
**20/20 VISION** In P&G's "virtual cockpit", an employee anywhere in the world can scan the operations of the company the way a pilot scans his instruments.



# THE FUTURE DEPT.

**In the bowels of Procter & Gamble, one of the country's biggest, grayest, most venerable companies, a rebel group is developing the cutting-edge future of the workplace** BY JULIE SLOANE

If you were to name five companies shaping the future of workplace technology, Procter & Gamble would almost certainly not make the list. From its products to its people, the 169-year-old grand dame of consumer goods is a standard-bearer of the big, corporate, nine-to-five workplace. It produces such supermarket staples as Clairol, Folgers and Old Spice—the sort of things given away as consolation prizes on *The Price is Right*. And P&G's Cincinnati-based staff embodies a clean, conservative, Midwestern sensibility (they're famously loyal; most of the company's top executives have spent enough years with P&G to merit a gold watch).

While thousands of researchers plot the Pampers and Pringles of tomorrow, however, a little-known band of futurist thinkers is cooking up something else at P&G: cockpit-like displays of real-time business data, electronic notebooks, virtual reality. And because the company is such a marketplace leader—its partners closely follow its lead in everything from work schedules to inventory systems—anything P&G implements inside its walls today determines what other companies will consider standard business practice in a few years. So when a company this influential and traditional begins to tinker with the future, you know the future's coming. In short, P&G is designing the office technology that may usher in the high-tech workplace of tomorrow for all of us.

Any information-technology (IT) worker carries a double burden. No one is better acquainted with the dysfunction of the company's systems, yet rather than consult on-the-ground IT workers about the big picture, upper management typically ignores them. P&G has done it differently. In 2003, as part of a 10-year, $3-billion outsourcing deal, the firm turned over half its IT functions—the mundane maintenance stuff—to Hewlett-Packard. With a few signatures and handshakes, 2,000 P&G techies became HP employees.

Over the next two years, P&G became a very attractive company for IT people. It reshaped its remaining tech force—only the best and brightest stayed behind—recast its IT department as Information and Decision Sciences (IDS), and put Filippo Passerini in charge. Passerini is an IT guy's dream boss. A native of Rome, he has worked at Procter & Gamble for his entire 25-year career, managing IT operations in Europe, the Middle East and South America. He has the political gift of remembering names and winning over strangers with a warm handshake and a few words. He knows his way around a server. And for the people who work for him (especially when your job title makes people think of >Star Trek< T-shirts), it's nice to have a sophisticated, smooth-talking, trilingual Italian as your protector. Over the past two years, Passerini has eaten group lunches with more than 15,000 P&G employees, asking the kinds of big-picture questions that never get asked: What drives you craziest about the process around here? If you could have a fantasy tool that made your job easier, what would it be?

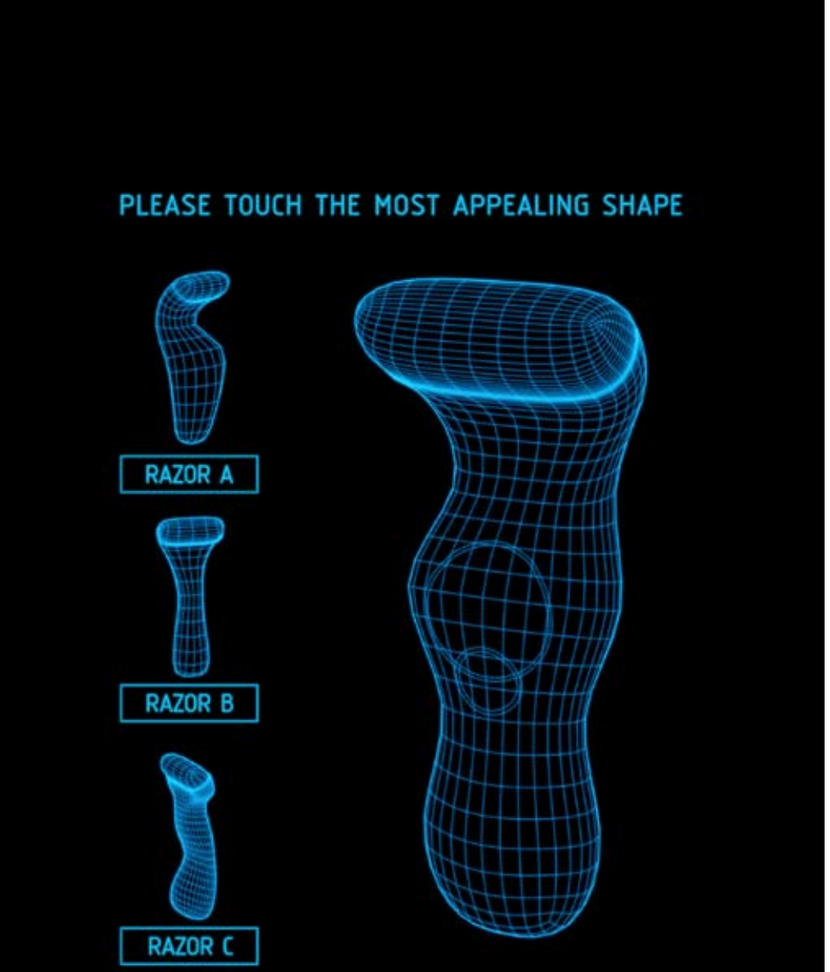
P&G wanted Passerini, an organization freak who breaks his day into five-minute increments, to make the company tighter, leaner and faster. For a company making toothpaste, air freshener and laundry detergent, having that new Swiffer gizmo out even a few days ahead of a competitor's version can mean millions of dollars in profit. To that end, Passerini tasked roughly 400 employees—15 percent of IDS—to develop the IT of P&G's future. Now IDS employees working in one of several teams spend their days weighing wacko solutions to high-level problems. How can prototyping happen more quickly? What's the best way to make sure no one's doing the same job twice? Instead of puzzling over a broken server, IDS futurists spend their days puzzling over how workers can be better served, and then they wire the solutions together.

In committing money and people to developing future tech, says Lewis Cardin, a senior analyst of IT leadership at Forrester Research, P&G is unique. "Most CIOs are only able to manage things the way they are today, in 2007," he says. For a company with 140,000 employees in 80 countries and more than 300 brands, today's problems are tough enough. Passerini's band of futurists are preparing for problems the other big corporations aren't even thinking about yet. And if other companies aren't watching what Passerini and his people are up to, Cardin says, "they should be."

## SHOW, DON'T TELL

At a company as large as P&G, information is like a wave on the shore: It crashes onto the rocks and flows into tide pools and crevasses throughout the company. Some is retained, some is lost forever. If a P&G marketer in Toronto wants to point out a problem to his boss concerning, say, how many jars of Crisco were sold in Canada last week, he must gather data from e-mails, letters, phone calls and reports from inside and outside the company. Only after days of digging can he compile and analyze the resulting data and issue a report to his superior, who adds it to the pile on his desk. Weekly reports, quarterly reports, annual reports—they're just an accepted part of doing business in 2007.

IDS is making that mess of papers and conversations tidy, centralized and digital. What if that same marketer could glance at a yellow circle in the lower-left-hand corner of his computer screen at any time and know by its size how well Crisco is selling? And what if an adjacent blue circle showed sales of its closest competitor? Or perhaps it would be more helpful for him to call up a line graph of the past 24




hours and see in what hours of the day customers bought Crisco in Argentina.

P&G is laying the groundwork for such a system with what it calls "decision cockpits." The idea is that the more intelligence an executive has about what's going on in the world, the smarter the decisions he or she can make. The problem with reports, P&G brand managers told Passerini at lunch, is both the lag time in receiving the data—a two-week delay on even simple data requests was not uncommon—and the fact that there aren't enough cups of coffee in the world to read and absorb what comes back.

In the same way a pilot can quickly scan all his screens and dials to understand what's going on, P&G is aiming to present real-time data in visual form. In the current iteration, a highly sophisticated onscreen display designed by a team from IDS offers everything from bar charts for the market share of a product by country, city or even store, while container information comes in from a port warehouse shipping products abroad. Employees each customize their preferred method of viewing data and constantly refine what they're shown to ensure that the display emphasizes the most useful information. Each has security clearance, keeping sensitive data under wraps. The next step is to link the company's various distribution channels through radio-frequency identification tags affixed to crates and products, as companies like Wal-Mart have done so successfully to keep track of their inventory. It's that interconnectedness that will truly make the project feasible.

Other companies (P&G points to BP, Exxon and IBM) are also experimenting with cockpits, but P&G believes it is planning to use them on an unprecedented scale. An early version has been rolled out to 3,000 employees, including the CEO. In the next two years, it hopes to add 30,000 more, and IDS designers are already sketching out plans for a room-size, virtual-reality version in which employees can close the door and study their responsibilities in life-size detail.

## TEST CASE

At its core, Procter & Gamble is primarily occupied with testing products on consumers. At any given time in one of several labs around the world, someone is sniffing a new deodorant, or thoughtfully chewing a stick of a new gum, while researchers take notes on clipboards.

For each focus group, P&G creates several physical samples of its product. In the case of a diaper, for example, researchers make a mock-up version, show it to consumers, try it on babies, and incorporate feedback to make a new mock-up. Rinse. Repeat.

At any consumer-products company, this sort of back-and-forth is an accepted part of the process. But P&G has a virtual infant in the works. Using properties of anatomy and physics, IDS created a baby that sits, crawls, and toddles in 3-D while wearing—you got it—a virtual diaper. "Based on what we know of mechanics," says IDS's Keith Caserta, associate director and head of health care R&D, "is the diaper going to bunch up and be uncomfortable? Is it going to leak?" If so, an adjustment to the virtual diaper can happen that same day. "You can test a diaper in hours instead of weeks," Passerini enthuses, "and do many more iterations, so the outcome will be better." In addition, Caserta points out, virtual testing allows scientists around the globe to collaborate over a simultaneous product review, without the delays and inconvenience of travel. Only at the end of the process does the company need to spend the time and money on creating a tangible version.

Today P&G has four "caves," in Japan, England, Switzerland and Cincinnati. Built inside a black room, each cave is a 10-foot-square cube made of white panels, open on the top and one side. Using high-end stereoscopic projectors, images are projected onto the three walls and the floor. By donning special plastic glasses, visitors to the cube experience the projected world—a baby-changing room, a suburban kitchen, a Wal-Mart aisle—as if they are physically inside it, and move about with a hand controller.

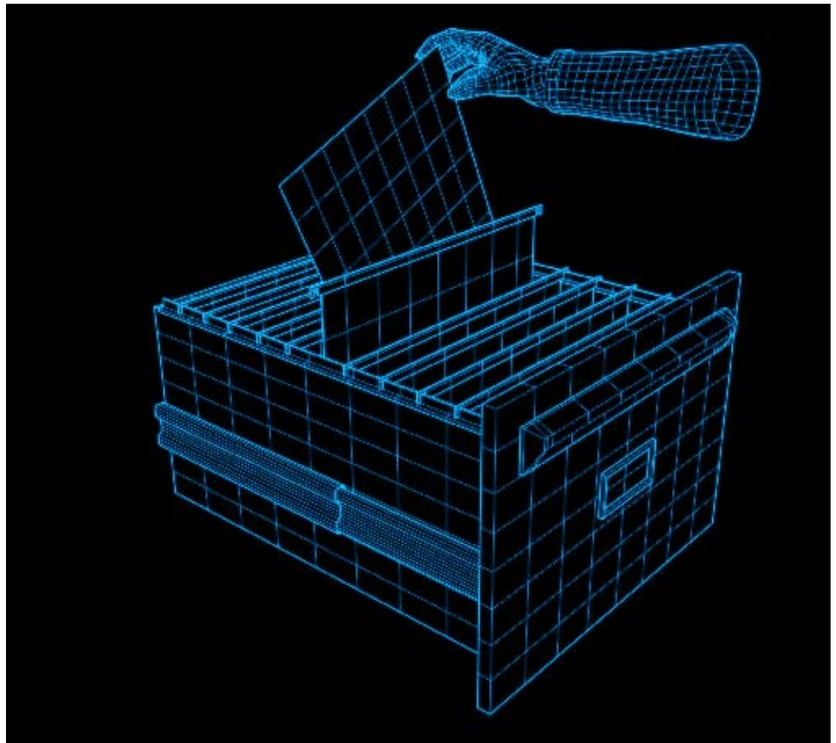
Any beachfront arcade has a virtual-reality game these days. But this VR world has to be real in much more than the virtual sense of the word, responding to the laws of supply, demand, proportion and other logistical limitations imposed on it from all over the company. P&G engineers also use the caves to design the layout of manufacturing plants and assembly lines. In the future, Caserta says, P&G scientists will regularly plot their formulas and equations in 3-D and walk around inside the data and ponder it in new ways.

## DON'T DO THAT AGAIN

If you've ever wondered, when your boss handed you an unpleasant project, why someone else couldn't have done this, the answer could be that someone did. Duplicate effort is the clearest sign of an unorganized workplace, and it's all too common. At P&G, this kind of wasteful repetition isn't merely annoying; it's also a big waste of money and time. The company estimates that when researchers record their experiments in lab notebooks, 15 percent of all research is duplicated work. Without a digitally searchable way to confirm who did what and how, workers in any department simply start from scratch.

The waste is extraordinary. Of P&G's 8,000 researchers, 5,500 regularly record experimental data in lab notebooks, each spending an average of 10 hours per week writing. For legal reasons, these notebooks must all be retained, so P&G has hundreds of thousands of them boxed up in a library. Whereas successful experiments often result in digitally searchable published papers, failed experiments are buried under pounds of paper. With the time it takes to find such notebooks, it's usually easier to just repeat the experiment.

The company is calling its first advancement the "electronic notebook" and says it's already saving each scientist two hours a week in scrawl time. In its current, humble iteration, the "notebooks" are a Web site, used by a test group of 200 researchers to record their work. Once entries are completed, the data is frozen. Any changes must be tracked, key to legally proving who invented what when. P&G plans to expand to 1,000 users by September. Executed by Plano, Texas–based UGS, the software will be commercially available to anyone in March. Combined with a pen that transmits jotted notes to a computer as digital text, the system could be as convenient as writing by hand, while at the same time archiving every word.



The site is an early step toward Passerini's vision of a transparent, interconnected organization. "If you think about it," Passerini says, "what holds you to a physical office is your filing cabinet. Why can't the digital world match the physical world?" Using technology similar to that in the prototyping caves, IDS is researching the notion of a virtual filing cabinet, where, by touch or voice command, an employee might flip through sensitive documents, which look as they do in a filing cabinet, and graphically pull out the required one. Related documents would appear to the side of the one you're "holding," and, most important, a constant search of the system for related keywords, images and project names would bring up any similar work other employees had already completed.

Working for a corporate behemoth, it's easy to get lost in the day-to-day of the present. But by injecting new, more dynamic visual interfaces at P&G, Passerini believes that even the most complicated future technologies will become intuitive and helpful parts of the workaday world. "For my grandfather, a refrigerator was breakthrough technology," he says. "But we don't even consider that to be a form of technology anymore. It's just part of our lives." If P&G succeeds in popularizing its vision of the visual, searchable workplace, Passerini's own grandchildren will laugh at the thought of making prototypes by hand or waiting weeks to get back data analysis. Which isn't to say that Passerini's excitement will be passed on to the next generation. To them, spending the workday fitting giant 3-D diapers onto a virtual baby may be just as mundane as punching the clock at a company that makes toothpaste and laundry detergent.

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