

Building An Idea Factory

Inspiration is fine, but above all, innovation is really a management process. **By Robert D. Hof**

ASK MOST PEOPLE WHO invented the lightbulb, and they will promptly provide the wrong answer: Thomas Alva Edison. Truth is, the famous inventor's 1879 debut of his incandescent light trailed others by decades. So why does he get all the glory? Mostly because of what he did next, notes Andrew Hargadon, author of *How Breakthroughs Happen: The Surprising Truth about How Companies Innovate*. To get his creation to the masses, Edison and his team of engineers in Menlo Park, N.J., spent years building the entire electric system, from light sockets and safety fuses to generating facilities and the wiring network. Only then did the electric light flare into the innovation that lit the world.

In short, Edison beat all his predecessors at one crucial task: managing the whole process of innovation, from lightbulb moment to final product. Today that task is scarcely easier than it was 125 years ago. Sure, it's easy to get lucky once in a while. The real trick is doing it over and over again. "Managing innovation means cultivating an environment where lightning can strike twice," says Paul Saffo, research director at the think tank Institute for the Future. "It's extraordinarily difficult."

To hard-headed business people, innovation often seems as predictable as a rainbow and as manageable as a butterfly. Penicillin, Teflon, Post-it Notes—they

sprang from such accidents as moldy Petri dishes, a failed coolant, and a mediocre glue. It's no wonder so many executives throw up their hands. "Our approach has always been very simple, which is to try not to manage innovation," shrugs Silicon Valley venture capitalist Michael Moritz, a partner with Sequoia Capital. "We prefer to just let the market manage it."

Yet even in the Darwinian chaos of Silicon Valley, innovations are made, not born. The world's most innovative companies, from Procter & Gamble and Toyota Motor to Apple Computer and Edison's own General Electric, make their own luck. They plunge ahead on

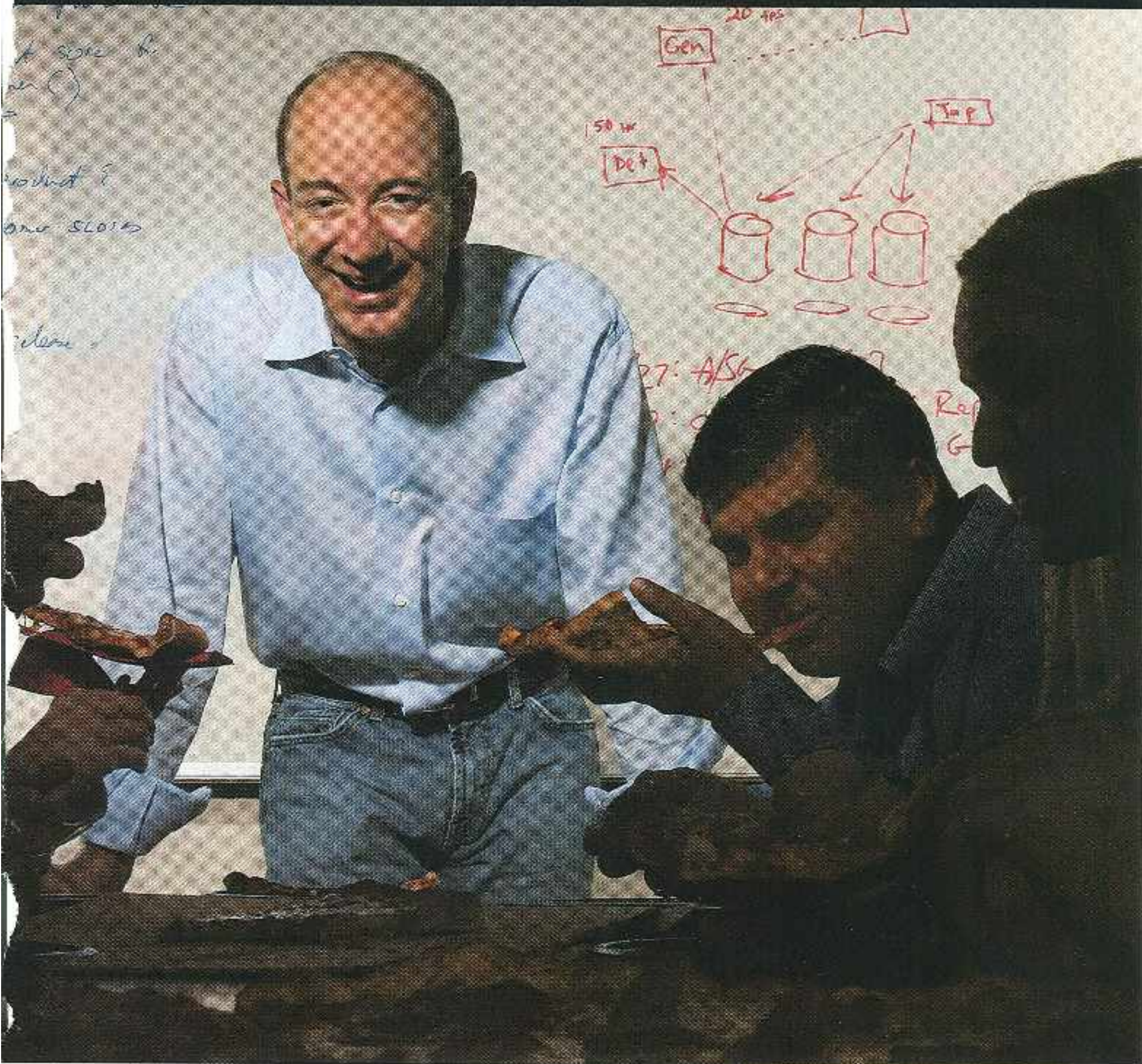


new ideas even though they know most will fail. "You have to go down blind alleys," says Jeffrey P. Bezos, founder and chief executive of pioneer online retailer Amazon.com Inc. "But every once in a while you go down an alley and it opens up into this huge, broad avenue. That makes all the blind alleys worthwhile."

"COMMODITY HELL"

PROBLEM IS, A LOT of forces today conspire against innovative products getting to market. Small outfits that are often the most innovative get short shrift because

BRIAN SMILE



buyers aren't sure they can deliver or even survive to keep supporting their products. And for large corporations, there's the "innovator's dilemma" coined by Harvard Business School professor Clayton Christensen. By catering to their best customers with increasingly advanced and more expensive products—a seemingly sensible approach—successful companies ignore or even discourage less profitable low-end products. But as startups produce these low-end products and they improve, they eat into the core markets of large companies. Thanks to such innova-

tions as Internet phones, discount airlines, and open-source software, the innovators' dilemma is now afflicting blue-chips AT&T, United Airlines, and Microsoft. Says Gerard M. Mooney, vice-president and director of corporate strategy at IBM: "All big companies have trouble coming up with the Next Big Thing." Managing innovation better may be the only way out of the "abyss called commodity hell," as GE Chief Executive Jeffrey R. Immelt has put it. Today, having the biggest factories or running the most ads is no longer enough to stay ahead. Shorter

Amazon

TRY, TWEAK, AND TRY AGAIN: The e-tailer struck out when it tried auctions à la eBay. But thanks to CEO Bezos' "culture of divine discontent," Amazonians kept pushing, coming up with the idea of letting other merchants sell on its pages. Profit margins on those sales have helped Amazon log four straight profitable quarters.

great things along the way," says Newton.

Thinking big is important, but swearing the details is just as critical to spurring continuous innovation. Several years ago, Toyota Motor Corp. made one change to its production lines, using a single brace to hold auto frames together instead of the 50 it took previously. In the context of Toyota's famously complex production system, it looked almost insignificant. But this Global Body Line system helped slash 75% off the cost of refitting a production line. And it is the reason behind Toyota's ability to make different models on a single line. The change contributed to manufacturing cost savings of \$2.6 billion last year, helping produce profits in the year ended Mar. 31 that topped those of Ford Motor Co. and General Motors Corp. combined.

It's a testament to the importance of managing the thousand-and-one small innovations that together become something transformative. Through a process called *kaizen*, the Japanese word for continuous improvement, the auto maker relentlessly tries to find ways to enhance every step from design through assembly. "Every day, every minute, they're trying to improve their production systems or productivity or quality," says Goldman Sachs & Co. auto analyst Kunihiko Shiohara.

That requires perhaps the most fundamental quality of innovative companies. They never stop hammering away at problems and opportunities. They know that if they do, someone else will hammer them. Says John L. Hennessy, president of Stanford University and co-founder of chip designer MIPS Computer Systems: "It's better to shoot yourself in the foot than to allow somebody else to shoot you in some more vital part of the anatomy."

When Amazon.com managers noticed in 1999 that eBay Inc. was taking off, for instance, they launched their own auction site to tap into the same group of sellers—and the high-margin stream of commissions. But eBay's momentum was too great, and Amazon's auctions largely fizzled. Amazon also opened zShops, a gallery of independent merchants on its site, but that attempt to create a marketplace didn't catch fire either. In late 2000, an Amazonian came up with yet another idea: Let other sellers offer their wares on the same page as Amazon's own products. "Inviting third-party sellers onto our prime real estate—that made some palms sweat," Bezos admits.

But the Seattle-based company plowed ahead, and this feature has turned into a hit. Now some 26% of unit sales on Amazon.com are by other sellers, who like

how easy it is to list items. "The Amazon-selling platform is second to none," says Scot Wingo, CEO of ChannelAdvisor Corp. in Research Triangle Park, N.C., which helps large merchants sell on eBay and Amazon. The 60%-plus profit margin on the commissions and fees it charges other merchants has overcome any cannibalization. Bezos says people who buy used books buy more new books, too. All that has helped the company to log four straight profitable quarters.

"CONNECT AND DEVELOP"

BEZOS ISN'T JUST STUBBORN. He makes his constant experimentation economical by keeping project teams small and nimble. That way, even when they fail, they haven't spent much time or

money. Says Bezos: "To the degree that you can get people in teams small enough that they can be fed on two pizzas, you'll get a lot more productivity."

Increasingly, companies are rethinking where innovations come from. The best ideas aren't always inside corporate research and development labs, notes Henry Chesbrough, visiting assistant professor at UC Berkeley's Haas School of Business and author of the book *Open Innovation: The New Imperative for Creating and Profiting from Technology*. So it's becoming crucial to knock down walls inside the company—between research and manufacturing or marketing—while at the same time reaching outside the company for ideas. But it's not easy to do. Says Chesbrough: "There are powerful forces resisting the opening up of companies' innovation processes."

Nowhere was that more apparent than at Procter & Gamble. Growth and profits at the Cincinnati packaged-goods company stalled several years ago, partly because some costly products developed in-house tanked. New CEO Alan G. Lafley shook things up, replacing half of the company's top 30 officers and urging product groups to "connect and develop" by pulling in experts from unrelated brands to help on new product creation.

For example, when P&G decided to move into a new market, the home car-care business, researchers didn't start from scratch. They looked around P&G for related expertise—and struck gold. The company's PuR unit's water-filter experts knew how to deionize water to get rid of minerals, and its Cascade unit already had a compound in its dishwasher detergent that reduced water spots. They used both technologies in what became Mr. Clean AutoDry, a \$24.99 handheld sprayer system. It's so popular that it has helped to more than double overall Mr. Clean brand sales in the past year. It also showed the company a new way to innovate. Says Karl Romm, vice-president of P&G's home-care division: "Innovation nowadays is more



P&G

TEARING DOWN CORPORATE WALLS: When the company entered the car-care market, it tapped in-house experts to produce the Mr. Clean AutoDry handheld sprayer, which soaps down cars and rinses them. It's a hit, more than doubling Mr. Clean brand sales in a year.

DANIEL LEVIN

Jeff Hawkins



Creator of the first PalmPilot PDA and Handspring smart phone and author of the book *On Intelligence*, about the human brain and intelligent machines.

“Let's talk about serial innovators. What's the secret to success?”

I don't know if there's a secret to success. I've had a great deal of success myself. I also have had my share of failure. To me, being a great innovator is like batting in baseball. If you're batting .300 or .350, you're doing pretty well. Most people, they never get a hit. I try to think very hard about what's ultimately going to happen. Ultimately, everything's going to be wireless. Ultimately, everything's going to be portable. I figured that out a long time ago.

The trick is once you see that long-term vision, you then ask yourself, how do I get there step by step? You can't just solve all the problems at once and bingo, you have an industry. No, you have to solve a whole bunch of those problems, and along the way you have to make money while you're doing it.

And so what steps do you do? Even though I thought all computers would be mobile computers at some point, we said we can't do the wireless piece. We could do a connected organizer, and bingo, we did that. You always have the future vision in place. That tells you what you have to do.

Can a company be a big innovator?

Companies don't innovate; people do. If you're going to innovate, you have to overcome problems. In a startup, you're going to have all these people telling you you're wrong. If you're at a big company, you're going to have all these people telling you you're wrong. It takes a lot of nerve and perseverance. You have to keep fighting the battles.

like improvisation in jazz than playing out a score that's already written.”

Latley didn't stop there. He also decreed that half the company's new product ideas eventually come from outside, up from 20% last year. That push has produced several popular products such as Olay Regenerist, a new antiwrinkle cream based on a skin-repair compound from a French company. The approach seems to be paying off. P&G's overall unit growth before acquisitions has jumped from zero in 2001 to 8% last year. For the fourth quarter ended June 30, overall profits shot up 44%, to \$1.4 billion, on a 10% rise in sales, excluding acquisitions.

Other companies are reaching out in more radical ways, such as tapping their own customers' expertise to develop fresh products and services. EBay CEO Margaret C. Whitman wasn't exaggerating when she told thousands of attendees at the online marketplace's annual conference of buyers and sellers in June. “You are in the room with us whenever we make a decision.” EBay watches what they trade on the site and flies in buyers and sellers for feedback. Effectively, it lets its customers decide where to expand next. That approach has paid off: 11 categories, from cars to jewelry, now top \$1 billion in annual gross sales each, and eBay's stock is worth \$59 billion.

EBay's approach may be hard for many conventional companies to emulate. But the notion of bringing customers inside to help develop new products is catching on in mainstream corporations as well. In 2000, for instance, IBM signed a deal with GM to co-develop a supercomputer for GM's car design and crash testing. The machine saved GM \$1 billion in product-development costs in the past three years and cut by as much as 64% the time to get a car from the design stage to the dealer's lot.

IBM may have gained even more. The work put into IBM's microprocessor chip, operating system, and other software to make it a leader in supercomputing also helped supercharge its commercial-server business. “We got a huge competitive edge,” says Bernard V. Schwartz, IBM's global account executive for GM product development. In late August market watcher Gartner Research said IBM expanded its leading share of the \$11.5 billion server market to nearly 31%.

The ultimate in innovation, though, is not merely to come up with new products and services. It's to create entirely new markets where none existed before—and better yet, to provide something that changes the way we live and work. Innovation was never just about new gizmos

and gadgets. But in a service economy, innovations more than ever must transcend objects. Some of today's most successful companies, from Virgin Group Ltd. to eBay, create not only innovative products or services but also novel business models.

“THIRD PLACE”

MOST PEOPLE MIGHT think of Starbucks, for instance, as a fancy coffee joint. Not Chairman Howard D. Schultz. He sees the 8,000-store chain as a “third place” for people to hang out besides home and work. That's why a seemingly unrelated service—offering wireless Net access in its stores starting two years ago—turned out to be a winner. Although Starbucks Corp. won't quantify the revenue impact, people using the service stay nine times longer than the usual five minutes, almost certainly buying more lattes. And 90% of customers who log on are doing so after peak morning hours, filling stores during previously light periods. Says Anne Saunders, Starbucks' senior vice-president of marketing: “If we'd only thought of ourselves as a coffee company, we wouldn't have done this.”

The wireless network also inspired a new initiative that could again remake the Seattle-based company. Its new Hear Music Coffeehouses, about to be rolled out in existing Starbucks stores in Seattle with plans for up to 1,000 sites by the end of 2005, feature dozens of listening stations where people can make custom CDs, at about a buck a tune, from hundreds of thousands of songs. In addition to offering a new service to 30 million weekly customers, Schultz has said he thinks Starbucks could transform the music business. At the least, he's transforming Starbucks once again.

Who ever would have thought that Apple and Starbucks might compete? Therein lies a fundamental constant of innovation: Nothing stays constant. Contending with innovation's disruptive influence requires what Amazon's Bezos calls a “culture of divine discontent” in which everyone itches to improve things. “Most people, unleashed, are innovators,” he says. “We're this great species of tool-using animal who likes to make our world better.” The companies that can unleash that particular animal instinct are the ones that will thrive. ■

—With Peter Burrows, in San Mateo, Calif., Steve Hamm and Diane Brady in New York, and Ian Rowley in Tokyo

BusinessWeek online For a Q&A with Procter & Gamble Chief Technology Officer G. Gilbert Cloyd, go to www.businessweek.com/75