

MARKETPLACE

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‘Invent Wisely’ Is New Mantra At Sober H-P

By PUI-WING TAM

WHEN SHE ARRIVED at Hewlett-Packard Co. in 1999, Chief Executive Carly Fiorina exhorted workers with the company's venerable slogan, "Invent." But the fate of at least one invention shows the difficult trade-offs the big computer maker faces as it tries to cut a middle course in a fiercely competitive market.

Five years or so ago, H-P researchers conceived of a way to boost data-storage capacity for low-power digital devices such as cellphones and cameras, by using electron beams to change the charge of individual atoms. After making some technical breakthroughs in the technology, known as atomic-resolution storage, H-P scaled up the research project.

But H-P suddenly canceled the effort in mid-2003, leaving about 40 researchers in the lurch. Eventually the majority were reassigned, but about a half-dozen ended up leaving the Palo Alto, Calif., technology giant.

"We had made tremendous technical progress during the project, and we always want to be working on cutting-edge things," says Dick Lampman, who heads up H-P Labs. "But we also need to be working on things that make sense." The project simply lost its urgency, as other providers' storage technologies progressed faster than H-P had anticipated.

The project's end underscores the pressures on technology vendors in a market with many rivals but only moderate growth. H-P, whose share price tumbled last week along with many other tech stocks on its report of disappointing quarterly earnings and a warning of a weak quarter ahead, is in a particularly difficult position.

H-P is still trying to deliver the growth promised from its \$19 billion merger with Compaq Computer Corp. in 2002. Meanwhile, it is selling personal computers in competition with commodity-style suppliers who spend little on basic research, such as Dell Inc., of Round Rock, Texas. At the same time, it also must keep up with International Business Machines Corp., whose products in fields such as data storage and semiconductor manufacturing continue to push the state of the art.

Determined to set a middle course, H-P has been moving away from invention for its own sake and focusing its research-and-development spending on projects that promise faster profits. The push to target innovation springs from an increasingly powerful division within H-P dubbed the Office of Strategy and Technology, which is aiming to be the company's central "innovation brokerage."

Under chief technology officer Shane Robison, a former Compaq executive who has the ear of Ms. Fiorina, the strategy group is taking steps to focus invention, including creating a central pipeline to take in innovative proposals from smaller companies that may want to collaborate with H-P. The group also has set up a hotline to which employees can phone in ideas. "Invention only matters if you focus on the right thing," says Mr. Robison. "It doesn't matter if it doesn't help our business."

Mr. Robison's group recently completed an extensive audit of H-P's \$3.6 billion R&D budget to identify projects to kill and projects to keep. It has terminated research into components, such as microprocessor chips, and has changed the makeup of its labs, getting rid of many basic-research experts and hiring more software specialists, among others.

H-P has narrowed and redirected research efforts into fields such as security, management software and digital entertainment, where it has visions of becoming an "end-to-end" supplier of not only hardware and software used in the studio but also consumer electronics. The strategy and technology office also is adding new incentives, including boosting the pay and promotion structure for technologists and asking them to meet corporate customers more frequently in order to tailor products for them.

To some extent, H-P is borrowing from IBM's playbook. In the late 1990s, under then-CEO Louis V. Gerstner Jr., IBM too cut basic-research spend-

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Think Tanks

Research and development spending, in billions, and as a percent of revenue, for most recently ended fiscal year

IBM ¹	\$5.1	5.7%
H-P ²	3.7	5.1
Dell ³	0.46	1.3

¹Year ended Dec. 31, 2003

²Year ended Oct. 31, 2003

³Year ended Jan. 31, 2004

Source: the companies

H-P Mantra: 'Invent Wisely'

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ing and focused on projects with nearer-term potential. IBM's scientists, though, still do basic exploration in fields such as magnetism, chemistry and quantum theory.

Such efforts to refocus on shorter-term goals often raise criticisms. Lori Rosenkopf, associate professor of management at the University of Pennsylvania's Wharton School in Philadelphia, says that when companies direct innova-

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tion too much, they risk squelching the most explosive ideas. "The more you build structures, the more people may feel forced to follow the straight and narrow," she says. "Companies still need to leave some slack for exploration."

Adds John Seely Brown, the former director and chief scientist at Xerox Corp.'s Palo Alto Research Center, "Companies have to define innovative spaces to go after, but you don't want to define those spaces too tightly."

At H-P, Mr. Robison's view is that with the tech landscape changing so fast, innovation has to be planned in coordination with nearer-term business goals. H-P, in fact, has been hurt when it has placed big bets on future technologies that failed to live up to their promise.

One example is Itanium, a microprocessor developed by H-P and Intel Corp. Originally conceived as an engine for high-volume computers, the chip took more than a decade to refine and was soon relegated to high-end applications. And as H-P has urged current customers of its older systems to upgrade to central computer servers based on Itanium, some have taken the opportunity to move to competing products.

Mr. Robison's team has different priorities. Earlier this year, coffee giant Starbucks Corp. unveiled a renovated prototype store in Santa Monica, Calif., equipped with H-P tablet computers. The PCs are connected to an H-P server in the back of the store. Using the tablets, consumers can scroll through a list of digital songs stored on the server, pick tunes they like and then instantly burn

them onto a compact disc. Still using the tablet, they can design art for the CD cover and print it out on an H-P printer—all for as little as \$6.99.

The idea is the result of collaboration between Mr. Robison's team and Starbucks's entertainment division, says Brady Brewer, group manager for music and entertainment at Starbucks. Since the music-enhanced store opened in mid-March, customer traffic there has increased, potentially providing Starbucks with an additional revenue stream, Mr. Brewer says. Starbucks plans to equip several more stores with CD-burning technologies later this year.

Still, analysts note it is likely to be years before such inventions make significant contributions to H-P's revenue. Meanwhile, R&D spending remains tight. After H-P and Compaq were combined in 2002, the resulting company's R&D spending amounted to \$3.4 billion, less than the combined total of H-P's \$2.8 billion in R&D spending and Compaq's \$1.5 billion. Since 2002, annual spending has hovered at around \$3.7 billion.

H-P remains convinced that its R&D war chest is enough to shore up its ailing server and storage-system product lines that hurt its results for the quarter that ended July 31. The focus now is on software: H-P researchers are developing programs to help manage many different pieces of hardware as the equivalent of a single system, saving on labor costs.

But bureaucracy remains a hurdle. Last year, H-P procurement manager Venu Nagali submitted to the strategy and technology office a paper about a risk-assessment software system that would quantify risks for corporate purchasers acquiring components. The paper won him a free trip to an H-P-sponsored internal conference on innovation, where he presented the idea to H-P techies and executives.

The result? His system was adopted throughout the company for its own internal purchases. But more than a year later, Mr. Nagali's product still isn't anywhere near hitting the external market, even though a business plan has been in the works for months. "We're shooting for next year," Mr. Nagali says.