

FUMBLING THE FUTURE

HOW XEROX INVENTED,
THEN IGNORED,
THE FIRST PERSONAL
COMPUTER

Douglas K. Smith and Robert C. Alexander

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toExcel

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Fumbling the Future: How Xerox Invented, Then Ignored, The First Personal Computer

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by Douglas K. Smith and Robert C. Alexander

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**In memory of Cameron M. Smith,
who loved books, and Paul L. Alexander,
who loved radios**

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The Commercial

Here is a three-part trivia question about televised personal computer advertising:
Name the companies responsible for

1. The longest playing series of personal computer commercials?
2. The most creative single commercial?
3. The first personal computer commercial?

Answering part one is easy. IBM's "Charlie Chaplin" ads ran for more than six years. They were entertaining, effective, and nearly impossible to avoid. Identifying Apple as the maker of the most creative commercial may be more challenging. Apple showed the ad just once, during the second half of the 1984 Super Bowl. Nonetheless, some people consider it the most impressive corporate identity commercial in history. Now for the last piece of the puzzle. Who televised the first personal computer commercial? This is not a trick question. It wasn't IBM, and it wasn't Apple.

It was Xerox.

Xerox is not a name most personal computer consumers, let alone general television audiences, associate with the multibillion dollar personal computing industry. Fifteen years after it invented the world's first personal computing system, and long after it portrayed that system in a 1979 commercial, Xerox still means "copy" to most people. Had it succeeded in marketing the computers shown in the commercial, however, Xerox might have meant more than copiers—much more.

Unlike Xerox, IBM, of course, always has been synonymous with computers. By far the most dominant personal computer advertising promotes the IBM PC. In it, a contemporary actor plays Charlie Chaplin playing his renowned tramp. The little man with derby, moustache, baggy trousers, and awkward walk twitters and jerks his way through the delightful discovery that computers can be useful and even fun for real people. IBM has spent massively on the campaign, as much to build interest in personal

computing itself as to identify IBM's product as the standard in the industry.

In contrast to the IBM barrage, the memorable Apple commercial was more like a proclamation. Less than a decade after being incorporated in the garage workshop of two kids in their twenties, Apple Computer stood out as the Fortune 500 corporation best positioned to challenge IBM's dominance in personal computing. The brash, young California company selected 1984 and the Super Bowl to broadcast its commercial, a video morality play celebrating the glory of iconoclastic individualism and condemning the sinister threat of organizations whose power oppresses rather than liberates the human spirit. Using imagery without words, Apple drew the battle line clearly between itself and IBM.

There might have been a third competitor. In 1973, more than three years before Steve Wozniak of Apple soldered together a circuit board that qualified as a computer in name only, researchers at Xerox's Palo Alto Research Center (PARC) flipped the switch on the Alto, the first computer ever designed and built for the dedicated use of a single person. Long before Wozniak, prodded by his friend and partner Steve Jobs, went on to build his second computer—the famous Apple II, credited with changing forever the American home and workplace—and even longer before IBM implemented a crash strategy for breaking into and then dominating the personal computer industry, Xerox employees ranging from scientists to secretaries were using personal computers that, in many respects, were superior to any system sold in the market before 1984, the year of the Apple Super Bowl commercial.

The scientists at Xerox PARC created more than a personal computer. They designed, built, and used a complete system of hardware and software that fundamentally altered the nature of computing itself. Along the way, an impressive list of digital "firsts" came out of PARC. In addition to the Alto computer, PARC inventors made the first graphics-oriented monitor, the first handheld "mouse" inputting device simple enough for a child, the first word processing program for nonexpert users, the first local area communications network, the first object-oriented programming language, and the first laser printer.

They called this entirely new approach to computing "personal

distributed computing.” Their design and philosophy challenged accepted wisdom about the relationship between people and digital processors. Mainline computer people scoffed at the notion of one computer for each person; the Xerox team built the Alto. Traditional computer applications centered on number and data manipulation; the Xerox team focused on words, design, and communications. By the mid-seventies, PARC had crafted a framework of machines and programs that were “personal” because they were individually controlled, and “distributed” because they were linked through networks to shared resources and knowledge. The entire system—of people, machines, and programs—advanced human productivity through computing tools in ways paralleled only by the exploitation of pencil, paper, printing press, and telephone.

Xerox, however, did not convert either the vision or the implementation of personal distributed computing into the commercial success and recognition now enjoyed by Apple and IBM. It's not that Xerox failed to profit financially from its innovative technology. The company's laser printer business is thriving, and its latest generation of copiers incorporates technology developed at PARC. But these successes related easily to the world of imaging well-known at Xerox. By comparison, the greater possibility to define and dominate the unfamiliar business of personal computing smoldered unproductively within the company for more than a decade, frustrating far more of the organization than it inspired.

The Alto confronted Xerox with the unknown. When Xerox established PARC in 1970, there was no market for personal computers. There were no compact disc players, no Walkmen, no portable telephones, no digital watches, no VCRs, no video camcorders, no personal copiers. Not even the now ubiquitous pocket calculator had been introduced yet to the marketplace. Furthermore, from the time of its invention in the late 1940s through the end of the 1970s, computer technology remained unaffordable, inaccessible, and useless to most people. Computers were owned by corporations and universities, not individuals; operating the technology required a knowledge of protocols as formalized and arcane as any used in international diplomacy; and, all the effort yielded results for a narrow set of applications. For the most part, computers manipulated numbers in ways and with speeds helpful

only to scientists, engineers, and accountants. Not surprisingly, popular films and novels depicted the technology as enigmatic and those who understood it as weird.

Except for the perception, all of this had changed by the time IBM introduced its personal computer in 1981. Consequently, IBM emphasized consumer education in its marketing strategy. If the Charlie Chaplin tramp could own a PC, the machine must be affordable. If he could operate one, the technology must be accessible. And if he could use a computer to better himself commercially and, yes, even romantically, then it must be useful.

The campaign was a remarkable success. By 1987, Americans had purchased more than twenty-five million personal computers. The machines were owned by one of every six households, and their absence in an office was far more remarkable than their presence. Children considered the technology routine. IBM's name was so identified with personal computing that IBM PC knockoffs, known as "clones," were grabbing a big share of the market for their United States and Asian manufacturers—so big that IBM ultimately changed its advertising strategy. The Charlie Chaplin character began touting the uniqueness of IBM products instead of merely demonstrating the wonders of personal computing in general.

IBM's early promotions made sense for a number of reasons. First, people did not have to be sold on the idea that IBM could make a good computer. Next, since IBM was the only personal computer manufacturer in the early 1980s willing and able to advertise extensively on television, it had no competition for what advertisers call the "share of voice." Television viewers simply didn't see or hear that much about the competition. As a result, IBM could educate consumers while relying on sheer omnipresence to associate its product with a safe and wise choice. Finally, the approach succeeded because, by 1981, enough personal computer hardware and software was available in the marketplace to back up the discovery claims made by IBM's little tramp.

Only five years earlier that had not been the case. The first personal computing products appeared in the mid-seventies and had limited appeal. They were sold by small electronics firms and individual hobbyists through clubs, direct mail, and word of mouth to other hobbyists and tinkerers. Wozniak's Apple I typified the early merchandise. It was an unpackaged circuit board wired by Wozniak so that a purchaser could hook it up to a power supply