

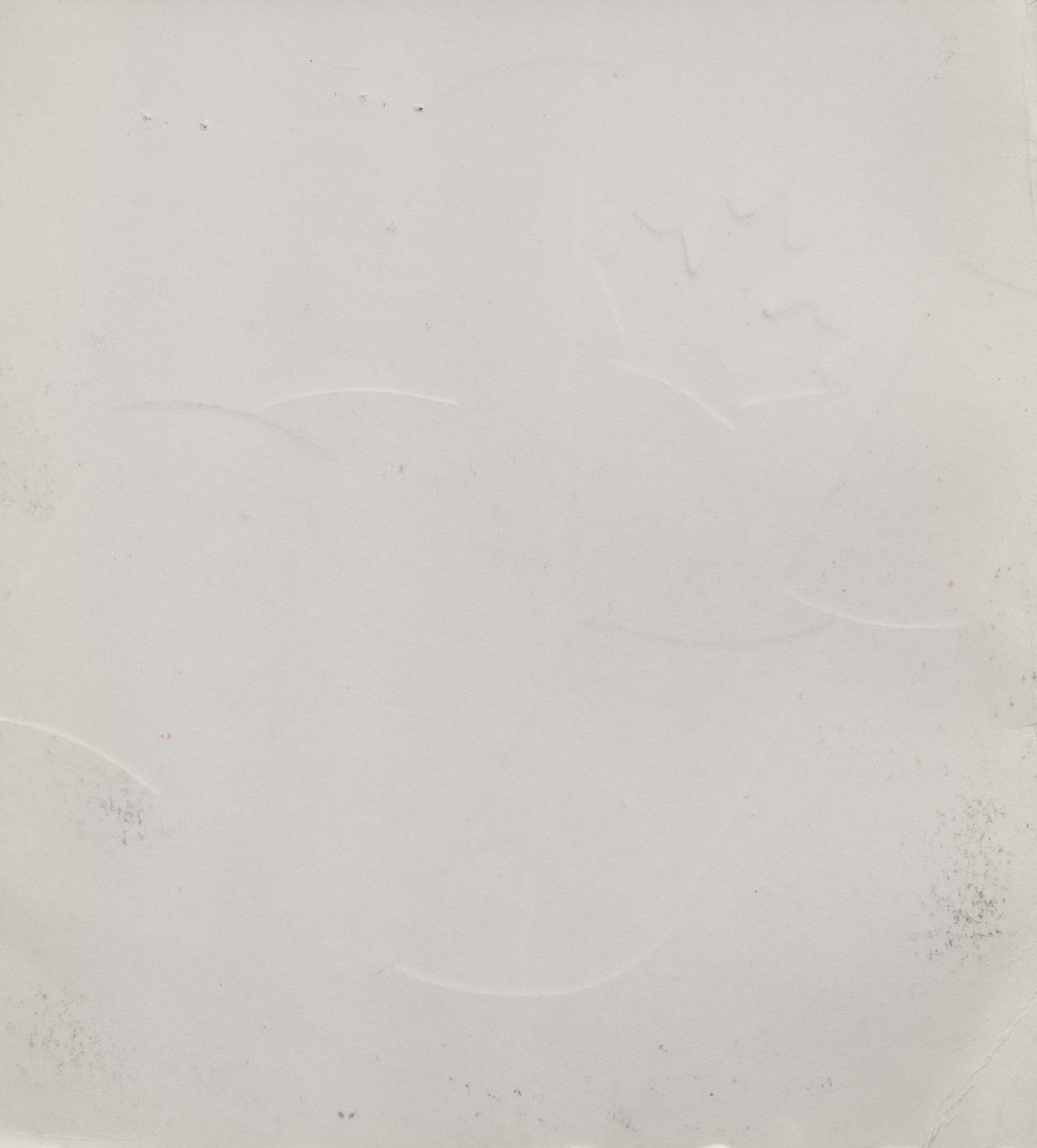
# Market Study for Computer Software in Mexico.

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**INFORMATION FOR CANADIAN BUSINESSMEN  
PREPARED BY THE COMMERCIAL DIVISION,  
CANADIAN EMBASSY, MEXICO.**



# Market Study for Computer Software in Mexico.

Dept. of External Affairs  
Min. des Affaires extérieures

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This market guide booklet has been prepared with the problems inherent to the initiating exporter in mind. However it is not exhaustive; individual circumstances, interests and needs will dictate how companies should tailor their approach and strategy to the Mexican market. While every attempt has been made to ensure accuracy in this study, no responsibility can be accepted for errors or omissions.

Further assistance can be obtained by addressing requests directly to the Commercial Division of the Canadian Embassy in Mexico City located at Calle Schiller No. 529, Col. Polanco, 11560 México, D.F., Telephone 254-32-88, telex 177 1191 and fax (sending from Canada) 011 (525) 545-17-69; or the Latin American Division Department of External Affairs, Industry Science and Technology Canada, 125 Sussex Drive, Ottawa, Ontario, K1A 0G2. Phone 9950460 fax (613) 996-0677.

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# MARKET STUDY FOR COMPUTERS AND SOFTWARE IN MEXICO

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## 1. BACKGROUND

The market for computers has experienced the most dynamic growth rate of all Mexican industrial product sectors in the last few years, estimated at 30% annually since 1983. Imports of equipment have increased 20% annually during the same period, dramatically above the one percent growth rate of the Mexican economy as a whole, while imports of software have increased 25% between 1983 and 1989.

In 1981, the Mexican government established (but never officially published) the Computer Industry Development Plan, which defined a complete set of objectives including the formation of an internationally competitive local industry to be increasingly oriented towards exports, as well as the promotion of industrial linkages to increase local contents and the investment in research and development to improve the control of technology and strengthen competitiveness. In order to achieve these objectives, the plan established a comprehensive set of policy instruments, such as fiscal incentives, import controls and preferential tariffs, financial support, government procurement and foreign investment regulations.

Gradually, these incentives have been reduced. In 1985, imports of parts, components and subassemblies were freed from import licenses and a reduction of tariffs occurred. The present administration has ended the provision of preferential tariffs for the import of parts and components by manufacturing firms operating within the Plan. It also announced the liberalization of the computer sector on April 3, 1990, until then still protected by import licences. A 20% import duty was assessed on all automatic data processing machines, while all parts for the manufacture of computers, except modular circuits, pay a 5% duty and modular circuits for retail, 15%.

Additionally, the decree for the establishment of fiscal incentives for the promotion of the computer industry was published on April 3, 1990. This program was designed within the new administration's policy of economic internationalization and deregulation in order to strengthen the local computer industry. It consists of a 100% waiver of all import taxes on imported components and equipment. The beneficiaries of these incentives are those companies manufacturing components or finished products in Mexico, that are registered as computer companies with the Secretariat for Commerce and Industrial Development (Secretaría de Comercio y Fomento Industrial SECOFI). The total value of imports subject to tax incentives may not exceed 80% of the sum of the value incorporated domestically (locally produced sales minus imports) plus net investment in national fixed assets plus two times the investment in research and development made by these firms. Additionally, the value incorporated nationally should at least represent 30% of direct sales of locally manufactured products.

These incentives will continue benefitting the manufacturers previously within the Development Plan and will attract some new firms to register with SECOFI. These measures will both foster continued domestic manufacture as well as an increase in imports of computers, while at the same time sustaining the growth of all related industries, such as the components, software and services sectors.

## 2. ECONOMIC ENVIRONMENT

Over the past two years, Mexican economic policy has featured a tough anti-inflationary program called the Economic Solidarity Pact, combining traditional austerity measures (tight fiscal and monetary policies) and heterodox measures (price, wage and exchange rate controls). The program has been successful in reducing inflation, from an annual 159.2% in 1987 to 51.7% in 1988 and an 20.3% by 1989. The general criteria for Mexico's macroeconomic policy in 1990, are to consolidate and fortify the progress made in price stabilization, to reaffirm gradual and sustained economic recuperation, to increase investment, both national and foreign, and to improve living standards.

Mexico's gross domestic product (GDP), after increasing 3.7% and 2.7% during 1984 and 1985 respectively, diminished by 3.5% in 1986. In 1987, it increased a moderate 1.5% and an additional 1.1% in 1988. Domestic economic activity recovered for the third consecutive year in 1989 with an estimated growth rate of 3.0% in 1989 to reach \$200 billion (1). With an 84.5 million population, per capita GDP is estimated at \$2,375. During the 1990-1994 period GDP is expected to maintain an average annual growth rate of 2%-3%.

In an effort to revitalize and open the Mexican economy, the Mexican Government undertook a series of structural changes, including the accession to the General Agreement on Tariffs and Trade (GATT) on August 24, 1986 leading to an extensive trade liberalization process: import permits were eliminated on all but 325 of the total 11,960 tariff items on the recently adopted Harmonized System. Official import prices are no longer applicable, nor the 5% export development tax, and the maximum import duty has been lowered from a maximum 100% in 1982 to 20% in January 1988. The automotive and computer industries have also been liberated.

According to official data from the Mexican Secretariat of Commerce and Industrial Development (SECOFI), Mexico's trade surplus in 1988 was only \$1.75 billion. Total exports in 1988 remained practically the same as in 1987, totalling \$20.65 billion, while imports increased 48% from \$12.2 billion to \$18.9 billion. Imports of consumer products increased 150%, while those of intermediate goods grew by 45% and capital goods by 55% in 1988. January-September figures for 1989, place total exports at \$17.1 billion and imports at \$17.0 billion reflecting an annual growth rate of 8.8% and 26.2% respectively. Total Mexican imports from Canada increased 24% in 1989 to Cdn\$603 million. In 1989, total trade between Mexico and Canada was valued at Cdn\$2,301 million: Cdn\$603 million in the sale of Canadian goods and services to Mexico and Cdn\$1,698 million in Canadian purchases from Mexico. Mexico and Canada have traditionally been strong trading partners. According to Mexican figures, in 1989, 1.9% of Mexico's imports came from Canada, while 1.3% of its exports were to Canada. This makes Canada Mexico's fifth largest exporter and sixth largest importer.

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1. NOTE: All values in this report, unless otherwise stated (\$) Mexican pesos, Canadian dollars Cdn\$, etc.) are quoted in United States dollar equivalents.



### 3. MARKET ASSESSMENT

#### 3.1 THE TOTAL MARKET FOR COMPUTERS

The total Mexican market for computers, peripherals, software and services was estimated at \$806.2 million in 1989, up 15% from \$703.4 million in 1987 and \$573.3 million in 1986 (see Table 1). The total computer market is estimated to grow at an annual average rate of 20% in the next three years and reach approximately \$1.42 billion by 1991. As a result of the liberalization of computer imports through the elimination of the import permit requirement on hardware, imports are expected to increase significantly while local production continues to grow, mostly for the export market. However, it is presently still difficult to assess the changes in the market size and composition as a result of these measures. Imported hardware and equipment is expected to gain a larger share of the market with respect to domestic production. No major changes are expected in the software market as a result of these measures in the short run, since software has never been subject to a prior import permit, however, a broader installed capacity of hardware will necessarily translate into increased software sales.

**TABLE 1**  
**THE MEXICAN MARKET FOR THE COMPUTER INDUSTRY**  
(millions of U.S. dollars)

	1985	1986	1987	1988	1989e	1992p
Computers	152.3	183.4	238.1	263.9	292.2	516.5
Peripherals	96.6	85.1	111.5	134.7	156.1	258.2
Software	71.6	89.5	98.4	127.3	159.1	296.7
Maint & Serv	103.3	120.4	125.3	177.5	198.8	344.1
TOTAL	423.8	478.4	573.3	703.4	806.2	1,415.5

**Note:** e=estimated; p=projected

**Source:** Dr. Ricardo Zermeño and Caroline Vértut

#### 3.2 THE MEXICAN HARDWARE MARKET

In 1989, the total computer hardware market, including mainframes, mini and microcomputers and their peripherals, amounted to \$448.3 million, up 12% from the \$398.6 million of 1988. Of this amount, \$234.4 million, or 52.3%, corresponds to sales of microcomputers and their peripherals, \$94.8 million (21.1%) to minicomputers and \$119.1 (26.6%) million to mainframes (see Table 2).

**TABLE 2**  
**THE MEXICAN MARKET FOR COMPUTERS**  
(millions of U.S. dollars)

CATEGORY	1985	1986	1987	1988	1989 <sup>e</sup>	1992 <sup>p</sup>
Microcomputers	76.4	101.5	135.3	198.1	234.4	461.0
Minicomputers	78.7	84.9	95.4	89.3	94.8	139.4
Mainframes	93.8	82.1	118.9	111.2	119.1	174.3
<b>TOTAL</b>	<b>248.9</b>	<b>268.5</b>	<b>349.6</b>	<b>398.6</b>	<b>448.3</b>	<b>774.7</b>

**Note:** e=estimated; p=projected

**Source:** Dr. Ricardo Zermeño and Caroline Vérut

During 1989, it is estimated that approximately 65 mainframes were sold, 1,280 minicomputers and 161,000 microcomputers, in addition to 36,000 home computers. The total installed base of computers in Mexico, based on a rough estimate, since no data are available since 1987, was of 670 mainframes, 6,500 minicomputers and 650,000 microcomputers. Of these, approximately 25% were home computers, 58% were IBM & compatible PCs, 12% corresponded to other PCs and 5% were multiuser microcomputers. There is a clear tendency towards IBM and compatible equipment and away from other PCs and home computers. The use of 8088/8086 PCs has been constant in the past two years, but with a tendency to decrease. On the other hand there is an increased use of 80286, particularly in PC networks and among the more sophisticated end users, including industry and financial institutions, and of 80386 as servers, as is the case in other countries. An important trend in the computer market seems to be toward multiuser equipments instead of strictly personal units. The latter will increasingly be used as intelligent workstations connected to mainframes.

The Mexican computer industry generated a total production of computers and related peripherals for a value of \$498.7 million in 1989, down from \$543.9 million in 1988 as a result of decreased exports in 1989 (see Table 3). The domestic computer industry has grown at an average annual rate of 47% since 1983 to cover both internal demand and exports. The level of employment in the domestic computer industry has grown from 2,750 to 6,550 between 1983 and 1989. Eighty percent of the manufacturers registered with SECOFI were oriented to the production of peripherals and microcomputers. Of the remaining twenty percent, eleven firms were large corporations manufacturing minicomputers as well as other types of equipment. The Mexican computer industry is increasingly oriented towards foreign markets. Exports have increased from \$24.7 million in 1983, at an annual rate of 55%, to \$288.6 million in 1989, representing 58% of total local production. Local production satisfied 47% of total apparent consumption of hardware in 1989, down from 54% in 1988 due to a significant increase in the import market share. By 1992, the participation of domestic production in total apparent consumption is expected to decrease to 40% as a result of Mexico's opening its borders towards imports. Many companies will not be able to compete with imported products and will probably have to close their production lines. The large multinational companies and the strongly established local ones will continue to manufacture in Mexico both to satisfy local production and to export competitively. The decree for tax incentives and manufacturing criteria published in April 1990, will favor products with a high national value added, low production costs and competitive advantages over plants in other countries.

**TABLE 3**  
**APPARENT CONSUMPTION OF HARDWARE IN MEXICO**  
(millions of U.S. dollars)

	1985	1986	1987	1988	1989 <sup>e</sup>	1992 <sup>p</sup>
Production	171.1	251.8	392.5	543.9	498.7	708.2
+ Imports	157.2	116.6	143.6	182.9	238.2	465.2
- Exports	79.4	99.9	186.5	328.2	288.6	398.6
<b>TOTAL</b>	<b>248.9</b>	<b>268.5</b>	<b>349.6</b>	<b>398.6</b>	<b>448.3</b>	<b>774.7</b>

**Note:** e=estimated based on six month figures; p=projected

**Source:** Estimates by Dr. Ricardo Zermeño and Caroline Vérut from data by SECOFI

Imports satisfy 53% of the total Mexican hardware market. The U.S. is by far the most important supplier to Mexico of computers and related equipment and holds a market share of 80% on imports of computer systems and peripheral equipment and 83% on software. This is a result of several factors: the fact that most of the authorized manufacturers in Mexico are associated with a U.S. company, and also due to the proximity of both countries, which allows timely delivery and prompt service.

The future trends in the computer market are towards products capable of exchanging information, of processing information in conjunction with other brands and of running the same programs. This means compatibility, communication and connectability between different types of equipment in order to create major computer networks within organizations. The development in fourth generation languages, relational data bases, in electronic technology and microcomputer networks have made this possible.

### PRINCIPAL HARDWARE SUPPLIERS

In accordance with the Plan for Industrial Development, the government has registered a total of 61 companies to produce computers and related equipment in Mexico. Of these, 30 manufacture microcomputers, 10 minicomputers, 12 printers, 17 terminals and monitors, 11 modems and multiplexers and 14 other items. According to SECOFI, 61% of these companies are 100% national, 25% are joint ventures and 14% are 100% foreign owned.

The leading suppliers of mainframes in Mexico are:

- International Business Machines (IBM)
- Unisys
- Control Data Corporation (CDC)
- Honeywell
- National Cash Register (NCR)

The most important suppliers of the Mexican market of minicomputers are:

IBM  
 Hewlett Packard (HP)  
 NCR  
 Digital Equipment Corporation (DEC)  
 Altos  
 Honeywell Bull  
 Unisys  
 Control Data  
 Wang  
 Mai de Mexico  
 Infosistemas (AT&T)  
 Data General  
 Tandem

In the sector of microcomputers, the following companies, listed by their 1988 market share, as published by Microsoft, have the lead:

	Market Share
Printaform	35.3%
IBM	13.1%
Elektra	10.1%
Hewlett Packard	6.5%
Indecom	4.0%
Micrológica Aplicada	3.6%
Unisys	3.5%
Televideo	3.3%
Electron	3.0%
NCR	3.0%
Intelecsis	2.7%
Olivetti	2.0%
Wyse	2.0%
Others	7.7%

Others includes brands such as:

Alpha Micro  
 Altos  
 Apple  
 Atari  
 ATT (Infosistemas)  
 Cromenco  
 Denki Corona  
 Digita Victor  
 Onyx  
 Radio Shack (incl. Tandy)  
 Sigma Commodore  
 Standard  
 Wind

### 3.3 THE MEXICAN SOFTWARE MARKET

Between 1984 and 1989, software sales have increased at an average annual rate of 22%. Based on trade interviews and own research, the purchases of computer software in Mexico were estimated at \$127.3 million in 1988 and \$159.1 million in 1989, covering total direct sales through legitimate channels. This market is projected to grow at an average annual rate of 23% per year and reach \$296.7 million by 1992. Of the total software market, presently approximately 53% is for microcomputers, 30% for minicomputers and for 17% for mainframes. The tendency is towards an increased demand for standardized microcomputer software for IBM and compatible PC's, while customized software, tailored to each end user's needs, will continue to be particularly important for mainframes. It is estimated that software sales for microcomputers will grow at an estimated annual rate of 36% in the next five years, while those of software for minicomputers at 17% and for mainframes at 11%.

Total imported of software represents an estimated 70% of total apparent consumption of software, amounting to \$111 million of total sales. Official import data, however, only reflect software imports of \$9.3 million for 1989, based on six month figures. The appropriate classification for software was only recently created and exclusively refers to complete software packages, including diskettes and user manuals. Some software imports are still made through recorded magnetic disks or tape, while all manuals are imported as printed matter. These imports are estimated at an additional \$8.9 million in 1989. Additionally, most software is imported by the manufacturers themselves or by large software houses through a master tape or disk, which is then locally reproduced and packaged under technology transfer agreements. These practices are registered with SECOFI and are subject to copyright charges equivalent to approximately 50% of the wholesale price charged by the manufacturers to their distributors. The most important foreign suppliers of software to Mexico are the United States with an import market share of 83%. Other suppliers are West Germany, the United Kingdom, France, Japan, Sweden, Italy and Canada.

Official Canadian exports of computer disks and tape to Mexico amounted to Cdn\$25,000 in 1988 and increased to Cdn\$31,000 in 1989. Of the latter, Cdn\$28,000 corresponded to unrecorded magnetic tape, while Cdn\$3,000 were of recorded tape. On the other hand, Canadian imports from Mexico increased from Cdn\$335,000 in 1988 to Cdn\$1.5 million in 1989. Imports of unrecorded magnetic tape grew from Cdn\$272,000 to Cdn\$1,237,000, and those of recorded tape from Cdn\$63,000 to Cdn\$224,000. According to official Mexican data, Mexican imports of Canadian software were \$52,000 in 1989, representing a 0.6% market share.

It is estimated that approximately 50% of total apparent consumption of software is at present clandestinely imported and reproduced. In the area of microcomputer software, this practice is particularly detrimental, since it is estimated that there are an average 5 illegal copies to each legal copy purchased. There are basically three sources of illegal copies. One is a group of firms that copy the software and sell the full software package, including the manuals, under their original brand name. The second stems from hardware distributors who copy a series of software programs on the hard disk of the equipment sold. Finally, it is common for firms to purchase one software package legally and to install it on all microcomputers within the firm. These practices are expected to diminish in the future as a result of a recent law project placing much higher penalties on transgressors and stricter enforcement of intellectual property rights. This project, as well as a major promotion and legal effort, is being supported and undertaken by the National Association for the Industry of Computer Program

(Asociación Nacional de la Industria de Programas para Computadora ANIPCO). Also, software so acquired is not tax deductible, it does not benefit from any technical support and service, the product is not guaranteed and the buyer has no access to courses, magazines and other benefits offered to software companies' customers.

The domestic generation of software started approximately eight to ten years ago. It is done by computer manufacturers and independent houses. Local software houses are developing local packages designed in Spanish for the Mexican market. They are gradually increasing their market penetration and reducing the dependence on foreign imports. Software produced locally consists mostly of off-the-shelf products for microcomputers and of customized software for mainframes and minicomputers. Additional software for minicomputers and mainframes is mostly of imported origin. Mexico is exporting software to Central and South America, as well as to the United States and Canada.

The ANIPCO has been supporting the local industry through its six areas: Technology, which promotes the use of state-of-the-art technology; Promotion, in charge of helping obtain financing from Nafinsa and Bancomext, two local development banks, and securing government tenders, among other activities; Pirating Practices, which fights for the stricter enforcement of intellectual property rights and undertakes campaigns to reduce software pirating; Events, which organizes technical seminars, conferences, participation in trade exhibitions, and has set up an annual prize for local software developers; Information, which publishes a monthly bulletin for the associates; and Membership, which is in charge of recruiting new members.

There are approximately 100 registered software companies, most of which are located in Mexico City. As the market grows in size and becomes more sophisticated, the tendency will be towards concentration into a limited number of strong firms with a proven background, a solid base and presence in Mexico, capable of providing service and support. At present, there are five groups of software distributors: local or independent software developing companies, which offer domestically developed finished products; representatives of foreign software companies, offering finished products manufactured abroad; multifunction companies, that offer several software-related products, such as their own products, imported software, customized products and services; software houses which develop special applications software and services; and hardware manufacturers, which sell software for their specific equipments.

As computer equipment is becoming more of a commodity, software is becoming the principal sales feature in a computer system since it allows suppliers to differentiate their product and users to obtain maximum efficiency from their hardware. At present, software represents 35% of hardware sales. Within five years from now, software is projected to represent close to 50% of hardware sales. Demand for software is becoming increasingly specialized and end users are more educated and ask for better tools to satisfy their requirements. Software sales are also expected to grow at a faster pace than hardware sales as a result of the relative increase of software prices compared to hardware and because software does not only apply to new equipment sold but also to hardware sold in the past, which is constantly being upgraded. At the same time, companies are trying to better utilize existing hardware, increasing its productivity through improved and updated software, as well as through customized software specially designed for that company's needs. The trend in the software market is towards user friendliness, enhanced communications and integration, utilizing fourth generation languages and relational data bases. Software development is being performed increasingly by companies dedicated to designing and developing software, rather than by computer centers, and will be sold as off-the-shelf systems and

packaged products.

The Mexican software market is still relatively immature. The applications of software more commonly used in Mexico are still the basic general business applications, word processing, data base and spreadsheet applications. Together with operating systems, they account for 73% of total sales. Customized software represents another 13%, while other applications account for the rest, including utilities, communications, integrated applications, graphics, education, recreational and other specialized applications software.

According to a poll published by Computerworld Mexico, the most common applications of software for PCs, measured by the percentage of companies using them, are as follows: spread sheets (97%), word processing (93%), data base management systems (87%), micro-macro communications (77%), business graph design (72%), financial analysis models (67%), accounting (65%), project design (54%), local networks (42%), window management (37%), statistical and scientific applications (36%), inventory control (30%), CAD/CAM (29%), desktop publishing (27%) and electronic mail (27%).

Approximately two thirds of total software sales are made by the computer manufacturers themselves or through their authorized distributors. It is estimated that software sales by the manufacturers represent approximately 20% of their hardware sales. The remaining 35% is sold through software houses. In the area of microcomputer software, approximately 50% of sales are made through software houses. Five manufacturers (IBM, Unisys, NCR, Hewlett Packard and Sigma Commodore) account for approximately 40% of total software sales by manufacturers and over 20% of total sales. The most important computer manufacturers are the following:

IBM  
Unisys  
Hewlett Packard  
NCR  
Sigma Commodore  
Digital Equipment Corp.  
Honeywell Bull  
Control Data  
Tandem  
Micrológica Aplicada  
Mai de México  
Infosistemas  
Cromex

The most important software houses are:

Software A.G. de México	(A.G. Software)
Siga Desarrollo	(Ashton Tate)
Microsoft Corp.	(Microsoft)
Sistemas Integrales de	(Cullinet)
Cómputo	(Applied Data Research)
Execuplan	(Lotus)
Apemex	(Borland)
Softron	(McCormack & Dodge)
Datanet Sistemas	

Grupo Tea  
Computer Associates  
Micro Negoplan  
Kuazar  
Opi de México  
Equipos y Procesos Interactivos  
Cincom  
Power House  
Televideo  
Oracle

Other local software companies that have off-the-shelf products and compete in the open market, include:

Apoyo Computacional  
Artes Electrónicas  
Comper  
Corporación Mexicana de Consultoría  
Electrónica Administrativa  
Fralc  
Infosistemas Financieros  
Multisistemas Modulares de Cómputo  
Negoplan  
Proinsa  
Redcom

There is a \$15.5 million services market, approximately 40% of which is for microcomputers, 39% for minicomputers and 21% for mainframes. The most important services presently in demand are data bank & timesharing (30%), ADP support services (29%) and custom software development (21%), as well as computer retailing and leasing establishments, training facilities and computer application consultants.

#### **4. END USERS**

The most important end users of software by sector are government institutions (20%), including state and federal administration and government owned companies; financial and insurance services (19%), including banks, exchange and stock houses, insurance and guarantee companies; retailing and wholesaling establishments (17%), manufacturing establishments (14%), such as mining, metal working, breweries, construction, manufacturing, chemicals, automotive, etc; computer manufacturers (5%); utilities (4%), including telephone, electricity and telegraph; health care services, education, research, transportation and communication, in addition to professionals (13%) such as accountants, management and engineering consultants, consumers, attorneys and doctors.

It is estimated that the public sector (including federal and state government agencies, parastate companies, banks and public educational institutions) demanded 60% of mainframes, 75% of minicomputers and 64% of microcomputers sold in Mexico in 1987. The government is therefore also by far the largest single user of software in Mexico, through its direct administrative area, government entities and some 425 state owned companies. The Mexican Government is the principal force in the economy. It presently participates in 12 of the 35 branches of the country's economic activities.



The number of government computer centers totals 1,100 throughout the country, with computer installations at each central location. Government purchases of computers and software have to be approved by the National Institute for Geography, Statistics and Computers (Instituto Nacional de Geografía, Estadística e Informática INEGI). Several recent changes will make government procurement more flexible, allowing each unit to make independent decisions. This will certainly translate into larger and faster sales to government entities.

Total authorized expenses to the public administration by sector were as follows between 1984 and 1988 in million dollars:

	1984	1985	1986	1987	1988
Banks	50.0	56.6	81.5	199.8	183.9
Central	44.7	25.3	15.1	24.5	54.3
Parastate	35.4	34.4	50.6	100.3	63.3
<b>TOTAL</b>	<b>130.1</b>	<b>116.3</b>	<b>147.2</b>	<b>324.6</b>	<b>301.5</b>

Source: INEGI-DGPI

Approximately 9% of total computer expenses are in software, while the remainder corresponds to hardware purchases or rentals.

The most important government agencies using computers are the various secretariats or ministries, which together employ some 1.5 million people. They include the following entities, listed in order of importance of their annual computer purchases. Ministry of Finance (SHCP), the fiscal regulating agency; the Ministry of Mines and Parastatal Industry (SEMIP); the Department of Mexico City (DDF); the Ministry of Communications and Transportation (SCT); the Health Ministry (SS); the Ministry of Commerce and Industrial Development (SECOFI); the Ministry of Programming and Budget (SPP), the agency responsible for supervising the government expenses and their assignment, as well as the information gathering and data publishing agency for the government; the Ministry of Agriculture and Hydraulic Resources (SARH); the Ministry of Education (SEP); the Ministry of Labor and Social Foresight (STPS); the Ministry of Fishing (SP); the Ministry of the Interior (SG); the Ministry of External Relations (SRE); the Ministry of Tourism (SECTUR); the Ministry of Ecology and Urban Development (SEDUE); the Justice Department and the Secretariat of Defense. All of these agencies use mainframes for mass information storage and also mini and/or microcomputers for individual operations. State governments are also increasingly using computers and represent a largely untapped market.

The second largest sector of the economy demanding software is the national banking system together with other financial services such as stock brokers, currency exchange houses, guarantee and insurance companies. In 1982 all banks were nationalized and are now regulated through the Central Bank (Banco de México) in overall policy, foreign currency exchange rates and monetary policy. Nevertheless, they continue to operate as independent commercial units and make their own decisions regarding publicity and equipment purchases. There are approximately 20 banks operating in Mexico, the most important of which are Banco Nacional de México (Banamex) and Banco de Comercio (Bancomer). Banamex has 75 branches throughout the country. Banamex has ten mainframes as its core equipment, in addition to over 50 minicomputers and some 10,000 terminals connected 'on line' to the system. Bancomer uses forty IBM S/36, two

43/81 and one 30/90 computers. Banca Serfín uses one IBM 30/90 and is the first bank in Mexico to install a fully automatized branch in Mexico City; Multibanco Comermex uses one IBM 43/81 and Banco del Atlántico two Burroughs A-10 as their central equipment. All of the above banks additionally have mini and microcomputers. Other banks include Nacional Financiera (Nafinsa), Banco Mexicano Somex, Banca Confía, Banco Mercantil de México, Bancreser and Banpaís. Additionally, there are approximately 75 insurance and bonding service companies, all highly computerized.

Banks use mainframes for the massive storage of their information on customer accounts as well as data on general administration, accounting and control. Primary computer applications are loan control, feasibility studies, billing and account statement preparation, payrolls, personnel management and general applications. Additionally, the branches and regional centers of the more sophisticated banks and stock houses have one or several monitors keyed to the central CPU for immediate access to customer information and simultaneous transactions and fund transfers. They are also creating information networks to link their regional operations to the central administration and to distribute information to multiple users connected via modems at different locations. The two largest banks are electronically connected to the large supermarket chains to authorize credit card purchases. Banks will tend to use more mini and microcomputers at the executive level for control and administration as well as monitors and printers for general use, in order to make operations more efficient.

Commercial activities account for 23% of Mexico's total GDP. Major retailing and wholesaling establishments number approximately 375,000 in Mexico City and 250,000 in the rest of the country employing 6.5 million people. The modernization of commercial services will include the computerization of operations as well as the computerized track of credit sales and billings. Large commercial establishments, such as Aurrerá, Gigante, Comercial Mexicana, Palacio de Hierro, Puerto de Liverpool, already use minicomputers and mainframes for advanced checkout registers linked to a central CPU, inventory control, credit sales and other accounting purposes, and are moving towards point of sale registration which will automatically identify the item sold, sales volume, inventory position and profit. Smaller businesses will tend to use mini and microcomputers for payroll, taxes, payables and receivables, payments and inventory control.

Manufacturing establishments, numbering some 195,000 and employing some three million workers, account for 25% of Mexico's GDP. Mexico's industry is based on small and medium sized firms with an average employment of 31 persons per company. Some 85% of manufacturing firms employ 16 or less persons, 12% have 16-100 employees, while only 3% have over 100 people. Only the latter segment has large computer installations, mostly based on minicomputers or PC networks. The manufacturing sector, however, is among the more sophisticated users of microcomputers, purchasing 80286 and 80386 systems rather than 8088/8086.

Small and medium sized companies, which represent the greatest potential market in Mexico, tend to use microcomputers, mostly for control, administration, inventory control, payrolls and accounting. The most important use of computers in the large companies, besides control and accounting, is for productivity improvement. In addition, computers are increasingly being used in industry within the manufacturing process, to plan and control.

The most important state-owned manufacturing firm is Petroleos Mexicanos (PEMEX), the national petroleum and gas monopoly, which continues to expand its data processing activities. In 1987 it spent some \$11 million in software. PEMEX uses

basically UNIX compatible mainframes for the mass storage of information, both in its administrative and production areas, and is moving towards greater purchases of mini and microcomputers for internal control. PEMEX develops many of its specialized applications internally, while it purchases standardized products for business applications and other general uses.

Utilities are basically controlled by the federal government. The most important companies are:

- The Federal Electricity Commission (CFE), which controls, generates and distributes all electrical energy in Mexico, and the Institute for Electrical Research (IIE) use mainframes to store mass information and mini and microcomputers to operate and link their 700 operations throughout the country. They presently have eight mainframes, 50 minicomputers, 55 multiuser micros and over 200 PC's. Software applications used by CFE range from general business applications (accounting, payroll, inventories, etc) to construction control, analysis of distribution systems, engineering applications, structural analysis, safety and CAD/CAM;
- The Mexican communications system, including telephone, telegraph, telex and fax, radio and TV broadcasting and postal service, is regulated by the Secretariat for Communications and Transportation. (Secretaría de Comunicaciones y Transportes - SCT). Teléfonos de México, the centralized telephone system, provides service to all areas of the country with 9.6 million telephones installed. The privatization of Telmex was recently announced and will translate into increasing and modernized services through the purchase and installation of high technology products. It uses mostly mainframes and micros for the control of lines and to bill its customers, as well as for general administrative purposes. Telecomunicaciones de México, through Telenales, the national telegraph company, has over 2,500 offices in operation and employs 14,000 people. In 1989, it transmitted 31 million telegrams and 10 million payment orders. The postal service has 6,200 offices and employs 32,000 people. In 1989 it handled over one billion items, however, it is only in the first stages of automation. Computers are still used basically for general accounting and administrative tasks. There are 600 television stations throughout Mexico, in addition to over 1,000 radio stations, both privately and government owned;
- The Mexican public transportation system, including motor vehicles, subway, air transportation, railroads and maritime transportation is also regulated by SCT. Computer applications are used in all these areas for reservation services, inventory control, traffic and vehicle control, freight movements, invoicing, personnel management, payrolls and general accounting;

Government health institutions, including the Mexican Institute for Social Security (Instituto Mexicano del Seguro Social IMSS), the Health Institute for Safety and Social Services for State Workers (Instituto de Seguridad y Servicios Sociales para los Trabajadores del Estado ISSSTE), the Secretariat of Public Health, PEMEX, the Army and Navy together supply medical services to some 45 million people in their 1,600 hospitals and 9,000 consulting offices for out-patients. Additionally, there are some 25,000 doctors in private practice. IMSS and ISSSTE have an elaborate computer network throughout the country to register and bill their members and associates, register medical histories, for inventory control of fixed assets, equipment and medicines, general accounting, payroll, accounts payable and receivable.

The Mexican educational system, ranging from pre-school to post graduate studies, covers close to 30 million pupils and students. Computers are beginning to form an

integral part of the educational system, particularly at the university level, to conduct important research programs in all areas of education, to train and teach students and to record students enrolled, their grades, material purchases, payrolls, etc.. Total enrollment at the university level can be divided into the following study areas: social and administrative sciences 43%, engineering and technology 28%, medicine 14%, agricultural sciences 9%, education and arts 3% and natural and exact sciences 3%. The National University (Universidad Nacional Autónoma de México UNAM), the Politechnic Institute (Instituto Politécnico Nacional IPN) and the Metropolitan University (Univesidad Autónoma Metropolitana UAM) are the most important state universities. The IPN, with 60,000 students, has two mainframes and several minicomputers. The UNAM, with an enrollment of 160,000, has five mainframes and hundreds of microcomputers used for scientific/research projects, administration and numerical calculations and CAD/CAM projects. IBM has made several agreements with universities and schools in order to develop applied research projects. One of these is the REDUNAM, a network created to cover the university's requirements in the areas of engineering, research, physics, astronomy, biotechnology, mathematics and computer sciences. Private universities have a total enrollment of 170,000 students. Among the largest and technologically best equipped are the Monterrey Technical Institute, the Anáhuac, Iberoamericana and La Salle universities. There are also a myriad of computer schools in Mexico imparting courses in programming, software and computer sciences.

The National Science and Technology Council (Consejo Nacional de Ciencia y Tecnología CONACYT) is the most important government research institution in Mexico, where most of the country's basic scientific research is conducted. It also has a major information bank connected to several international data banks and information services making vast amounts of scientific, technological and engineering data available to the private and public sectors in Mexico. It has large computer installations to which its 20 district offices are connected. CONACYT uses several mainframes and minicomputers with some 350 terminals in its service and information centers, as well as microcomputers. It is connected to TELEPAC and 14 national and international computer centers and data banks.

Other potential buyers are private health care and educational institutions, scientific and laboratory research facilities, publishing companies, travel agencies, hotels and tourism related businesses. The Camino Real hotels in Mexico, for example, uses one IBM S/1 and two S/36 computer systems in addition to NCR equipment and microcomputers for the general hotel administration, customer billing and room control. All of the above sectors will progressively move towards an increased use of computers to better control their operations and to be more efficient.

Finally, many professionals purchase computers for their private use and are increasingly using standardized software applications for PC's. These professionals include some 100,000 registered doctors, in addition to approximately 200 assistants, laboratory technicians and other professionals within the medical field. Doctors are mostly using computers in hospitals, laboratories and private offices for medical records of patients, fees, appointments and fiscal and financial controls. They are using administration software, applications software and some customized products. There are an estimated 175,000 registered attorneys working in law offices, in industry, commerce, government agencies, in private practice or specialized activities. Their most commonly used applications are word processing, general business and customized software. Accountants (approximately 450,000) are the most familiar with computers and use them the most, for all applications related to accounting - administration, forecasting and planning, inventory and production control, sales,

personnel and payrolls, financial applications among the most important. Management & engineering consultants are the second largest professional users of computers in Mexico. They use a variety of applications, including data base, construction, accounting, graphics, critical path, CAD, budget control, word processing and utility software. Other professionals include some 50,000 computer technicians, teachers, bankers, salesmen, writers, architects and agronomists.

Home consumers also represent an increasing market for microcomputers. Students at the university level are increasingly purchasing personal computers and school age children are already beginning to use computers for their homework, but mostly for games.

## 5. MARKET ACCESS

Software for mainframes is usually imported by the major manufacturers or designed locally. Software houses both import and offer custom made products and may also sell packages provided by the manufacturers on a commission basis. Software for minicomputers is imported by the manufacturers themselves or by software houses and sold directly to their customers. Microcomputer software is mostly sold through software houses and shops and through microcomputer distributors. Some of the marketing tools most commonly used in Mexico are technical seminars, exhibitions, demonstrations of the equipment and massive publicity.

Software and unrecorded magnetic tape and disks are classified under the Harmonized Tariff Schedule numbers 85.23 and 85.24. Imports of software are subject to a 10% to 15% ad valorem duty assessed on the F.O.B. invoice value. In addition, a 0.8% customs processing fee is assessed on the invoice value. A 15% value added tax is then assessed on the cumulative value of invoice plus the above taxes.

There are no official metric requirements applicable to imports into Mexico. However, since the metric system of units is by law the official standard of weights and measures in Mexico, importers will usually require metric labeling for packaged goods, although the English system is also used. Dual labeling is acceptable. Imported products should be labeled in Spanish containing the following information: name of the product, trade name and address of the manufacturer, net contents, serial number of equipment, date of manufacture, electrical specifications, precautionary information on dangerous products, instructions for use, handling and/or product conservation and mandatory standards. Mexico adheres to the International System of Units (SI). Electrical standards are the same as in the U.S. Electric power is 60 cycles with normal voltage being 110, 220 and 400. Three phase and single phase 230 volt current is also available.

Prepared by Caroline Vêrut  
for the Canadian Embassy  
Mexico City, April 1990



**WHEN SELLING TO THE MEXICAN GOVERNMENT AND ITS AGENCIES, IT IS  
REQUIRED TO HAVE REGISTRY NUMBER AS FOREIGN SUPPLIER.  
FOLLOWING IS RELATED INFORMATION.**

**REGISTRATION WITH SECRETARIA DE PROGRAMACION Y PRESUPUESTO**

**(SPP)**

Following is a summary of Registration Procedures for Canadian Companies wishing to sell to the Mexican Government and its decentralized agencies.

Note: Registration procedures now cannot be done by the foreign (Canadian) supplier, and must be done by the company's official local agent/representative in Mexico.

To obtain registry, the following documents should be submitted to the Registro de Proveedores Office of the Secretaría de Programación y Presupuesto (SPP) (Ministry of Planning and Budgeting) located at the following address:

Registro de Contratistas y  
Proveedores de la Administración  
Pública Federal S.P.P.  
Av. San Antonio Abad No. 124 - Piso 1  
Col. Tránsito  
06380 México, D.F.

- a) Applications for registration of foreign supplier forms SPP in original and 3 copies, all signed separately.
- b) A copy of the company's balance sheet and profit and loss statement with data not older than two months with respect to the date of application entry into the Foreign suppliers registry, also translated into Spanish and legalized by the Mexican Consulate.
- c) Copy of power of company's legal representatives in Canada notarized, and certified by Mexican Consul (documents mentioning full name of person or persons, legally authorized to sign documents on behalf of company showing his (their) signature.
- d) Copy of agency/representative contract in Mexico notarized and then certified by Mexican Consul.
- e) Copy of a document that proves and guarantees legal existence of company in Canada.  
A certificate of incorporation from a Canadian -

Chamber of Commerce or Industry Chamber. This letter must be presented in its original form and must state that interested company has been legally incorporated in accordance to the laws of the country and must include the date of incorporation. The letter cannot be more than six months old from the date it was issued. In addition it must be translated into Spanish and legalized by the Mexican Consulate.

- f) Limited power to local agent to act on behalf of foreign firm on disputes and collection matters.
  - g) A photocopy of sample past invoices for each product to be supplied duly translated and legalized by the Mexican Consulate with the date and the names of the buyer and the seller underlined and highlighted.
2. Once application forms and supporting documents are approved, registration number is issued in two to four weeks time. To claim registration number, foreign firm's representative will have to present original and copy of HD-1 form "Declaración General de Pago de Derechos" duly paid.
  3. To obtain HD-1 forms.  
As first step, payment of \$366,000 Mexican Pesos (as of April 1990 and rate subject to changes) should be made at any office of the Secretaría de Hacienda y Crédito Público (SHCP) in cash, or with Mex. Peso bank draft in favor of the "TESORERIA DE LA FEDRACION" payable through a Mexican bank located in Mexico City and should be accompanied by four (4) payment forms DH1. Each form should be signed separately. Forms can be obtained at any SHCP's offices.

**IMPORTANT**

**TO AVOID REFUSAL OF APPLICATIONS**

- I Copies of documents b, c, d, e, f, g, must be translated into Spanish by certified local translator if done in Mexico. However if documents b, c, d, e, f, g and respective translations are done into Spanish in Canada, these do not have to be done by certified translator, as above, but documents and translations must be duly notarized, and then certified by nearest Mexican Consul in your area.
- II Original and copies of application forms must be signed separately by company's legal representative.



III Corporate name should appear exactly the same in all documents: (i.e.: spelling, company names which have changed over the years).

Legal representative's signature should be signed separately on following documents:

- . DH-1 Payment forms
- . Registry application forms (both pages)
- . Power of legal representative of company in Canada.
- . Copy of agency/representative contract in Mexico.
- . Limited power to local agent.

While every effort has been made to provide the above information accurately, the Canadian Embassy cannot assume responsibility for errors, omissions or subsequent changes in procedure which may occur.

Information  
updated April/90  
Canadian Embassy  
Mexico City

Deputy Minister of  
Communications and  
Technological Development

Deputy Minister of Operations



**USEFUL MEXICAN GOVERNMENT AND DECENTRALIZED GOVERNMENT MINISTRIES  
AND AGENCIES**

**SECRETARIA DE COMUNICACIONES  
Y TRANSPORTES**

**MINISTRY OF COMMUNICATIONS AND  
TRANSPORT**

LIC. ANDRES CASO LOMBARDO  
SECRETARIO DE COMUNICACIONES Y  
TRANSPORTES

(NOTE: After name of official  
and position/title the name  
of the ministry should be  
given followed by the street  
address, as shown)

Secretaria de Comunicaciones y  
Transportes

Minister of Communications and  
Transport

Av. Universidad Esq. Xola Centro  
SCOP Cuerpo C Piso 1  
Col. Narvarte  
03028 México, D.F.

Phones 519 74 56 530 09 03

ING. CARLOS MIER Y TERAN ORDIALES  
SUBSECRETARIO DE COMUNICACIONES Y  
DESARROLLO TECNOLOGICO

Deputy Minister of  
Communications and  
Technological Development

Av. Universidad Ezq. Xola Centro  
SCOP Cuerpo C Piso 1  
Col. Narvarte  
03028 México, D.F.

Phones 538 09 45 519 52 01

C.P. Gustavo Patiño Guerrero  
Subsecretario de Operación

Deputy Minister of Operations

Av. Universidad Esq. Xola Centro  
SCOP Cuerpo C Ala Oriente Piso 1  
Col. Narvarte  
03028 México, D.F.

Phones 559 51 65 530 73 90

<p>Ing. Francisco J. Jauffred Mercado          Director General de Fomento de          las Telecomunicaciones e          Informática</p>	<p>General Director of Information          and Telecommunication          Development</p>
--	--

Av. San Francisco No. 1626  
 Col. del Valle  
 03100 México, D.F.

Phone 534 19 79

Lic. Sergio Navarro Benitez  
 Director General de Normas de  
 Radio y Televisión

General Director of Radio and  
 Standards

Av. Universidad Esq. Xola Centro  
 SCOP Cuerpo C Piso 1  
 Col. Narvarte  
 03028 México, D.F.

Phones 519 28 00 519 16 21

Ing. René Etcharren Gutiérrez  
 Director General de Obra y  
 Operación

General Director of Projects and  
 Operations

Av. Universidad Esq. Xola Centro  
 SCOP cuerpo B Planta Baja  
 Col. Narvarte  
 03028 México, D.F.

Phone 530 30 60 Ext 6109

Lic. Héctor Ruíz Bouchot  
 Director General de Recursos  
 Financieros

General Director of Financing

Dr. José Ma. Vertiz No. 800  
 Piso 6  
 Col. Narvarte  
 03020 México, D.F.

Phones 579 60 66 590 27 89

Lic. Antonio García Rojas  
Barbosa

Eugenia No. 197 Piso 1  
Col. Narvarte  
03020 México, D.F.

Phones 682 22 01 682 24 51

General Director of Materials  
Resources

TELEFONO DE MEXICO, S.A. DE  
C.V. (MEX)  
Río Bahía No. 44  
Col. Consuelo  
06580 México, D.F.  
Tel: 524 58 18  
Fax: 524 58 18

**DECENTRALIZED GOVERNMENT  
AGENCIES**

**CONSEJO NACIONAL DE CIENCIA Y  
TECNOLOGIA (SPP)**  
(Scientific and Technological  
Development)

Circuito Cultural  
Edificio Universitario  
Conacyt  
Col. Cd. Universitaria  
04515 México, D.F.

Dr. Manuel V. Ortega  
Director General  
Circuito Cultural  
Universitario Edificio A  
Piso 3  
Col. Cd. Universitaria  
04515 México, D.F.

(Technology Develop and  
co-ordination)

Ing. Eduardo Tovar  
Martínez  
Director de Enlace  
y Fomento Tecnológico  
Circuito Cultural  
Universitario Edificio B  
Piso 1  
Col. Cd. Universitaria  
04515 México, D.F.

**TELETRA INDUSTRIAL, S.A.  
(SEMP)**

(Mfg. of Microwave and  
Electronic Equip)

Bahía de Santa Barbara No. 130  
Col. Verónica Anzures  
11300 México, D.F.  
Fax: 254 58 18

**TELEFONOS DE MEXICO, S.A. DE  
C.V. (SCT)**

(Mexican Telephone Company)

Parque Vía No. 198  
Col. Cuauhtémoc  
06599 México, D.F.  
A.P. 50-Bis

Lic. Alfredo Baranda García  
Director General  
Parque Vía No. 198 Piso 11  
Oficina 1102  
Col. Cuauhtémoc  
06599 México, D.F.

**TELECOMUNICACIONES DE MEXICO  
(SCT)**

(Telegram and money order  
services. Also phono-telegrams  
by phone and printer)

Eje Central Lázaro Cárdenas  
No. 567 Ala Norte Piso 11  
Col. Narvarte  
03020 México, D.F.

Phones 519 91 61 519 09 08

C.P. Carlos Lara Sumano  
Director General  
Eje Lázaro Cárdenas No. 567  
Ala Norte Piso 11  
Col. Narvarte  
03020 México, D.F.

Phones 519 91 61 519 09 08

**COMISION FEDERAL DE ELECTRICIDAD  
(SEMP)**

(Mexican Hydro Electric Company)

Río Ródano No. 14  
Col. Cuauhtémoc  
06598 México, D.F.  
Telex CFE GCME 01771031

Phone 203 09 55

Lic. Roberto Alemán Maldonado  
Gerente de Compras  
Bahía de Santa Bárbara No. 130  
Col. Verónica Anzures  
11300 México, D.F.

Phones 250 90 88 203 09 94

**NACIONAL FINANCIERA, S.N.C.**  
(Mexican Industrial Development  
Bank)

Avenida Insurgentes Sur No. 1971  
Col. Guadalupe Inn  
01020 México, D.F.

Phone 550 69 11

**PRINCIPALES FUNCIONARIOS**

Lic. Juan José Páramo Díaz  
Director General

Av. Insurgentes Sur No. 1971  
Torre Sur Piso 10  
Col. Guadalupe Inn  
01020 México, D.F.

Phones 550 16 16 550 17 16

Lic. Alfonso Caso Aguilar  
Director de Promoción de  
Proyectos  
Col. Guadalupe Inn  
01020 México, D.F.

Phones 550 38 72 550 69 11

Dr. Sergio Cházaro Loaiza  
Director de Programas de  
Desarrollo  
Av. Insurgentes Sur No. 1971  
Torre Sur Piso 11  
Col. Guadalupe Inn  
01020 México, D.F.

Phones 664 05 15 550 69 11

Phones 553 71 33 553 64 00

Ing. Guillermo Guerrero  
Villalobos  
Director General  
Río Ródano No. 14 Piso 7  
Col. Cuauhtémoc  
06598 México, D.F.

Phones 553 64 00 553 65 00

Ing. Juan Eibenschut Hartman  
Subdirector General

Río Ródano No. 14 Piso 7  
Col. Cuauhtémoc  
06598 México, D.F.

Phones 553 19 79 553 71 33

Operations  
Ing. Agustín Pérez Ruíz  
Subdirector de Operación

Río Ródano No. 14 Piso 6  
Col. Cuauhtémoc  
06598 México, D.F.

Lic. José Luis García Ramos  
Gerente de Abastecimientos  
(Responsable de Adquisiciones)

Río Ródano No. 14 Piso 7  
Col. Cuauhtémoc  
06598 México, D.F.

Phones 286 95 36 286 95 56

**FERROCARRILES NACIONALES DE MEXICO (SCT)**  
**(SCT)**

Mexican National Railways

Av. Jesús García No. 140  
Col. Buenavista  
06358 México, D.F.

Phone 547 52 40

Ing. Carlos Orozco Sosa  
Director General  
Av. Jesús García No. 140  
Ala A Piso 13  
Col. Buenavista  
06358 México, D.F.

Phones 547 35 56 547 79 20

Telecommunications network

Ing. Romualdo Ruíz Castro  
Subdirector General de Vías  
y Telecomunicaciones  
Av. Jesús García No. 140  
Ala A Piso 8  
Col. Buenavista  
06358 México, D.F.

Phone 547 69 19

Purchasing

Lic. Carlos Alcerreca Curiel  
Gerente de Adquisiciones  
García No. 140  
Ala B Piso 4  
Col. Buenavista  
06358 México, D.F.

Phone 547 63 56

**CONSTRUCCIONES TELEFONICAS MEXICANAS, S.A. DE C.V. (SCT)**

Construction install of  
telephone line networks.  
Switchboard install.

Liverpool No. 72-A  
Col. Juarez  
06600 México, D.F.  
A.P. 61-258  
Telex 207 28 06

Phone 211 30 00

Ing. Gustavo L. Ramírez Hubard  
Director General  
Liverpool No. 72-A Piso 2  
Col. Juarez  
06600 México, D.F.

Phones 511 67 08 211 30 00  
Purchasing

C.P. Rodolfo Torres Mosqueda  
Subdirector General  
Administrativo y Adquisiciones  
Dinamarca No. 51 Piso 1  
Col. Juarez  
06600 México, D.F.

Phones 511 67 08 211 30 00

Engineering

Ing. Marco A. Amezcua Sandoval  
Subdirector General de Av. Jesús  
Ingeniería  
Dinamarca No. 51 Piso 4  
Col. Juarez  
06600 México, D.F.

Phones 511 31 81 211 30 00



**FERROCARRILES NACIONALES DE  
MEXICO DIVISION BAJA CALIFORNIA  
(SCT)**

Nal Rlwys Baja Calif Division

Final Ulises Irigoyen S/N  
Col. Industrial  
21010 Mexicali, B.C.

A.P. 182  
Telex 569835-FCSBC DEME

Phones 572102 572103

**FERROCARRILES NACIONALES DE  
MEXICO REGION PACIFICO (SCT)**

Nal Rlys Pacific Division

Enrique Díaz de León No. 336  
Col. Centro  
44100 Guadalajara, Jal.  
A.P. 44100  
Telex 0681712

**FERROCARRILES NACIONALES DE  
MEXICO REGION NOROESTE (SCT)**

Nal Rlys Northwest Division

Méndez Esq. Calle 24A  
Col. Pacífico  
31030 Chihuahua, Chih.  
Telex 0349822

**INSTITUTO MEXICANO DEL PETROLEO  
(SEMIP)**

Mexican petroleum institute.  
Investigation and tech develop.

Av. Lázaro Cárdenas No. 152  
Col. San Bartolo Atepehuacan  
07730 México, D.F.

Telex 017 73 116

Phones 567 91 00 567 66 00

Ing. Fernando Manzanilla Sevilla  
Director General

Av. Lázaro Cárdenas No. 152  
Col. San Bartolo Atepehuacan  
07730 México, D.F.

Phones 567 29 62 587 43 37

Engineering and projects

Ing. Oscar Ruíz Carmona  
Subdirector de Ingeniería y  
Proyectos  
Av. Lázaro Cárdenas No. 152  
Col. San Bartolo Atepehuacan  
07730 México, D.F.

Phone 368 45 03

Lic. Lourdes Ortiz Uruchurtu  
Responsable de Adquisiciones  
Av. Lázaro Cárdenas No. 152  
Col. San Bartolo Atepehuacan  
07730 México, D.F.

Phone 567 66 00

**RADIOMOVIL DIPSA, S.A. DE C.V.**  
**(SCT)**

Mobile radio telephone service

Río Pánuco No. 55 Piso 5  
Col. Cuauhtémoc  
06500 México, D.F.

Phones 535 60 14 535 63 72

Ing. Eduardo Aguilar Rivero  
Director General  
Río Pánuco No. 55 Piso 5  
Col. Cuauhtémoc  
06500 México, D.F.

**PETROLEOS MEXICANOS (SEMIP) (PEMEX)**

Mexican Petroleum Company

Av. Marina Nacional No. 329  
Col. Huasteca  
11311 México, D.F.  
Telex 1173912

Phones 250 26 11 254 20 44

C.P. Francisco Rojas Gutiérrez  
Director General  
Av. Marina Nacional No. 329  
Torre Ejecutiva Piso 44  
Col. Huasteca  
11311 México, D.F.

Phone 250 34 57

Office in New York City

Representación en Nueva York  
655 Madison Av. 16th Floor  
Nueva York, Nueva York  
U.S.A.  
Telex 421694

Office in Houston, Texas

Representación en Houston  
3600 South Gessner Suite  
100 Houston, Texas, U.S.A.

Lic. Adrian Lajous Vargas  
Subdirector de Planeación y  
Coordinación  
Av. Marina Nacional No. 329  
Torre Ejecutiva Piso 36  
Col. Huasteca  
11311 México, D.F.

Phones 545 99 04 254 33 35

Ing. Jaime Hernández Balboa  
Subdirector de Proyecto  
Y Construcción de Obras  
Av. Marina Nacional No. 329  
Torre Ejecutiva Piso 39  
Col. Huasteca  
11311 México, D.F.

Telex 791397

**TELECONSTRUCTORA, S.A. (SCT)**

Install of telephone networks.  
Switchboard installation.

Leibnitz No. 11 Piso 5  
Col. Nueva Anzures  
11590 México, D.F.

Phone 203 02 87

Ing. Armando Douance Villanueva  
Director General  
Leibnitz No. 11 Piso 5  
Col. Nueva Anzures  
11590 México, D.F.

Phone 203 29 04

**Purchasing**

Lic. Alejandro López Moreno  
Jefe de Servicios Generales y  
Abastecimiento  
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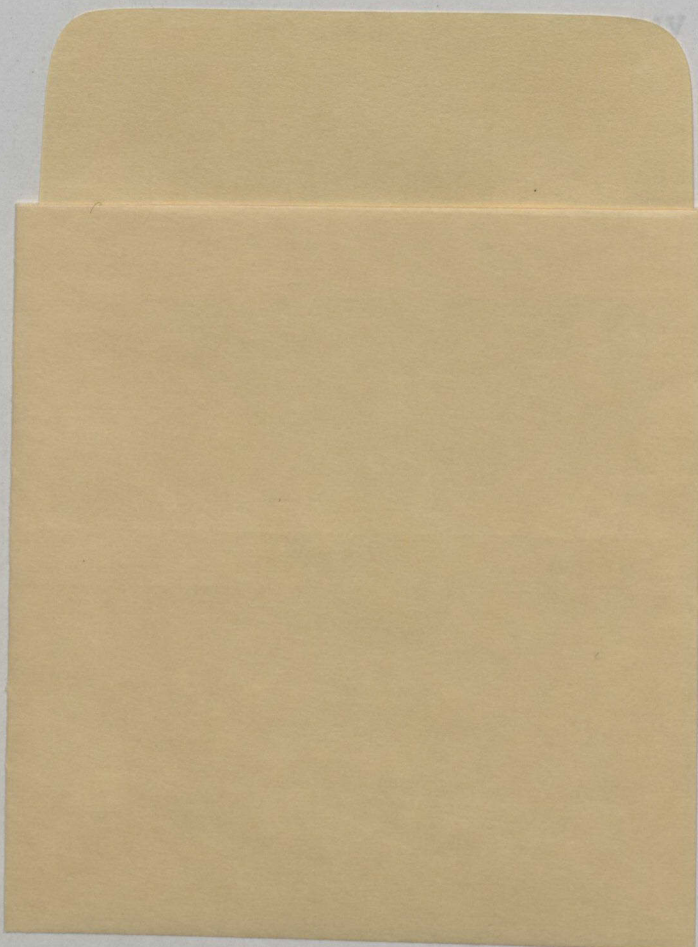


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CONTABILIDAD PAGUETES DE - ACCOUNTING PACKAGES  
CONTROL DE PRODUCTO - PRODUCTION CONTROL  
CORREO ELECTRONICO - ELECTRONIC MAIL  
COSTOS - COST ACCOUNTING  
CUENTAS BANCARIAS - BANKING ACCOUNTS  
CUENTAS POR COBRAR - ACCOUNTS RECEIVABLE  
CUENTAS POR PAGAR - ACCOUNTS PAYABLE  
DESARROLLO DE APLICACIONES - APPLICATION DEVELOPMENT  
DIBUJO - DRAWING  
DIVERSOS NO CLASIFICADOS - V  
EDITORES - PUBLISHERS  
EDUCATIVOS - EDUCATIONAL  
ESCUELAS - SCHOOLS  
ESTADISTICAS - STATISTICS  
FACTURACION - INVOICING  
FINANZAS, PLANEAION - FIN  
GENERADORES - GENERATORS  
GRAFICAS - GRAPHICS  
HOLA ELECTRONICA - ELECTRO  
HOTEL - HOTEL  
INGENIERIA - ENGINEERING  
INMUEBLES, CONTROL DE - CO  
INVENTARIOS - INVENTORY  
JUEGOS - GAMES  
LENGUAJES - LANGUAGES  
MATEMATICAS - MATHEMATICS  
MEDICOS - MEDICAL DOCTORS  
NOMINA - PAYROLL  
NOTARIOS - NOTARIES PUBLIC  
PRECIOS UNITARIOS - PRICES  
PRESUPUESTOS - BUDGETING



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PROCESADOR DE PALABRAS - WORD PROCESSOR  
PROGRAMACION - PROGRAMMING  
PROYECTOS DE INVERSIÓN - INVESTMENT PROJECTS  
RECURSOS HUMANOS - PERSONNEL/HUMAN RESOURCES  
RESTAURANTES - RESTAURANTS  
RUTA CRITICA - CRITICAL PATH  
SEGUROS - INSURANCE  
  
SISTEMAS OPERATIVOS - OPERATING SYSTEMS  
TUTORIALES - TUTORIAL  
VENTAS - SALES



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