

Built to Last, and Last...

Most consumer technology products fade soon after they appear. Then there's Hewlett-Packard's 12c calculator.

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How many consumer technology products survive for longer than six months? A year? Most innovations are quickly rendered obsolete by the march of technology and customers' insatiable demand for the *next* next new thing. Last year's 5-megapixel camera yields to this year's shinier 7-megapixel model. A desktop printer is hot in April and a closeout special by October.

So what to make of the Hewlett-Packard 12c, essentially unchanged since its 1981 debut and, 15 million units later, still one of the company's top-selling calculators? Everything it does can be replicated--in some cases, with far greater ease--on an Excel spreadsheet. Yet after 25 years, the 12c remains a tool of choice among finance and real estate professionals worldwide. It is still, as one junior analyst put it, "part of the banker's kit"--an unquestioned marker of credibility, if not good breeding.

How has this little machine, born in the days of *Pac-Man*, kept such a following? Part of the answer has to do with the culture of the finance industry, which embraces both cachet and conservatism. HP has played to that market brilliantly. But the 12c's success is also a function of savvy, farsighted design, the fruit of a product team that was, in fact, thinking about the long run.

- **Marketing for Long Life**

From the start, HP persuaded university finance and real estate professors to build the 12c into class assignments--sending students off to the campus bookstores, which HP had also targeted. **The result:** a legion of young business professionals comfortable with and loyal to the 12c. Some bankers carry the same 12c with them throughout their careers (testament, among other things, to the calculator's battery, which can last a decade or longer). "People with industry experience will definitely have their old 12cs with their business cards taped to the back," says Chris Bennett, a first-year Wharton student.

- **"Virtually Indestructible"**

HP engineers put the 12c to the "drop test"--repeatedly releasing it from desk height onto a hard floor. They subjected the keyboard to mechanical button-pushers to simulate the effects of 5 to 10 years of use. Company lore claims 12c's have survived close encounters with both a hippo (use your imagination) and a snowblower. More to the point, says Fred Karwacki, an assistant controller at Covansys Corp., who bought his 12c in 1984, "it has been banged around in airports, had every liquid you can think of spilled on it, and it just has not broken down. It is virtually indestructible."

- **Money Talks**

The original 12c had its logo stamped on real plated gold. "This was not by accident," says Dennis Harms, an early project manager. "Gold resonated well with the money industries." Still does. With laptop computers everywhere, the 12c (which lists for about \$80, down from \$150 at its debut) has become, in some ways, superfluous. But "it says finance professional," says Tom Pierce, a second-year loan originator at the private investment and real estate firm Greystone & Co. "If you're going to a meeting and you want to look professional, you have your suit and tie, maybe a fancy pen, and then your 12c."

- **That Feel-Good Feel**

The 12c was designed to fit in a shirt pocket and feel good in the palm of your hand. "It's lightweight, and you can take it on the go wherever you need it," says Fred Valdez, general manager of HP's calculator division. That said, some finance pros just keep it on their desk--to double-check their spreadsheet results. "If I'm doing something on a PC, I always do a couple of examples with the 12c--because there, I always know the answer is correct," says Karwacki.

- **The Polish Factor**

Reverse Polish notation? It's a logical system for the specification of mathematical equations without the use of parentheses or brackets (so named in tribute to Polish mathematician Jan Lukasiewicz, who first described it in the 1920s). The 12c embraced RPN, Valdez says, because engineers were convinced "it was clearly a more efficient data-entry system." RPN took hold in the business world--but not, it turns out, universally: Poles, HP learned only recently, are happier with algebraic data entry. In 2003, HP introduced the 12c Platinum, which besides faster processing speeds and platinum accents allows customers the choice of RPN or algebraic calculating methods.

RPN mode ALG mode

1 enter 2 + 1 + 2 =

- **The Keyboard Is Key**

The original team wanted the keyboard buttons to feel good and be reliable. "Tactile feel was very important," says Harms. "It had to be clear to the user when a key had been pressed, and it had to enter the push without double entering." To accomplish this, keys were designed with a sloping face, so users' fingers could run up and over the buttons. Designers also introduced the "dual snap state"--yielding a satisfying noise both when the key is pressed to a solid connected state and when it's released. The horizontal layout, meant to mimic those of adding machines (including a large enter key in the thumb position), allowed enough room for a long LCD display--because sometimes, you just want to see your result carried out to nine decimal places.



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