adds, 'to put off the important work we have ahead of us' (O'Shea, 1996).

Two of the main factors driving growth in the telecommunications industry in the world as a whole, and in the Latin America and Caribbean region in particular, are Internet plus mobile computing technologies and wireless communications. These two areas of technology are enjoying the most rapidly accelerating growth in the telecommunications industry. The growth of cellular telephony is remarkable, particularly in developing countries like those of the region, since it is being used as a substitute for traditional telephony, whereas in developed ones it is being used to complement it. The underdevelopment of traditional telephony in developing countries, and the inadequacy of the infrastructure used to provide this service, have led to growth in cellular telephony that is as extraordinary as it is unexpected. As Figure 17.13 illustrates, the growth of cellular telephony has been exponential in Latin America and the Caribbean, being rivalled only by the growth of Internet use, shown in Figure 17.14. In the region, cellular telephony growth actually appears to be the faster of the two.

Figure 17.14 → Growth in the number of Internet hosts in Latin America and the Caribbean, 1991–1997



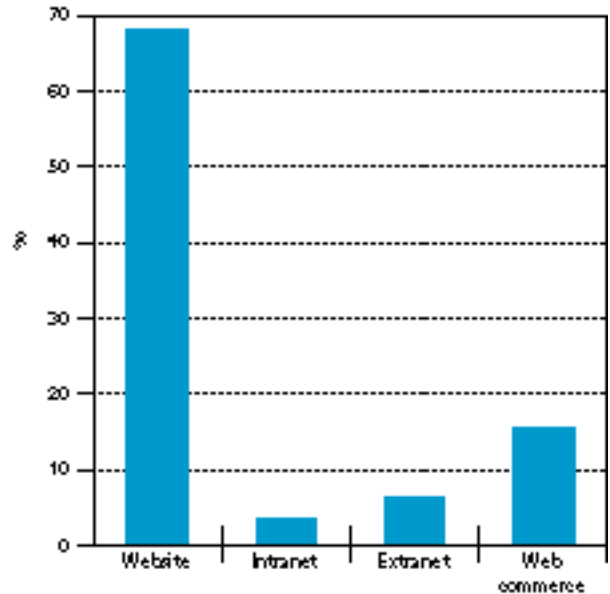
Source: World Telecommunications Indicators, ITU, 1998.

The use of Internet/Intranet/Extranet-related technologies is growing at an extraordinary pace in the region. Corporate spending in this area was \$18,000 million in 1997, and in 1998 it increased substantially, according to the 1998 Latin American Corporate Internet Strategy and Adoption Report produced by the International Data Corporation (IDC) (Swafford, 1998). According to this same report, 92% of Latin American firms (out of a sample of 180) have access to the Internet at the corporate level, and 71% reported increased investment in this area for 1998. Of this investment, more than 75% is in personal computer servers, and more than 65% of the companies reported increased investment in network equipment and software. Figure 17.15 shows what kinds of use Internet technologies are being put to in Latin American corporations, most of which stated that setting up Web pages was a very economical way of increasing company visibility and name recognition. Again, they were of the opinion that setting up and using an Intranet increased the productivity of employees and reduced operating costs. Consequently, purchases of PCs, servers, software and network equipment were found in the study to be closely associated with the creation and use of Intranets and Web pages.

Latin American corporations, however, do not yet have significant plans for electronic commerce, although 45% stated that they had electronic commerce applications. Latin American executives gave two main reasons for this, namely: the problem of security, and a perception that electronic commerce is not particularly profitable, at least for the time being.

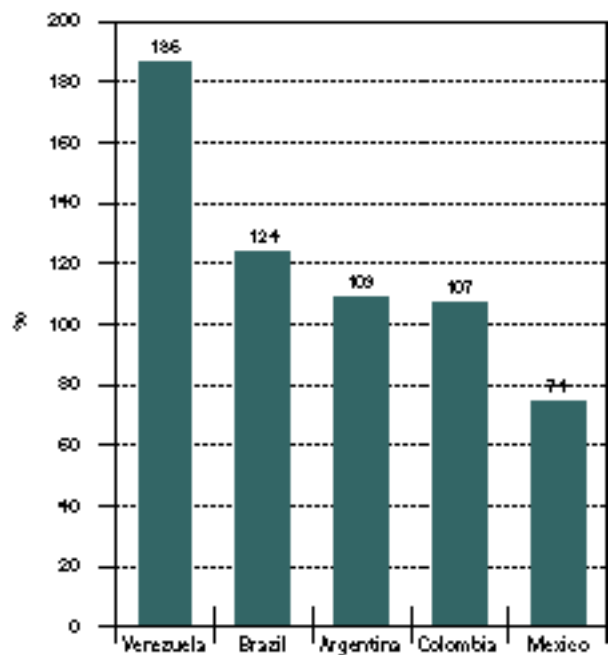
Security is an issue that has attracted a great deal of attention from Latin American corporations, as a result of which major investments are being made in firewalls and other security mechanisms. In fact, 40% stated that they were using firewalls in their Web sites and 23% that they were using them in their Intranets. More than 95% stated that they were using some type of Internet/Intranet security mechanism.

Figure 17.15 → Percentage of companies with Web technology in 1997



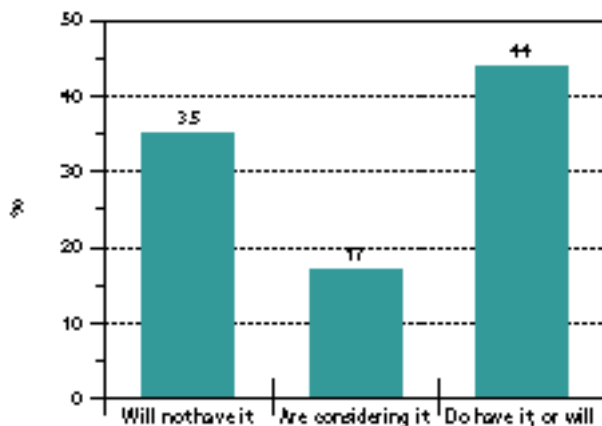
Source: 1998 Latin American Corporate Internet Strategy and Adoption.

Figure 17.16 → Real growth in PCs connected to the Internet, 1996–1997



Source: 1998 Latin American Corporate Internet Strategy and Adoption (Prothero, 1998).

Figure 17.17 → Web commerce in Latin America, 1997



Source: 1998 Latin American Corporate Internet Strategy and Adoption (Prothero, 1998).

Growth in the number of hosts in Latin America and the Caribbean is exponential, as it is in the rest of the world. Figure 17.14 illustrates this growth.

The number of PCs connected to the Internet grew at an incredible rate from 1997 to 1998, as illustrated by the sample of countries in Figure 17.16. As regards Web commerce, Figure 17.17 shows that corporations are somewhat divided on the subject, owing to the problem of security referred to earlier.

THE CARIBBEAN COUNTRIES

Although what has been said so far is equally applicable to Latin America and the Caribbean, except where we have referred explicitly to Latin America alone, we believe it would be useful to make some specific reference to the Caribbean subregion.

As can be seen from the charts in Box 17.3 relating to the Caribbean countries, growth in telecommunications and computing in these countries is below the Latin American average except in the case of cellular telephony, which is roughly in line with the regional average. There would appear to have been a decline in the Caribbean subregion over the last two years, but this is not in fact the case, since the apparent decline indicated by the charts is due to the fact that the source we consulted did not have adequate statistics for those years.

The activities of the 36-member Caribbean

Association of National Telecommunication Organizations (CANTO) have been gradually furthering the development of telecommunications and computing in the subregion. The mission of CANTO is to promote and facilitate co-operation and integration in the development of telecommunications in the Caribbean. Its ambition is to become the backbone of the Caribbean family with its focus on human and economic development, through telecommunications. Its aims are to exchange information, know-how and experience in the area of telecommunications; to help generate the inputs needed for orderly growth and for the formulation of appropriate policies; to consider aspects that are of mutual interest to the Caribbean countries; to develop telecommunications links between those countries; and to promote technical and economic co-operation between them. CANTO seeks to achieve these aims by providing technical, financial and administrative advisory services, facilitating human resources training, keeping member organizations informed and aware of developments, carrying out strategic planning, identifying and designing projects of interest and organizing conferences, seminars and exhibitions in the subregion. CANTO held its fifteenth Annual Conference and Trade Exhibition in Aruba from 16 to 20 May 1999.

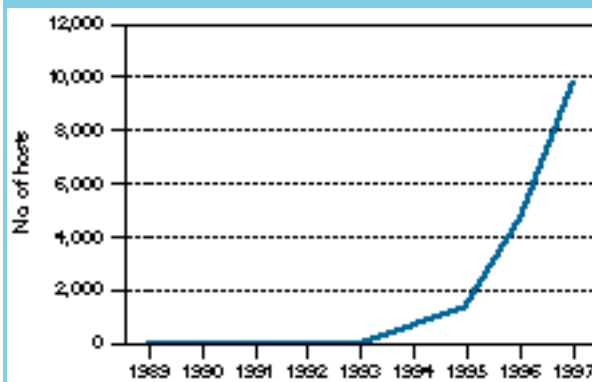
The Organization of Eastern Caribbean States (OECS), whose membership is made up of nine island countries of the Eastern Caribbean, has the objective of making these countries attractive to electronic equipment manufacturers, information processing companies, tourist development companies and agribusiness. To that end they have set up the Eastern Caribbean Investment Promotion Service (ECIPS) which has recently been giving priority to its efforts in the areas of computing and telecommunications. They hope to turn the Caribbean into a major artery in the information superhighway. Their objective is gradually to build up the advantages of the Eastern Caribbean countries so that foreign companies will site their information processing operations there. They

Box 17.3 → The RedHUCyT Project and the telecommunications situation in the Caribbean countries

In 1991, the Caribbean University Network (CUNet) was set up with the support of Puerto Rico, and this has facilitated Internet access for a number of institutions in the Caribbean. Most of the Caribbean countries now have access to the Internet. Connections to the outside are made through telephone companies. RedHUCyT has also helped arrange two important subregional seminars and financed a number of consultancy operations. In a second phase, the OAS is providing significant funding for the purchase of communications equipment, technical assistance and training, to help enable a greater number of academic, scientific and governmental institutions to connect to the Internet.

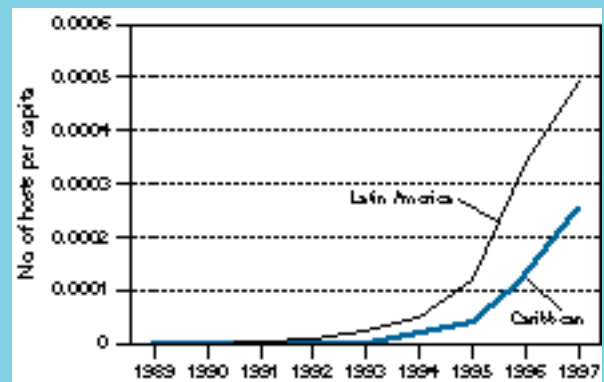
From the charts it can be seen that, where the Internet is concerned, the Caribbean countries have a growth rate similar to that of Latin America and the Caribbean region as a whole, albeit below the average for the region. In cellular telephony they were slightly above this average until 1996. The apparent decline since then is not a real one, as several Caribbean countries have not reported data. In personal computing, the Caribbean is well below the region; in fact, together with Central America, it has the lowest values for this indicator. A number of Caribbean countries did not provide data in 1996 or 1997, which accounts for the irregular pattern of those years.

Internet



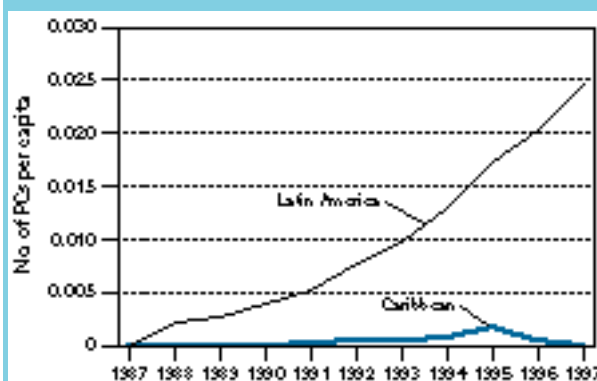
Source: World Telecommunication Indicators, ITU, 1998.

Internet



Source: World Telecommunication Indicators, ITU, 1998.

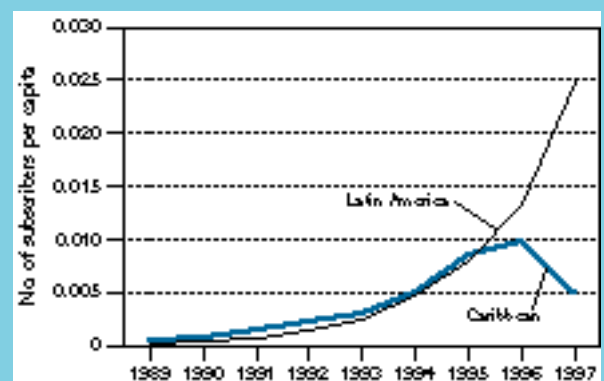
Personal computers



Source: World Telecommunication Indicators, ITU, 1998.

This indicator has not been fully reported for the Caribbean countries.

Cellular telephony



Source: World Telecommunication Indicators, ITU, 1998.

In 1997, this indicator was reported by only some Caribbean countries, whence the apparent decline.

aim to secure these advantages by providing member countries, which are geographically close to North America, with good-quality and reasonably priced telecommunications services, an efficient labour force with a good command of English, tax incentives, a peaceful and stable environment and pro-business governments.

These efforts are beginning to yield some initial returns. The World Bank has given the OECS countries support in building up telecommunications. Amendments to the laws governing this sector of industry have considerably improved pricing. The Cable and Wireless company is implementing major investments and technological improvements in the OECS countries, including the installation of fibre optic networks. Jamaica has just granted a licence to Globalstar Caribbean Ltd. to provide mobile and wireless communication services, both in Jamaica and in the Caribbean generally. AirTouch Satellite Services Inc., a subsidiary of AirTouch Communications, the world's largest wireless communications company, owns all the shares in Globalstar Caribbean Ltd. The wireless communication services of this company are based on 48 Globalstar satellites, which send and receive signals to and from regions that are not covered by terrestrial cellular telephony. Mike Kerr, Vice-President of Globalstar Caribbean Ltd., has stated: 'The licence that has just been granted will ensure Jamaica a crucial role in our strategy of bringing the benefits of Globalstar to the entire Caribbean. We hope to provide high-quality satellite cellular communications coverage to North America and the Caribbean.' In this way, Jamaica has now been incorporated into the globalization process that is under way in telecommunications, and has thereby opened the door for the whole of the Caribbean to take part in this process. This initiative, along with the Jamaican network JAMNet, makes it likely that Jamaica will spearhead the development of the Caribbean countries in the areas of communications, computing and information systems. In the meantime,

the OAS is also furthering development, through the RedHUCyT, in every one of the Caribbean countries. Table 17.3 summarizes these measures in the Caribbean countries.

CONCLUSIONS

The privatization process in the telecommunications industry of Latin America and the Caribbean has attracted substantial foreign investment into the area, to take advantage of what is considered to be a potentially large market in the region. In 1998, according to the *Financial Times*, 29 of the 100 largest companies in Latin America were in the telecommunications sector. In 1997, 24 of the 100 largest were in this sector. The market deregulation and liberalization process which has now been undertaken by some Latin American and Caribbean countries is accelerating the influx of foreign investment and leading-edge technology into those countries. As the other countries of Latin America and the Caribbean undertake this process, their development in the areas of communications, computing and information systems will accelerate still further. If this were to happen, the necessary conditions for the overall development of the region would be on their way to being met. Sufficient conditions would be put in place, in our opinion, if a process of regional integration were initiated, first in the economic sphere, and then in the political and cultural spheres.

Table 17.3 → Hemisphere-wide Inter-University Scientific and Technological Information Network: activities in the Caribbean

Country	RedHUCyT has helped with	Recipients	Achievements	Other aspects
Antigua	Basic equipment and telecommunications software	University of Health and Sciences	Electronic node for mail exchange via dial-up	Future projects to expand the Net-work are currently being evaluated
Bahamas	Basic equipment, high-capacity router, communications server and communications hardware and software	College of Bahamas	First electronic node and Internet interconnection of the College of Bahamas Network	
Barbados	Communications equipment. Three workstations and funding	University of the West Indies, Barbados Community College	First electronic node. Interconnection to the Internet and expansion of the local network	
Belize	Communications server, computer hardware and software. Sponsorship for the 'Schools Internet Workshop'	University College of Belize	Full Internet connection. Training in telecommunications and computing	The workshop has supported a project to link up a number of colleges
Dominica	Funding, equipment and software	University of the West Indies, Clifton Dupigny Community College, etc.	Interconnection of the networks of several institutions	
Dominican Republic	Equipment, routers, modems, servers, communications and computing software	Pontificia Universidad Católica Madre y Maestra, the Autonomous University of Santo Domingo, the Santo Domingo Institute of Technology, CONES, UNAPEC, etc.	The Dominican Academic and Scientific University Network (RUDAC), which connects universities and other academic and scientific institutions to the Internet	A project to connect up secondary schools is in progress with financing from the Inter-American Council for Integral Development (CID) within the RedHUCyT
Grenada	Computer equipment and software	Maryshow Community College, training centres, etc.	Access to electronic mail and interconnection of university and training centres	
Guyana	Communications and computer equipment and software	University of Guyana	First dial-up mail node and expansion for full Internet connection	
Haiti	Negotiations	Government of Haiti	Internet connection	
Jamaica	Telecommunications and computer equipment, including high technology and technical assistance	University of the West Indies, College of Arts, Science and Technology (CAST), etc.	The Jamaican National Network (JAMNet) which connects Jamaica to the Internet via a high-speed satellite link (64Kbps)	
Saint Kitts and Nevis	Communications and computer equipment, and software	Ministry of Education and College for Further Education	Electronic node for Internet access by dial-up telephone line	
Saint Lucia	Funding, equipment and technical assistance	Sir Arthur Lewis Community College and the Institute for Self-Improvement	Expansion of the SALCC local network and interconnection of this to Internet	
Saint Vincent and the Grenadines	Modems, serial cards and communications and computing equipment and software	Ministries of Communications and Works, Education and Planning	Electronic mail exchanged through the server of the Commonwealth of Learning in Vancouver	
Suriname	Communications equipment and software, and assistance	The University of Suriname	Establishment of the first electronic node	
Trinidad and Tobago	Funding, assistance and communications equipment	National Institute of Higher Education, Ministry of Education, etc.	Internet connection	

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