

THE HISTORY OF CTC AND ENTEL:

PRECURSORS OF THE TELECOMMUNICATIONS IN CHILE

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ABSTRACT

Chile has been a forerunner in telecommunications in Latin America because of two companies, CTC and Entel. CTC is the telephone company that installed the first South American plant. Entel is the telecommunications company that initiated satellite communication in Latin America by means of a Chilean satellite station.

Today these companies are telecommunications leaders and continue contributing to its development, presenting the latest technological advances through the services it offers to its clients.

INTRODUCTION

Throughout its history, Chile has been a forerunner in many aspects. One of these was the installation and later utilization of the first telephone plant in South America. A second aspect was the construction and operation of the first satellite telecommunication system in Latin America.

Telefónica CTC and Entel are the two companies that executed these vital projects and which today are the leaders in the telecommunications market in Chile. They also have a strong presence in international markets.

IMPORTANCE OF TELECOMMUNICATIONS IN CHILE

One must only look at the map to see that Chile is fairly remote from the world's main urban center. Telecommunications have such a vital importance in the country's development because it allows for a complete insertion in today's globalized world.

The importance that telecommunications in Chile can be classified into three different categories:

1. Political Order: The influence that telecommunications has on political life is undeniable. Through telecommunication, any antecedent needed by the government can be obtained in a fast and opportune fashion, be it information to resolve conflicts or information from inside or outside national territory.
2. Military Order: Within the military world a precept exists, recognizing that "The base for efficient management is an affluent service of well-organized telecommunications that work quickly and securely". The abovementioned, considered in a generic way applicable to the National Defense, reveals a direct correlation between a nation's security and safe systems of flexible and coordinated communication. The Armed Forces' own permanent networks must be synchronized closely with those of the analogous civilians.
3. Economic Order: The economic interaction of the diverse regions of the country makes the use of suitable means of telecommunications essential, especially for the development and conveyance of commercial and stock-exchange operations. Chile has always demanded an easy means of telecommunications that compensates the natural connection difficulties originating from its irregular demography. In the last few years, telecommunications have become more efficient, intensifying production by means of fast, easy contact between offering and consuming sectors; while diminishing the negative factors of long distances, topography, and differing climates.

CHRONOLOGY OF THE TELEGRAPH IN CHILE

Shortly after its invention, the telegraph made its appearance in Chile. This gave way to a progressive development in telecommunications, and with it, the birth of telephony and the telephone industry.

1. 1851: On January 14, Guillermo Wheelwright obtains a concession for eight years to construct three telegraphic lines.
2. 1852: On March 5, the first message transmission test is sent from the room of a neighboring building to the Union of Valparaíso Hotel (at 500 meters distance). Present in the hotel is the then President of the Republic, Manuel Montt.
3. 1852: On June 21, the first test message is sent to Santiago.
4. 1853: In the month of April the telegraph service goes public, the first in South America.
5. 1853: On November 10, the electrical telegraph law is announced.
6. 1854: First state line is erected (490 km).
7. 1857: Installation of the first state line concludes, which unites Valparaíso and Talca, passing through Santiago.
8. 1857: The first telegraphic post law is dictated, fixing conditions and rates.
9. 1866: On October 6, the Regulation of State Telegraphs is passed, and the government seizes control of the country's telecommunications.
10. 1866: The government orders the construction of a route between La Serena and Copiapo, in addition to a lateral line to the port of Caldera.
11. 1872: In January, a decree is passed that regulates the administration of the Telegraphs of the State, granting the general inspector the title "Superior Head of the Telegraph", which receives orders directly from the President of the Republic.
12. 1879: Due to Army in campaign's¹ necessity, a line in the Atacama desert is constructed that unites Caldera and Antofagasta (720 km).
13. 1892: After the Revolution of 1891², the reconstruction of telegraphic facilities begins, which follows with the construction of lines from Chañarcillo to Copiapo and from Puerto Montt to Tierra del Fuego (by sea).
14. 1931: After a slow expansion due to serious economic problems, a radio station in Puerto Montt is created, communicating first with the Archipelago of Chiloe and other neighboring islands.
15. 1937: Radio station is installed in Punta Arenas.
16. 1954: The Radiotelegraphic Service with Buenos Aires is inaugurated.
17. 1962: The All America Cables Company Incorporated transfers its shares to ITT World-wide Telecommunications.
18. 1985: ITT Telecommunications is absorbed by VTR.

THE TELEPHONE IN CHILE AND THE DEVELOPMENT OF CTC

In 1880, after several failed attempts, the North American citizen living in Valparaíso, Joseph D. Husbands, received general power extended by Tomas A. Edison (at that time associated with Eliseo Gray³), that allowed him to demand patents for inventions and improvements to the telephone system in Chile as well as in Peru. President Anibal Pinto granted him the first telephone concession, constituting the "Company of Edison Telephones" in Valparaíso. In 1882, the city boasted around 300 working telephones. By that time communication between Santiago and San Fernando was successfully used for the State Railroads' telegraph line. Husbands made multiple attempts to expand the company; nevertheless, his initiatives failed due to lack of capital. This drove him to seek financing in the United States, later forming the West Coast Telephone Co. in September of 1884 that in June of 1889 was absorbed by The Chili Telephone Co.

Ten years after the invention of electrical communications; underwater cables, the terrestrial telegraph, and telephones were put into service. The telephone companies that worked at the time were all eventually acquired by The Chili Telephone Co., which later became La Compañía de Teléfonos de Chile. In 1895, the commercial cattle and shipping company Braun and Blanchard installed the first private telephone line in its main office and an underwater cable with a 500 meter extension. Three years later the English engineer Guillermo Adolph Jones established the Magallanes Telephone Co., which fulfilled the need for local service in Punta Arenas. The first power station was located in the Kosmos Hotel, and soon extended to sectors of Punta Dungenes and Cabo Verde, located 100 Kms. from Punta Arenas. At the turn of the twentieth century, the international line between Punta Arenas and Rio Gallegos began to operate. Telephone service extended to ranches near Porvenir; in 1901 the following year to Rio Verde and Morro Chico, and in 1904 reached Puerto Natales and Puerto Prat. Jones also collaborated in the constitution of various public service companies like Telefónica de Copiapó, The Cautin Telephone Co., The Bio-Bio Telephone Co., and the Sociedad Progreso de Llanquihue. In 1917, Telefónica de Magallanes S.A. acquired the Magallanes Telephone Co., which in turn was bought in 1952 by the Compañía de Telefonos de Chile. By 1952, the number of telephones had reached almost two thousand. In August of 1828, Oscar Friedli and Mateo Còvacic established the Compañía de Teléfonos de Tierra del Fuego in Porvenir. In 1952, the Compañía de Teléfonos de Chile (CTC) connected the Tierra del Fuego service to the national network. Almost twenty years later the Superintendent of Electrical Services, Gas, and Telecommunications took over the Compañía de Teléfonos de Tierra del Fuego. The following year, the CTC installed an automatic power station by means of a concession in Punta Arenas that in 1990 was five times its original size and had been transformed into a remote digital unit.

ITT: The Father of CTC

Throughout Chile's history, many foreign figures and businesses have contributed to the nation's development. Telecommunications are not the exception to the rule. World-famous and prestigious ITT played a key role in the

emergence of the Compañía de Teléfonos de Chile (CTC), which is known today as Telefónica CTC.

In 1930, Sosthenes Behn organized the Company of Telephones of Chile, (Chitelco⁴), in which he was granted a concession of half a century. The company grew quickly. Because the telephone systems demanded an enormous capital, ITT (created in 1920 by Sosthenes Behn and Harold Geneen) had to spend enormous sums for additional lines and improvements. The CTC extended their route to Santiago-Temuco-Gorbea, including the *postación* of Gorbea-Loncoche-La Paz; as well as forming a Temuco-Lanco circuit through NCTV's (National Company of Telephones of Valdivia) national network to all the national and international services provided by CTC in 1943. Due to a need to improve the connection, a direct carrying system was added between Temuco and Valdivia. Soon they installed a direct Santiago-Valdivia circuit and two in the Santiago-Temuco area. In 1953, CTC ran a connection between Coquimbo and Atacama and Santiago-La Serena. The Telephone service in Arica was provided by a private company, where the magnetic system was replaced by an automatic Ericsson plant with 250 lines, later acquired by CTC the 1970's. President Eduardo Frei Montalva⁵ continued the program of the Corporation of Promotion of the Production, (Corfo), directed towards partial or complete nationalization of all foreign-owned companies. In 1967 Frei signed an agreement with ITT which entailed the continuous expansion of Chitelco and the gradual sale of 49% of their shares to Corfo and to Chilean citizens. The ITT interests were reduced in 1970 to 70% with an approximated value of US \$153 million. The subsequent political triumph of Allende⁶ was seen as a threat towards ITT's shares. However, North American shares rose to US \$1,100 million, which doubled the capital of other foreign companies investing in Chile at the time. The government nationalized the economy in 1971, and three years later, the "A" shares, properties of the ITT, were it acquired by the State through Corfo.

During 1987, the process of reprivatization began and ended with almost all of the company's shares in the hands of private investors. Currently, the main CTC shareholder is Telefónica de España S.A. through Telefónica de Chile Internacional S.A. which on April 11, 1990 acquired 43.9% of the total shares and became the majority shareholder of CTC. The privatization of CTC, and essentially the participation of the Telefónica de España (which contributed with 66 years of experience in a telecommunication networks), accelerated the execution of extension plans. In turn, this provided an ample endorsement of national and international financial organizations which culminated with the listing of CTC shares in the New York Stock Exchange in July of 1990. The company made history, being the first South American company to be included in the NYSE. These shares gave way to the installation of 1,350,00 CTC telephones by December 31, 1991. In spite of having extended the installation capacity, adding in 1990 and 1991 almost 400,000 lines, CTC closed the year with a unsatisfied demand estimated at 302,000 telephone lines. Projected extension plans and the completion of the installation of more than 2,200,000 telephones by 1996 saw the digitalization level rise to 85 % and the percentage of automatic telephones climb to 100%.

These extensions increased the telephone density in the area from 10.8 telephones for each 100 inhabitants in 1991 to 16.8 in 1996, giving forth the possibility that with this high degree at digitalization nearly 2,000,000 clients

could make use of the additional and advanced telecommunication services that allow the development and the adoption of most up-to-date technologies. This produced an investment effort in CTC during 1990-1996 that surpassed US \$1,500 million and that represented more than 85% of total Chilean investments in the sector during this period. In August of 1999, CTC changed its name to Telefónica CTC Chile in order to internalize the concept of a multinational telecommunications company with the joint purpose of providing a technologically up-to-date service to their clients while aspiring to be the leader in the market.

TELEFÓNICA CTC SERVICES

Mobile Phones

The mobile telephone field is characterized by its high competitiveness and extraordinary growth in the past few years. With more than 1 million clients, Telefónica Movil (a branch of Telefónica CTC Chile), is one of the market leaders. It offers an ample range of services such as Pre-pay and contract mobile phones, Beepers, Radio Trunking and Mobile Transmission of Data, all of which are oriented to satisfy the varied needs of its clients. In addition, it boasts an extensive network of distributors and branches throughout the entire country. In order to fulfill the proposed goals in the field of the mobile telephony, CTC replaced its old analogical networks (NEC, Motorola, and Plexsys) with an Ericsson network. This network, which has both analogical and digital capacity, improves reception and allows the expansion of its already extensive network throughout all of Chile.

Telefónica Companies

Telefónica is the main supplier of global communication service in the country, serving the majority of large and medium sized corporations. The company was born a product of increasing globalization and competitiveness in an enterprising world, circumstances that demand effective coverage of all the dynamic communication needs that companies face today. "Service Resources" and "Global" are words that define Telefónica, whereas "commitment" and "complicity" define its relationship with the clients. Offering experience and resources, Telefonica Companies provides a family of products: telephone service, equipment, complementary circuits services, and Videoconferences. Telefónica fulfills its customer service mission, first by solving its clients present communication problems and secondly by projecting for future needs: without a doubt making Telefónica Companies and its clients technological partners.

188 Telefónica Mundo

The Multicarrier system has operated in Chile since the end of 1994 as national long distance and international calling system. Multicarrier provides the leasing of public and private services and in dialed and contracted forms. To date, ten companies exist that offer this service. The difference between those companies is increasingly related to the development and quality of new services. In this sense, participation in meganetworks and partnership satellites allows 188 Telefónica Mundo to offer service that require greater capacity and

transmission speed. 188 Telefónica Mundo also offers voice transmission services, public and private services, and data images for national and international long distance. In addition, it provides intermediate services (transportation of signals) throughout its network by providing national coverage for other carriers that do not have their own networks. Their technological infrastructure, that already boasts a large digital transmission satellite network and thousand of kilometers of fiber optics throughout Chile, is currently the most advanced in the world in long distance communications. Moreover, 188 Telefónica Mundo is associated with many important international partnerships, like the Intelsat and Panamsat satellites, and fiber optics Unisur, Américas I and Columbus I.

ENTEL CHILE

The origins of the National Company of S.A. Telecommunication, Entel, go back to 1954 when the Institute of Chilean Engineers carried out the first integral study of national telecommunications, stemming from a thesis on "Chilean Politics in Telecommunications" presented by Engineers Reinaldo Harnecker, Fernando Palm, Domingo Santa María, Raúl Sáez and Juan Hinrichsen.

In that time, technological advances in the field of superelevated frequencies cleared the way for the construction of a high capacity, high quality communications system. The professionals of the time brought about the formation of an institution that could take charge of the construction of a main national network specifically used for telecommunication that, "Utilizing these techniques, could transport throughout the whole country simultaneously and for every user, all types of telecommunication: telephony, telegraphy, telex, facsimile, data transmission and television programs, etc."

Carlos Ibañez del Campo⁷'s government showed interest in these studies and supported the initiative. As a result, the final project report recommended the establishment of a national network connected to all principal cities of the country, from Arica to Punta Arenas, with the necessary number of circuits to assist the long distance communications of not only the existing phone and telegraph companies, but also communicational needs of the government, the Armed Forces, Carabineros (Chilean police force), air and sea navigation, journalistic companies, industrial companies, television programs and the transportation of radiodiffusion. Consequently, the need arose to delegate the construction a national long distance network to the Corporation of the Development of Production,(CORFO), which was developed as an autonomous commercial entity and organized as an anonymous society funded by mixed capital in order to take charge of the project planning.

In April of 1960, Jorge Alessandri Rodríguez's government established the Ordinance with Force Law 315, for which the National Commission of Telecommunications was created as a technical advisory organism. Its objectives were to oversee the network project and improve interior and exterior telecommunication while supplying the government with information and advice concerning different issues. The to Commission elaborated a plan that consisted of:

- A. Connection to Santiago, by means of short wave connections from the cities of Arica, Iquique, Antofagasta, Puerto Montt, and Coihaique.
- B. Construction of a long distance network of radiolinks with very high frequencies (VHF) that united Puerto Montt with the principal points of Chiloé (Island).
- C. Utilization of a VHF network between Santiago and Concepción owned by the Army.

In September of 1963, the Ministry of the Interior, by recommendation of the National Telecommunications Commission, reminded Corfo of the existing urgency to put into practice the main long distance network project. These new telecommunicational responsibilities undertaken by the corporation caused a need for a more independent and agile organization than their current Telecommunications Committee. Entel Chile S.A. was constituted in August of 1964 with the purpose of executing the plan and solving the forementioned telecommunications problems. December 30, 1964 marked the company's legal existence. The company began its activities with capital totalling approximately US \$ 5,000,000 and their first activity was materializing the National Telecommunication Plan. Entel also implemented a VHF system in Chiloé in 1966 that was connected to a station in Puerto Montt. This network established the country's first Direct Dialing system between Puerto Montt and Chiloé.

In order to carry out the National Telecomunicaciones Plan⁸, Entel projected and installed a microwave system from Santiago-Concepción, taking advantage of the equipment transferred from CTC, imported simultaneously with those that the company installed between Santiago and Valparaíso. The service began operation in 1967 and in 1970, an extension from Concepción to Puerto Montt was built. At the same time the microwave connection between Chile and Argentina's networks was established.

Following these expansions, Entel implemented another microwave system in the North, which reached La Serena in 1970. One year later it reached Arica and the Peruvian city of Tacna by means of a separate microwave connection.

Today Entel serves both publics and private entities. Their National Public Services include: transmission through Entel's networks to several other national phone companies like Telefónica CTC, Telefónica del Sur, Telcoy, etc.; telegraphic signs (telex both and data transmission) for companies like Telex Chile, VTR, Chilepac, Ecom, etc; and programs transmission such as radio and television programs that require simultaneous broadcasts. Entel's National Private Services provide institutions and businesses with long distance service. Their principal clients are Great Cooper Mining, diverse state departments, banks, financial institutions and private companies.

Satellite Communication

With the inauguration of the first system of satellite telecommunications in Latin America on July 22, 1968, a new era in international communications was underway. The system consisted of a Terrestrial Station at Longovilo, a little over 100 kms. from Santiago, and a microwave connection that linked the station with the Center of International Traffic Commutation, housed in the Entel tower in Santiago. This technical and administrative office complex was known as the National Center of Telecommunication.

The center of International Traffic Conmutation, through digital technology, allowed an automatic connection to network customers throughout the world, serving both incoming and outgoing signals. In 1981, more terrestrial stations were built in Coihaique. Nine years later, Puerto Williams, Palena, Futaleufú and Easter Island were introduced in the domestic satellite system, supported by a satellite connecting Coihaique, Puerto Aysén, Chile Chico and Punta Arenas with the petroleum stations in Tierra del Fuego and Puerto Natales and other points in the XII Región⁹.

All these developments brought about the necessity for new installations in the Terrestrial Station of Longovilo; therefore, a second antenna was installed in 1977, a third antenna in 1983, and a fourth antenna in 1986. Another antenna became the connecting link to the northern microwave network in Arica and parts of the province of Parinacota, Calama, San Pedro de Atacama and neighboring sectors. Other microwave networks included: Copiapó-Salvador-Chañaral-Diego de Almagro-Taltal, Vallenar-installations of the Pacific Company Steel (C.A.P), Valparaíso-Concón-Quintero-Quillota-Calera-San Felipe-Los Andes, Rancagua Mining-The Teniente, Talca-Constitución, Concepción-the Regional Network of Arauco-Biobio and Puerto Montt-Ancud-Castro-Chaitén-Dalcabue-Quellón.

Wireless Telephony

When in 1947 the investigators of the Bell Laboratories (New Jersey, United States) introduced the concept of celular telephony, they didn't imagine that they were sitting on top of the technology that would dominate today's markets. The phenomenon took almost 35 years to be converted into reality for the general public, and in 1983 the first commercial system was founded in the United States. Since then, wireless telephony has achieved high penetration rates. The traditional wireless known today is the "cellular", a group of cells or base stations connected to a central switchboard that receives signals from a portable terminals in a range from 824 to 891.

Offering a superior voice quality, a better range of services, and lower cost compared to fixed telephones, the concept of a "personal telephony" ¹⁰ continues gaining popularity. In the short run, this type of apparatus is expected to offer the same, or perhaps greater benefits than conventional telephones and at affordable prices. They also offer a quality and dependability superior to that of conventional phones, given that the cellular allows the user to incorporate data, voice and text with the added security that calls will not be intercepted.

Another alternative to wireless digital telephony is the "Companion", created with PCS technology in Nortel Laboratories. These apparatuses operate like an additional business telephone annex with all the advantages of a cellular. The user can choose from various features: transfers, rapid dialing, redial, electronics padlock, voice mail, caller ID and independent cost control of phone calls. Also, clients benefit from total privacy coverage in the elected area, without signal loss.

The telephone consists of three basic elements: the controllers that can be connected to any type of central phone, base stations that activate the area of coverage, and small lightweight portable telephones. Mobility is one of the most important aspects; therefore, it is extremely useful in hotels, banks, industries, commerce and hospitals. In Santiago, the Companion is very popular

with stock brokers, and several companies have equipped their operators with these apparatuses.

CONCLUSION

From the invention of the telegraph to the development of sophisticated satellites, Chile has been a telecommunications pioneer. First came CTC with the installation of the first telephone plant in South America which spawned many significant developments within the company and ultimately making it one of the most important companies in Latin America.

The national telecommunications company Entel followed the path blazed by CTC, establishing the first satellite connections in Latin America. Today this company is the most important in national telecommunications and present a strong force in the international markets.

Chile continues at the forefront of telecommunications and can be proud of its manifest: taking Latin America's first step towards global telecommunications.

Foot Notes:

- 1) From 1879 to 1884 Chile was at war with Peru and Bolivia, which it finally won.
- 2) Due to certain problems and internal divisions during 1891, a Civil War broke out in Chile.
- 3) February 14, 1876, Alexander Graham Bell And Eliseo Gray coincided in soliciting the patent on the invention of the telephone. After several debates, the Justice Tribunals conceded the rights to Bell.
- 4) Due to the change originated from the Law 4.791, in November of 1930 the Chili Telephone Co. changed its name to CTC.
- 5) President Eduardo Frei M. governed from 1964 to 1970.
- 6) The President Salvador Allende G. governed from 1970 to 1973.
- 7) President Carlos Ibañez del Campo governed from 1952 to 1958.
- 8) The National Plan of Telecommunication specified the construction of a transmission from Arica to Magallanes that included all telecommunications services.
- 9) Chile is politically divided from North to South into 12 regions and the Metropolitan Region which encompasses Santiago and its suburbs.
- 10) PCS: Personal Communication Services.

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