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Telecommunications Sector For Costa Rica

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Costa Rica's telecommunications sector is frequently cited as being one of the most developed in the Latin American region, with indicators comparatively high. All services remain in the hands of a state monopoly, with a few exceptions. Although parliament recently approved a law to liberalise and modernise the sector, it was later rejected by the Constitutional Tribunal because of a number of 'unconstitutional' elements. Nonetheless, the pace of technological development and increased demand should force at least a partial opening of the sector over the next few years.

Key Statistics and Facts

General

Telecommunications revenue	US$271 million (1997)
% of GDP	3.4% (1997)
Fixed-network growth	12.9% (1997-1998)
Cellular subscr. growth	68.9% (1997-1998)

Industry Indicators

Main lines in service	659,996 (1998)
Main line capacity	747,971(1998)
Main lines/100 pop	17.2% (1998)
Main line waiting list	40,844 (1998)
Digitalisation main lines	67% (1998)
Standards	CDMA, TDMA amps
Local loop	The local loop is operated by state monopoly, ICE
Cellular subscriptions	108,770 (1998)
Cellular penetration	2.8% (1998)
Cellular analogue to digital	100% analogue

Human Resources	Number of employees: 4,492 (1998)
	Main lines/employee: 146.9 (1998)

Source: International Telecommunications Union (ITU) 1998

Industry Overview

Current Situation

The telecommunications sector in Costa Rica is dominated by the Instituto Costarricense de Electricidad (ICE), which has a monopoly on virtually all telecommunications services in the country: only paging and CATV are open to partial competition. Until fairly recently, this structure appeared to work sufficiently, giving Costa Rica the second highest level of fixed-line penetration (behind Chile) in the Latin American region with over 17 lines per 100 inhabitants (1997). However, as the demands in the telecommunications industry have grown apace over the past few years, ICE has found itself increasingly unable to keep up.

Between 1992 and 1997 the annual growth in lines installed averaged 15%. The emphasis on line installation has been in urban areas, which account for 65% of total lines. Despite the expansion in the number of fixed lines, the investment has not been sufficient to cover demand for the service (although it has reduced waiting lists). For example, in December 1998, the waiting list still stood at over 40,000, leading the government to call on ICE to cancel this deficit out by the end of 1999. However, ICE has been limited in achieving this through lack of extra resources (either from government coffers or external financing sources).

Teledensity Growth 1980-1997 (%)

1980	1990	1995	1997
6.9	9.3	16.36	17.89

Source: Instituto Costarricense de Telecomunicaciones (ICE)

The analogue-based cellular market has been the fastest growing over the past two years. The figures below show a fluctuating level of growth between 1995 and 1998. The relatively small rate of growth between 1996 and 1997 (38.4%) when compared to the previous and subsequent year (148.2% and 68.9% respectively) can be attributed to a overall decline in economic activity - the economy contracted by 2.8% in 1996 and grew by only 1% in 1997.

Cellular subscriptions (1995-1998)

1995	1996	1997	1998
18,750	46,531	64,387	108,770

Source: ITU

Given Costa Rica's bid to attract increasing numbers of high-tech industries to the country (including Intel) there has been growing demand not just for basic services but also for data communications. This has given it a fast growing internet market.

The current government (elected in 1998) entered power with firm intentions to reorganise the telecommunications structure, which, although not going so far as to consider the privatisation of ICE, has laid the ground for competition to be phased in over the next few years. However, discussion amongst legislative committees on the nature of the eventual bill has been protracted, and any legislation will face strong opposition.

Potential Growth

The telecommunications sector has considerable potential for growth, given that ICE lacks the resources to meet new demands, particularly in relation to Costa Rica's expansion into hi-tech industry. The pace of growth will, however, depend on the willingness or ability of the government to open up the sector. Opposition to selling off ICE's telecommunications interests will remain strong and any private investment is more likely to be in the form of strategic alliances with ICE. In the longer term, the mobile sector is likely to come under the most pressure to open up, meaning that growth in this area is likely to be strongest.

By regional comparison, Costa Rica's economy will continue to perform strongly, fuelled by investments from companies such as Intel and Microsoft, as well as plans to create a regional Call Centre.

Sector Organisation

Fixed-line Communications

Telephone lines	
Capacity	592,000
Metropolitan Area	327,000
Provinces	255,000
Total lines in service	500,000
Waiting lines	76,000
Projected demand (2000)	865,000
Projected demand (2005)	1,315,000

Source: COMTELCA 1997

In 1997 the telecommunications system's infrastructure included 202 exchanges of which 48% were digital.

The process of digitalising the telecommunications system has been underway steadily over the past few year, with the proportion completed growing from 50% in 1994 to 67% in 1997.

There has been a growth in international calls over the past few years thanks to the Central American Integration network. Using digital technology, the fibre-optic network links Central American countries to Mexico. Thereafter, the network allows connections to submarine cables and network operated by Telefonos de Mexico (Telmex). Connections throughout the Americas can be made through the Pan-American submarine cable, which also links up to Europe from Cancun in Mexico.

Mobile Communications

ICE operates cellular service in bands A and B, providing wireless service to more than 125,000 subscribers throughout Costa Rica. While a sale of the B band licence has been contemplated, it is unlikely to occur for at least two years - although there is mounting pressure to open up the cellular market to competition.

Costa Rica was the first country in Central America to launch cellular services, in 1989, through a joint venture between Millicom International (US) and Comcel, a locally based company. However, following a complaint by the ICE union and some congressmen, the Constitutional Court declared the joint venture unconstitutional in 1993, on the grounds that ICE had exclusivity to all telecommunications services. Millicom filed an unsuccessful lawsuit in Washington, which upheld the sovereignty of Costa Rica to decide on the issue. Millicom ceased operating in Costa Rica in 1995.

ICE assumed control of cellular telephony in Costa Rica offering its own services in 1994 using AMPS technology and introduced TDMA in 1995.

However, ICE has failed to meet the pace of change in the mobile sector and services have generally been poor, with coverage of little more than 70% of the country.

Paging services are open to partial competition. Iridium global paging was launched in April 1999.

Satellite Communications

Only Iridium has so far reached an agreement with ICE to offer its global satellite services. However, ICE has been in negotiations with others, such as ICO Communications and Globalstar, to pave the way for their entry. Iridium entered into an alliance with ICE (telephony), RACSA (Radiografica Costarricense S. A.) (paging) and Intelicom (paging), who have exclusive control over such products.

Although satellite communications are officially under state control, the need to develop services as well as the regional scope of this sector has allowed a number of firms effectively to enter the Costa Rican market. However, all operations must be licensed by either ICE or RACSA (a subsidiary of ICE that operates VAS and datacoms) depending on the nature of the service (voice or data transmission).

For example, in June 1998, Texas-based Charter Communications International (**http://www.worldmarketsonline.com/servlet/&127;&127;http:/http:/www.c-com.net**) connected Costa Rica to the company's satellite telecommunications throughout the Americas, opening a facility in San Jose and connecting customers through a new private satellite teleport.

In May 1999, Canadian firm NovAtel partnered with a group of Costa Rican engineers and businessmen to provide its Global Positioning System (GPS) services and products.

Globalstar licensee, Globalstar Americas, is to serve the Central American region, including Costa Rica. Distribution of wireless equipment will be carried out by CellStar Corp. following a three-year deal reached between the two companies in June 1999. Globalstar is scheduled to launch Central American commercial service in the first quarter of 2000.

Latinet, a telecommunications service provider, has a deal with Mexican satellite company, Satmex, to provide high-speed Internet access services via two dedicated C-band transponders on the Satmex 5 satellite. This will allow Latinet to offer end-user services such as private lines, private networks, internet services, broadcast, distance learning, dial tone and VSAT networks to Central American countries and in the northern part of South America. However, the restrictions due to ICE's monopoly have created complications in the services it can provide specifically to Costa Rica.

Cable Communications

Although CATV is open to private competition there are no plans to permit companies to expand into the telephony market. In 1997 there were 25,000 cable subscribers and an additional 10,000 signed up to MMDS.

Galaxy Latin America has its main offices in San Jose, providing DTH services throughout Latin America, using the PanAmSat system.

Value-Added/Data/Multimedia

The following is a list of data and value-added services offered by ICE/RACSA:

Type of Service	Date started	Operator
RDSI	1996	ICE
800 service	1994	ICE
Value-added services (basic telephony)	1995	ICE
Video Conferencing	1996	RACSA
Public network for data packet switching	1986	RACSA
E-mail (X.400)		RACSA
Internet	1993	RACSA
Fax service		RACSA
Satellite Data Transmission		RACSA

Source: COMTELCA 1997

RACSA has made attempts to keep up with growing demands in the area of data transmission. For example, in July 1999 the company acquired a satellite communications network for US$6 million in order to improve coverage, not just in Costa Rica but throughout the Central American region and the Caribbean. This network will provide initially for data transmission although it is envisaged that voice and video transmission will be added subsequently.

Data packet switching, known as RACSAPAC, has increased significantly over the past few years

RACSA also offers data transmission under the name RACSALINK, of up to an asynchronous 2.4 Gbps and 64 Kbps. RACSAMAIL offers e-mail services using standard X.400. RACSA introduced internet services in 1993.

Equipment

Equipment	No. of Lines	No. of Switches

Ericsson	130,642	34
Pentaconta	79,233	30
Hitachi	28,500	42
Northern Telecom	55,886	11
Alcatel	287,374	48
Equitel	19,643	18
Mitel	11,474	18
ITT	64	1

Source: Sistema Nacional de Telecomunicaciones, 1996.

ICE has an ongoing programme to upgrade its infrastructure with digital technology, in rural as well as urban regions. For example, in March 1999 it awarded a US$2 million contract to Digital Microwave Corporation to supply DXR 100 digital microwave radios and associated services for the replacement of the rural telephone network.

Regulatory Environment

The regulatory system in Costa Rica has performed relatively well in the context of regulating state-owned companies. Responsibility for overseeing the telecommunications sector lies with the Regulatory Authority of Public Services (ARESEP).

Government Strategy

The government of President Miguel Rodriguez is keen to implement reforms to pave the way for increasing liberalisation. The strong reticence towards private control in telecommunications services, even among government circles, has slowly been eroded by a recognition that despite the relative efficiency of ICE in the past, it is now incapable of meeting the demands of the changing environment, especially in relation to mobile and data communications. Nevertheless, ICE will not be sold off, even partially, and the only likelihood is that within the next five years, new entrants may be permitted to compete against it.

The debate between those in favour of reforms and those against has led to a lack of consensus in relation to the pace of the liberalisation of the sector. In relation to the lack of a telecommunications law, the Costa Rican Chamber of Telecommunications (CCT) has criticised that there is only fragmented, outmoded legislation which leaves out a number of important issues.

Plans to reform ICE are stuck in Congress at the moment, with the leading opposition party obstructing agreement on two legislative projects, which could be harmonised in order to allow for their speedier approval:

Ley de Modernizacion y Fortalecimiento del Instituto Costarricense de Electricidad (Law to Modernise and Strengthen ICE). This would:

- Change ICE into a public company with social capital, belonging entirely to the state.
- Give ICE full administrative, technical and financial independence. It would, however, be overseen in some areas, by government entities.

- Allow for joint ventures and strategic alliances to be reached with other companies through Icetel, its telecommunications subsidiary. No restriction on foreign participation is envisaged.

Ley General de Telecomunicaciones (General Telecommunications Law). This would:

- State the public interest of modernising and developing telecommunications through a process of liberalisation of the market in order to permit private participation.
- Establish the timetable for a gradual liberalisation of different services in the telecommunications sector.
- Create the Regulatory Telecommunications Institute (IRETEL) with technical, administrative and financial autonomy.
- Guarantee the right to universal service. A fund for universal service would be created, made up of 1% of the income of operators and 50% of the income from concessions of mobile frequency licences.
- Make only local fixed-line services subject to tariff regulation. Operators in this area would not be able to charge rates above a pre-established limit.
- Ban cross-subsidies.
- Tackle monopolistic activities.
- Allow for the sale of 15-year concessions for radio spectrum frequencies through a public bidding process. The winner would be awarded on the basis of the price and quality of service offered.

The government wants the telecommunications law to open up all services to competition by 2002. However, there are strong differences with opposition parties who until now have stated that only certain services should be opened up such as paging, CATV and data communications.

Important Regulations

- Currently, Costa Rica is not a signatory to either bilateral or multilateral agreements (including none with the WTO) except for Mexico, where there is an agreement covering some regulatory aspects.

- There is no telecommunications law, rather a number of laws and regulations that govern the sector. The regulatory body (ARESEP) supervises, controls and verifies the use of services. Generally, Costa Rica has a solid tradition in regulatory matters, explaining the relatively efficient performance of ICE in the past.

- ICE continues, for the time being to operate a monopoly on services.

- Interconnections and access remain at the discretion of ICE, although ultimately regulated by ARESEP.

- Tariffs are fixed by ICE, which must however receive authorisation from ARESEP.

- ARESEP defines the tariffs through a process whereby it takes into account productive structures of the model of each public service, the technology used, the activity it covers and the size of the entity.

- ARESEP controls telecommunications service providers so that they do not include other activities in their costs.

Costa Rica is not a signatory to the World Trade Organisation’s General Agreement on Tariffs and Trade, and is therefore not committed to a timetable of liberalisation. However, there will be increasing pressure for liberalisation, particularly given that the Central American region is seen as a growing potential market as a whole, as opposed to each individual country. All other countries in the region, such as Nicaragua and Guatemala, have committed themselves to opening up their telecommunications sector. Once the political will exists in Costa Rica then its subsequent entry into the WTO will only be a matter of time.

Type Approval Procedures

The ICE carries out its own type approval.

Leading Players

Fixed Line

Instituto Costarricense de Electricidad (ICE)
P.O. Box 10032
Sabana Norte
San Jose
Costa Rica
Tel: 00 506 220 7720/7422
Fax: 00 506 220 1746/1555
http://www.ice.org.cr

ICE has a monopoly on fixed-line service provision in Costa Rica. It is an autonomous state institution created in April 1949, initially to develop the energy sector. Telecommunications services were incorporated under its wing through legislation approved in 1963. The basic telecommunications branch of ICE is known as ICETEL.

ICETEL Financial Position CR Colon millions (1991–1996)

	1991	1992	1993	1994	1995	1996
Operating revenues	14,958.3	18,363.5	21,609.6	26,336.3	33,579.8	45,236.9
Operating costs	8,584.5	11,261.5	14,127.5	18,309.5	21,140.7	23,916.7
Other revenue and expenses	2,186.6	415.6	508.7	353.9	1,250.1	208.3
Excess revenue over expenses	4,187.2	6,686.4	6,973.4	7,672.9	11,189.0	21,111.9

ICE's investment in developing infrastructure over the past few years has been limited, and the full digitalisation of the fixed-line system remains some way off. The public entity is due to be transformed over the next few years although there are no plans to sell it off. However, it will have to be reorganised in order to prepare for the eventual and inevitable introduction of competition into the sector.

In 1997, ICE announced investment plans up to 2002 of 400,000 fixed telephone lines and 130,000 wireless telephone lines. Plans to upgrade infrastructure included expanding the SDH network access, installation of an ATM base network for wide band services and installation of fibre-optic links.

Mobile

Instituto Costarricense de Electricidad (ICE)
Apartado 10 032-1000

San Jose
Costa Rica
Tel: 00 506 253 8469
Fax: 00 506 253 9778
http://www.ice.org.cr/

ICE's mobile branch, ICE Celular, is the exclusive operator of cellular mobile services, which were launched in 1990. Technical standards used include AMPS and TDMA. Coverage includes the so-called Greater Metropolitan Area Cities: San Jose, Heredia, Alajuela, and Cartago. Other cities include Puntarenas, Limon, Liberia, San Isidro, and Golfito. Population coverage is reaching 90% while geographic coverage is about 70%.

Satellite and Cable

Radiografica Costarricense S. A. (RACSA)
http://www.racsa.co.cr/

RACSA offers its satellite communications services under the name RACSASAT by means of ground stations located in downtown San Jose, Pavas, and industrial parks, all of which are interconnected through RACSA's digital networks.

The service is specially aimed at serving banks, transnational corporations, shipping companies, exporters, importers, scientific organisations, governmental institutions, and any other type of company with a high volume of international communications.

Applications

- High- and medium-speed data transmission (LAN and information systems interconnection)
- Audio and video teleconferencing
- Corporate e-mail
- Data processing
- Electronic fund transfers
- Remote processing
- 800 remote service
- Remote telemarketing
- Simultaneous applications for voice, data, fax, video, and corporate communications systems
- Interconnection with corporate Intranets

RACSASAT offers access to multiple satellite routes (PANAMSAT, INTELSAT, and SATMEX) and transparent transport of any protocol. For more information on RACSA, see **Value-Added/Data/Multimedia** below.

e-Casino Gaming Corp
http://www.e-casinogaming.com/

In April 1999 Canada-based e-Casino Gaming Corp. announced that it would be setting up its own direct link satellite communications operation in Costa Rica to facilitate enhanced telecoms and internet links for its electronic gaming web. However, the satellite link will also provide e-Casino Gaming Corp. with the telecommunications capacity to develop and implement additional local and international business opportunities. The satellite earth station, associated expenses, and recurring operational expenses were expected to require an initial investment of over US$200,000 for the first three months. MCI WorldCom has provided the satellite link. The system will provide the company with nine T1 lines (256 trunk lines). This means that over 2,300 dedicated lines will be available to the company. It is expected that the online gambling operation will initially utilise fewer than 25 of these lines and increase to 150 lines within a year. The additional telecoms lines will be available for other business development opportunities.

Value-Added/Data/Multimedia

Radiografica Costarricense S. A. (RACSA)
http://www.racsa.co.cr/

Within ICE there are a number of subsidiary companies, including the Radiografica Costarricense S.A. (RACSA), which, upon its creation in 1964, operated as a company of mixed capital, but was later transferred entirely into ICE hands.

Early on, RACSA concentrated its operations in telegraph and telex service, but has since expanded its participation in the telecommunications sector in accordance with technological advances, so that now it is responsible for all current data communications, including internet and value-added services (VAS), in use in Costa Rica. RACSA introduced internet services in 1993. RACSA Internet is now the largest ISP in Costa Rica.

Data packet switching, known as RACSAPAC, has increased significantly over the past few years. RACSA offers data transmission under the name RACSALINK, of up to 2.4 and 64 Kbps. RACSAMAIL offers e-mail services using standard X.400.

Infonet
http://www.infonet.com

Infonet Services Corporation has a bilateral agreement with RACSA to provide frame relay interconnections between RACSA's domestic frame relay network RACSANET, and Infonet's World Network. This agreement gives multinational enterprises in Costa Rica access to frame relay and IP service to 45 countries around the world served by Infonet. In addition, RACSA provides interconnections into surrounding Central American countries, including El Salvador, Guatemala, Honduras and Nicaragua, helping further to extend access for Infonet's World Network into those nations. The World Network Infonet products and services include Global Intranet Service and the ability to build global Virtual Private Networks (VPNs). Infonet Costa Rica is also able to provide its Global Connect Services in the region, including provisioning, installation and support of Customer Premise Equipment (CPE) required for access to Infonet's World Network, and installation and support of local loops necessary to connect customer premises to the Infonet network.

Global DataTel

Global DataTel Inc. is a small US computer company that provides online services in Costa Rica in addition to other Latin American countries (Nicaragua and Colombia).

American TeleSource International Inc. (ATSI)

ATSI has a wholly-owned Central American subsidiary, ATSI de Centroamerica S.A., with an international frame relay agreement with RACSA. This agreement enables ATSI to interconnect to the RACSA frame relay network in Costa Rica, and provide connectivity via this protocol throughout the Central American Region, Mexico and the United States.

ATM Corp/Sistemas de Comercio Internet S.A.

Sistemas is a company based in Costa Rica that has developed a full service ISP and internet credit card processing facility for commerce throughout Central and South America.

Equipment

Ericsson (Sweden) and Alcatel (France) are the leading equipment suppliers in the fixed telecommunications market followed by Siemens (Germany) and Northern Telecom (Canada).

Lucent (US) and Ericsson dominate the cellular sector. Motorola (US) has a strong presence in mobile equipment (paging, cellular handsets and trunking).

Industry Organisations

Costa Rican Chamber of Telecommunications (CCT)

The CCT covers radiocommunications, including trunking, data communications and CATV, and comprises more than 35 companies. However, the CCT is obstructed by legal deficiencies given the absence of specific telecommunications legislation to regulate these industries.

International Organisations

Inter-American Telecommunications Commission (CITEL)
http://www.citel.org/

CITEL is an entity of the Organisation of American States (OAS) responsible for facilitating the development of telecommunications in Latin America.

Comision Tecnica Regional de Telecomunicaciones (COMTELCA)

COMTELCA planned and co-ordinated the regional broad-band telecommunications network interconnecting Central America's capital cities (those of Honduras, Nicaragua, Costa Rica, El Salvador and Guatemala) and linking them to separate networks of Panama, Mexico and Belize.

*Secretaria de Integracion Economica Centroamericana (SIECA) (***www.sieca.org.gt***)*

SIECA was created in 1960 to pave the way for a more integrated economic approach among five Central American countries (Costa Rica, Nicaragua, Honduras, El Salvador and Guatemala).

Foreign Investment

Overview

There is an obvious distinction made between the imports of equipment, which are not subject to import controls, and operating services, which will remain subject to substantial limitations for at least the next two years. Nevertheless, there is an open attitude to foreign investment in general, as demonstrated by the government's increasing drive to attract hi-tech industries to Costa Rica (notable companies already present include Intel, Microsoft and Acer). Among the general public, there may be strong objections to the privatisation of ICE, although this does not necessarily extend to competition *per se.*

Structural Factors

Advantages

- There are very few restrictions on imports of telecommunications equipment.
- Costa Rica has made headway in introducing legislation to combat online piracy.
- The country has a higher standard of living and a more stable political environment than counterparts in Central America, and indeed throughout Latin America as a whole. This is one reason to explain the relatively high telecommunications indicators.

Disadvantages

- Despite Costa Rica's claim, until recently, of having the only regulated telecommunications sector in the Central American region, the regulator has little experience in dealing with liberalisation, and its structure is not adequate to oversee any substantial opening up of services.
- Labour and political opposition will continue to frustrate attempts to open up the sector fully. Although eventual liberalisation is envisaged, such opposition will certainly lead to delays.

Level of Foreign Investment

The level of foreign investment for the time being remains limited to the equipment sector. However, the inability of existing legislation to keep up with the pace of changes in the business environment - i.e. the technological demands stemming from a more globally integrated economy in Costa Rica - is allowing increasing space for investment to be made, through agreements with either ICE or RACSA in datacommunications services.

Outlook

Trends

Growth in the Costa Rican telecommunications market depends to a large extent on when and if the telecommunications law will be passed, and the success in opening up the sector. RACSA will be unlikely to maintain dominance in the internet market which, due to increasing local demand, will have to be opened up to create a more competitive environment. Mobile services will also face the greatest pressure to open up, partly because of demand, and partly because ICE is failing to keep pace with technological developments. However, reform to the ICE, which may lead to greater financial independence, will allow it to increase resources available for developing its services.

External Factors

The regionalisation of telecommunications services throughout Central America will continue to be hampered by the need for companies to enter into agreement with ICE or RACSA, particularly the latter in the case of datacommunications networks.

In 1966, Central American countries, with the exception of Costa Rica (which signed up later), ratified a treaty in which governments committed jointly to improve the region's telecommunications infrastructure. The objective was to achieve the development, improvement and modernisation of telecommunications in order to strengthen the process of integration in the region.

In the longer term, Costa Rica, along with other countries in the Americas, is committed to the creation of a Free Trade Area of the Americas (FTAA) by 2005. Although this will only apply to certain areas of trade initially, it will if implemented lead to discussion on the need to liberalise services fully. This will force the present government and its successor (taking office in 2002) to push forward on the complete liberalisation of the Costa Rican telecommunications sector, even if ICE is to remain in state hands.