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EVOLUTION OF TELEPHONY IN BRAZIL

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Abstract: It is clear that the mobile technology and communications market has evolved dramatically since the creation of digital systems. Brazil has followed all this evolution. This article covers a detailed study on the evolution of telephony in Brazil, showing the characteristics of the technology and the entire process of creating and installing telephony in Brazil, highlighting the origin, history and curiosities of this process.

Keywords: Evolution, technology and mobile telephony.

INTRODUCTION

The evolution of telephony in Brazil has some important milestones throughout the period in history, from the beginning of communications to the era of digital technology. The telephone was created, as we know, by an American scientist of Scottish origin named Alexander Graham Bell (1847-1922). He was responsible for registering the first patent for this invention in March 1876 (History of the Telephone and its Evolution. (2024). retrieved July 29, 2024), some time before another scholar, Elisha Gray. This registration started a long dispute. The telephone, which today has become the most widely used communication instrument in modern civilization, plays a fundamental role in human development, the main means of communication.

Receiving news, information and contacts over long distances, has gone through several phases from telephones that depended on robust batteries in addition to their operating mechanism where it was not possible to be mobile and came to depend on stations where calls were managed by other people, to the present day where even a mini screen is capable of being carried in one hand and performs functions that were previously difficult to imagine would be possible, this evolution of telephony is an important

milestone for modern society allowing notable developments in companies, businesses, traffic and mainly in educational inclusion as a means of facilitating those who need accessibility.

ORIGIN OF TELEPHONY

Many scientists of the time took the risk of starting the telephony, but the American who made progress by emitting human voice through the telephone system

The experiment was supported by Thomas Watson, who, as far as we know, was the first to hear a human voice through the device then called a telephone, in June 1875.

After that, the research aimed to develop a mechanism for transforming sound into a current and transmitting the message back to the receiver.

In 2002, the American Congress recognized the Italian Antonio Meucci as the true inventor of the telephone. However, 10 days later, the Canadian Congress recognized Bell. (SOUZA, Thiago; History of the Telephone. All Matter, [s.d].)

According to records, the conflict regarding the patent lasted for a long period.

TELEPHONY TIMELINE

Year: 1667; Robert Hooke: Stretched wire to transmit sound 1861-Philipp Reis: The first transmissions of musical sounds through wires 1871-Antonio Meucci: Creates a diaphragm that when vibrates reproduces words 1876-Bell and Watson: Achieve the transmission of the first complete sentence by telephone 1878-Thomas Edison: Invents the charcoal microphone, still used today 1885-Lars Ericsson: The coupling of the handset and mouthpiece in a single piece 1893-Landell de Moura: First voice transmission in wireless telephony 1969.

First Station: Global satellite communication system 1978-Activated in Japan, the cellular mobile telephony 1998. The first digital cell phones are activated in the metropolitan region of Sao Paulo (SOUZA, Thiago. (History of the Telephone).

HISTORY OF THE TELEPHONY

In short, the creation of the telephone happened by chance, from attempts to improve the transmission of a telegraph, which has a similar structure. There is one difference, regarding the telegraph, it only allowed the transmission of a single message at a time. However, upon learning about music, the scientist Alexander Graham Bell noticed that it would be possible to transmit more than one message over the wire.

The idea was not new, as we know other scholars had already tried, but only Graham Bell had made progress through his attempts and used electricity to have the human voice conducted over the wire.

Its success occurred on March 10, 1876, to be called: American Telephone Telegraph, considered at that time the largest telephone company in the world. Furthermore, he later responded to the US Court for about 600 lawsuits that Gray filed claiming authorship of the invention of the telephone. However, Graham Bell won them all. (ASIMOV, Isaac, 1993 P16.)

TELEPHONY IN BRAZIL

In 1998, the Fernando Henrique Cardoso government gave up a large state-owned company, Telebras – the company that was responsible for monopolizing Brazilian telecommunications, which made access scarce for minorities. Thus, the telephone was becoming one of the main novelties throughout Brazil, where the government and transportation companies began to use this recent technological innovation for their

communications, which became fast and efficient. Following a chronological order, the first company was: -Brazilian Telephone Company (Telephone Company of Brazil (1879), -Union Telephone Company of Brazil (1885) -Public Works Company of Brazil (1889) -Industrial Telephone Company (1890)) -Siemens Halsk (1897) -Brasilianische Elektrizita'ts Gesellschaft (1899). The permission to build a line connecting São Paulo to Rio de Janeiro was granted during the beginning of his electoral campaign in 1890 by J. O. Simonsen. He managed to build 60 km of line, but ended up giving up on the project due to complications.

Of the time. The connection between Rio and Minas Gerais by telephone line happened some time later in 1895. In 1857, the first submarine cable for national connections between Rio de Janeiro and Petropolis was inaugurated, connecting the beach with approximately 50 km in length. The first underground intercity cable in Brazil was inaugurated in 1913, connecting the city of Santos to greater São Paulo, over a distance of approximately 70 km. The next city to receive this type of connection was the city of Campinas, which shows how important telephony was in the development of what is today considered the largest city not only in Brazil but also in Latin America.

The creation of the largest telephone company in Brazil was on January 15, 1923, by the board of directors of the company Brazilian Traction Light and Power Co. Ltd. Toronto, where it was also determined that the companies that existed in Rio de Janeiro and São Paulo would change its name to Portuguese, becoming known as Brazilian Telephone Company, and a Decree, number 16,222 of the year 1923 allowed the company to remain in operation with the objective of providing telephone services to the main capitals of the country. Besides, in the year

1916, the ``Company of telephones, among the States was incorporated, a telephone company that provided services in other cities in Brazil. At that time, Brazil already had 100 thousand telephones.

By the end of the 1930s, Brazil already had 300,000 telephone users, reaching 1 million in the early 1960s (Liberal Institute 2022/02), but this was a very slow process. With the influence of the military dictatorship of the time and the national-developmental mentalities, this number needed to be developed to leverage the increase in telephones, for which Embratel was created, the main company responsible for making calls from one place to another, regardless of the state or city. In 1972, the Médici government created Telebras, just one of more than 80 state-owned companies created during his term. The company was created in favor of centralization and standardization of the numerous public telephone service concessionaires that existed in Brazil.

However, after approximately 30 years, the company did not perform as expected, especially with innovations, in which during the 80s and 90s a significant evolution was observed, since the creation of the cell phone and the Internet were included as telecommunications services. The company was privatized in 1998, when the country had just over 16 million fixed lines, where their average value was one thousand reais (disregarding inflationary corrections), a value charged at a time when the minimum wage was 150 reais, a dollar value fixed 1 to 1 in the real.

The number of cell phones reached the millions, while the value of the plans could reach the value of 4 thousand reais (again disregarding inflationary corrections), it was more viable to buy a device than to obtain a plan, since due to the value of the dollar being pegged to the real, there were values very close to the international market price taking

into consideration, the application of taxes. Access to the internet was limited to public offices only due to the high cost, only the offices could afford it. (NERIS JUNIOR, Celso Pereira 2013. 144f)

There is no comparison to the current reality, where according to data from Antel, there are 24.5 million fixed lines, which are increasingly decreasing due to the increase in the use of cell phones, where, in addition to having more than one operator option, the average cost of a plan is R\$30. We have 213.9 million cell phone lines, and in 2024, according to data from mobile operators, 664,000 new chips will be activated, which give unlimited access to various social networks for communication and entertainment.

The situation of the lines was considered chaos to the point that their acquisition was considered a social status; whoever owned one was considered a well-liked person in society; as far as we know, even the failure to declare a telephone on income tax was considered tax evasion due to its extremely high value. Some people saw it as a profitable investment, and used the rental of the lines they owned as a means of fixed income, since it was considered a safe investment at the time, a context that in today's times becomes absurd.

EVOLUTION OF TELEPHONY

Since the time it was created (end of the 19th century) until today, the telephone has been updated, increasingly bringing us innovations and opening our minds towards a more technological future.

In 1876, as soon as it was officially registered by the Scottish professor, Alexander Graham Bell, the device had its development more limited where only the message was received or transmitted, it was not allowed to occur simultaneously in communication, in addition to its functionality which was provided by means of a battery.

Approximately two decades after the invention, Father Landell de Moura innovated with the first voice transmission in wireless telephony, beginning the history of radio in 1889. In 1904, with a candlestick shape, the Western Electric brand device had the signal emitted to an operating table where it was attended by a telephone operator and she was responsible for the continuity of the call. In the 1940s, the most efficient and convenient model was popular, and was nicknamed “tank” due to its robust shape, which resembled a war tank. Between 1950 and 1984, the most common model found in homes was the Western Electric 500. This model had a ring in its center that had to be rolled with the fingers to indicate the numbers. In 1954, the Swedish Ericofon device, created by the Ericsson brand, showed a reverence in the area of plastic industrial design, as it was produced from an exclusive piece.

More than ten years ago, in 1965, an open and close telephone was created – the Grillo telephone. It was seen as the innovation of the years to come. In 1970, the landline telephone with buttons was manufactured. Despite being an old model, it is still not uncommon to find it in many homes and commercial establishments. In the 1980s, there was a major technological innovation: the creation of the cordless telephone that we use to this day. In the early 1990s, Motorola launched the first cell phone model in Brazil. To this day, it is known as the “big brick” model, due to its size.

In the 2000s, devices with different designs hit the shelves and, in 2002, digital cameras were added. Since then, cell phone models have not stopped being updated, with different prices, brands and models, becoming increasingly accessible (FASCINA, Alexandre. From Alexandre Graham Bell to Anatel. *Pensamento Realidade*, v. 11, 2002.)

CURIOSITIES

Marshal Candido Rondon is considered the patron saint of communications in Brazil. It is no coincidence that the day of his birth (May 5) is celebrated as National Communications Day.

Telephone Day is celebrated on March 10. This is the same date that Alexander Graham Bell obtained the patent for the object, in 1876. (Matheus de Maio, 2022)

CONCLUSION

The evolution of telephony, from its creation by Alexander Graham Bell in 1876 to the present day, is marked by a trajectory full of innovations and significant transformations.

Over the years, we have witnessed the emergence of several important technologies and milestones, from the first rudimentary models of landline telephones to the advanced multifunctional mobile devices that we carry in our pockets today.

From the early days of the telephone as a battery-operated wooden box to modern models with digital cameras and Internet access, telephony has evolved to adapt to the needs and demands of an ever-changing society. At each stage, new features have been incorporated, making communication more accessible.

In Brazil, the history of telephony reflects not only technological advances, but also political and economic aspects, such as the privatization of Telebras in 1998 and the creation of state-owned companies such as Embratel and Telebras during the military dictatorship. These structural changes had a significant impact on the expansion and democratization of access to telecommunications services in the country.

Website: <https://www.bndes.gov.br/wps/portal/site/home/transparencia/desestatizacao/projetos-encerrados/Privatizacao-Federai-Telecomunicacoes>

Website accessed on: August 6, 2024.

We are currently immersed in an era in which mobile communication and the Internet play an important role in our daily lives, facilitating instant and global connection

between individuals and communities. The continuous evolution of telephony reflects constant technological progress and the search for improvement in human communication.

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