

Kodak's Moment of Truth

How the ailing film giant, led by a refugee from HP, embarked on a risky strategy to reinvent the inkjet printer
BY STEVE HAMM

ANTONIO M. PEREZ left the consumer inkjet printer business seven years ago after he lost out to Carly Fiorina for the top slot at Hewlett-Packard. But it has never been far from his mind. That's why, a few weeks after he joined a struggling Eastman Kodak Co. as president on Apr. 2, 2003, he was peering into a microscope in a lab on Kodak's sprawling Rochester (N.Y.) campus. Perez was amazed at what he saw: droplets of a new ink Kodak scientists had produced promised to yield photo prints with vivid colors lasting a lifetime. "It was the Holy Grail of inkjet printing, and they had it here," he recalls.

Ever since then, Perez and Kodak have been working on a top-secret plan, code-named Goya, to make a big entrance into the consumer inkjet printer business. For the past year a Kodak development team has been putting the finishing touches on printer technologies in a nondescript building across the street from HP's ink-

jet printer lab in suburban San Diego. On Feb. 6 it became clear what they were up to when Perez, now Kodak's chief executive, rented out the *Saturday Night Live* studio in New York to unveil a line of multipurpose machines that not only handle photographs and documents but also make copies and send faxes.

The Kodak printers are designed, first and foremost, to print high-quality photos: The ink is formulated so prints will stay vibrant for 100 years rather than 15. Most impressive of all, replacement ink cartridges will cost half of what consumers are used to paying. The new printers will arrive in stores in March, priced at \$149 to \$299. Black ink cartridges will cost \$9.99, color \$14.99. If consumers buy Kodak's economical Photo ValuePack, which combines paper and ink, the cost per print is about 10¢, vs. 24¢ for HP's comparable package. "It's really a revolution

of thought in how to bring the price of printing down and encourage people to print more," says David Morrish, senior vice-president of merchandising for Best Buy Co., which has an exclusive on the product for three months.

UPENDING THE MODEL

IF KODAK PULLS THIS off—and that's a big if, considering the forces it's up against—it could pose a huge challenge to the \$50 billion printer industry. Those companies now rely on a razor-and-blades strategy, often discounting machines and

making most of their profits on replacement cartridges. "We're very proud that we're coming to market 20 years late," Perez says with a grin. "We think it will give us an opportunity to disrupt the industry's business model and address consumers' key dissatisfaction: the high cost of ink."

In particular, Kodak's

The cost per Kodak print could be as low as 10¢, vs. 24¢ with HP's system

The Corporation Big Gambles

"QUEEN OF THE GEEKS"

InkJet R&D head Tousi kept sending the engineering staff back to the drawing board until they got it right

strategy is an assault on the profit engine of industry leader HP. Printing supplied 60% of HP's \$6.56 billion in operating earnings last year. Yet Perez claims he has no malice toward his former employer. "I spent my life there. I respect them," he says. "I'm doing this for Kodak."

Perez predicts the inkjet printers will become a multibillion-dollar product line. He'd better be right. Kodak has struggled for years to find a replacement for its rapidly declining photo-film business. In the fourth quarter the company posted its first profit in two years, a reflection of cost cuts, not rising sales. If he doesn't show growth soon, investors could bail out.

SCANNING OPTION

HIS LAST, BEST HOPE is to create a multifaceted printer-and-imaging business, a smaller version of the one that generated \$26.8 billion in revenues for HP last year. Consumer printers are just the latest piece of that strategy: Perez already has a fast-growing but low-margin lineup of digital cameras, docking-station printers for cameras, an online site for managing

and printing pictures, and a commercial inkjet business. Perez is cooking up such services as one that lets people run shoeboxes of old prints through a store scanner, quickly organizing and enhancing the images. And all the while he's been accumulating cash by shucking such major businesses as his medical imaging unit, whose sale to Onex Healthcare Holdings Inc. for \$2.5 billion was announced in January.

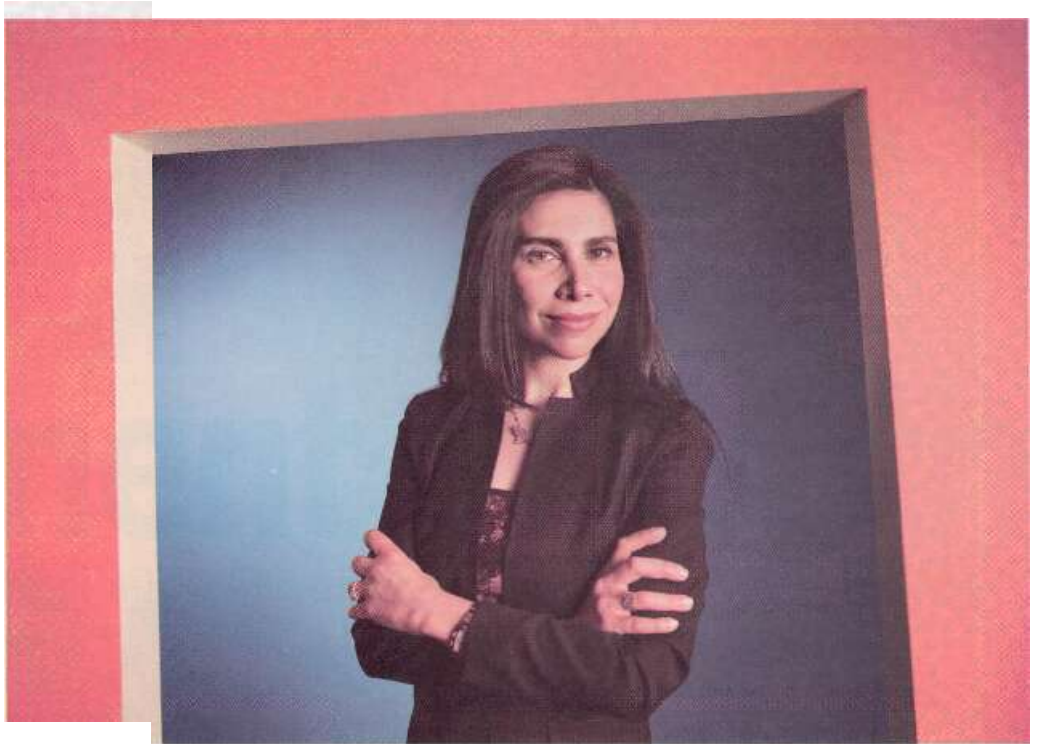
What's been missing so far is anything that replaces the once-huge profits Kodak made on film. Perez insists that even while charging lower ink prices,

he can extract double-digit operating margins from consumer inkjet printing within three years. He says Kodak cut costs by putting its print heads in the machine rather than in the replacement cartridges, which saves on materials and manufacturing. Plus, Kodak is using a lot of off-the-shelf parts.

But Kodak is up against a juggernaut. HP enjoys a huge advantage in shelf space at stores ranging from office supply chains to supermarkets and has done a masterful job of sharing some of its printer profits with retailers. All told, HP spends about \$1 billion a year on printer research and development alone, which helps it continually find ways to improve printing speed and quality. Industry analysts expect HP to sit back and wait to see if Kodak's new machines get traction. If they do, HP could respond with selective discounting. Already, there are signs that HP is ready to defend its turf with tough tactics (page 48). "[Perez] is going into a gunfight with a knife," says Nils Madden, marketing director for HP inkjets.

The Feb. 6 unveiling of Kodak's printers signals the end of a remarkable 34-year forced march to get a potentially revolutionary product out the door. Perez built his team by matching a slew of former HP colleagues with Kodak chemists and nanotechnology experts. Perhaps never before has a challenge to a major company been launched by a rival that knew it so well.

Seeds of the project were planted in



What Makes Printer Ink So Pricey

Kodak could disrupt an industry that profits by selling replacement ink cartridges at \$30 a pop. Kodak will halve that. Here's how printer makers have kept ink prices so high:

RAZORS AND BLADES

All of the major inkjet printer makers have chosen the same strategy, selling printers for low prices and more than making up the difference on replacement cartridges.

TO EACH HIS OWN

Each inkjet printer company tunes its printers, paper, and ink cartridges to work well together. If consumers mix and match, they risk getting a crummy print.

COPYCATS

Independent outfits make replacement cartridges for HP, Canon, or Epson printers but lack access to secret ink and printer technologies, so quality varies. And they seldom offer much of a discount.

A Totally Different Picture

the late 1990s, when HP briefly considered acquiring Kodak. During a 15-day due-diligence process, Perez looked over Kodak's patent portfolio. Although HP's board nixed the merger, Perez' prowling later resulted in a joint venture, established in 2000, to produce high-quality inkjet photo printers for retail outlets.

The project, Phogenix Imaging, was ultimately a bust, a victim of conflicts between its owners. On May 14, 2003, with the first machines ready for shipment on the loading dock and only a month after Perez had joined Kodak, the two sides announced they would part company.

But Phogenix wasn't all for naught. Perez had hired two former top HP printer executives, Bill Lloyd and Philip S. Faraci, to help him evaluate the consumer inkjet business for Kodak. In 1979, Lloyd had led the HP team that came up with the key advance in inkjet printing that created the industry. As soon as the Phogenix news came down, Lloyd and Faraci were on the phone with about 40 key employees, many of them former HPers. They couldn't talk about Perez' ambitions yet, but "we called them up and asked them not to take other jobs," recalls Lloyd, who is now Kodak's chief technology officer.

The crucial go/no-go meeting came on June 25, 2003, in Perez' conference room on the 19th floor of Kodak headquarters. Lloyd and Faraci laid out the arguments, pro and con. The risks were enormous. Kodak would be entering a mature business already dominated by a handful of leaders. And with Kodak's turnaround in question, Perez couldn't afford an expensive failure. But the rewards were huge, too.

Perez decided to sleep on it. He tossed fitfully all night at his home in the posh Pittsford neighborhood of Rochester. By morning he had his decision. "The industry had been doing things the same way for 20 years, and it was time for a change," he says. "I called up Bill Lloyd and said: 'Go ahead. Let's launch a full program.'"

In its heyday, Eastman Kodak Co. was an icon of innovation. Now that its core film business is fading like an old photo, Kodak is fighting to climb back as a leader in digital photography. Its new line of inkjet printers is a critical piece of that strategy. "This is a do-or-die product for Antonio Perez," says Charles LeCompte, president of Lyra Research Inc., an image research firm in Newtownville, Mass. "If they want to make money in consumer imaging, they had to get into printing."

Perez is attempting the most difficult challenge of a CEO: revamping his company's business model. His answer has been to position Kodak as the Apple Inc. of pictures. He is building a portfolio of digital cameras, Web services, and retail photo kiosks that will help consumers manage their proliferating collection of digital photos. And he is moving aggressively to license Kodak's intellectual property and beef up its presence in the high-end commercial printing market. In the most recent quarter, \$123 million, or 82% of the operating profits of Kodak's digital imaging group, came from licensing deals.

But Kodak's transformation has not yet translated into financial success. The digital world brings tougher rivals, lower profits, and increased investment needs. Last year sales from Kodak's film and film printing business fell 22%, to \$4.2 billion, while its digital imaging group saw sales drop 9%, to \$2.9 billion, largely because Kodak stopped selling low-end digital cameras. Overall, the company lost \$600 million in 2006 and \$1.4 billion the previous year.

That's what makes the consumer printing effort so important. If inkjet printers and cartridges prove popular, they could provide the kind of ongoing, high-margin revenue that film once did. "The profit potential is compelling," says Matthew Troy, an analyst with Citigroup Global Markets. And if the new printers don't catch on? Kodak may well be relegated to bit-player status in the consumer market. Says LeCompte: "They would end up as the rump of a company in commercial imaging."

That definitely would be a blow to investors, who have bid up Kodak's shares from a five-year low of 19.09 last August to about 26 today. Kodak's strong brand and \$1.2 billion in cash flow from operations last year might suggest it's a candidate for a buyout. But Perez already is making many of the tough choices that private-equity specialists are known for: He has laid off some 27,000 workers, unloaded major operations, and invested for the future. What's more, Kodak is on the hook for hundreds of millions in environmental cleanup costs, which would likely scare off most buyout shops. All the more reason why Kodak's future rides on Perez' new printers.

—By Spencer E. Ante

TOUGH CHOICES
Kodak has laid off workers and sold big operations



A few days later a dozen former Phogenix employees were invited to lunch at the suburban San Diego home of David Clark, who had been the Phogenix R&D chief. They sat by Clark's backyard pool with a view of the rugged Poway Hills in the distance, munched on chicken salad, and listened raptly while Clark laid out Perez' audacious plan. "At first we thought it was a far stretch. We know how capable HP is and how much

technology it has and how much money they spend," recalls Susan H. Tousi, a 10-year HP veteran who now runs R&D for Kodak's inkjet business. Still, within a few days, all but one of those who had sat by Clark's pool decided to sign on. Tousi did so because she liked the startup mentality and wanted to keep working with people who had become close friends.

Perez wanted to get to market quickly, with a target of three years, so the InkJet

The Corporation Big Gambles



Once the initial ink recipe was concocted, there was a lot of resistance to changing it

Products Group leaders made choices designed to speed up the development process. They worked with technology partners, such as chip-design specialist SigmaTel Inc., rather than trying to design everything from scratch. And once they established their market goals, in late 2003, they never swerved from them. The result: a process that took years less than it might have and required just a \$300 million investment.

One of the key decisions was choosing pigment as the basis for Kodak's ink rather than the usual dye. Pigment-based inks hold their colors longer, but typically the colors aren't as vivid. So Kodak engineers had to come up with innovations in ink chemistry, nozzle technology, and paper to produce vivid colors that also last. Software in the printer evaluates each image and determines what's in it (faces, trees, sky), optimizing the process based on that analysis.

FORMULA CHANGE

INK IS BOILED AND sprayed through 3,840 nozzles at a rate of 24,000 drops per second. The tiny pigment particles are designed to sit on the surface of porous paper while the liquid they're suspended in is absorbed. Drying takes just 15 milliseconds, so there are no worries about smearing the prints, which take 28 seconds to produce.

With any new technology, there are invariably glitches. The team faced a near-disaster a year ago when they discovered that the pigment particles in their inks were settling at the bottom of the storage containers, like sediment in a wine bottle. Unless the situation was remedied, image quality would suffer. The problem came fairly late in the development process; the team had already "frozen" the ink formula so they could design other components of the printer to go with it.

The temptation was to try to fix things

without changing the ink recipe. The scientists considered putting a small mechanical mixer in the storage tank. But in the end they decided it was too risky to do anything but reformulate the ink. That led to a day-and-night work marathon. A month later the team had its answer: milling the pigment particles much smaller, so they would stay suspended in liquid. The formula was set, and Tousi came up with a new motto: "Don't dink with the ink."

Throughout the whole process Tou-

TURF WARS

Rivals Say HP Is Using Hardball Tactics

Cheaper store-brand inkjet printer cartridges have come on strong recently and now make up about a quarter of the market for replacement cartridges in the U.S. That poses a serious threat to Hewlett-Packard Co., the worldwide leader in consumer printers. Now, according to printer industry and retailing executives, HP is fighting back.

Those executives say the company has approached chain stores that sell store-brand cartridges compatible with its printers and offered them incentives if they end the practice. Since those replacement cartridges typically sell for 10% to 15% less than HP's, consumers could be the big losers if a lot of retailers take the printer giant up on its offer, they say. "HP has a huge share and market power. By limiting the alternatives a consumer has, it's a

tough strategy," says one executive in the ink cartridge remanufacturing business. (The independent and store brands sell recycled cartridges that they refill.) None of *BusinessWeek's* sources would allow their names to be used because they didn't want to damage their relationships with the industry leader.

Asked to respond to the complaints, an executive for HP says it provides incentives to retailers so they will aggressively market its products. But the executive, Pradeep Jotwani, head of supplies for the HP Imaging & Printing Group, wouldn't provide details of those marketing programs. "We don't try to stop the availability of non-HP supplies," Jotwani says. He adds that the Palo Alto (Calif.) company has the customers' interests in mind, and purchasers will get the best results if they use all HP-original technology and supplies.



ON CAMERA Kodak CEO Perez (center) at the printer launch on the *Saturday Night Live* studio

Larry Jamieson, director of industry-watcher Lyra Research Inc.

But Perez and Kodak are challenging a giant competitor that has a 33% worldwide market share and a sterling reputation among PC and digital-cam-

era users. HP not only gets prime merchandising spots for its printers and ink in stores, but also gets to display its printers in the computer sections, because it bundles printers with its PCs. "HP has a lot of customer loyalty. They build a great product. The printers don't break," says analyst Alyson Frasco of market researcher Interactive Data Corp.

It's up to Perez and Kodak to show

they have a truly game-changing product. Perez seems immune to negative thoughts. He tells a story that shows just how confident he is of success. "J- Paul Getty said you have to do just three things to be successful: get up early, work hard, and strike oil," says Perez. "I didn't strike oil in my career, but I did strike ink." •

-With Louise Lee in San Mateo and Spencer E. Ante in New York

"We want to provide the best customer experience," he says.

Staples Inc., the country's largest seller of replacement ink, confirmed to *BusinessWeek* it plans on phasing out sales of store-brand inks for HP printers, but won't say whether the electronics giant asked it to make the move.

It says HP has invested heavily in optimizing its printers, ink, and paper, so the two work well together. "We'll focus on HP-original technology," says Scott Rankin, vice-president for technology merchandising at Staples. "Selling that system is going to enable us to offer our customers the best solution."

Yet Staples will continue to sell store-brand replacements for cartridges from Epson, Canon,

and Lexmark International. Rankin says customers still have opportunities to save on HP-compatible ink purchases by buying multicartridge packages and getting \$3 each for recycling cartridges.

Jotwani says he's experimenting with programs that would make for

more efficient cartridge recycling and would also boost the volume of returns, HP takes the cartridges and separates the materials for recycling, rather than refilling them like remanufacturers do. He denied the company is trying to deprive remanufacturers of the cartridges they need to do business.

Industry analysts are watching the action closely. "The speculation is that [Staples] reached a deal with HP and got increased margin and soft money for marketing," says Charles Brewer, managing editor of *The Hard Copy Supplies Journal*, a trade publication that first wrote about Staples' move. "That line is selling very well for Staples. They wouldn't drop it without compensation."

Staples' move has already had reverberations. InkCycle Inc., a Lexena (Kan.) company known to supply ink cartridges that Staples sells under its store brand, has reduced its workforce from nearly 800 last summer to 400 today. InkCycle officials would not comment on HP or their relationship with Staples.

Other retailers, including Best Buy Co. and Office Depot Inc., say they will continue to sell store-brand HP-compatible ink. "We carry what the customers ask for," says Scott Koerner, senior vice-president for merchandising at Office Depot. "As long as the customers continue to ask for it, we intend to continue to carry it. This is about providing customer choice." Asked if the industry behemoth approached Office Depot and asked it to stop carrying store-brand ink, Koerner said: "I can't comment on any conversations with HP one way or the other."

Executives in the ink cartridge remanufacturing industry say they are discussing whether to complain to regulators about the moves, which the executives say may harm consumers. Do these alleged tactics raise antitrust questions? "Antitrust law would only be violated if HP does something that significantly eliminates alternatives from the market and gives it enhanced market power as a result," according to Steven C. Salop, professor of economics and law at Georgetown University Law Center. "Right now, there are alternatives being sold at other office superstores, and other printer brands are being sold at Staples."

-By Steve Hamm

