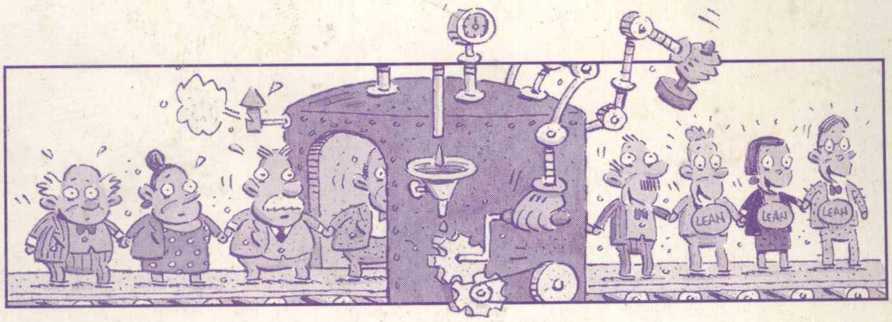
Harvard Business Review

MARCH-APRIL 1994



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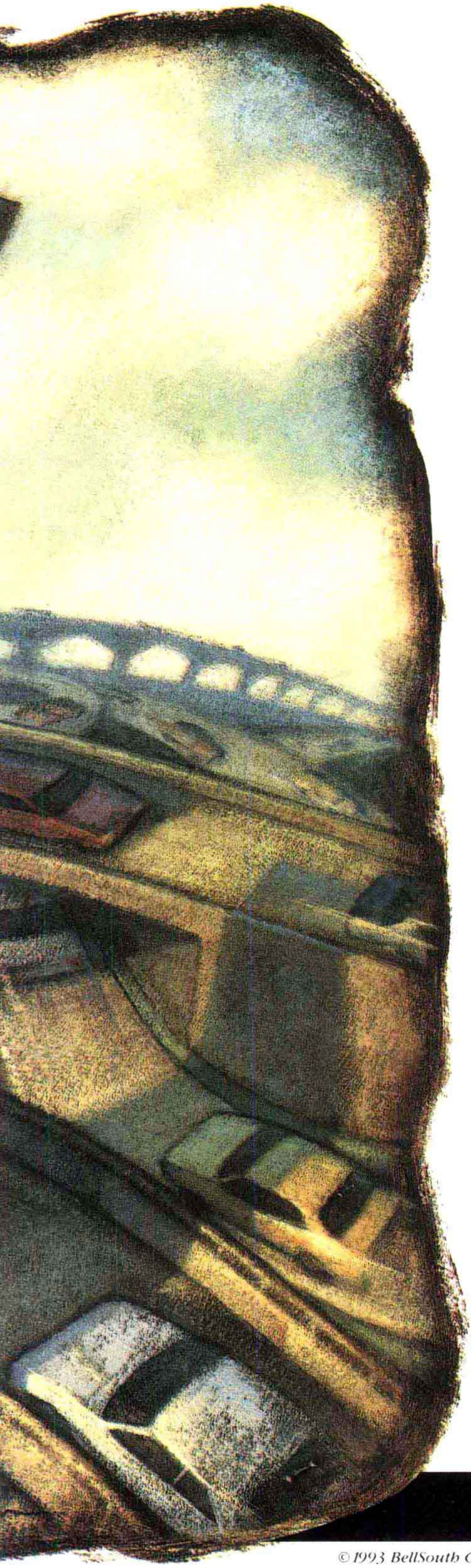

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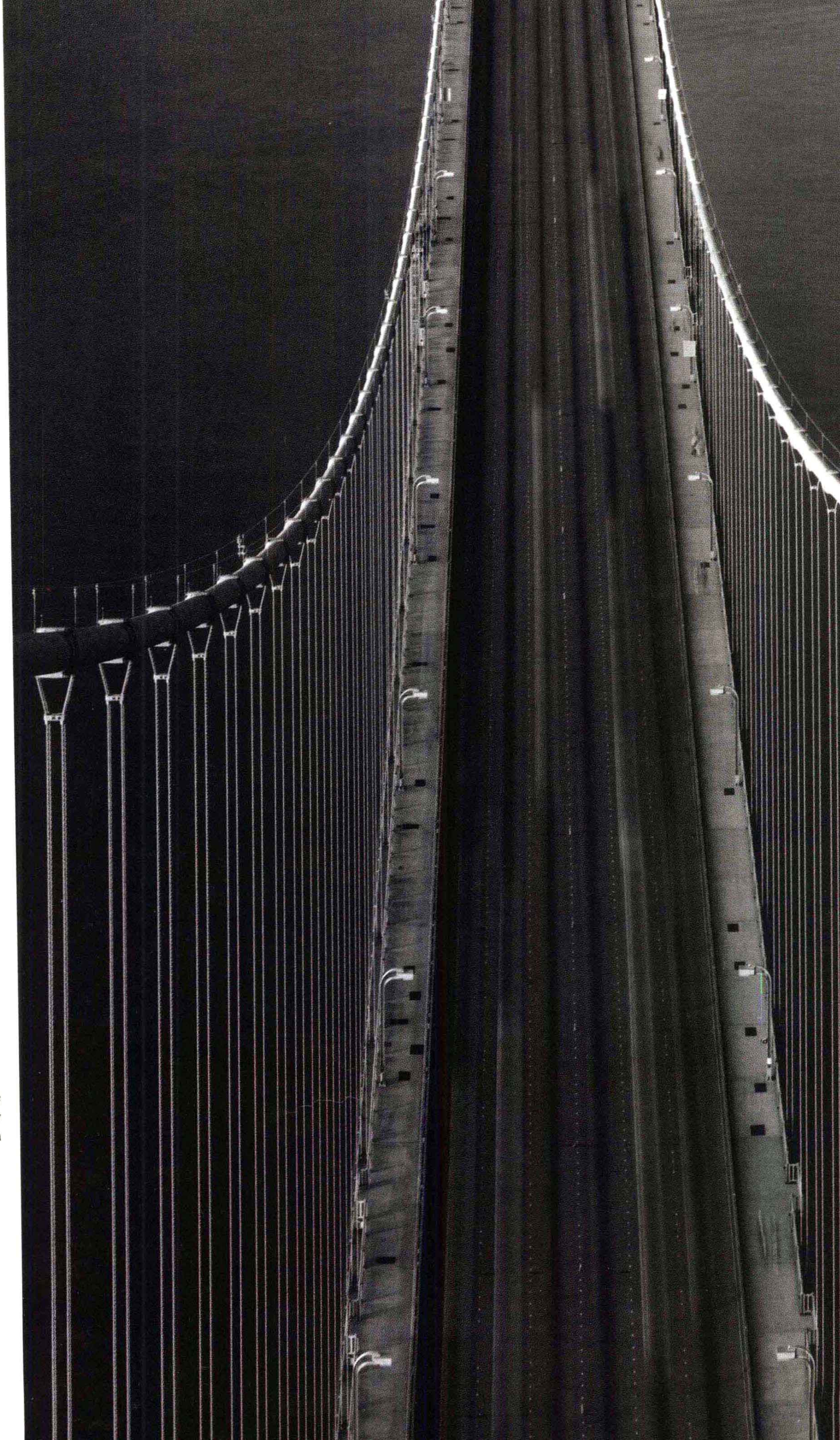


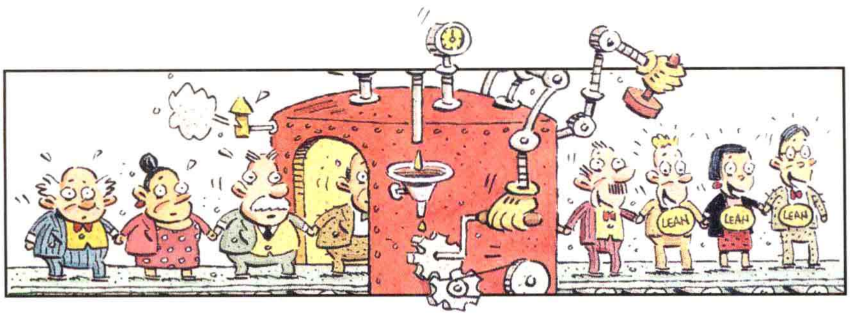
The Golden Gate Bridge
photographed by
John Sexton

In This Issue

HBR

MARCH-APRIL 1994

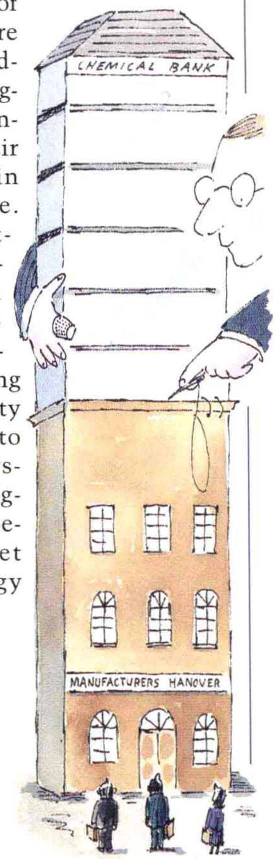
10 **Briefings from the Editors** include new findings on product development, pricing, inventory logistics, and employee performance.



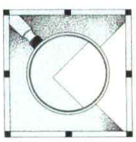
93 By embracing lean production, many companies have become vastly more flexible and responsive to customer demands. Now James Womack and Daniel Jones urge managers to move **"From Lean Production to the Lean Enterprise."** Why should companies set their sights on the *lean enterprise* when so many are already reaping the benefits of *lean production* or still struggling to master its techniques? Unless all members of a value chain pull together, the authors warn, it may be impossible for any one member to maintain momentum.

106 Rarely do the character flaws of a lone actor fully explain corporate misconduct. In fact, ethics is as much an organizational as a personal issue. Many companies today are rushing to implement compliance-based ethics programs that focus on preventing, detecting, and punishing legal violations. But such programs do not go far enough, argues Lynn Sharp Paine in **"Managing for Organizational Integrity."** Paine calls on companies to adopt an integrity-based approach to ethics management that combines a concern for the law with an emphasis on managerial responsibility for ethical behavior.

119 IT specialists often tout technology as a catalyst for change. Shared databases promise interaction between departments, creating heretofore unheard of synergies. But in **"Saving IT's Soul: Human-Centered Information Management,"** Thomas Davenport argues that unless IT managers pay attention to the soft science of how *people* share information, advanced technological systems cannot achieve their full potential in the workplace. Davenport outlines how organizations can rebuild their information cultures, integrating human flexibility and disorder into information systems and changing employee behavior to meet the technology halfway.



DEPARTMENTS



HBR Case Study 20

At the moment of decision, what would you do?

EDC is a leading U.S. bicycle maker. CEO Ann Reardon believes that the company's success is due to a synergy made possible by its campus-like layout. But the domestic arena is approaching saturation, and the Asian market looks ripe. How can EDC expand without losing its core strengths? Andrew Bartmess outlines Reardon's dilemma in **"The Plant Location Puzzle,"** and eight experts offer their input.

Perspectives 39

Readers and authors examine all the angles.

What role should the private sector take in public education? In **"Educating the Workforce of the Future,"** nine experts consider Bernard Avishai's argument that today's learning organizations must be teaching organizations too. Commentators include Secretary of Education Richard Riley; Sandra Feldman, United Federation of Teachers; and G. Alfred Hess, Jr., Chicago Panel on School Policy.

In Question 52

A review of business issues-in-progress

New Age entrepreneurs are redefining the way business is conducted, placing environmental needs and moral imperatives at the top of the corporate mission. But can these new priorities work in all organizations? In **"Does New Age Business Have a Message for Managers?"** Martha Nichols examines how managers can both incorporate New Age ideals into existing organizations and create meaning for employees in the workforce of the future.

HOW AIG'S ABILITY TO CONTROL FINANCIAL RISKS PUT ONE AIRLINE ON A STRAIGHTER COURSE. *An airline's first-ever energy hedge in jet fuel, using a series of fixed-for-floating-rate transactions. It's no blue-sky idea but how we recently helped a major U.S. carrier manage risk. Since the airline's international operations generate a multiple-currency revenue*

Briefings from the Editors

Product Development

Empathic Design Helps Understand Users Better

Despite the billions spent on research, development, and marketing, the failure rate of high-tech products is staggering. Remember the Osborne PC? How about the CP/M operating system for PCs? Both fizzled out after initial success.

Now there may be a better way to get at what customers want. According to a Harvard Business School study by Professor Dorothy Leonard-Barton, Hewlett-Packard manager Edith Wilson, and consultant John Doyle, companies must focus on a more efficient and more effective development process, using a method the researchers have dubbed *empathic design,* which puts the onus for a higher success rate on development managers.

Research managers today must produce more relevant, potentially profitable knowledge faster. Product life cycles grow increasingly shorter, and market opportunities close more quickly than ever.

The authors believe that commercially successful products are not simply the result of market intuition, serendipity, or even traditional market surveys. They suggest that managers must develop methods for knowing what users need even before the users realize it, using empathic design to take the critical step beyond users' own articulation of their needs.

Empathic design comes out of understanding users' needs through empathy with their world rather than from what users themselves tell developers they want. Users, who are often totally unaware of their own psychological and cultural responses to symbols and forms, cannot always describe what they want, the researchers say. "Frequently, in high technology, we have potential products for which the user has no instinctive understanding," Leonard-Barton reports. "Once product designers develop a deep understanding of the current user environment, they can then extrapolate about the way that environment may evolve in the future and imagine a need that their technology will be able to satisfy."

Empathic design reaches beyond traditional market research like surveys and focus groups to take intuitive approaches. The study suggests that the most powerful aid to empathic design is an anthropological expedition into the user's world; technologists immerse themselves in that environment, much as anthropologists do in remote native villages. Such anthropological approaches are not new, the authors say, just more broadly applicable than once thought. Pioneer industrial designer Henry Dreyfuss used to make his designers ride corn pickers or roam factory floors to get a deeper understanding of workers' needs.

The Nissan design center in San Diego, the first Japanese automotive design center in the United States, practices empathic design. Nissan sent an anthropologist-photographer to U.S. cities to document how people use their cars and vans. The researcher discovered that they are used in a number of unanticipated ways – sometimes as a place to relax, other times as a living space.

Intuit, a personal computer software company that makes the popular Quicken financial package, sends its designers home with customers to watch them open the package and load the software. Too often, companies rely on artificial settings to observe users with products and end up trying to deduce their real needs.

For managers to reap the most rewards from this new concept, they must understand the degrees of empathic design required. Technology commercialization opportunities range from those in which technological potential aligns well with current markets – for example, an improved solution to a known need – to situations that require creating new markets. Sometimes, whole new businesses emerge.

But in every scenario, the critical success factor is getting essential insight directly from user behavior and having both marketers and engineers buy into the requirements. The authors cite the design of Hewlett-Packard's popular DeskJet printer. Marketers tested early prototypes in shopping malls to determine user response and came back to engineering with a list of 21 changes that were crucial to the product's success. At first, the engineers accepted only 5, but after attending the mall tests themselves and hearing the same feedback, they incorporated the other 16 changes.

The authors haven't quantified the benefits of empathic design. Leonard-Barton says it should be characterized as best practice. "If you design with a broad and imaginative understanding of users' needs, then you avoid bringing out products that no one wants, or wonderful inventions that are not adapted to users' true needs."

Glenn Rifkin

Pricing Problems

Short-Term Gains, Long-Term Losses

A new study from the Wharton School finds that managers are often shortsighted when making pricing decisions, sacrificing long-term profits by as much as 20% as a result. Assistant Professor John Walsh, Professor Robert Meyer, and doctoral candidate Rajeev Tyagi found marketing specialists to be overly fearful of setting a price for which they were uncertain about demand.

This uncertainty about the price sensitivity of demand is, of course, the crux of the problem. If managers knew the exact shape of the demand curve for a given product, they could simply run a finger along the parabola until they found the point where the combination of demand and price maximized profit. Marketing research is supposed to provide such a graph but is not always available or viewed as reliable.

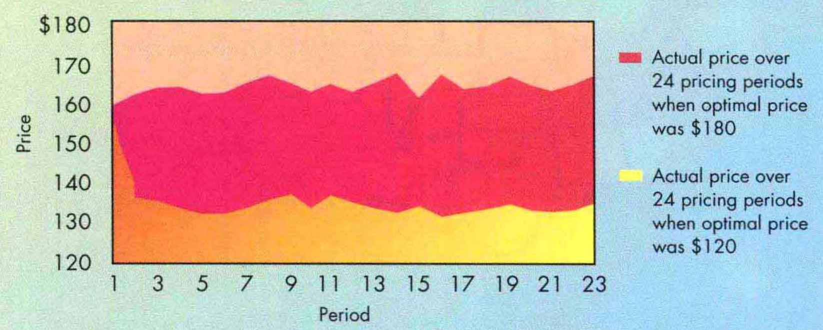
Managers entering a new market must find the optimal price by using initial prices as research tools and thus risk short-term profit in order to maximize long-term gain. Since extreme prices teach the most about price sensitivity, explains Meyer, the strategy that would uncover the optimal price most quickly would be actively switching between high and low prices.

But that was not the strategy that the marketing majors and experienced product managers used in the Wharton pricing study. Far from active experimentation, their process might be better described as guess-and-tinker. Marketers set the initial price within a middle range and then made incremental adjustments depending on whether demand was higher or lower than expected. With this approach, learning slowed and prices stabilized at overly conservative values: too low when the best price was at the high end of the spectrum, too high when the optimal price was at the low end.

Moreover, even the tinkering was flawed. When demand was lower than expected, subjects responded with an excessively large price drop. And when demand was higher than anticipated, prices did not move up analogously. In general, managers were overly slow to change prices in response to new information.

As Meyer concludes, "Our results offer what might be seen as a disturbing view of managers' ability to make good pricing decisions."

The Bias Toward Timid Pricing



Note: Item being priced was a one-day executive education seminar to be held at airport hotels in several hypothetical cities.

The Learning Mind-Set

Who's Got It, What It's Good For

With all the talk about learning organizations, researchers at the University of Virginia's Colgate Darden Graduate School of Business Administration have been focusing their study on learning managers: those who approach key events as opportunities to learn rather than simple checkpoints in the march forward. It's a mind-set that is both rare (only 10% of the executives interviewed had it) and valued (those with this mind-set received the highest job performance ratings of the entire group).

Only 10% of executives have a learning mind-set.

In her study, Associate Professor Lynn Isabella found a grouping of distinct characteristics that place learning mind-set managers apart from their peers:

- ☐They experienced numerous events that caused them to dramatically rethink their basic assumptions. Such transformational events comprised 52% of the most important career events that they reported, but only 2% to 7% of all the key events of other managers.
- ☐They demonstrated agility of thought, which was evident from their ability to see solutions not readily apparent to others, adapt easily to new situations, and see patterns and connections between seemingly unconnected variables.
- ☐They focused on learning and learned from many sources.
- ☐They communicated readily in metaphors and analogies, and conducted discussions in a nonlinear manner – characteristics that were rare among other managers.

If you don't recognize yourself in that description, you're not alone. The vast majority of executives in the study approached their work in a far more methodical, linear manner and experienced key events most commonly as points marking their progress or offering choices rather than as experiences that changed their way of thinking.

While those who have it are in the minority, the learning mind-set does seem particularly suited to certain tasks. In a study of strategic alliances undertaken at Colgate Darden, Professor Robert Spekman, Isabella, Professor Tom MacAvoy, and Research Associate Ted Forbes are finding the learning mind-set to be critical to getting these alliances started and to weathering difficult times during their evolution. "There is something about the learning mind-set that allows the alliance manager to walk in and out of different cultures or situations with ease and to understand the intricate set of relationships needed for the alliance to succeed," explains Isabella.

While the learning mind-set may be useful to individuals and valued by companies, Isabella warns that it is not a shortcut to organizational change. One *Fortune* 50 corporation that she and her colleagues studied had created an evaluation structure that rewarded people with a learning mind-set above all others. "But I wouldn't call this company a learning organization by any stretch of the imagination," notes Isabella.

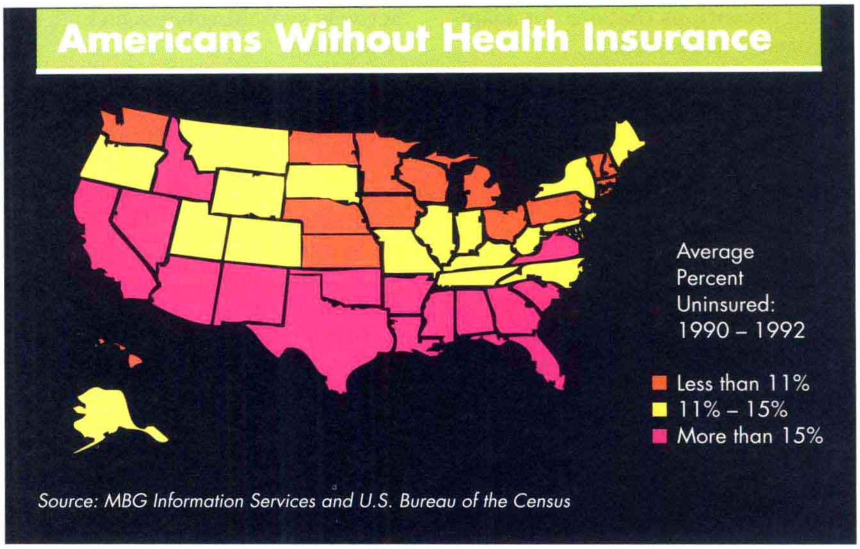
Anne G. Perkins

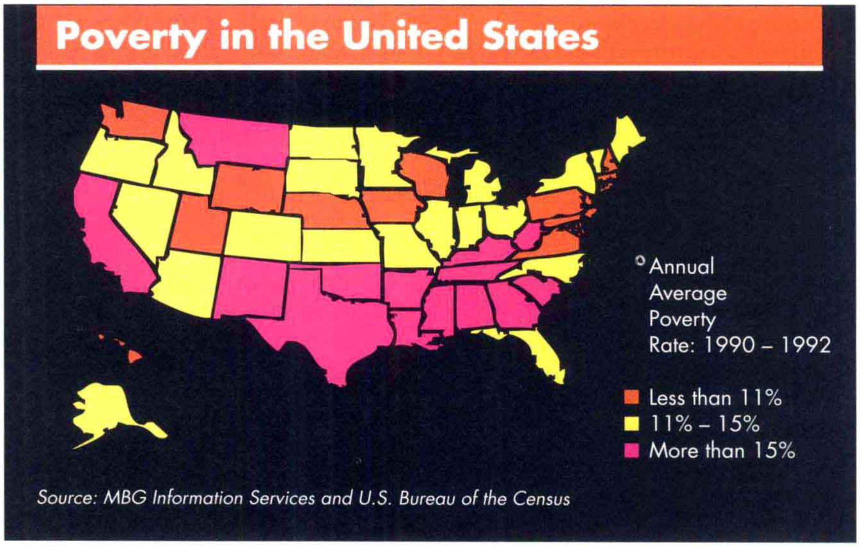
Health Care for All?

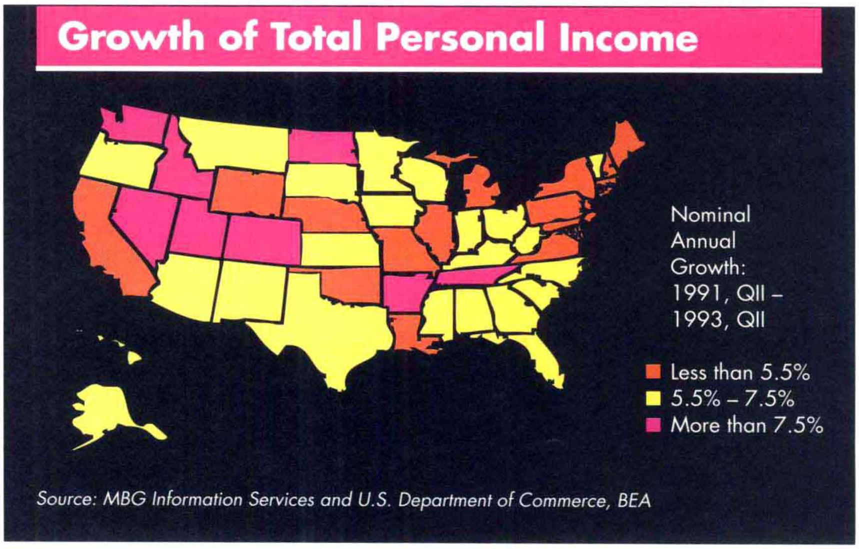
Paying for Health Care Reform

For the Clinton administration, universal coverage is the main goal of health care reform. But who will pay for it? Funding to cover the 39 million Americans currently without health insurance will require either self-financing from within regions with the highest levels of uninsured people or massive cross-subsidization from affluent regions with relatively few of the uninsured.

Neither option will be easy given the current state of the economy. Those who most need coverage are least able to pay for it: the uninsured are heavily concentrated in the South and Southwest, including California – regions already suffering from the country's lowest incomes and highest poverty rates. But cross-subsidization from those with coverage will not be a popular solution ei-







ther. The highest levels of insured people and the highest per capita incomes are concentrated in the areas hit hardest by the recession – along the Northeast corridor from Washington, D.C., to Boston, in the far West, and in the areas around Chicago, Minneapolis, and Denver. Moreover, of the high-income states, only Nevada, Colorado, and Washington have seen strong income growth since the end of the recession, and recent layoffs at Boeing may threaten Washington's prosperity.

So what's needed to achieve universal coverage? Strong, uninterrupted economic growth across the country. Fortunately, this is beginning to happen in some of the areas where the need for coverage is greatest: most states in the South and Southwest with high levels of poverty and uninsured people have been enjoying moderate to strong personal income growth in the current recovery. For self-financing to be an option, this economic surge in the South and Southwest must continue.

Charles W. McMillion

Everyday Low Profits

Why Manufacturers Should Leave Pricing to the Retailers

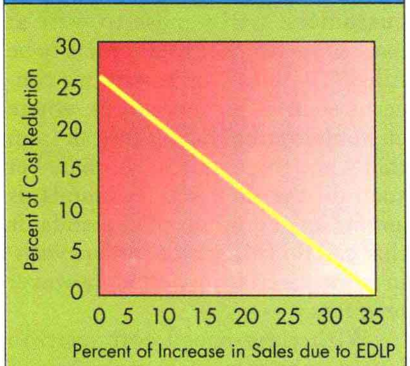
A study just released by the University of Chicago business school finds that confusion between two similar pricing trends – one wholesale, one retail – can rapidly erode retailer profitability and hurt manufacturers in the long run as well.

☐ *Trend #1*: EDLPP – Everyday Low *Purchase Price*. Following Procter & Gamble's lead, many manufacturers are smoothing out the traditional roller coaster of wholesale prices.

☐ *Trend #2*: EDLP – Everyday Low *Pricing*. Following the lead of Wal-Mart, Kmart, and wholesale clubs, some retailers are dropping average prices by about 9%.

But does EDLPP require EDLP? Professor Stephen Hoch, MIS director Xavier Dreze, and micromarketing project manager Mary Purk of the University of Chicago business school answer this question with a firm no. Yet such a requirement is just what many manufacturers are pushing on their retailers.

Cost Decreases Necessary for Everyday Low Pricing to Work



Note: Assumes a typical average supermarket margin (25%) and an effective price reduction of 6.5%.

Media hype aside, everyday low pricing may be a bad idea for many retailers to adopt. In their research at Dominick's Finer Foods, where 28% of Chicago area residents buy their groceries, Hoch, Dreze, and Purk found that EDLP gave manufacturers a small win (3% increase in units sold) at the cost of a big loss for retailers (18% decrease in profits). "The bottom line is that EDLP did not drive volume sufficiently to compensate for lower profit margins," explains Purk.

The truth is, it's hard to imagine how everyday low pricing could ever work for a typical grocery store. The researchers calculate that volume must increase 39% for a supermarket to avoid losing money after a 7% price drop, which is a far shot from the 3% volume increase they observed. "Location remains the most important reason people choose a given grocery store," notes Dreze. In fact, the most profitable stores in the study were those where average prices rose 10%. Volume fell 3%, but the wider profit margin boosted profitability by 15%.

Increased volume isn't the only argument one hears in favor of everyday low pricing; EDLP is also billed as a substantial cost cutter. But this assertion is wrong too. "The low cost structure that makes EDLP a success at stores like Wal-Mart is simply not attainable for most retailers," explains Hoch. "When a 10% price drop boosts sales by only 3%, operating costs must drop 14% for the retailer simply to break even." But warehouse, shipping, and inventory holding costs usually make up only 13% to 17% of operating costs, whereas labor expenses make up 50%. "Given that cost structure, it is difficult to imagine how EDLP could reduce costs enough to make the operating-cost arithmetic pay out," adds Hoch.

Everyday low purchase price has helped retailers and manufacturers alike by reducing retailers' inventory and administrative costs and by alleviating manufacturers' production problems. But EDLPP does not equal EDLP. "Manufacturers aren't retailers. If they were, they wouldn't

Everyday low pricing may be a bad idea for many retailers.

need grocery stores," concludes Purk. "Instead of attempting to impose everyday low pricing on their retailers, manufacturers should focus on improving back door logistics and let the retailer take care of the front door in terms of pricing and merchandising."

Manufacturing

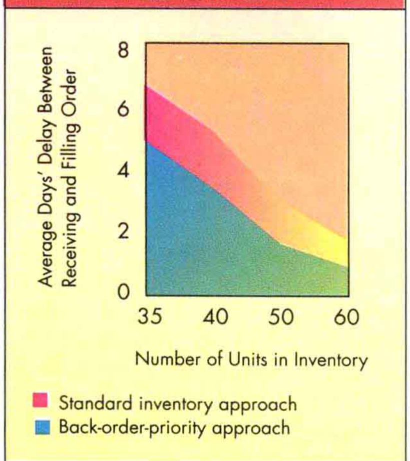
Maximizing Service, Minimizing Inventory

Professor Joseph Thomas of Cornell's Johnson School of Management has a new answer to a persistent riddle: How do manufacturers produce a variety of goods and fill customer orders quickly without spending a bundle of money on inventory or new equipment?

"Stock your high-demand products, but give them low production priority. Don't stock products for which demand is unpredictable, but give these nonstock items high production priority," says Thomas, who developed this unique approach with his colleagues, Assistant Professor Charles Sox of Auburn University and Professor John McClain of Cornell.

Their formula, used successfully by electronics, cosmetics, and sandpaper companies, runs counter to much of the advice currently floating around. The gospel of just-in-time says stock nothing. The standard textbook approach says stock everything, particularly the items for which demand is most unpredictable. And flexible manufacturing equipment salesfolk say stop obsessing about stock, just buy fancier machines for your company.

Comparison of Average Order Delay with Factory at 95% of Capacity



The back-order-priority approach developed by Thomas, Sox, and McClain eases the customer service stresses of JIT by maintaining adequate inventory of high-demand items and allowing low-demand items to jump to the front of the production queue. It reduces the inventory excesses of the traditional approach by eliminating stock except for those items with predictable demands. And it allows factories that are functioning near capacity to juggle priorities better, with or without flexible manufacturing equipment, explains Thomas.

The new approach does depend on customers' willingness to wait at least some time for their orders to be filled. The idea won't work for concerns such as grocery stores, where customers simply don't buy an item that's not there, notes Thomas. Yet such off-the-shelf service standards are far less common than standards that call for filling most orders within some given time period, however brief it is.

"With time-based competition forcing shorter customer service lead times, inventory will remain an important asset to good customer service," concludes Thomas. "Zero inventory is a bad idea." By treating big items well with regard to inventory and poorly with regard to priority, manufacturers may be able to meet today's tougher standards of customer service without getting buried by overhead costs.

Anne G. Perkins

Employee Performance

On Default Modes and Anchors

When it comes to trying to change employee performance, managers would do well to heed the wisdom of the ancient Chinese proverb, "Gain power by accepting reality." The fact is, except in response to extraordinary life events that come along, people really don't change much, says Clinton W. McLemore, organizational psychologist and president of Relational Dynamics, Inc., based in Pasadena, California.

"The key here is the word *change*," reports McLemore, who has studied the attributes of executives at 33 U.S. companies, among them Federal Express, Westinghouse, Bell Atlantic, Bank of America, and Southern California Gas. "It's not to say that behavior can't change. It's just very difficult to make substantial and permanent changes in a person's basic characteristics or fundamental style."

Consider the time corporate managers spend trying to make rigid people flexible, impulsive people deliberate, or cautious people bold, McLemore points out. When most people are given critical information about themselves, they either minimize it, rationalize it away, or, if they accept it as true, they start making resolutions to act differently. But no matter how much training, self-insight, or willpower the employee may have, it's rare that anyone can produce lasting change. More often, everyone who is involved in the process is left frustrated or feeling hopeless.

To beat the cycle, managers should help employees identify their "default modes," which McLemore defines as deeply ingrained personal traits, including those that have been working against them. Managers should then help the employee recruit and use at least one "anchor" – someone who will help him or her stay on track.

An anchor should be a trusted colleague, who the employee is confident has his or her best interest in mind. The anchor knows the employee's default mode, understands what he or she needs to do to become more effective, and offers frequent reminders to encourage new, needed behaviors to keep the employee from falling back on less productive patterns. Does the employee need to socialize more? Listen more? Assert more? The anchor reminds the employee – again and again – to practice new behaviors.

Reframing the idea of change this way means people can forget "all that nonsense about quick change and the empty resolutions that accompany it," McLemore advises. "They can stop silently persecuting themselves and relax and be who they are."

Indeed, managers who think in terms of defaults and anchors accomplish three things. First, they decrease everyone's frustration by getting people to face how hard it is to alter behavior. Second, by putting the responsibility for behaving differently on the employee, managers stop wasting time trying to impose change. Third, managers free people

Managers can reward ongoing behavior changes in employees.

to accept and value themselves as they are, making it clear that what matters is how the employee acts; no one is asking anyone to change the basic default mode.

Willis B. Wood, Jr., chairman and CEO of Pacific Enterprises (parent company of Southern California Gas), has found this last point of McLemore's a good reminder, particularly in dealing with employees over 40 who are well into their careers. "You kid yourself if you think you can change another person. Especially in times of stress, we all revert to who we really are."

To change their approach to employees' work styles, then, managers can begin by:

1. Reckoning realistically with the employee's default mode.
2. Accepting that the default mode is difficult to change.
3. Encouraging employees to gain as much insight as possible into their default modes (through soliciting feedback from others, for example).
4. Encouraging employees to find others to act as anchors.
5. Acting as anchors themselves.
6. Conducting periodic reviews to evaluate how successfully the employee is moving away from dysfunctional default modes.
7. Rewarding ongoing behavior changes, without any naïve expectations that such changes will be permanent.

McLemore adds that people need to listen frequently to their anchors or they risk relapse. But if practiced long enough, new behaviors will take root, though probably not quickly; changing long-established patterns takes time. Still, employees who are willing to accept critical information about themselves – and to let someone anchor them – are probably well worth the time.

Lucy McCauley

Durable Goods

The Bias Toward Underreplacing

And yet more evidence that managers might not be measuring up to the ideal of the perfectly rational economic agent. Professor Robert Meyer of the Wharton School teamed up with Assistant Professor John Cripps of the London Business School and looked at decisions about replacing durable goods, such as fleets of cars, manufacturing equipment, and computers. Results from their study show that in the replace-or-keep decisions in which companies should have chosen to replace their goods, they did so only 39% of the time. "Generally people tend to be shortsighted and undervalue the opportunity costs of not replacing," notes Meyer. "Instead, they focus excessively on the out-of-pocket costs and hold on to equipment they should be getting rid of."

Reams of earlier research uncovered the best method for solving durable goods replacement problems. Optimal decision makers would keep their eye on the gap between the performance of the equipment they owned and new equipment they could buy. At some point, sometimes unnervingly soon after the initial purchase, that performance lag would become so large that the opportunity costs of holding on to the old equipment would exceed the cash costs of buying new. That's when optimal managers would opt to replace.

But real people didn't act quite that way. Half of the buyers underreplaced, and one-fifth overreplaced. In addition to the overall failure to replace quickly enough, Meyer and Cripps found individuals paying attention to two variables they should have ignored.

People were affected by the time lapse since their last replacement: they overlooked large performance lags that arose soon after replacement, and overreacted to small lags that happened after long periods of nonreplacement. The cause of the performance lag also seemed to matter when it shouldn't have. People were far more prone to replace a durable good to keep up with the state of the art of the industry than to replace something because it was wearing out.

On the bright side, however, buyers did move in the right direction with their decisions, replacing items more frequently as replacement costs went down or the rate of change went up. They just didn't move far enough. "Buyers seemed to operate by a rule that dictated, 'When in doubt, replacing too slowly is better than replacing too fast,'" notes Meyer. "That guideline led them to underreplace, a bias that became increasingly worse as the rates from their study of change increased and faster replacement rates made more sense."

Anne G. Perkins

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