

The History of the Telephone Answering Machine as a Reflection of Modern Society, 1877-2001

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The original concept of an automatic telephone answering machine originated in the late 19th century, but relatively few people knew of these devices until the 1980s, after which the answering machine briefly became nearly universal in the U.S., and although today it has been joined by new services like voice mail it remains a standard household appliance.

One question then, is what difference does the history of this common appliance make? It is, after all, just an adjunct to the telephone. Today I'll be looking at one way to answer that question. What I've done is to divide the history of the answering machine into four stages, each of which reflects certain broader aspects of history--the history of inventors and invention at the turn of the 20th century, the history of the corporation, the history of telecommunication technology in general, even the history of American culture, and for that reason the lowly answering machine is sort of a microcosm of history, or at least parts of it

1. First stage of development is naturally the moment of invention. The basic idea of an automatic telephone answering machine occurred to inventors not long after the telephone was demonstrated in the 1870s

Edison was in fact working on a way to record electrical telephone

and telegraph signals as early as 1877 when he turned his efforts instead to inventing a way to record sound waves in the air, an invention that he would name the phonograph

Edison was thinking in terms of things to attach to the existing telegraph and emerging telephone system- that is, making a transition from the kinds of inventions that characterized his early career as an independent inventor, to the kinds of things he imagined later in his career, which involved whole systems like electric lighting

Edison's concept was just a simple telephone recorder, but there were later devices created not only to record the telephone but also to answer the phone in the absence of a subscriber, anticipating the modern type of automatic telephone answering system.

The phonograph made a poor telephone recorder, but a new form of recording emerged in conjunction with the problem of telephone recording--the technology of magnetic recording

The first suggestion of magnetic recording was made by an American, Oberlin Smith, who conceived it some time between an 1878 visit to Edison's lab and 1888, when he published the idea. He never patented it.

That fell to the Danish inventor Valdemar Poulsen, a telephone engineer in Denmark who began working with a simple

recorder consisting of a telephone, a length of steel wire, and an electromagnet in the late 1890s,

Poulsen was more of a company man than Edison, but both inventors were part of a general movement toward large, in-house invention labs in the large electrical companies at the turn of the century.

Not surprisingly, his early proposals for commercial devices were conceived as part of an expanding telephone network--he suggested the recorder could be used primarily for centralized, multi-user dictation machines, central station telephone message announcers, and automatic answering machines for businesses

The principle differences in operation between today's machines and the Telegraphone were that a central-station operator had to intervene to start and stop the machine, and the caller had to be made aware that the recording process was going to take place. Other inventors eliminated this step in the 20s and 30s as telephone networks improved, making fully automatic operation and an outgoing message possible

The period the end of the 19th century has been characterized many times as the height but also the twilight of the era when independent inventors could really make a difference. It is appropriate that the Poulsen was both an independent inventor and an engineer working for the Danish telephone monopoly, and therefore part of the tendency toward large technological systems, research and development departments, and the

centralization of corporations that characterized that era.

2. Second period takes up in the 1930s, after AT&T had finally consolidated and become a true monopoly. The highly centralized nature of telecommunications in the U.S. in this period was reflected even in the details of the technologies that the company selected and used.

As with many new technologies, the telephone answering machine languished for years without seeing significant commercialization.

Reason was partly because of immaturity of the machine, but was also tied to the consolidation of AT&T's position.

While we can argue whether or not this period of monopoly was good or bad for the American people, or for the telephone industry, or even for AT&T, one thing that is clear is that with this level of concentration in telephony, the fate of particular technologies was determined by the decisions made by those companies--while AT&T was indeed a force for innovation, it could also stifle innovation very effectively

This is exactly what happened to the telephone answering machine in the 1930s.

Bell Labs researchers got interested in the technology of magnetic recording--which had seen exciting advances in Europe in the 20s with the coming of electronics--and in 1930 initiated a new project to build a variety of telephone recorders, including a small telephone answering machine demonstrated around 1935

The machine retained all of the basic operating features of the Poulsen device, but was smaller and used electronic circuits for better sound quality. Bell Labs engineers circulated technical memoranda describing what seemed like a very promising and cost-saving new business machine, one that came at a time when businesses were looking for ways to cut their telephone costs

At this point, top management at the Labs summarily cancelled the answering machine development project, citing opposition from the parent company to the idea of allowing subscribers to record calls; the fear what that recording would lead to a widespread loss of confidence in the privacy of calling, leading to a decline in telephone usage

One could argue that the telephone system was not yet ready for the answering machine, or that answering machines were too big and expensive for individuals to own; but it is also true that in Europe, some telephone authorities made different decisions, allowing central station call recorders and customer-premise machines for businesses, and that sales were sufficient to support several product lines through the 1930s.

In a way, then, the rise and rapid fall of the answering machine at Bell Labs mirrored what had happened to the telephone industry as it conglomerated into a national Bell System. The company had the resources to develop many promising cutting edge technologies, but had a strong sense of the ways

to use (or not use) technologies strategically.

And when AT&T management said no, they meant it. Their disapproval carried the weight of government regulators behind it, as hopeful independent inventors of answering machines in the 30s and 40s discovered--the FCC backed AT&T by specifically refusing to allow the use of this kind of "foreign equipment"

3. We jump ahead to the third period --from about 1945 to 1975.

In the late 1940s, a series of FCC rulings made it possible for customers to attach telephone answering machines to AT&T lines under certain conditions. However, it was not practical for most customers to use these machines since some of the local operating companies still disallowed their use or, beginning around 1950, made them available only as leased equipment and at prices that were not particularly attractive. (compared to existing live answering services).

Not surprisingly, the number of machines in use remained very low throughout the 1950s and 1960s

However, the microelectronics revolution was underway in the 1950s, although it had little impact on telephone answering machine's commercial success until the 1970s when integrated circuits were first introduced by some makers of telephone equipment

The eventual application of transistors and later integrated circuits to answering machines had almost no effect on the functionality of the machines, which was essentially the same as it had been

for 3/4 of a century, nor did it affect the size of the equipment dramatically (at least not as much as, say, computers) but it had a **major** impact on cost, making it possible for the first time for an individual to be able to afford one

Yet resistance still remained, particularly among certain local operating companies--though the argument against them was now completely economic. Bell System companies were reluctant to end the leasing of telephones and other equipment

But by now public opinion was turning against AT&T at this time, and breaking the "phone company's" rules was seen by some as a satisfying way to "beat the system" The company was also discouraged from too much heavy handedness in this and other matters, as it was soon involved in the investigation that would lead to the company's eventual breakup.

This combination of relaxing rules, growing demand, and greatly lowered cost was already in place when AT&T was formally disaggregated in 1984

To sum up this third period, microelectronics was a revolutionary technology that in many ways originated within the telecommunications establishment, yet it served to feed so many inventions or firms that emerged outside the establishment. The answering machine, rejected by AT&T, and now the basis of a tiny industry, took the best of what the microelectronics revolution had to offer to make a more accessible product--all that this revitalized product needed was a different business environment, and

that was provided by the AT&T breakup

Sales of answering machines skyrocketed in the late 1980s and the answering machine continued to penetrate the American market through the 1990s.

One of the broad economic features of the 1980s and 1990s was the deregulation of some of the very industries that had typified the earlier stage of monopoly capitalism

One after another, industries that provided products or services that were considered "commodities" or "utilities" were disengaged from the regulatory structure that had been built up over the previous decades

Much has been made of the fate of some of these companies after they were exposed to what is vaguely defined as "competition."

Again, the subsequent history of the telephone answering machine provides some insights as to what deregulation meant in terms of individual technologies associated with such a deregulated industry

More broadly, this last period in the history of the answering machine, from the 80s to the present, is a reflection of some aspects of American society as a whole at the end of the 20th century--in particular its new relationship to technology and culture that we inadequately describe as "postmodernism"

One of the effects of cutting loose the telephone answering machine from the regulatory machinery was that it gave **users** a greater opportunity to redefine the functions of the device--something

that had not occurred despite decades of use under the old regime

I don't mean making changes in the hardware--answering machines work about the same today as they did 100 years ago.

But consider the phenomenon of call screening. The ability to listen to messages as they were recorded was a feature of most answering machines from the 1950s on. It was almost an "afterthought" feature, intended perhaps to reassure a new answering machine user that calls were, in fact, being recorded--otherwise the machine worked in silence.

It was never intended to be used as a means of communication--but the 1990s it became the expectation that call screening might be taking place whenever one found oneself leaving a message.

That expectation, then, led to a new form of communication, based on the use of the recording functions of the machine, but based on the "public address" function--one could attempt to persuade, cajole, or even intimidate the callee to pick up the phone if you were convinced he or she might be there

This same user-innovation resulted other small innovations in the way we communicate--with the answering machine in place in homes where very often no-one was home but the family dog, many people took to calling their dogs to offer them some company during an owner's long absence--again using this device intended to record calls in new and unexpected ways.

But compare this to the literature that came with a new answering machine, from the 1940s to the 1990s, in the 40s, 50s, and 60s, especially, the manufacturers of equipment acted as advisors as to how the machine was to be used--not only crystallizing the basic functionality along its original, 19th century lines, but even suggesting ways for the owner to record his or her outgoing message--both the "beep" at the end of the outgoing message and the tradition of saying "wait for the beep" were manufacturer's innovations, and some of them were backed up by phone company or even FCC regulations.

Like so many other things in modern America, that standardization and centralization has disintegrated. The de-regulation of the industry is probably only a symptom, not the cause, for allowing customers to buy their own equipment clearly helped democratize the machine, but inventing new ways of using it is another phenomenon entirely

To me, it reflects the way all sorts of electronic technologies, from videotape to the computer to the internet, have been coopted by consumers and turned to new ends and new purposes, some of which are quite ironic when one looks at the histories of these devices--and irony, of course is one of the central characteristics of our postmodern culture.

For Additional Reading

David Morton, *Off the Record, the Technology and Culture of Sound Recording in America* (Rutgers University Press, 2000)

Mark Clark, "Suppressing Innovation: Bell Laboratories and Magnetic Recording," *Technology and Culture* 1993:516-538.

Paul Israel, *Edison: A Life of Invention* (John Wiley, 1998)