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PC Makers Hit Speed Bumps; Being Faster May Not Matter

By JOHN MARKOFF

Todd Schreiner, a Chicago business consultant, went to his local [Best Buy](#) recently to check out hot new PC's that could replace his three-year-old computer. He decided not to buy.

Mr. Schreiner represents an unpleasant new reality for the personal computer industry. For decades it has relied on the certainty that customers have an unquenchable desire for speedier new machines. But computers have reached a point where for the most common home purposes — Web surfing, e-mail and word processing — they are already more than fast enough to suit a typical home user's needs.

"I couldn't conceive of a situation with my software applications today where I need a computer with a 2.4 gigahertz Pentium processor," Mr. Schreiner said, referring to one of [Intel's](#) fastest new chips. So he decided to make do with his three-year-old Dell PC, with a Pentium III chip only one-fifth as fast, and instead spent his money on more memory, a new digital camera and a CD-ROM burner to store his photos.

More than any other time in its 27-year history, the personal computer industry has found itself in a quandary, having to concoct new reasons to persuade the world's 500 million PC owners to replace their existing machines. And the problem goes beyond the computer makers themselves: no new computer generally means no new copy of [Microsoft](#) Windows sold, no upgrades to word processing or spreadsheet programs.

Computer and chip manufacturers have long used advances in speed as a central point to sell new computers. To be sure, such marketing will still appeal to people who edit video or process complex photographic images, for example, or make calculations with large masses of data, or play video games on the PC. They still see big benefits when they upgrade to faster chips for their processor-intensive tasks.

But even some of them are having second thoughts. Norman H. Nie, a political scientist at Stanford who has long thought of himself as a PC power user, was the co-inventor of a widely used and computer-power-hungry software program known as the Statistical Package for the Social Sciences. For more than three decades the software has taxed the power of first mainframes, then minicomputers and finally PC's.

Dr. Nie has always acquired new, more powerful computers as they became available. But he was stunned not long ago to discover that his faster new computer did not improve the speed of his software. He predicted that for many people, the upgrade cycle might be ending.

"We're beginning to see a time where — except for the third world — the replacement cycle for computers looks like Detroit," where the desire for a new car every year yielded to a slower turnover, he said.

That new attitude is shown clearly in a recent national opinion survey by Odyssey Ventures, a San Francisco market research firm. Among households with PC's, the intention to buy a new computer in the next six months has fallen to just 11 percent from 21 percent in early 2000 and the lowest level in five years. And half of PC owners now have home computers that are at least two years old — more than at any time since 1994, when Odyssey began keeping track. The pace of upgrades is crucial because, according to the Gartner market research organization, they account for 80 to 85 percent of new computer sales.

"We've come to a plateau," said Nicholas Donatiello Jr., the chief executive of Odyssey, "What we're seeing is there are other digital needs in the home, and people may be spending money around the TV rather than the PC."

The computer industry's boosters insist that growth has leveled off before and that slumps have been only temporary. Each time the PC business has appeared to run out of steam in the past it has been revived by an burst of software creativity — from the spreadsheet to video games to the Internet — that has attracted millions of first-time buyers followed by successive waves of upgraders.

The cycle has repeated itself so regularly over time that Intel, the company that pioneered the microprocessor chip that made the PC possible, has a name for the process: "the digital spiral." At regular intervals, driven by the industrial process known as Moore's Law, computers increase in power as new hardware emerges. And like clockwork, software is developed to take advantage of the new power.

"Is there another spin of the software spiral in front of us to drive growth?" asked Paul S. Otellini, Intel's president and chief operating officer. "I believe so." But so far, innovative new software to spur big new sales has not materialized.

The industry's slowing growth comes at a time when its rate of technology advancement has never been faster. At the end of 1999, most personal computers being sold were based on 500 megahertz to 600 megahertz Intel Pentium III chips. By next fall — three years later — the typical performance will have shot up four times, on average, to above 2 gigahertz, according to industry analysts.

The PC industry continues to hold out hope that a variety of new applications — ranging from increasingly complex video games to home video editing and new needs that will arise if the high-speed Internet finally takes hold — will come along and start a new cycle of growth.

But new computing markets appear increasingly to be moving away from the desktop PC. And many of the new applications that have held out hope for a new round of growth are now appearing as cheaper, specialized computer products.

"Techno-lust has gone elsewhere," said Richard A. Shaffer, publisher of the ComputerLetter, a newsletter from Technologic Partners that covers the technology business.

For example, video game players are being aggressively courted by seductive alternatives to the PC — most recently, from none other than Intel and Microsoft. The two companies that pioneered the personal computer have now come together to offer a powerful special purpose alternative, the Xbox game system, priced at 10 to 20 percent of the cost of a desktop PC. Other PC applications such as Web browsing and e-mail may also be increasingly offered in less expensive, wireless consumer packages.

In fact, many others in the industry think it is possible that the next digital cycle, when it repeats itself, may not happen on desktop PC's but in some new device that looks nothing like a computer today.

The transition away from the desktop PC is most apparent in the collapsing growth rate of the industry, which had for more than a decade been accustomed to double-digit expansion of sales each year. That bubble burst along with the dot-com collapse in 2001.

Amid the prolonged general economic downturn, sales of PC's in the United States show no signs of reviving soon. Gartner estimates that the industry's sales shrank last year by almost 5 percent after growing by 10 percent to 27 percent annually since 1990. This year promises to be just as bleak.

Nevertheless, Gartner analysts estimate that one billion personal computers will be sold in the next six years. At the same time, the market researchers acknowledge that their projected 9 percent annual growth rate will in the future be largely based on continued expansion of sales in the developing world.

The forecast for the United States remains cloudy, and signs of consolidation in the PC industry are everywhere. Earlier this year, for example, [Hewlett-Packard](#) and [Compaq Computer](#), the top makers of personal computers behind No. 1 [Dell Computer](#), merged largely in response to the slowing growth of the industry.

So far the response of the personal computer industry to its worst decline in history has largely been one of denial.

"People are walking around like members of the cargo cult after World War II," said Mark Resch, a partner at Onomy Labs, a Palo Alto, Calif., technology consulting firm. "They're just hoping the planes come back."

But some in the computing industry believe that the planes will never come back, at least in desktop computing.

"The world is being turned upside down and that is not a happy thing for most PC companies," said David R. Ditzel, the founder and chief technology officer of [Transmeta](#), a maker of

microprocessors for portable computers. "Things are going to be tough for the traditional PC guys because they won't go back to their 20 percent growth rates."

Even personal computer industry veterans acknowledge the paucity of new ideas that currently troubles the computer industry.

"As long as new PC's are just faster, cheaper, better than old PC's you're going to get slow growth," said Robert Frankston, a co-inventor of the computer spreadsheet application.

Intel, as might be expected, sees the world in a different light. Although Mr. Otellini acknowledges that many applications do not benefit from greater speed — a 1.5 gigahertz Pentium 4 chip will play a DVD movie with no less fidelity than a 2.5 gigahertz chip — he points to the gains in applications like video editing, which will continue to improve significantly with each new generation of faster chips.

He also says there are new categories of software that will continue to drive growth in the existing personal computer market: technologies like voice recognition, more sophisticated search tools, wireless networking and computer security.

But Mr. Otellini acknowledged that most of the incremental growth in the personal computer market since 2000 is already coming from what he calls "emerging markets" — developing countries where there are now few computers.

"We believe that 50 percent of all the incremental units sold in the next five years will come from these markets," he said. There are now about 500 million personal computers in the world, he said, and with the help of the emerging markets the industry, over a long period, could still expect to see double-digit growth outside the industrial world.

Nevertheless, Intel and companies that depend on it, like Microsoft, have begun adjusting their strategies for a post-PC world.

Several years ago Microsoft changed the company mission statement to drop the term personal computer, instead asserting that the company's mission was: "Empowering people through great software — any time, any place and on any device."

At the same time, Microsoft has begun to introduce a variety of consumer electronics products that could lessen the demand for PC's — including the Xbox game machine, a combination personal digital assistant and cellphone, and a TV-oriented Windows Media Server.

For their part Microsoft executives insist that the new consumer computing devices will not speed the demise of the PC.

"We don't agree with the statement the PC is dead," said Greg Sullivan, the lead product manager of the Windows XP operating system.

Still, hints of such a shift abound. In the midst of a general computing and chip-making downturn, [ARM Holdings](#), a British company that is the world's largest designer of microprocessors for consumer devices like cellphones and personal digital assistants, is experiencing record growth.

ARM chips are designed for the new world of computing away from the desktop PC. This year, there are 1.3 billion ARM microprocessors in cellphones, personal digital assistants and other consumer devices — for the first time exceeding the one billion personal computers that have been produced.

"There is tremendous growth in all the little things that help life," said John Rayfield, an ARM vice president based in Los Gatos, Calif. "Centralizing them all in one large computer makes no sense."