The History of The Cell Phone

Long ago, smoke signals and tribal drums were used to communicate over short distances. There were no cords. No wires. You were free to send those smoke signals wherever you wanted. But, as time passed, people grew tired of those long, cloudy conversations and teenagers who drummed all night. They started sending messages on horse and rider. And eventually, through wires.

People like Claude Chappe, who invented the telegraph in 1792, and Alexander Graham Bell, who first sent voice transmissions in 1876, made communication easier with the use of wires. Needless to say, the Pony Express went to the glue factory. And people started running to their phones every time they rang.

It wasn't until 1894, outside of Bologna, Italy, that wireless communication got back on track. Late one night, 20-year-old Gulielmo Marconi woke his mother to show her another one of his crazy inventions. He tapped out a message in Morse Code. And in response to the signal, a bell rang on the other end of the room. Because the signal traveled through the air, Marconi called it 'Wireless'.

So, since Bell's telephone wires could carry the human voice, naturally scientists began to search for ways Macron's Wireless could broadcast speech too. And in 1906, Reginald Fessenden did it by changing sound waves into signals through a process called amplitude modulation, or AM for short. It was mobile, but just barely.

American engineer Edwin Armstrong took the next big step, and in 1935, introduced FM (frequency modulation) radio waves. Because FM used less power, and smaller, lighter receivers, wireless was on the move.

Eleven years later, people were already making phone calls from moving vehicles. And in just 37 years more, the first call on a commercial cellular system was made in Chicago on October 13, 1983.

Today, there are more cell phone users than you can shake a phone cord at. Over 84 million in the United States alone - pretty amazing considering many early estimates said cellular subscribers wouldn't even number one million by 1990.

Cell phones are here to stay. Just accept it. I'll admit that when they first started hitting the streets early this decade, I regarded anyone that whipped one out with a sort of jealous, class-based contempt.

Although there are fears of what the proliferation of radio waves is doing to my unborn children, it is great to be able to talk with whomever, whenever, wherever.

But cell phones are going way beyond their utilitarian beginnings.

Cell phones are staking out a place in history, weaving themselves into the social fabric. They are fashion statements. They are necessities. They are symbols of power and importance.

Like the car you drive, the view from your office and clothes you wear, your cell phone alerts people that you have an important job that keeps you very, very busy.

If you are without one it means that no one depends on you for urgent direction and needs to get in touch with you at all times.

It means you're not cutting deals, giving orders; in short, not getting around all that much. It means you are a worker bee who can be reached at your desk, like clockwork, between the hours of 9 a.m. and 5 p.m. And nobody wants that kind of a reputation.

Of course, it's always better to receive calls than to make them. Calling out looks like you're trying too hard. Receiving calls looks important.

But merely having a cell phone only tells half the story. The type of cell phone you carry fills in the rest of the details.

The Motorola StarTac, for instance, is so Star Trek (not a coincidence the name is almost the same) that you definitely look a) cool, and b) important. The phone is light, sleek, delicate, and very functional. It's not surprising that it's a hit.

Then there are the colorful Nokias with the interchangeable facades. If you're in the business world, you don't want to be seen with one of these babies. They are for teenagers, the latest target market in the ever-expanding cell phone business. They are cherry-colored, lime green, and bright yellow.

They accessorize. They are the Volkswagen Beetle or the iMac of cell phones.

The basic concept of cellular phones began in 1947 when researchers looked at crude mobile (car) phones and realized that by using small cells (range of service area) with frequency reuse could increase the traffic capacity of mobile phones substantially, however, the technology to do it was nonexistent.

Anything to do with broadcasting and sending a radio or television message out over the airwaves comes under a Federal Communications Commission (FCC) regulation that a cell phone is actually a type of two-way radio.

In 1947, AT&T proposed that the FCC allocate a large number of radio spectrum frequencies so that wide-spread mobile telephone service could become feasable and AT&T would have a incentive to research the new technology.

We can partially blame the FCC for the gap between the concept of cellular service and it's availability to the public. Because of the FCC decision to limit the frequencies in 1947, only twenty three phone conversations could occur simultaneously in the same service area - not a market incentive for research.

The FCC reconsidered it's position in 1968, and stated "if the technology to build a better mobile service works, we will increase the frequencies allocation, freeing the airwaves for more mobile phones."

AT&T - Bell Labs proposed a cellular system to the FCC of many small, low-powered broadcast towers, each covering a 'cell' a few miles in radius, collectively covering a larger area. Each tower would use only a few of the total frequencies allocated to the system, and as cars moved

across the area their calls would be passed from tower to tower.

By 1977, AT&T Bell Labs constructed and operated a prototype cellular system. A year later, public trials of the new system were started in Chicago, IL with over 2000 trial customers. In 1979, the first commercial cellular telephone system began operation in Tokyo.

In 1981, Motorola and American Radio telephone started a second U.S. cellular radio-telephone system test in the Washington/Baltimore area.

By 1982, the slow moving FCC finally authorized commercial cellular service for the USA.

A year later, the first American commercial for analog cellular service or AMPS (Advanced Mobile Phone Service) was offered in Chicago, IL by Ameritech. Despite the incredible demand, it took cellular phone service 37 years to become commercially available in the United States.

Consumer demand quickly outstripped the system's 1982 standards, by 1987, cellular telephone subscribers exceeded one million, and the airways were crowded.

The FCC did not want to handout any more bandwidth and building/splitting cells would have been expensive and add bulk to the network.

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After the Federal Communications Commission (FCC) declared in 1987, that cellular licensees may employ alternative cellular technologies in the 800 MHz band, the cellular industry began to research new transmission technology as an alternative to AMPS (Advanced Mobile Phone Service) that had been the industry standard since 1978.

In 1988, the Cellular Technology Industry Association (CTIA) was established to work with the cellular service operators and researchers to identify new technology requirements and set goals.

They wanted the new products and services introduced by 1991, a 1000% percent increase in system capacity with both AMPS (analog) and digital capability during transmission and new data features such as fax and messaging services.

The Telecommunications Industry Association (TIA) created a standard specification based on the requirements the CTIA had recommended. The TDMA Interim Standard 54 or TDMA IS-54 was released in early 1991. The technology was

tested that same year in Dallas and Sweden. In 1994, the FCC announced it was allocating spectrum specifically for PCS technologies at the 1900 MHz band.

Remember the old days when all you could do with a cellular phone was make a call? And then you could only do so if you were in the right calling area or outside of a steel-framed building?

Today's cellular phones seem to be approaching laptops in sophistication ... not only can you use one to balance your checkbook, you can also listen to some Mozart when a call comes in.

To make these new phone services available to downtrodden consumers everywhere, the phone companies and service providers have teamed up to bring us a huge array of completely confusing service plans.

You can get analog, or digital, or both. You can get local coverage, or global coverage. You can get free minutes, or you can pay by the minute. You can get 10 cents per minute, or you can get 30 cents per minute. You can get call forwarding, return call, caller ID and even your own personal 800 number.