THE VIDEOPHONE

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ABSTRACT

The videophone is a technological innovation that took a long time before it was accepted by consumers and organizations. Even though the videophone was the most widely expected innovation during the late 1800s, it did not become a regularly used technology until the Coronavirus Pandemic of 2020. The history of the videophone's development can be described in terms of eight eras, from the Science Fiction era of the late 1800s to the Post Pandemic era of what the state of the videophone might look like after the Pandemic is over.

Keywords: Videophone, technological innovation, Zoom

INTRODUCTION

The videophone is a live form of communication between two or more persons in different locations from each other via the use of telecommunication technology. Images on electronic screens can range from being in a static state, with or without chat messages on the screen or below it, to being in full motion with high audio quality communication. It makes face-to-face communication separated by long or short distances possible that would otherwise not be possible. Individuals, families, businesses, and governments can stay in touch with each other visually via videophones which add the social and nonverbal components in communication not possible in traditional phone calls and letters.

VIDEOPHONE ERAS

The videophone had a long period of development before it became accepted by consumers and businesses. This history can be divided into eight eras: Science Fiction, First One-way Videophone, First Two-way Videophone, Model I Picturephone, Model II Picturephone, Post 2000, Pandemic, and Post Pandemic. Every era has its own distinct developments, characteristics, and events and present an excellent picture of how a long innovative technology can eventually become a success. This research provides a brief history of each era.

The Science Fiction Era

The first era of the videophone started in 1878. The earliest concept of a videophone looked like a wide-screen television, and megaphone [16] and was called "Edison's Telephonoscope" in a cartoon sketch published in December 9, 1879. The cartoonist was George Du Maurier and he imagined that the Telephonoscope would be Edison's next invention [8]. The videophone was also depicted in film: Metropolis (1927) and in the 1968 movie, 2001: A Space Odyssey [4]. In the 1960s television show, The Jetsons, a videophone was used in the workplace for the first time [12]. Back to the Future II (1989) is another notable movie using the videophone!

First One-way Videophone Era

This era (1927 to 1930s), unlike the Science Fiction era, used actual equipment. On April 7, 1927, Bell Telephone Laboratories conducted the first videophone call. Herbert Hoover spoke from a video booth in Washington, DC, to Walter Gifford, the president of AT&T, in a video booth in Bell Labs in New York City. The call consisted of a two-way audio connection and a one-way video connection with only Walter Gifford able to see Herbert Hoover and not vice versa. The videophone equipment used was extremely large, taking up half of a room. One end used a small screen with the image too small to see and on the other end a large screen was used but with only a silhouette to see [17].

First Two-way Videophone Era

The first two-way audio videophone was developed in 1930 by Georg Oskar Schubert in Germany. By March 1,1936, the first public videophone service was being built between Berlin and Leipzig post offices. However, the system was abandoned in 1940 due to World War II and was not continued after the war. It was a very expensive system [1]. By the 1930s, AT&T had developed and was testing a two-way videophone as well. On April 9, 1930, Bell Labs made a video call to Bell headquarters in New York City, using television equipment. Bell Labs continued its development of the videophone and introduced a videophone in 1956 that could use existing telephone circuits instead of television equipment [2].

Model I Picturephone Era

AT&T's first picturephone model era stretched from 1956 to 1970. Bell Labs developed the Model I Picturephone in 1956, but test marketed it on April 20, 1964 and at the World's Fair in New York City. Bell Lab's picturephone I was displayed and used for the first time by people attending the Fair. People could talk and see another person on a screen far away for about 10 minutes at a time. On June 24, AT&T's commercial service branch of the picturephone I began selling it at a price of $600+ for 15 minutes but the service never became popular. The equipment of the first model of the picturephone was too big and too expensive. Customers also found the technology too intrusive (i.e., they did not like being seen on a video screen), too slow, and there were too few enthusiasts to talk to. The first model was a failure [11].

Model II Picturephone Era

AT&T's second picturephone model era only lasted three years, from 1970 to 1973. In 1968, Bell Labs developed the second model of the picturephone. They presented it to consumers in 1970. On June 30, Pittsburgh Mayor Pete Flaherty looked at John Harper's, chairman of Alcoa, small face and said, "Here's looking at you" [7]. AT&T made model 2 available for public use in 1971, but it was still expensive to use. It cost $160 per month for 30 minutes of call time and $0.25 for each additional minute. By 1972, only a few Picturephone Model 2 sets had been sold in Pittsburgh. By 1973, AT&T's CEO discontinued model 2 very abruptly, concluding that Model II would not be a successful extension of AT&T's telephone service [18]. AT&T and other companies continued to experiment with the videophone.

The Post 2000 Era

In 2004, Schnaars and Wymbs [17] analyzed the failure of the videophone up to that point and concluded that the technology needed a critical mass, in other words, many people needed to have and use a videophone. Prices also had to be affordable, and customers' needs had to be fulfilled by the videophone. Another researcher, Andrew McGee stated in an interview that the videophone needed capacity and

circumstance to be successful [6]. Capacity refers to Schnaars and Wymbs's affordability and usefulness concepts and circumstance refers to creating a significant demand for the videophone. Capacity, affordability and usefulness were met when Skype, which started in August 2003, offered videotelephony, videoconferencing, voice calls, and other services, over Voice over Internet Protocol technology [3]. An internet connection was needed, however, people were not as much connected to the internet in 2003 as they are today [9] [14]. Capacity had been achieved but Circumstance was still needed!

The Pandemic Era

The Covid-19 Pandemic era started March 11, 2020. It changed society and video calling! The most significant development during the pandemic is the stunning success of the Zoom Corporation. Capacity developed during the internet era and circumstance created by the pandemic made Zoom a household and business name! Zoom's daily meeting participants increased from 10 million in 2019 to 350 million in December 2020 [10]. Microsoft Teams users, a direct Zoom competitor, increased from 20 million in 2019 to 115 million by December 2020. Microsoft switched to active users in 2021 and recorded 250 million in July 2021 [5].

The Post Pandemic Era

Video calls have become daily activities due to the coronavirus pandemic, but will this trend continue after the pandemic is over? In a recent book, authors [13] stated that making videophone calls may become a permanent daily activity because people were forced to adopt this behavior during the pandemic and it may be here to stay and remain popular. In addition, industries will also have changed. For example, the wedding industry has been significantly impacted by the pandemic. Post pandemic trends will be many weekdays and at-home weddings than before the pandemic. Weddings will be smaller in attendance. There will be more elopement weddings and weddings will have more flexibility, especially regarding tent and outside weddings [15]. In fact, Reverend Annie Lawrence, a famous wedding officiant in New York City, can get a call on Friday to conduct a virtual wedding on Saturday. She predicts that this practice will continue after the pandemic is over [6].

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