MANAGING FOR THE LONG TERM

Harvard Business Review

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SPECIAL DOUBLE ISSUE

GOING THE DISTANCE

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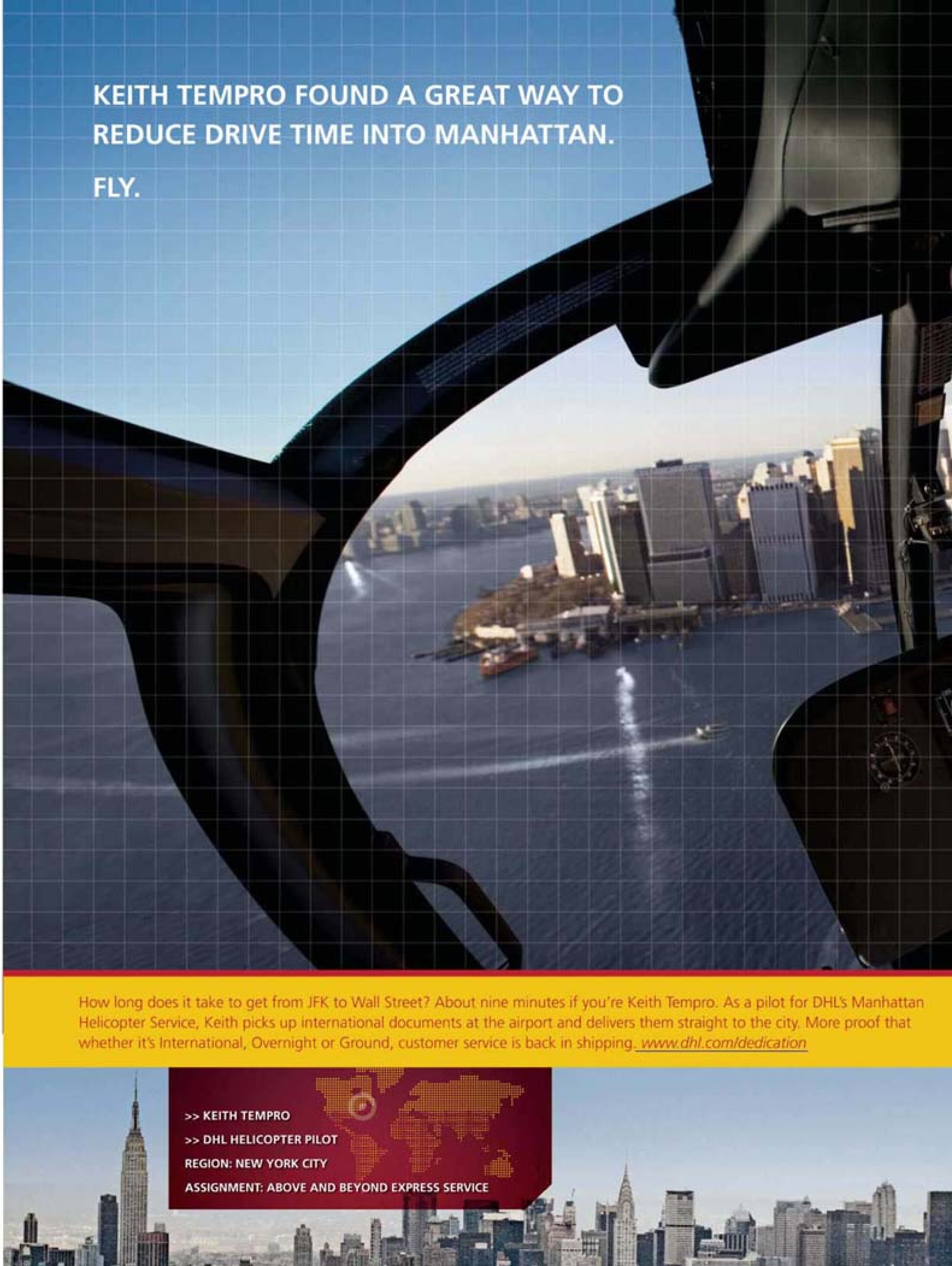
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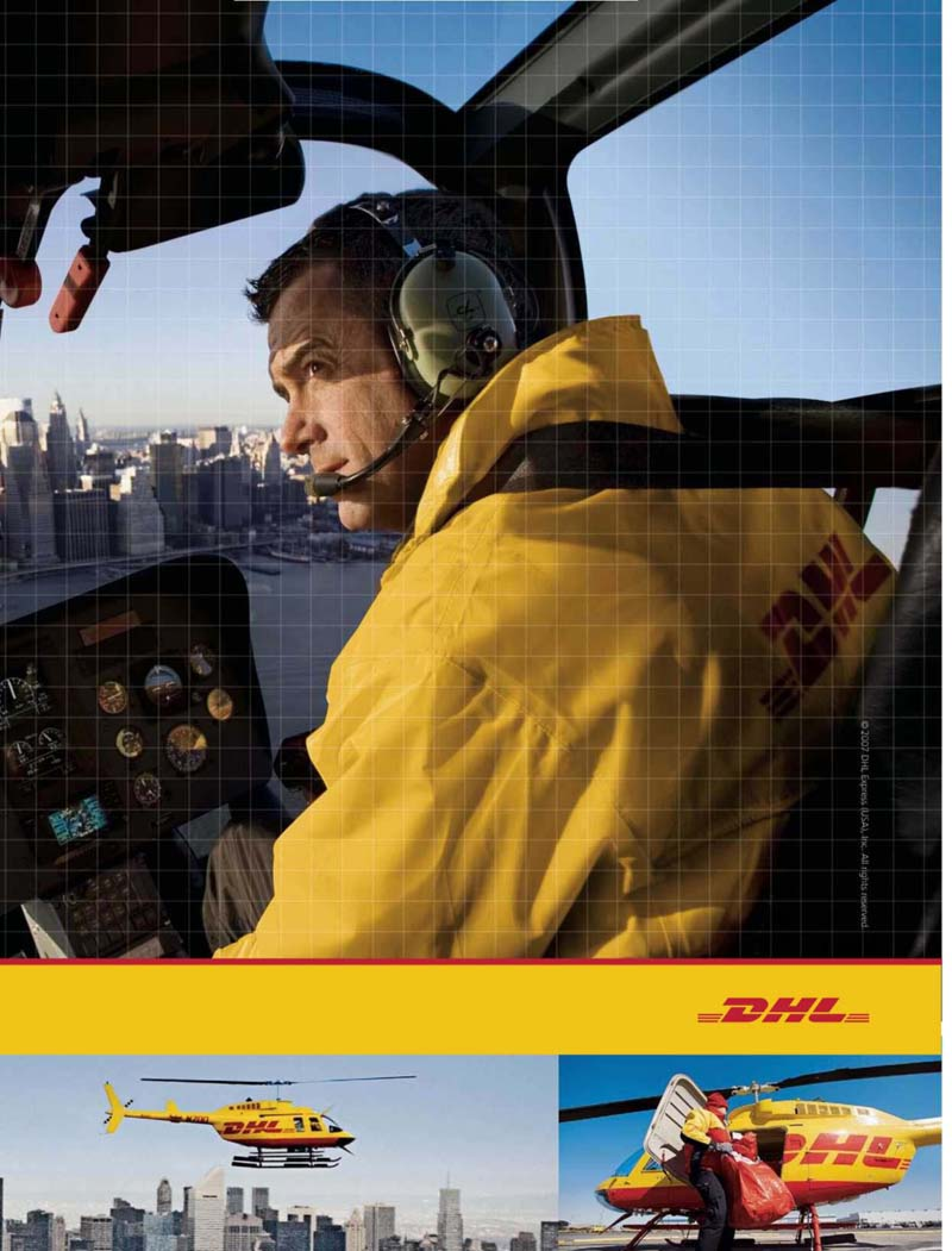
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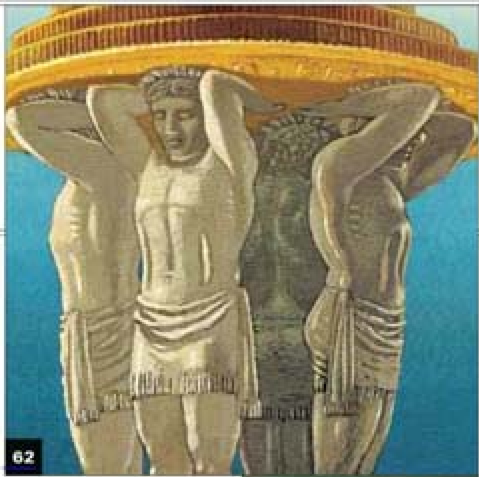

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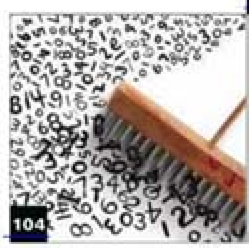
Features



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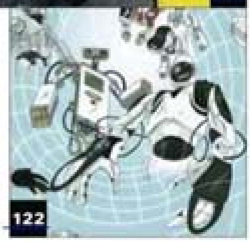
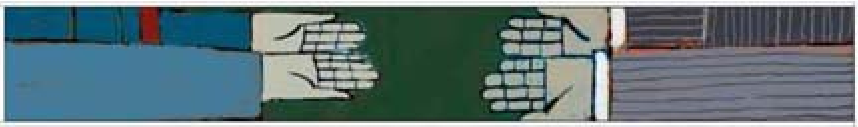


Best of HBR



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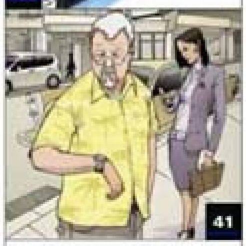


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JULY–AUGUST 2007

GO TO HBR.ORG, AND YOU'LL NOTICE SOME CHANGES. *Harvard Business Review* has rolled out the first stage of its Web site enhancements, the culmination of which will be an entirely revamped site this fall.

ANSWERS WHEN YOU NEED THEM

HBR Answers is a Web tool designed to help managers find answers to the questions they are asking – or should be asking – about their biggest business challenges. The editors of *Harvard Business Review* have posted several such questions – for instance, "How can my company maximize the value of its brand(s)?" – along with select HBR articles that address each one. Readers can suggest questions or topics by clicking on "E-mail Us" on the same page.

ARTICLE SAMPLING

All visitors to HBR.org now have access to the first eight paragraphs of every article in the archives. (Previously, this content was available only to subscribers.) For articles published since 2003, the executive summaries are free as well.

RELATED ARTICLES

With more than 85 years of publishing history, *Harvard Business Review* has a wealth of material in its archives. To see what else HBR has published on the topic of a given article, consult the "Related Articles" list at the bottom of the screen.

If you have any thoughts about these site changes or suggestions for future efforts, please contact the editorial managing director of Harvard Business Digital, Eric Hellweg, at ehellweg@hbsp.harvard.edu.

THIS MONTH AT HBR.ORG

> VIDEO HIGHLIGHTS FROM MCKINSEY AWARDS

Visit the "Also of Interest" section on our home page to link to video highlights from this year's McKinsey Awards dinner, held in Boston on May 1. The event featured a keynote address from General Electric CEO Jeffrey Immelt and a panel discussion with Immelt, Pitney Bowes executive chairman Michael Critelli, 2006 first-place award winners Michael Porter and Mark Kramer, and second-place winner Gary Hamel.

> HBR CASE STUDY

John P. Glaser, the author of this issue's fictional case study ("Too Far Ahead of the IT Curve?"), and case commentator Randy Heffner will respond to selected questions from readers about how the central dilemma could be addressed. To submit a question, e-mail it to hbrcasestudy@hbsp.harvard.edu by July 16. Responses will be posted at HBR.org on August 6.

> THE NEXT 20 YEARS

Click on the article "The Next 20 Years: How Customer and Workforce Attitudes Will Evolve," by Neil Howe and William Strauss, and link to two Web-only charts and additional analysis about how current generations will meet the coming crisis.

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Organizations in this issue are indexed to the first page of each article in which they are mentioned. Subsidiaries are listed under their own names.

AUTHOR AFFILIATIONS

What the Long Term Takes

SOME YEARS AGO I was waiting for an appointment with a *Fortune* 500 CEO when he emerged from his office with three other people. He said good-bye to them, then greeted me. He said, "I have to rearrange my mind. Those were stock analysts, and their idea of a long-term view is six months. I imagine our conversation is going to be a little different."

Every executive subscribes to the value and virtue of managing for the long term, but that brief exchange encapsulates one of the biggest obstacles to actually doing it. Not the supposedly short-term demands of Wall Street. More often than not, blaming Wall Street is an attempt to point the finger away from the real problem: You cannot manage for the long term unless you can make room in your head, and your company's collective head, to think, plan, and execute over a multiyear time span, even while tending to inevitable (and important) distractions.

Managing for the long term depends on three capabilities. The first is the skill to think strategically: to understand the sources of your own competitive advantage and always build it and build on it; to understand how forces at work in the world – demographic and generational trends, the globalization of markets, the unfolding of technology – will affect your strategy. Second is the ability to avoid the kinds of accidents and trouble that can knock awry the best-laid plans. That means having access to cash or capital, allocating it in such a way that you don't rob tomorrow's Peter to pay today's Paul, having enough forward and peripheral vision to anticipate the future, and building an organization agile enough to respond even when you're blindsided.

Third, you cannot manage for the long term unless you align incentives with investments and vice versa. Executives, employees, shareholders, and customers all must believe that they are treated well now and will be better off tomorrow; that is, they must have a reason to keep their chips where they are, not move them to another number. Executive compensation figures into this question of alignment. When CEOs are lavishly laden with stock options (which have no downside and which, like all options, are more volatile than the asset underlying them) and contractually assured that their pockets will bulge almost as much if they fail as if they succeed, how much long-term stewardship are they likely to exhibit?

But financial incentives are only part of the issue and often not the most important. Expertise is deeply rewarding – and, as you will read in this issue, takes at least a decade to develop. Bringing new products to market is exciting – but, as you will read, one of the principles of enduring success is to balance the thrill of exploration with the satisfactions of exploiting what you know already. To become a leader is enormously satisfying – and, as you will read, a company should invest the time it takes to develop leaders who suit its own particular leadership "brand." Seeing the future and getting it right feels great – and, as you will read in this issue, smart forecasters read history more than they read tea leaves. Nothing is more rewarding than completing a job well done – and, as you will read, to do that, companies should plan so that midrange projects aren't shunted aside by short- and long-term goals.

Because business is complex, there can be no single path to managing successfully for the long term. The secret, if it can be called that, is to keep on doing many things right. No company has put and held the pieces together better than Toyota, whose 70-year march to leadership in the automobile business is an unparalleled accomplishment. In our interview with Katsuaki Watanabe, you will read about the Toyota Way, about the Toyota Production System, and about other ingredients of the company's success, some familiar, some not. Pay attention to each of them. But especially pay attention to all of them. The art of managing for the long term is the art of making the whole greater than the sum of its parts.

This is a lesson we at HBR learn anew each time we put together a special issue. This one is the fruit of long labors by senior editors Julia Kirby, David Champion, and Steve Prokesch to map out the territory, search out the best thinking on the subject, and thoughtfully combine all our individual efforts into this comprehensive view.

Thomas A. Stewart


VALENCIA, AMERICA'S CUP 2007
We assess the situation from every perspective.
Allianz

Harvard Business Review

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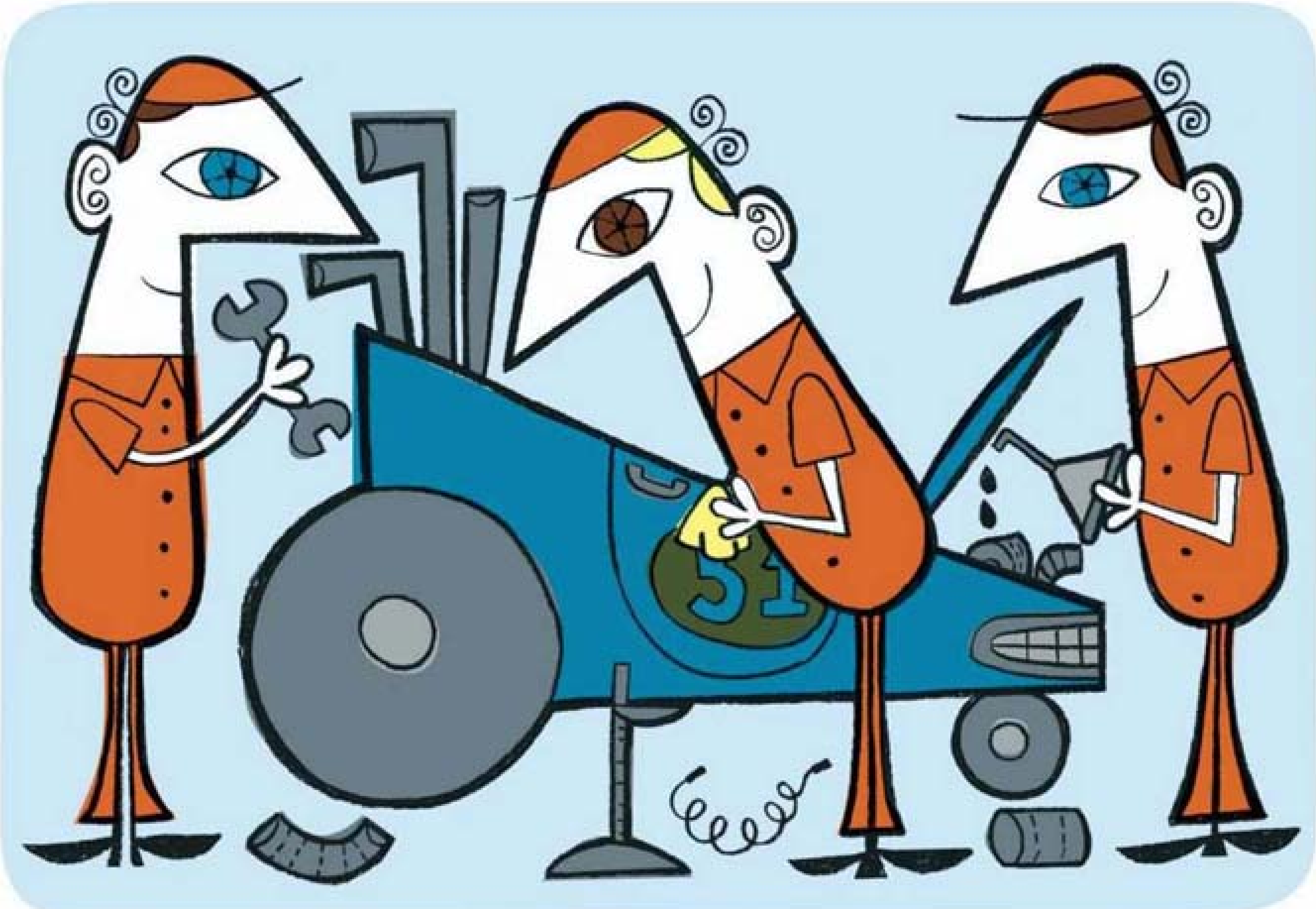
forethought

A survey of ideas, trends, people, and practices on the business horizon



Melinda Beck

STRATEGY

Private Equity's Long View

by Walter Kiechel III

What can the gods of private equity teach us about managing for the long term? If you think that their lightning reflex, do-what-it-takes approach has nothing to tell us about the long haul, you'd be wrong. Maybe you imagine they simply take a business private, load it with debt, strip its assets, then sell it a few months later for multiples of the purchase price – a strategy that seems decidedly hostile to the long term. But the experience of properties put through what I'd call a "strategy workout" by PE firms suggests that the exercise can actually enhance long-term performance – and that ownership over the long haul is neither necessary nor sufficient to set a company up for the future.

Private equity's footprints across the world economy get bigger by the day. The London-based research firm Private Equity Intelligence estimates that PE firms may raise $500 billion in new money this year, 15% more than in 2006; a Credit Suisse analysis suggests that, with the customary leverage, it's within their reach to buy one out of every five U.S. and European companies with market capitalizations under $30 billion. Predictably, in certain quarters, screams have gone up about this supposedly rapacious new form of capitalism, with its mercenary focus on short-term gains.

Looked at from another perspective, though, what's striking is the degree to which PE firms, in their treatment of the businesses they acquire, are merely putting to use many of the best ideas and analytic techniques that have been developed in the corporate strategy revolution – the 40-year-old historical process by which companies have converged on strategy as the framework for understanding what they want to do. The difference between the conventional and the PE approach to strategy is that the private equity buckoes put their acquisitions through the formulate-a-strategy-and-start-implementing-it process in months rather than years. Are we seeing in their handiwork a sort of apotheosis of corporate strategy?

Most PE firms are still driven fundamentally by a passion for deals and an uppermost concern with finances, but as those attributes have become commoditized over the past 15 years, more outfits have come to take an increasingly active, hands-really-on managerial role in the businesses they acquire (if only to distinguish themselves in the eyes of potential investors). The workouts they put their acquisitions through typically entail at least five of the major tactics developed in the evolution of strategy.

- They use debt aggressively (something the early partisans of strategy had to encourage their clients to do, stuck as they were in Depression-era thinking).
- They focus on cash flow, not on earnings reported for accounting purposes (early strategy consultants discovered that their clients didn't actually know their real costs, obscured as those were in the way they presented their financial statements).
- They reduce costs relentlessly (believe it or not, before the revolution most companies didn't think you could do this systematically).
- They identify a strategy that favors the line of business in which the acquisition dominates its competitors, and then they often sell off its other businesses (it was the strategy movement that got companies thinking about their assets as a portfolio of businesses, with some stars and some dogs to be divested).
- They think imaginatively about who would constitute the best owner for the business and ask how long an owner should hold on to the property (the correct answer is seldom "forever").

Strategy consultants, who do a surprising amount of work for PE firms – providing strategic due diligence before the acquisition, putting together a new, more-focused performance improvement plan after – describe their PE clients as the most economically rational of owners. Often this means they're willing to dispense with niceties that publicly held companies view as sacred (Why not outsource human resources?) and to hold managers tightly to monthly, even weekly, goals. But as studies like a recent one by Josh Lerner of Harvard Business School and Jerry Cao of Boston College's Carroll School of Management indicate, businesses that have been taken public after being owned by a PE firm long enough to be put through a workout – at least one year – typically outperform both other IPOs and the overall stock market over three to five years. (Most of the individual examples of such successes are middle- to small-sized companies you've never heard of or businesses carved out of larger corporations, as Lexmark, a manufacturer of computer printers, was from IBM.)

If the stock market truly values a company's future prospects, then, at least for some enterprises, a short, perhaps even painful, strategy workout at the hands of a private equity firm is likely to boost shareholder value over the long term.

Walter Kiechel III (wkiechel@hbsp.harvard.edu) is the former editorial director of Harvard Business School Publishing, in Boston. His forthcoming book on the rise of modern strategic thinking, *The Lords of Strategy*, will be published by Harvard Business School Press in 2008.

Reprint F0707A

Forethought Focuses on

Managing for the Long Term

GLOBALIZATION

Forward-Thinking Cultures

by Mansour Javidan

It's hard to manage any organization so that its long-term interests aren't sacrificed to short-term expedience. But there is an added wrinkle for organizations whose operations are globally dispersed: Cultural orientation toward the future varies widely the world over.

My colleagues and I discovered this in the course of our work on the GLOBE project, a study now in its 15th year, that looks at how cultures vary in relation to a set of factors important to organizational management and leadership. By surveying over 17,000 middle managers in 61 societies, we have been able to discern clear differences in nine key areas. One of these is what we call "future orientation," or the extent to which a culture encourages and rewards such behavior as delaying gratification, planning, and investing in the future.

Our straightforward questions asked participants both to express their own values and to describe the environment in which they worked. For example, we presented them with the statement, "More people should live for the present than for the future" and asked for a level of agreement on a seven-point scale. In a separate question, we removed the word "should" and asked them to rank how well the statement described actual behavior in their culture. We found that societies vary greatly in how oriented they actually are to the long term, but in most cultures people's personal values and aspirations are similar and quite future oriented. What's more, most people feel their cultures aren't as forward thinking as they should be.

In our study, Singapore emerged as the most future oriented of cultures, followed by Switzerland, the Netherlands, and Malaysia. The least future oriented were Russia, Argentina, Poland, and Hungary. Squarely in the middle were Germany, Taiwan, Korea, and Ireland. Even more important, however, is our further finding that the greater a society's future orientation, the higher its average GDP per capita and its levels of innovativeness, happiness, confidence, and (as the chart shows) competitiveness.

What does this mean for an executive attempting to manage or work with teams in cultures that are less future oriented than their own? First, team members will have different perceptions of the feasibility of forward thinking. Even if the indigenous workers personally value long-term planning, they may see it as futile, given prevailing practices and conditions. But second, because of those shared values, it is possible to inspire people to become more future oriented. The key is to start modestly by setting team goals for, say, a three-month horizon and then ensuring they are met. By gradually increasing time horizons, a manager can endow a team with a sense of control over outcomes that formerly may have seemed hopelessly provisional and remote.

Knowing how future orientation varies from culture to culture can help leaders shift their attitude from judgmental to understanding and focus their collaborative efforts. A true global leader doesn't blame local teams for failing to immediately live up to their aspirations but rather helps them achieve long-term goals one step at a time.

Competitive Countries Have an Eye on the Future

Source for competitive rankings: the World Economic Forum, 1998–2005.

Mansour Javidan (mansour.javidan@thunderbird.edu) is the director of the Garvin Center for Cultures and Languages of International Management and president and chairman of the GLOBE Research and Education Foundation at Thunderbird School of Global Management in Glendale, Arizona.

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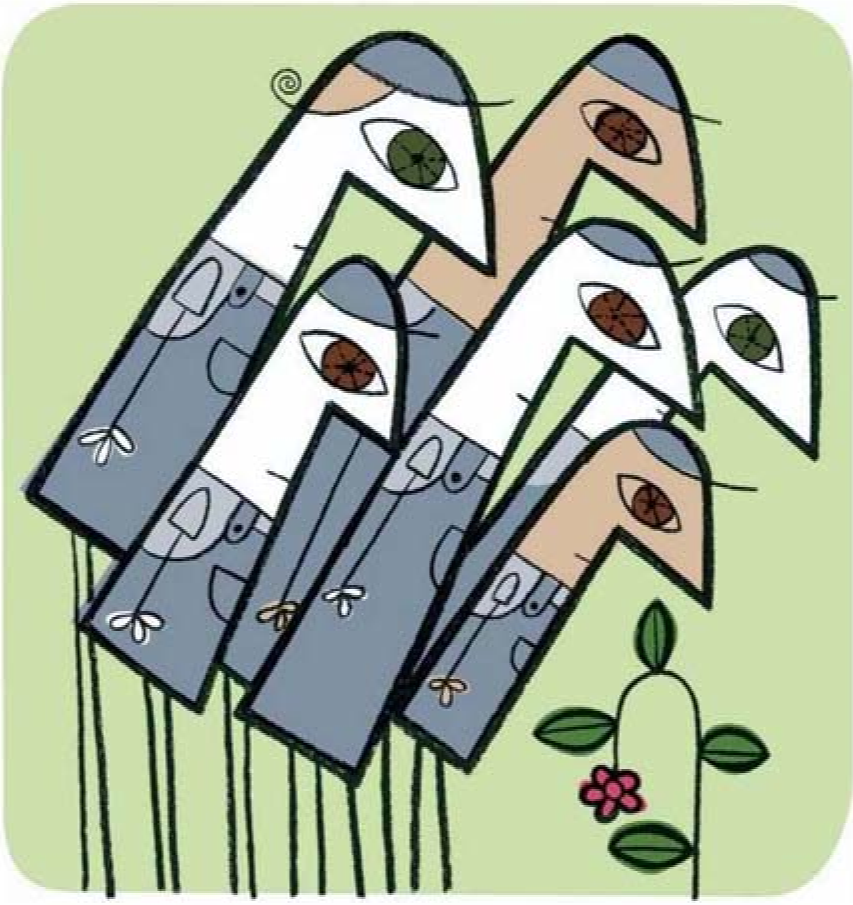
GOVERNANCE

The Hidden Good News About CEO Dismissals

by Chuck Lucier and Jan Dyer

Worldwide, boards of large corporations are dismissing four times more CEOs today than in 1995, a trend that raises an important question: Are boards undermining the chief executive's ability to lead for the long term?

If it were the case that boards had become trigger-happy, overreacting to brief fluctuations in financial performance or the demands of hedge funds and other short-term investors, the answer would be yes. Companies would undoubtedly suffer as CEOs, trying to dodge the bullet, focused only on quarterly earnings.



But Booz Allen Hamilton's decade-long study of CEO turnover at the 2,500 largest companies in the world points to a different answer. Boards aren't overreacting. They are doing what they should have been doing all along: removing clearly inadequate CEOs who in years past would have been sheltered by faulty corporate governance.

While a handful of CEOs are dismissed for illegal or immoral behavior, the vast majority get the ax for dismal financial results stemming from a significant deterioration in the company's core business. On average, an ousted CEO's company achieves only half the profit, cash flow, and market capitalization of a comparable company led by an effective CEO for the same length of time. In the bad old days of the imperial CEO, chief executives were as likely to enjoy a long tenure if they performed poorly as if they performed well. Today's more independent boards, strengthened by changes in governance practices, remove ineffective CEOs once the chiefs have had a fair chance but before they can do irreparable damage to the company.

These boards give CEOs the same opportunity to prove themselves as their counterparts did in 1995. Then and now, dismissed CEOs get sacked, on average, in their sixth year. The tenure of CEOs who retire normally has remained steady too, at nine years. The decline in average CEO tenure is no more than the arithmetic result of the increased proportion of CEOs being fired.

The six-year time frame for dismissal makes a great deal of sense. The dynamics of global competition – rapid, unpredictable change driven by competitors' innovations, new technologies, and government actions – challenge businesses to build and rebuild their competitive advantage every three to four years. In this environment, a traditional focus on the long term fosters complacency, causing inadequate responses to innovative competitors and a failure to seize opportunities. Yet, by the same token, quarter-to-quarter financial performance has little to do with sustained returns to investors. The medium term is today's critical strategic time horizon: It's long enough to allow a CEO to make significant business improvements yet short enough to force the top executive to take actions that will have a near-term impact. It's no coincidence that the companies producing sustained superior returns to investors deliver big performance improvements over successive medium terms.

Fewer than 5% of CEOs were fired in 2005, not an excessive number (for example, it's about half the proportion of employees who are fired). The story about CEO dismissals isn't how many are being fired now but rather how few were removed in 1995 – only 28 in 2,500 companies. What's more, the rate of CEO dismissals appears to have leveled off, suggesting that companies have reached an equilibrium of sorts that will prove highly beneficial to all stakeholders – generating better leadership, improved investor returns, and greater opportunities for growth.

Chuck Lucier (chuck@chucklucier.com) is a senior vice president emeritus of Booz Allen Hamilton and the lead author of the firm's annual CEO turnover studies. He is currently a strategy consultant based in Princeton, New Jersey. **Jan Dyer** (jan@chucklucier.com), formerly a principal at Booz Allen Hamilton, works with Lucier in their consulting business and is a student at Princeton Theological Seminary.

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TOOLS

A Growing Focus on Preparedness

by Darrell Rigby and Barbara Bilodeau

A dramatic shift has shown up in our 14-year survey of companies' use of more than two dozen management tools and techniques: an abrupt and sustained surge after September 11, 2001, in the use of scenario-and-contingency (S&C) planning tools. The change reflects corporations' growing focus on managing uncertainty in an increasingly turbulent world.

Our survey, involving more than 8,500 global executives to date, tracks the use of and satisfaction with tools ranging from strategic planning and reengineering to Six Sigma and the balanced scorecard. S&C planning appeared on our initial list of tools in 1993, the year that terrorists first attempted to destroy New York's World Trade Center. Back then, 38% of firms reported using formal techniques for spinning out what-if scenarios to anticipate potential crises and disasters, as well as for creating simulation models for business growth. But satisfaction was low; the tool's performance ranked only 15th out of the 25 tools, suggesting that companies were finding S&C planning only modestly useful.

In the relatively stable world of the 1990s, preparing for scenarios that had a low probability of happening, or a limited impact if they did occur, often felt superfluous. One early and consistent employer of scenarios, however, was the New York Board of Trade (NYBOT), which used what-if analyses in 1993 to decide to build a second trading floor outside the World Trade Center. That foresight kept the organization afloat after 9/11, and NYBOT has since created a third trading floor.

As the graph shows, in its first eight years on our radar, S&C use remained relatively flat, tracking well below the mean usage rate for all tools. But in 2002, use leaped above the mean, nearly doubling to reach 70%. Use has remained at or above the mean ever since, hitting 69% globally in our 2006 survey, 72% in North and Latin America, 74% in Europe, and 64% in Asia-Pacific. Moreover, executives are finding the tool more valuable, last year ranking their satisfaction with its performance at eighth out of 25. This growing satisfaction is probably due to improvement in the S&C tools, increased experience with them, and a broader appreciation for them, as global events have underscored their value. S&C tool use and satisfaction levels are highest at large companies (those with annual revenue exceeding $2 billion) and in the health care, energy and gas, and transportation sectors.

Our results show that companies recognize the greater opportunity and risk that come with globalization and the increasing need to anticipate crises and develop robust contingency plans. Growing use of S&C tools suggests that companies are finding value as never before in planning for an uncertain future.

Darrell Rigby (darrell.rigby@bain.com) is a partner in Boston with Bain & Company. He founded and directs the firm's Management Tools & Trends Survey. **Barbara Bilodeau** (barbara.bilodeau@bain.com), Bain's director of market research, has worked on the survey since 1993. She is based in San Francisco.

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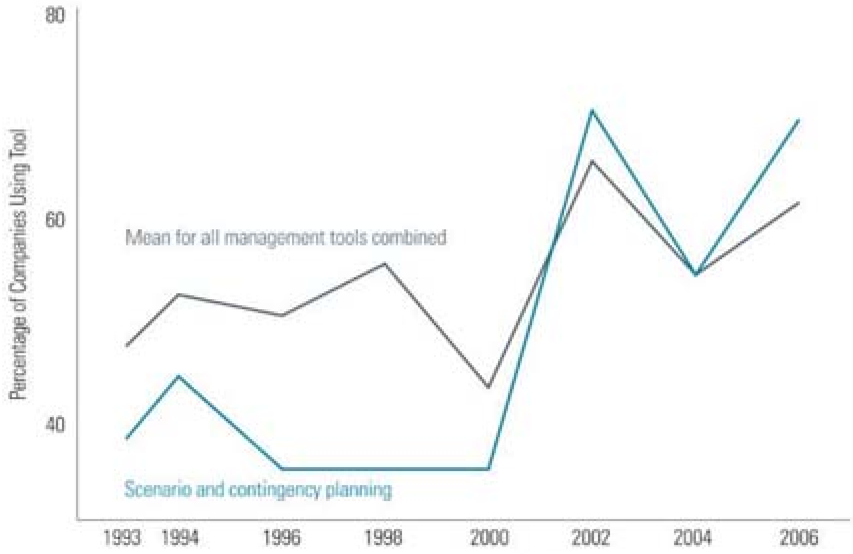
Planning Catches On

For years, companies' use of scenario-and-contingency planning tools lagged behind the average for management-tool use overall; that changed abruptly after 9/11.



Note: After 2000, surveys became biannual.

PERFORMANCE

The Cost of Myopic Management

by Natalie Mizik and Robert Jacobson

Under pressure to hit immediate performance targets, many managers inflate earnings, often by cutting expenditures. In a recent survey of 401 top financial executives, 80% said they would decrease spending on "discretionary" activities like marketing and R&D to meet short-term goals.[1] But how discretionary can such spending be, given that cutbacks in these areas can have substantial negative effects on future performance? It's true that this kind of shortsightedness may temporarily fool the stock market by giving the appearance of improved prospects. However, in our study following the financial performance of 2,859 companies over five years, firms that appeared to make short-term expense adjustments to inflate earnings when they issued equity ended up losing profits in the long run, causing their market value to drop by more than 20% four years out.

We focused on company and financial market behavior during and after seasoned equity offerings (when public firms issue additional stock) in the three decades from January 1970 to December 2001. Because the amount of capital collected by a firm depends on the stock price on the day the equity is issued, managers have an acute interest in that price and may be tempted to give it a quick boost by inflating earnings through cost cutting. After all, investors rely on current earnings measures when they form their expectations of future performance and, therefore, when they value equity. Even though market participants realize that all companies have incentives to inflate earnings to increase their SEO

Conversation

CYMBAL COMPANY CEO CRAIGIE ZILDJIAN ON LEADING FOR THE LONG TERM

A Formula for the Future

The Zildjian Company, based in Norwell, Massachusetts, is the largest cymbal maker in the world and the oldest continuously family run business in the United States. Founded in Turkey in 1623 by Armenian alchemist Avedis Zildjian, the company, with 2006 revenues of $52 million, is now run by 14th-generation descendent Craigie Zildjian, who took the reins from her father in 1999, becoming the first woman to head up the business. We spoke with Zildjian about the challenges of leading her nearly four-century-old company into the future. The following are edited excerpts of the interview.

What's the secret to keeping a centuries-old business on the cutting edge?

Many of the things we do are what any good company should do, whether it's thinking one year out or 100. We're guided by our core values – a focus on continuous quality improvement, innovation, craftsmanship, customer collaboration, empowering employees, avoiding complacency, and reinvesting in the company. We don't have a secret formula for our strategy. It's just good management practice. That said, there's no question that our legacy keeps us all focused on preserving the business for the long haul. As my niece Cady, part of the 15th generation, said, "We'd never want to be the ones to have to sell the company."

How do you balance the fear of being "the Zildjian who sold the business" with the need to take risks?

A sure way to damage the business would be to stop innovating and risk taking. We have an estimated 65% of the world cymbal market, but that market share isn't a given. We have fierce competitors. So, on the one hand, we preserve the family jewels – the secret formulas we use that go back centuries – but we're always working on product innovations and other improvements. For instance, we introduced the first titanium-coated cymbal as a limited edition line, which was a risky R&D project but paid off. And we're in the middle of a major plant expansion that will give us more capacity than we currently need. We're betting on the future.

Does this long-range focus affect how you relate to your customers?

We've always collaborated with customers on products – something a lot of companies are just catching on to now. My grandfather Avedis, who set up the U.S. company in 1929, became good friends with Gene Krupa, Chick Webb, and Papa Jo Jones, and he worked closely with them to develop the modern drum kit. Krupa wanted my grandfather to make thinner versions of marching cymbals to go with his drum set – and those became the basis for the "ride" and "crash" cymbals that every drummer uses today. Jo Jones helped my grandfather perfect the hi-hat that's also now part of every drum kit. My father was a natural at this type of collaboration. Today, we continue the tradition of bringing artists into the plant so our R&D manager and marketing people can meet directly with them. We also take employees into stores so they can see customers buying Zildjians – and the competition. Careful listening is part of our corporate strategy.

How does Zildjian's legacy affect succession planning?

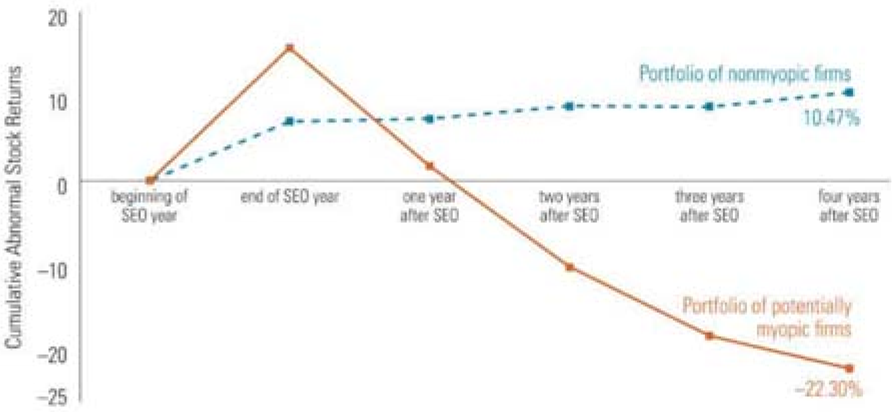
We had a destructive sibling rivalry in my father's generation, and we want to avoid a replay of that at all costs. In assuring Zildjian's future, one of the biggest tasks I face as CEO is getting succession right. We don't want the 15th generation to feel obligated to join the business, nor do we want them to feel entitled. We have strict criteria about joining the business. Family members are required to work for another company before joining Zildjian full-time – so they know how to manage and have learned from their mistakes elsewhere. Ideally, we like them to work in different areas of the business so they can complement each other. And we avoid having family members report to other family members. My niece has just joined the company and will report to an executive who joined us from Gillette. That kind of arrangement assures an ideal mix of old and new blood. We also meet as a family about every quarter to get any family issues out in the open. This separates out family issues so they don't contaminate the business.

– Gardiner Morse

Reprint F0707F

Short-Term Management Doesn't Pay

Myopic management may boost current market performance, but it takes a big toll on long-term value.



The potentially myopic portfolio includes companies that simultaneously reported higher-than-expected profits and lower-than-expected SG&A spending the year they issued a seasoned equity offering (SEO) – that is, additional stock. The nonmyopic portfolio comprises all the other SEO companies we studied. An abnormal return is the difference between the actual return and the expected return, given the market and the firm's risk characteristics.

proceeds, they cannot tell with certainty which ones are actually doing so. As a result, they tend to give less credence to all earnings reported at these times. But only after expense cuts result in inferior profits for individual companies do the consequences materialize in lower stock prices.

To determine which SEO firms were most likely to engage in this sort of myopic management, we examined companies' profits and SG&A (selling, general, and administrative) spending – which has marketing and R&D as its primary components – around the time of their SEOs. During years in which SEOs were issued, we observed a 40% increase in the number of firms simultaneously reporting above-normal operating profits and below-normal SG&A expenditures ("normal" being what was expected given the industries' economic conditions and the firms' past performance). We grouped these firms into a "potentially myopic" portfolio and the other companies into a "nonmyopic" portfolio and then assessed the future risk-adjusted stock returns of the two groups.

If the financial markets properly valued the management strategies implemented in the year a firm issued an SEO, that company's share price would not be adjusted (either up or down) in subsequent years. As the exhibit "Short-Term Management Doesn't Pay" shows, this was essentially the case for firms in the nonmyopic portfolio – the ones that didn't simultaneously report a spike in profits and a dip in SG&A expenditures. For those companies, abnormal stock returns (the difference between actual and expected returns) were consistently level in the years following the SEO. That was not true, though, for the potentially myopic portfolio. This group initially fooled the market, realizing an average positive abnormal stock return of 15.7% the year an SEO was issued. The next year, however, cumulative returns dropped, and they continued to decline. By the fourth year after their SEOs, the group of potentially myopic companies had abysmally abnormal returns of −22.3%.

It's clear that managing for the short term comes at the expense of firms' long-term value. But what can be done to limit this type of behavior? One reason that managers engage in myopic management is that they are evaluated on current financial performance. Often, managers are rewarded for the gains but not penalized for the losses, or they are able to move on before negative consequences transpire. Companies can reduce incentives for myopic behavior by increasing vesting periods and delaying payoffs to departing executives. Firms should also look beyond their current earnings and share prices when setting performance evaluation standards. Consideration should be given to a variety of factors, both financial and nonfinancial. The nonfinancial ones need to reflect strategies with long-term value implications. For example, many of the key aspects of a brand's strength, such as differentiation from the competition or the degree to which customers perceive the brand as relevant to their needs, can be measured through surveys and then linked to compensation. Long-term performance measures will motivate executives to manage with an eye to the future.

1. John R. Graham, Campbell R. Harvey, and Shiva Rajgopal, "The Economic Implications of Corporate Financial Reporting," *Journal of Accounting and Economics* (December 2005).

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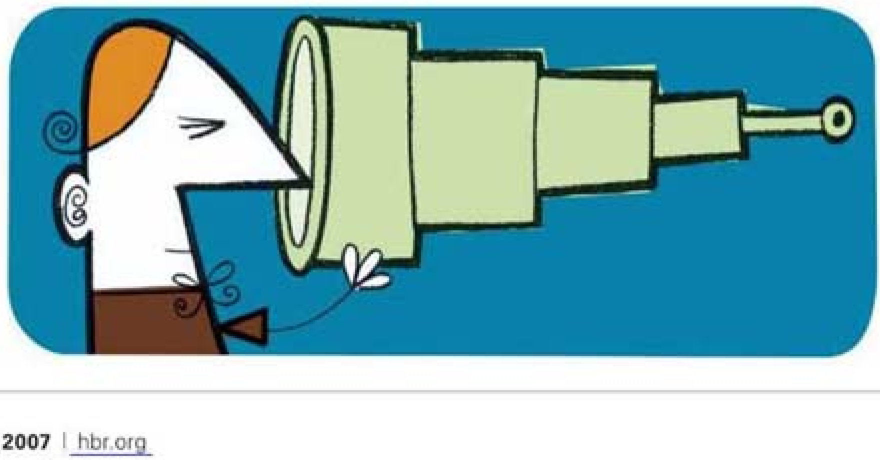
Reprint F0707E



Opinion

by Henry Mintzberg

Productivity Is Killing American Enterprise

I fear for the future of American business – not because of U.S. trade imbalances or budget deficits but because of the productivity of its corporations. America's highly touted productivity may be destroying its legendary enterprise and many of its powerful enterprises.

Many of the claimed productivity gains in recent years have amounted to productivity losses. To appreciate this, imagine what would happen if you fired everyone in your company and shipped from stock: Working hours would disappear while output would continue. That would be extremely productive, and you'd make a lot of money in the bargain. Until, of course, you ran out of stock.

In my opinion, many American companies are running out of stock. They're trading away their future health for short-term results. No CEO fires everyone, of course. But thanks to corporate subservience to shareholder value, which means driving up the price of a company's shares as quickly as possible, CEOs have been finding all kinds of other ways to cash in the goodwill that accountants and economists have trouble measuring.

Trashing the brand is one easy way. Cutting R&D is another. Then there is managing by the numbers: The CEO decrees the desired results, and everyone else has to run around meeting them – no matter what the consequences.

Most popular of all, of course, and closest to shipping from stock, has been "downsizing," a euphemism for firing operating workers and middle managers left and right to cut costs. At the drop of the share price, even as the company remains profitable, out the door they go: bones thrown to the hungry dogs of the financial community.

How could so many people suddenly have become redundant? Were American enterprises that bloated? Or have irresponsible leaders, unable to create real value, simply dumped their failures on the workers and managers, both those who were fired and – worse – those who remained? Considering the resulting burnout of these employees, the answer seems obvious.

Certainly there are exceptions – companies that have been managed sensibly for the long term. Costco, for example, seems to respect its employees and pay them fairly. But many discussions I have had with people at all levels of business indicate that the shareholder-value philosophy is, if anything, increasing its hold on publicly traded American companies. And stories from Europe suggest that the problem is spreading. Think of DaimlerChrysler introducing tiny cars that undermined the legendary Mercedes brand and BP destroying its heavily promoted environmental credentials through cost cutting that led to disasters in Texas (the 2005 refinery fire that killed 15 people) and Alaska (the 2006 pipeline leak).

What is to be done? To take a line from the novel *Shōgun*, it's simple: All we need do is change our concept of the world.

Get the analysts off the backs of the corporations. Companies can't be managed from a securities analyst's office. Great enterprises are built slowly and thoughtfully by people who are fully engaged. Let's begin by getting rid of quarterly earnings. Who ever came up with the absurd notion that the fortunes of a great enterprise can be discerned from one three-month period to the next? Quarterly reports keep management myopically focused on immediate measurable results instead of on products, services, and customers.

Take corporate governance seriously. Corporate boards need to be opened up to the voices of people who care about the long-term health of the enterprise, most notably the employees.

Keep the mercenaries out of the executive suites. People in charge of enterprises should care deeply about the firm's long-term health. Anyone predisposed to demanding a massive personal package that sets him or her apart from everyone else (and includes protections that no one else gets) has no claim on the title "leader."

Treat the enterprise as a community of engaged members, not a collection of free agents. We can start, for example, with compensation systems that encourage cooperative effort. Corporations are social institutions, which function best when committed human beings (not human "resources") collaborate in relationships based on trust and respect. Destroy this and the whole institution of business collapses.

American enterprise needs to get out of the impossible state it is now in. For the sake of American society, as well as the American economy, it is time to get past productivity.

Henry Mintzberg is the Cleghorn Professor of Management Studies at McGill University and the faculty director of its International Masters for Health Leadership. A fuller version of these comments can be found at www.mintzberg.org.

Reprint F0707G

INNOVATION

Where More R&D Dollars Should Go

by Jim Scinta

Although U.S. companies are spending more on R&D overall than they have in recent years, they're putting that money mainly into new project development and neglecting other areas that are important to long-term innovation efforts. When, for its 2007 R&D forecast, the Industrial Research Institute surveyed 99 firms that do research, more than a third said they were ramping up R&D expenditures on new projects by at least 5% this year. By contrast, only 14% reported such an increase in directed basic research (exploration of fundamental principles that's guided by the organization's strategic goals). This limited emphasis on broader inquiry isn't just a 2007 slump; it's a trend that extends back over the past seven years. (See the exhibit "Basic Research Is Being Shortchanged.")

Directed basic research is critical to innovation over the long run. It opens up avenues for fruitful investigation at a later time, even if the information gathered isn't directly applicable to current projects. For instance, ConocoPhillips accumulated – through many years of exploratory research – knowledge about sulfur chemistry and the role of certain catalysts in refining reactions without having a goal of developing a better sulfur removal technology. But in 2000, after the U.S. government mandated lower sulfur content in gasoline by 2004 for cleaner emissions, the company was able to use its knowledge to develop and commercialize a sulfur removal technology that both met the federal requirements and preserved more octane than the conventional technology.

Unexpected breakthroughs are another key benefit of directed basic research. Indeed, it promotes serendipitous long-term innovation because you don't know exactly what you're looking for when you conduct it or how it may be used in the future. Consider Pfizer's new cancer drug Sutent, approved last year by the U.S. Food and Drug Administration. It owes its existence to the discovery that blocking blood vessel development in tumors will slow and even reverse their growth – a finding from theoretical research conducted more than a decade ago at the Max Planck Institute of Biochemistry, before Sutent was a gleam in anyone's eye.

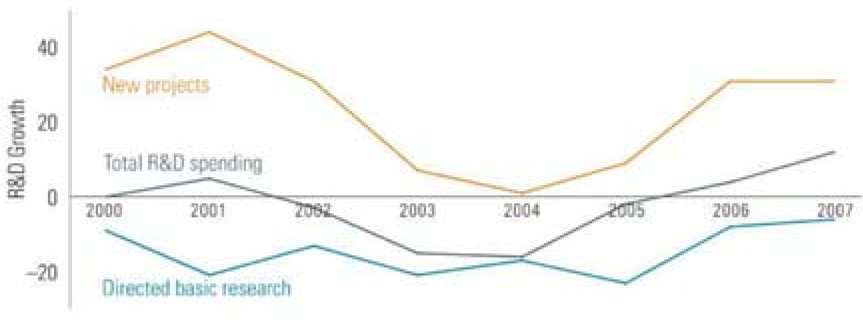
For five years in a row, companies in the IRI study have cited "growing the business through innovation" as their biggest problem. Other top concerns have included "accelerating innovation" and "balancing long-term/short-term R&D objectives/focus." However, their spending behavior doesn't match their desire to obtain short- and long-term balance. While firms that concentrate disproportionately on new projects may satisfy some of their immediate business goals, they will probably fail to cultivate the broad-based knowledge they'll need to realize their leading goal of growth through innovation.

Jim Scinta (jim.scinta@conocophillips.com), the chair of the Industrial Research Institute's Research-on-Research Committee, is the author of "Industrial Research Institute's R&D Trends Forecast for 2007." Scinta is also the manager of the heavy oil division in Research and Development and Shared Services at ConocoPhillips in Bartlesville, Oklahoma. The full IRI report was published in the January–February 2007 issue of *Research-Technology Management*.

Reprint F0707H

Basic Research Is Being Shortchanged

Over the past seven years, R&D has focused far more on new projects than on directed basic research.



Source: Industrial Research Institute.

"R&D Growth" equals the percentage of respondents reporting an increase greater than 5% minus the percentage of those reporting no change or a decrease. Spending increases of less than 5% have been excluded from calculations because they typically reflect inflation adjustments and not true increases in R&D investment.

Reviews

Panasonic

The Largest Corporate Restructuring in History

Francis McInerney

(St. Martin's Press, 2007)

Fifteen years ago, Americans faced a wave of criticism over their short-term approach to business. While Japanese and European companies patiently invested in R&D and internal training, their U.S. counterparts slashed development budgets, laid off employees, and gave executives outsized bonuses for quick improvements. The American approach surely led to a lot of waste, not to mention personal suffering. But comparing the three economies now, it's hard not to connect this short-term thinking to the rise of flexible, customer-oriented companies that enabled Americans to regain global market share in a host of industries.

Panasonic tells how a typical Japanese multinational learned to restructure itself according to this flexible "American" approach while preserving some essential Japanese attributes. Panasonic is the main brand name for Matsushita Electric Industrial Company; author Francis McInerney consulted for Matsushita's American subsidiary in the late 1990s – where the firm's troubles became most apparent.

Like other Japanese industrial giants, Matsushita had thrived by investing in dedicated engineering staffs and relentlessly entering electronics markets with high-quality, lower-cost products. That worked well in the decades after World War II, when the corporation's fine execution gave it a solid position in Japan and elsewhere. But, as McInerney tells the story, success led to complacency and ossification, as problems were hidden by the large, semiprotected domestic market. The company characteristically reacted to stagnation in the late 1980s with a huge investment in R&D, but that only eroded margins faster.

McInerney's diagnosis for the firm draws on comparisons with Dell and Wal-Mart, which organized their entire value chains around short-term customer demand. Matsushita, he finds, was isolated from customers, with factories determining output levels and its understaffed sales offices lacking in rudimentary account management skills. Fortunately, headquarters understood the troubles enough to promote Kunio Nakamura, head of the American subsidiary (and McInerney's client), to Matsushita president in 2000. Aided by the worldwide electronics crash of 2001, Nakamura aggressively restructured the company to remove bureaucratic complexities and increase its market responsiveness.

Much of the story reads like familiar business advice about getting close to customers. But one improvement stands out as fundamentally Japanese. Long a major product for the company, television sets had become a money-losing commodity by the 1990s. Eager for growth along with cost cutting, the executives decided on a bold move into flat-panel displays – radically different from cathode-ray tubes but starting to attract consumer interest. In five years, the company captured half the global market for the high-margin sets. Some of that came from a judicious use of American-style joint ventures and outsourcing. But a large part surely came from the company's long-nurtured traditions of engineering excellence, which empowered managers and employees to commit to the intense work involved in developing a world-class product.

– John T. Landry

Hidden in Plain Sight: How to Find and Execute Your Company's Next Big Growth Strategy

Erich Joachimsthaler

(Harvard Business School Press, 2007)

Several recent books have told companies to innovate by shaking off their established notions and looking closely at how customers actually use products in their lives. Joachimsthaler, a longtime marketing consultant, differentiates his account with a focus on brands. He looks deeply at the meaning and expectations that consumers give brands in their own personal contexts. Frito-Lay, for example, revived its stagnant potato chips when it discovered that people mainly ate them not for taste or to alleviate hunger but for immediate comfort and reassurance – as a "smile break." That insight about the power of feelings persuaded the company to de-emphasize product attributes and play up the theme of breaks. Stories like this give hope to managers worried about stale brands, but it's harder to manage brand image over the long term when it depends so much on what consumers bring to the table.

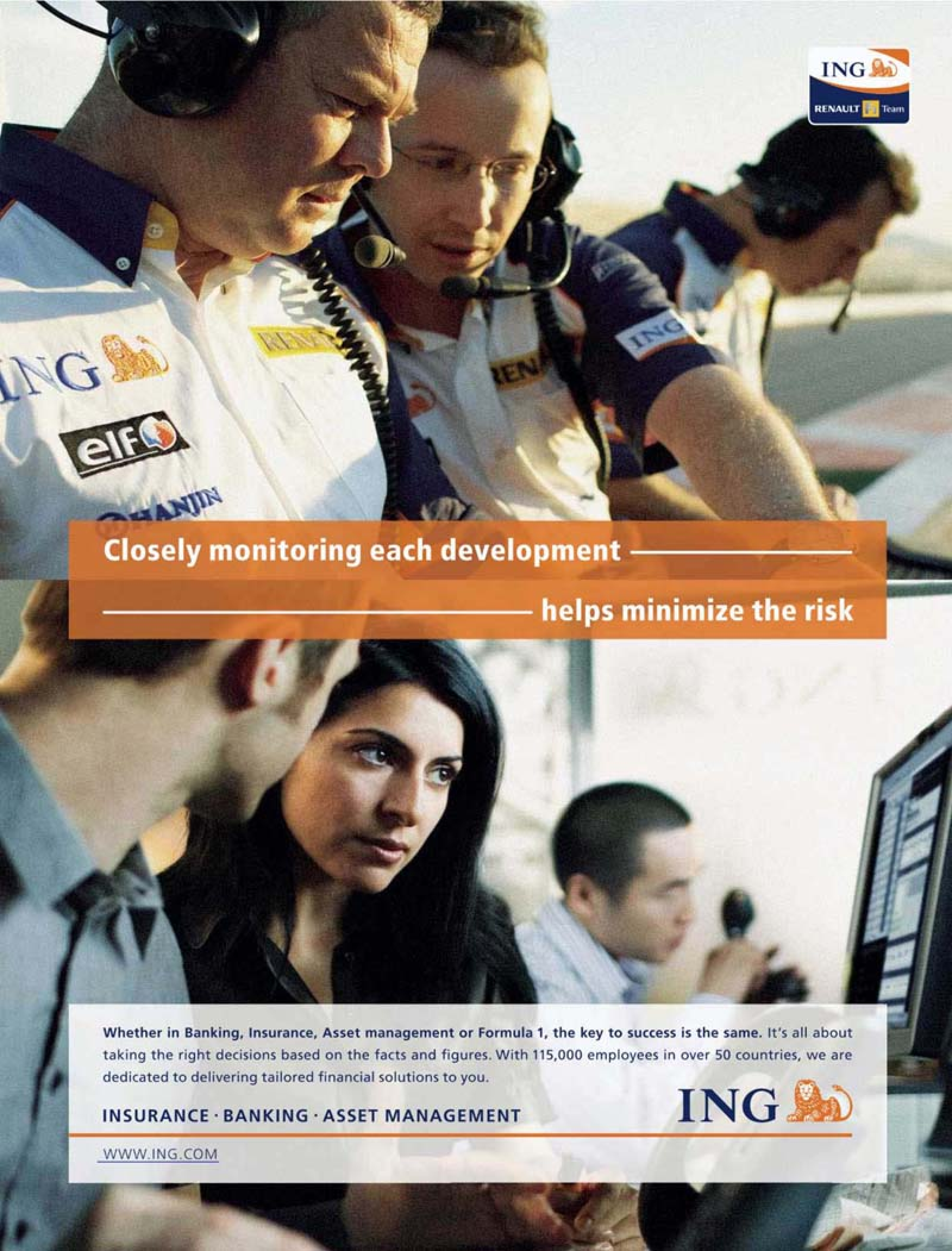
The Self-Destructive Habits of Good Companies...and How to Break Them

Jagdish N. Sheth

(Wharton School Publishing, 2007)

It's been said that one should invest only in companies so well organized that an idiot could run them, because eventually an idiot will. The trouble is that success breeds bad habits even in well-organized companies, making them vulnerable to changes in markets. Sheth, a business professor, explores these troubles in a useful survey of formerly successful corporations. Many of the case studies are familiar, and the advice, while sensible and wide-ranging, offers no great insight. More interesting is his admission that escaping the traps of success usually requires exceptional leaders who can anticipate change and reorient the company. For organizations truly committed to managing for the long term – not relying on luck – that makes leadership development the priority.

– John T. Landry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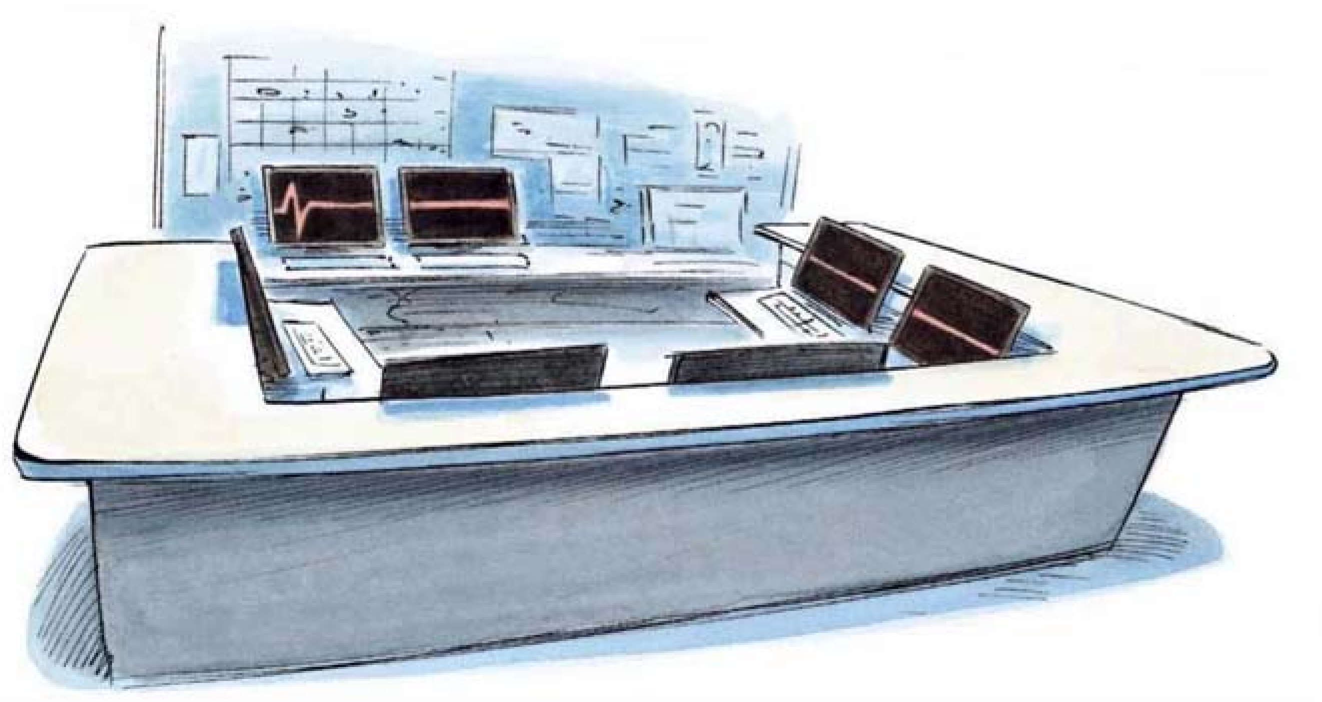

Too Far Ahead of the IT Curve?

Peachtree Healthcare's patchwork IT infrastructure is in critical condition. Should the CEO approve a shift to risky new technology or go with the time-tested monolithic system?

by John P. Glaser

Daniel Vasconcellos

FRESHLY SHOWERED AND COOLING DOWN after their squash game, Max Berndt drank iced tea with his board chairman, Paul Lefler. Max, a thoracic surgeon by training, was the CEO of Peachtree Healthcare. He'd occupied the post for nearly 12 years. In that time the company had grown – mainly by mergers – from a single teaching hospital into a regional network of 11 large and midsize institutions, supported by ancillary clinics, physician practices, trauma centers, rehabilitation facilities, and nursing homes.

Together, these entities had nearly 4,000 employed and affiliated physicians, who annually treated a million patients from throughout Georgia and beyond. The patients ranged in age from newborn to nonagenarian; represented all races, ethnicities, lifestyles, and economic conditions; and manifested every imaginable injury and disease. Many of them, over the course of a year, would be seen at more than one Peachtree Healthcare facility. Max's marching orders were to ensure quality, consistency, and continuity of care across the entire network – and to

HBR's cases, which are fictional, present common managerial dilemmas and offer concrete solutions from experts.

deliver all that with the highest levels of efficacy, economy, and respect for patients and staff.

Max, still sweating lightly, finished his tea and ordered more. He and Paul commiserated over the steady vanishing of squash courts in the metro Atlanta area. This particular block of four courts was located in a health club not far from Peachtree's Marietta headquarters. Apart from the one Max and Paul had used, the other three were dark.

"By next week," Paul predicted, "at least one of those courts is gone."

In Paul Lefler's worldview, things always happened fast. Paul was the CEO of Wyndham Trust, the region's leading retail bank and mortgage lender. Having overseen Wyndham's rapid growth through mergers and acquisitions, he was an avid believer in brute-force standardization. His management team had honed the art of disciplined conversion, changing everything from signage to systems and processes in very short order, "like ripping off an adhesive bandage."

Squash courts weren't the only thing vanishing from Max's universe. So was a comfortable management consensus about Peachtree Healthcare's long-term aims and how best to achieve them. Paul – like other board members and some in Max's management inner circle – was applying constant pressure on Max to follow the example of others in the health care industry: Push ahead on standards and on the systems and processes to support them. "You've got all the hospitals doing things differently. You've got incompatible technology that's held together by sweat and ingenuity and, possibly, prayer. Just do what other institutions are doing. Common systems, broad standardization... It's the competitive reality, and it's the right long-term play! So, what the hell are you waiting for?" But then the iced tea arrived, and Max used the interruption as an excuse not to answer Paul's question.

"You've got incompatible technology that's held together by sweat and ingenuity and, possibly, prayer. Just do what other institutions are doing. Common systems, broad standardization."

They'd been having this conversation for several months – sometimes informally, other times in full board or committee meetings. Max listened, to a point. Eventually, he always fell back on his clinical experience. "You can standardize the testing of ball bearings for manufacturing defects," he said. "But as far as I know, you can't – at least not yet – standardize the protocol for treating colon cancer."

As a physician, Max believed that the last word in all matters of patient care should rest with the doctor and the patient. But as a CEO he believed in best practices. So his compromise position was to favor selective (Max called it "surgical") standardization. Indeed, many areas of clinical treatment – immunizations, pharmacy record keeping, aspects of diabetes care – could safely be standardized around best practices over which there were few disagreements. In other areas, though, standardized practices could have scary patient-safety consequences, and physicians had to be free to form their own judgments about which treatments were best for which patients.

Lately, however, worrisome developments were eroding Max's confidence that he could hold out against Paul's brute-force prescription.

Remember *The African Queen?*

Days before, there had been a meltdown of the clinical information system at Wallis Memorial Hospital in Decatur. (Wallis was Peachtree's most recent addition.) Since Max had been lunching with his chief information officer, Candace Markovich, when the alarm came through to her PDA, he drove her over to Wallis to investigate.

On the way, Candace reprised her concerns about ensuring uptime and performance quality across Peachtree's patchwork infrastructure. "More and more, I feel like Humphrey Bogart in *The African Queen,* trying to keep the blasted engine running on the boat," she said. "So much of our energy and budget goes into just treading water. And the more we grow, the worse it gets."

At Wallis, Max saw cold panic on the faces of the IT staff as they rushed around trying to repair and reboot the system. Doctors and nursing supervisors stood around looking helpless or angry, sometimes a mix of both. Clinicians, having finally been persuaded to use information technology as a primary tool in delivering care, now depended on it to work reliably. When it didn't cooperate, they – and their patients – were basically screwed.

Now Max witnessed the routine nightmare that many doctors recoiled from. Talented, hardworking, highly paid people were being kept from doing their jobs by the too-unremarkable failure of what had become an indispensable tool. Although everyone in IT was working diligently to fix the problem, diligence wasn't enough to keep disgust at bay. Wherever Max looked, he saw pain.

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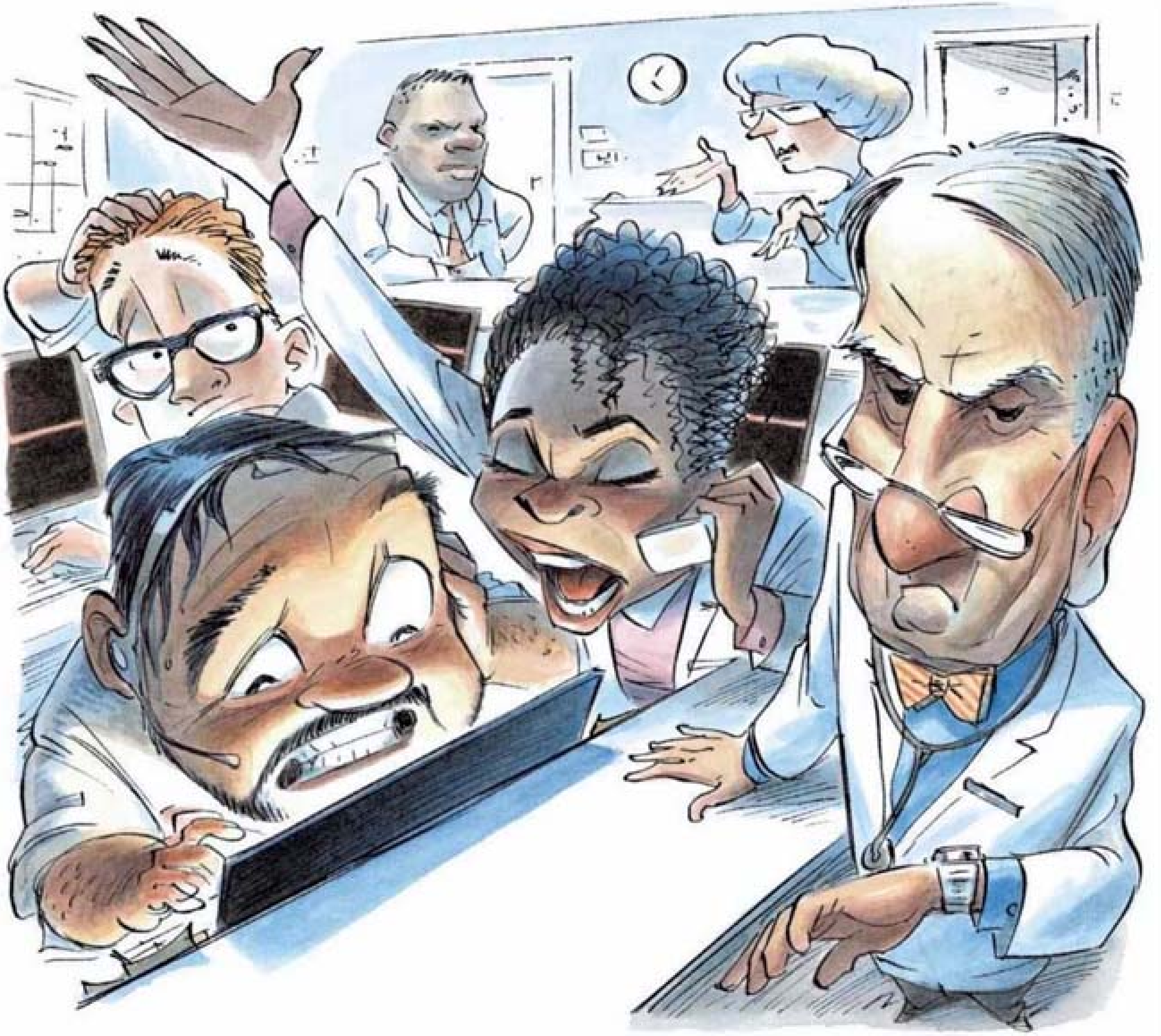


And yet Max was also that rarity in medicine – a physician leader who recognized and embraced the value in technology. An early enthusiast of telemedicine, he had participated in long-distance, computer-assisted research conferences and consultations on behalf of his own and other doctors' patients. He had easily been converted to the view that computerized, consolidated patient records were vastly superior to manila file folders scattered throughout various specialists' offices, subject to eccentric clinical and record-keeping habits. As CEO, he had shown consistent leadership in visibly championing IT-based innovation. And he enjoyed a close, positive working relationship with Candace.

Even so, all he was hearing from Candace lately was that the IT infrastructure was consuming so much maintenance energy that further technical innovation was becoming a luxury, an afterthought. At Wallis, Max had gotten to see the nature of the problem up close and personal.

Luckily, the situation ended up being resolved without major consequences to patients – this time. But Max was now convinced that something urgently needed to be done. The *African Queen* was headed toward the rapids.

Medicine Is Different

The day after the squash match, Max sat in a budget meeting in his office attended by Candace and Peachtree CFO Tom Drane. Max wanted to know what it was going to cost to rearchitect technology across all of Peachtree's facilities. Candace and Tom cataloged the results of a request for information Candace had put out earlier in the year. Max paid nervous attention.

The combination of IT and big, hairy numbers was certainly not unheard of, but it was still intimidating, mysterious, and worrying. Moreover, it was hard for Max to reconcile the task of standardization with all the realities of the health care mission.

Sometimes Max envied Paul Lefler the dispassionate nature of the banking business. No patients, only customers – and most of them just wanted something simple: a loan, a place to put their money, a way to get at it easily. Paul could choose end-to-end standardization with a clear conscience.

Health care, though, was different. It was a matter of life or death. Doctors – not wizards of finance – were the authority figures of greatest consequence. Any effort to control or otherwise interfere in physicians' duties was scrutinized in the long shadow of the Hippocratic oath. For that and other reasons, mergers were not typically a feature of market behavior among hospitals. Often when they were tried, hospital mergers failed. Each institution had its own idiosyncratic, doctor-dominated identity. Put one together with another, and you'd constructed an oxymoron – a health care "system."

Or so the wisdom went until Peachtree did its first merger and created a potent synergy between two great teaching hospitals. Now Max presided over a federation of 11 hospitals of assorted sizes and special purposes, each with its own proud history and culture, each with its own weird mishmash of IT systems of various vintages and vendor pedigrees. Soon, depending on just how much standardization he ultimately decided to pursue, Max was going to rock the whole boat either a little or a lot.

Presently under consideration were proposals for what Candace called monoliths – massive systems running massively ambitious enterprise software that would compel the arduous redesign of every business process. The hardware and software, she explained, "are the tip of the iceberg costwise. It's everything that comes next that makes this so expensive."

Tom reached across a small conference table and turned the page in a three-ring notebook assembled for Max's edification (Max was famously scornful of PowerPoint). "Looking at benchmark data for implementations of comparable size," said Tom, "you see there's potential for the cost to multiply two or three times over budget."

Max admired the way Tom could convey a thoroughly terrifying possibility without betraying the slightest vocal stress – the CFO version of bedside manner.

"Really?" said Max. "Two or three? Depending on what?"

"Mainly on consulting services," said Candace. "The time it takes. How hard it is to change the processes, get buy-in, roll out the system without too much scope creep, train the people, make customizations, fix problems that crop up after implementation."

"The good news?" asked Max.

"It can work," said Candace. "It gets the job done. It leaves us with a brand-new homogeneous infrastructure, a single set of systems and applications, complete interoperability and consistency across all of the hospitals, a unified patient records database. Unified everything, really. It's like we become a single institution with multiple campuses."

"Okay," said Max, looking now at Tom. "Is there a number you'd like to leave me with?"

"Five hundred million to a billion," said Tom. "Spread out over five to seven years."

"But it could be more?"

Tom shrugged. "It could. But I'm comfortable with a billion at the high end."

Each institution had its own idiosyncratic, doctor-dominated identity. Put one together with another, and you'd constructed an oxymoron – a health care "system."

Caveat Emptor Everywhere

On an evening a few weeks later, in mid-July, Candace appeared at Max's door, obviously in the grip of a fresh enthusiasm. Max was trying to get out of the office for his son's tenth birthday celebration (the boy already regretted his summer birthday, because most of his friends were scattered to family vacations and camps).

"Five minutes," said Max. "It's Teddy's birthday." Candace proceeded to take nearly ten.

"As you know, we've been goofing around some with SOA," she told him, pronouncing it "SO-wuh," a gentle-sounding locution that suggested a seaweed wrap at a Japanese spa. "Nothing too intense, just some prototypes to get a feel for it. My view *has* been that it's a couple of years away from being ready as an option we'd have a lot of confidence in. But maybe there's a way to manage the risk of being more aggressive."

Max understood service-oriented architecture in a limited way. It was the latest hyperbolic promise of technology magic, a way of parsing information systems into modules that perform discrete services. Built out of reusable strands of programming code, these modules could be reconfigured, Lego-like, into new applications at a diminishing future cost. With Max's blessing Candace had funded some SOA experiments; the results had been mixed but still were encouraging in the proof-of-concept sense.

"What's good is that this would give us a lot of agility. We could easily change a system. We could try something out on a limited scale and move forward in small steps to keep the risk lower. But the thing for you to bear in mind is that SOA gives us the flexibility to go after selective standardization. It's not a my-way-or-the-highway kind of deal."

Max nodded, intrigued. Nevertheless, he remained standing and edged toward the door – he had to stop at the bakery on the way home to pick up the cake his wife had ordered. Candace talked faster. "The problem is, the SOA market's not mature yet. There's a lot of unpredictability. The vendors are still feeling their way along, and the risk for us is we become a victim of their – and our own – steep learning curve."

After a couple of further ambiguous upside and downside observations, Candace released Max. In the car he continued processing the conversation. It was the devil you know versus the one you don't. But the thought of surrendering on the question of selective standardization continued to nag at Max – it was a choice with huge implications for the indigenous clinical cultures of Peachtree's original parts. A monolithic system would render the surgical approach difficult to the point of impossibility. But SOA might blow up in everyone's faces, leaving Peachtree with selectively standardized chaos that was scarcely better than what existed today.

At the bakery Max was impressed by the colorful sheet cake. It was tomahawk themed for the Braves – Teddy was a big fan of Andruw Jones.

A Femur Meeting

At Max's urgent behest, Candace presented the pros and cons of the SOA option to a small strategy task force, whose deliberations would inform Max's recommendation to the board of directors. They met in a 12th floor conference room known as Femur (all of Peachtree's meeting spaces were named for least-disagreeable body parts, mainly bones).

"No choice is perfect," Candace said by way of introduction. "But who knows? Maybe there's something here for us." At a meeting two days earlier she had sketched out the monolithic system, scaring everyone with its price tag.

The team had originally been impaneled to give more shape and detail to Max's goal of surgical standardization. It had made progress toward identifying best-practice opportunities and flagging areas where physicians and institutions should – for now, at least – be left to their own devices.

At the outset of this process, Max had framed what for him was the key issue: "We could declare that everyone in this building will from now on wear uniforms," he said. "We'd then have an office-wear standard, but what would be the point? Standardization has to be seen in the context of something gained. Do no harm, right?" But now the whole strategy was up in the air. Max firmly believed that Peachtree's best long-term bet – exemplified by his cautious approach to standardization – was to preserve at all costs the hospitals' flexibility to respond to constant change. But Paul Lefler and others saw his caution as timid. Their view was that only by creating a thoroughly unified institution would Peachtree shed its legacy, premerger shackles.

Max firmly believed that Peachtree's best long-term bet – exemplified by his cautious approach to standardization – was to preserve the hospitals' flexibility.

Besides Max, Candace, and Tom, the team consisted of the COO, presidents of two of Peachtree's hospitals, and the president of the Peachtree Healthcare Foundation, the company's nonprofit research arm.

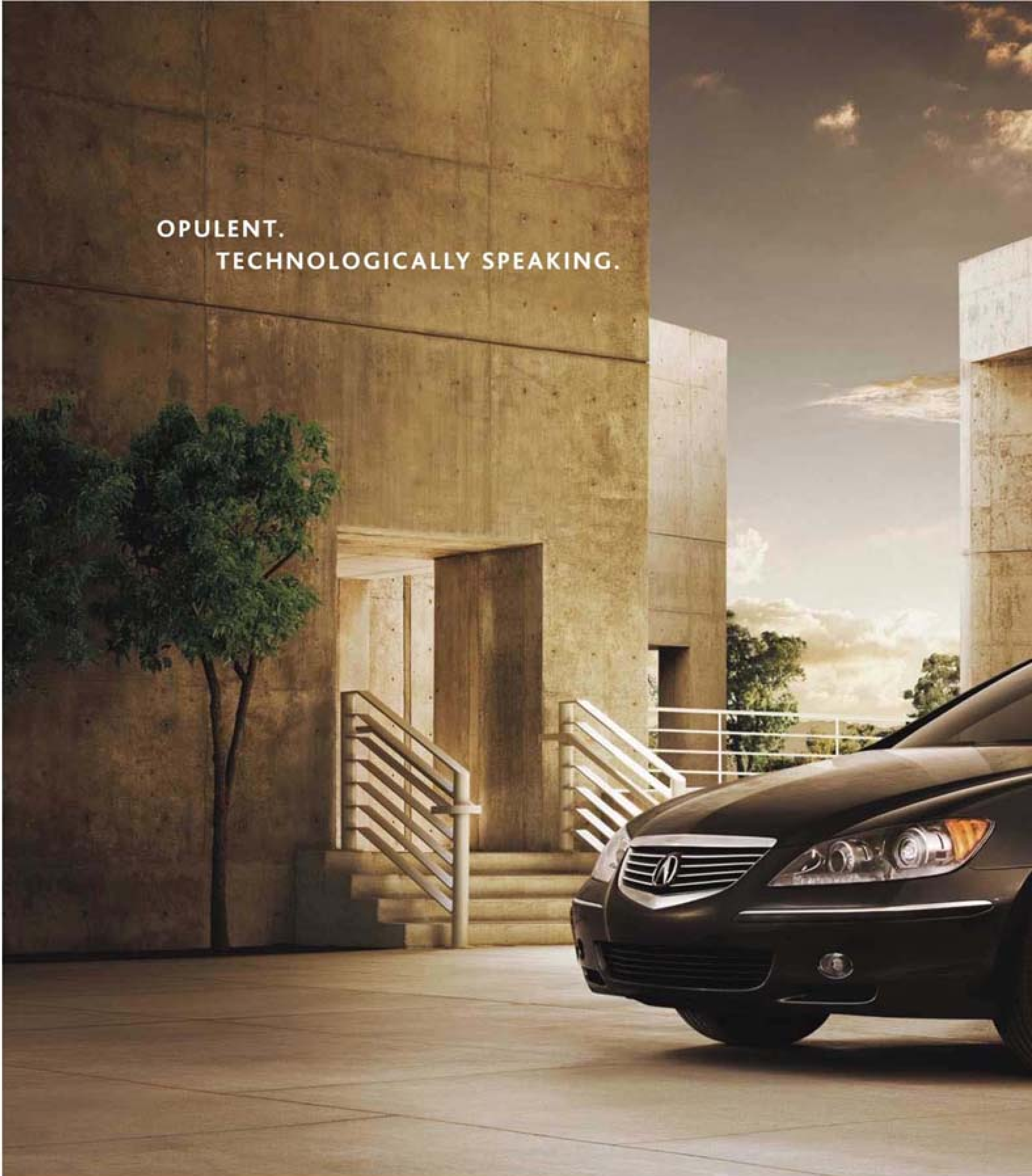
Candace moved quickly through her formal briefing, careful not to dive too deep, so there would be time for questions at the end. Tom asked who else in the health care industry was aggressively adopting an SOA strategy. "No one that I'm aware of," she said. "To be honest, that's one of the reasons key vendors are eager to work with us. They want to get some health care cred. On the one hand, that motivates them to be flexible on pricing. On the other, it makes us the guinea pigs."

Max listened as Candace laid out the risks and uncertainties. SOA was new and had no industry track record, she said. "So it's very hard to estimate with any reliability what a given unit of progress will cost, how long it will take to achieve it, and how close the resulting service will come to performing the way we intended it to. The concept of SOA suggests that it's less expensive in the long run than the monolithic system, but we don't have any data from other health care institutions to prove that. So you can't rule out that it might end up costing the same."

Max found himself wanting Candace to be just a little more upbeat on SOA. She'd incited him to think about it, and now he was beginning to wish he'd never heard of it. "So, why would anyone bother with it now?" he asked her.

She proceeded to share the Candace Markovich Theory of the IT Future: SOA was potentially the migration path to a transformative way of creating technology capability. "I really do believe that's true," she said. "So you can imagine how it might not totally thrill me to think about spending a bazillion dollars on a brand-new, shiny dinosaur that we'd be stuck with at a point in history when the IT world is moving someplace else. That isn't a choice I'd want to have to make. But I can see the logic in making it, because SOA is still kind of a crapshoot."

How should Peachtree try to fix its IT infrastructure problem? Four commentators offer expert advice beginning on page 36.



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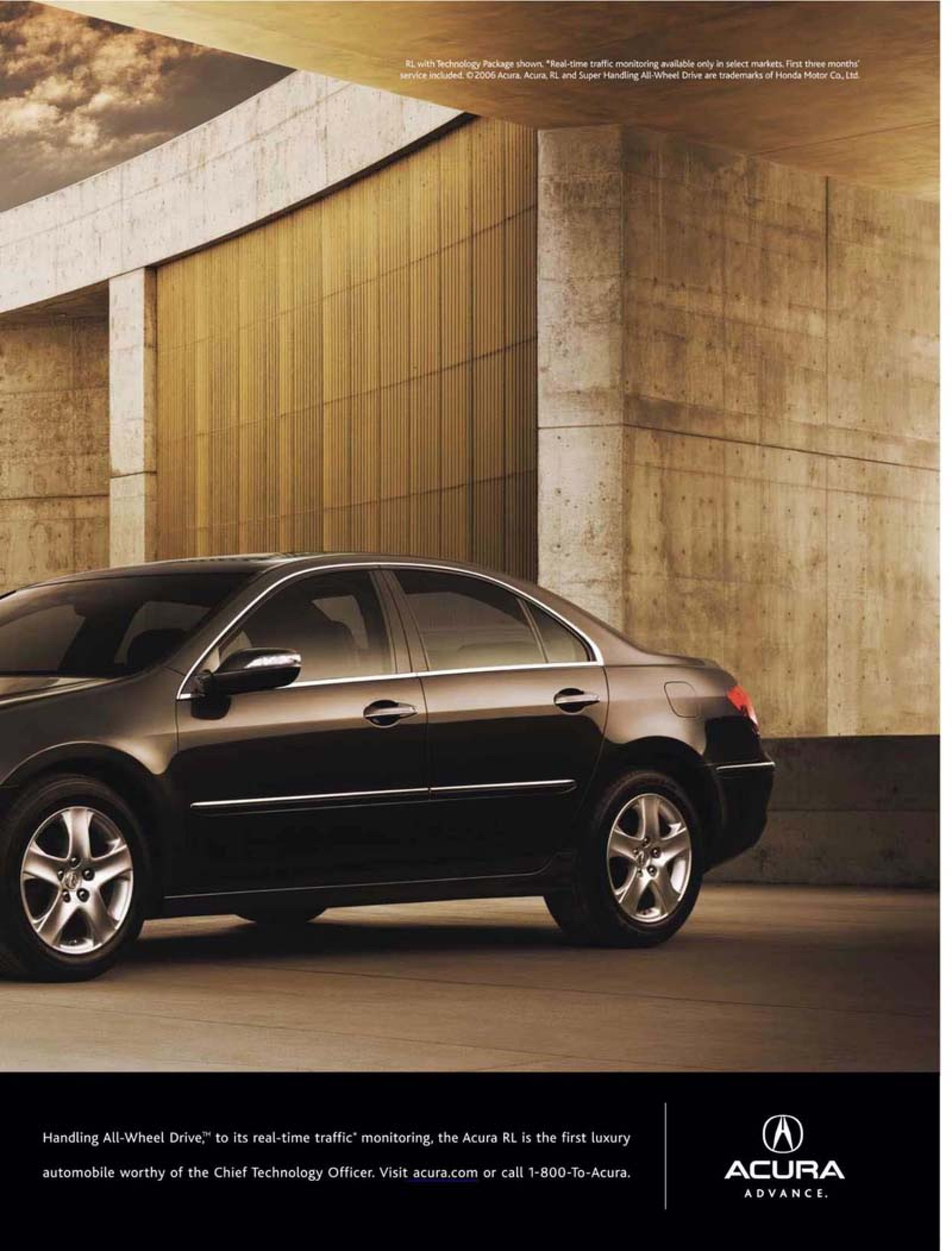
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George C. Halvorson is the chairman and CEO of Kaiser Permanente, based in Oakland, California. Over the next three years, KP will spend more than $3 billion to convert all its medical and other administrative records to digital files, linking them to electronic tools for care and connectivity.

MAJOR SYSTEMS PROJECTS are hard enough to support when your head of information technology is fully and enthusiastically on board. In Peachtree Healthcare's situation, a risky business case is being hesitantly recommended to senior management by an IT chief whose strongest positive feeling is that it might work. The proposed technology is untested in a health care environment, the cost load is undetermined, and the benefits are uncertain.

It's pretty hard for a CEO to bet the farm on a major systems initiative that has no obvious upside or business case for implementation. The fact that the current systems environment at Peachtree Healthcare is clunky and marginally functional should cause the systems staff to look for a better approach. But building a plan that uses untested methodology in a pioneering rollout effort is not a good decision – particularly because the stakes in a health care work environment truly can be life or death as well as financial.

So, what should happen next for Peachtree Healthcare? For starters, Max Berndt and the rest of the company's senior managers need to envision exactly what they want to accomplish with their systems. They also need to be closely involved in developing and finalizing that vision. Clear intent is essential, coupled with an equally clear strategic pathway to achieve that intent. The Peachtree IT-planning process skipped that step and started with a tool rather than a desired outcome. The right approach for the organization's leaders is not to implement something and then see if it works. It is to figure out exactly what they want their systems to do and then construct a plan for achieving those goals in a reasonable time frame and at an affordable cost.

In health care today, there are a few elements that must be included in any major IT plan. Extremely high levels of systems availability are an absolute necessity. Completely computerized clinical information will soon be essential, too, as will the ability to track care performance and patient outcomes. But standardizing care into a particular set of protocols is not a current necessity. Paul Lefler, the nonmedical board chair at Peachtree Healthcare, is eager to standardize care – in part because standardization has created efficiency, cost savings, and higher-quality products in settings outside the health care industry. In some operational areas, that kind of standards-based thinking can be transferred to health care delivery; in other areas, however, it is entirely premature.

Why premature? Because the evidence needed to insist on standardization isn't there yet for many areas of care. Some of the best thinkers in American health care are now working on an initiative to have 90% of health care decisions based on best medical evidence by the year 2020. If that is the goal, the evidence now available is not sufficient to use a computer to force standardized care on physicians. So the CEO of Peachtree is right in resisting rigid standardization. That said, the company's systems should include a database that will allow for tracking of care performance – both to identify which care delivery approaches work best and to ensure that those that don't work are identified and can be corrected.

A risky business case is being hesitantly recommended to senior management by an IT chief whose strongest positive feeling is that it might work.

Overall, the Peachtree team needs to go back to the drawing board. The company is definitely not ready to go down the service-oriented architecture path that the CIO has so tepidly recommended. It can do a lot better by starting with a broad vision for its systems results and then building a complete plan to achieve each objective within that vision. Systems in a health care environment should be a tool that is used to improve performance in the context of a well-considered strategy.

Wendy Wray

THE FIRST THING I WOULD ASK IS, why is this Max Berndt's decision? If the CEO can override the technical recommendation of the CIO, and the CIO's going to have to implement whatever the CEO decides, it's very possible there will be problems. But let's table that question for now.

One thing that's not spelled out is Peachtree Healthcare's risk profile. It would help to know how tolerant of risk the company is. But the fact that management is considering service-oriented architecture when others in the health care industry have steered clear suggests some willingness to get out ahead of the curve. It's also obvious this is a time-bound situation. The company doesn't have the luxury of waiting for a lot more certainty; its infrastructure needs a solution now.

A trap organizations can fall into is to see the choice as much more stark than it has to be. This shouldn't be an either-or situation. Elements of both options may have value in combination.

What Peachtree could do – and, in fact, what we are doing at American Airlines – is to move gradually in the direction of SOA. The company doesn't have to make a wholesale, knife-edge change from its legacy infrastructure. Instead, it can (as Candace Markovich suggests) divide the transformation into calculated, well-prioritized chunks. Chip away at the edges of old systems and replace them over time with SOA-built services. An incremental approach not only minimizes risk but makes the project more flexible and easier to control, and it allows IT to shift priorities at logical break points. The best SOA implementations will take full advantage of the legacy system's functionality but not just reinvent the older system in a newer SOA form.

Peachtree has traded in many of its old manual core business processes for IT-supported ones. Once that bridge has been crossed, there's no going back. Peachtree's clinical systems are, like American Airlines' reservation system, indispensable for carrying out the company's mission. Doctors and patients depend on them, so reliability is crucial. Whatever approach Peachtree implements has to be operationally sound. Obviously, part of the urgency the company faces is that its current technology keeps conking out.

I would reassure Max and Candace that SOA can be brought along in a way that manages down the risks and respects the need for reliability. In the end, the company must have systems that will work dependably. And an SOA-based environment that is not functionally rich is a failure. In that case, Peachtree would be better off with a monolithic system. Because the stakes are so high, the company must err on the side of getting the job done, and only then bring along the flexible systems and architecture. It doesn't do any good to have a totally flexible architecture that either doesn't properly address business needs or takes so long to implement that the company misses opportunities in the meantime.

For an organization like Peachtree, I don't think there's a time penalty for either choice – it wouldn't take any longer to get SOA up and running than it would the monolithic system. But it's important to remember that people often start out thinking of SOA as a project. Done correctly, the "project" never ends – it just turns into the way you do business. It becomes the way your IT capability is built, and that represents long-term value.

The company doesn't have to make a wholesale, knife-edge change. It can chip away at the edges of old systems and replace them over time with SOA-built services.

Candace should recommend that Peachtree turn toward an incremental implementation of SOA. And my strong advice to Max is to accept Candace's recommendation. The question of how to replace which pieces of the infrastructure should come in at a distant second to the overall decision to adopt SOA. Peachtree should follow the commonsense approach of retaining what still works and adds value to the enterprise, as long as it will accommodate a modular SOA scheme.

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MAX BERNDT HAS A CLEAR READ on Peachtree's high-level choices – a well-worn path of high-cost, rigid business standardization versus a new path of incremental, flexible business evolution. He senses that if service-oriented architecture can truly deliver on its promises of incremental change, it can provide the technological foundation for surgical standardization. But his CIO, by "goofing around" with SOA as a vendor-driven product category instead of looking at it as a methodology, has missed key perspectives on SOA's maturity and its relationship to business dynamics and change management.

To begin with, SOA's industry penetration is deeper than Candace Markovich realizes. According to survey data from Forrester Research, about 60% of North American, European, and Asian-Pacific enterprises say they are now using SOA or will be by the end of 2007, including 22 of 38 public-services organizations surveyed.

More important for Peachtree's consideration is that about 40% of current SOA users say it is helping them to achieve strategic business transformation. Why does SOA garner so much credit? Its design models, when done right, are the best yet at preparing a firm's technology to change with the company. Each major business task (like ordering a diagnostic test or entering clinical notes in a patient's record) has a separate, simplified software interface called a "business service." With business services – the Lego-like blocks used to construct and change processes – alignment with the business is built in; the technology and products are secondary. Some firms have for 15 years or more built software as business services, but the label "SOA" has gained prominence only within the past five years, with the rise of SOA as a product category.

By "goofing around" with SOA as a product category instead of looking at it as a methodology, the CIO has missed key perspectives.

Candace views SOA as a product category based on emerging industry standards for connecting applications across a computer network – so-called Web services. Widespread support among technology vendors and users is creating a broad industry ecosystem of products, skills, and services. So far, only the core standards have achieved critical mass, and the market landscape is still rapidly changing. Even so, the trade publications are replete with positive user testimonials about Web services. SOA-based design does not require Web services, but their combined benefits provide strong potential for business integration and flexibility.

Max's greatest asset is his grasp of the business dynamics of health care. In the swing of the pendulum to the side of efficiency, the ruthless standardization option risks limiting doctors' choices too much. By contrast, SOA's modularity provides a range of standardization choices. For example, a single business service for clinical notes could accommodate physicians' different note-filing preferences – whether doctors want to enter patient information directly on a computer or dictate it for later transcription.

Another big risk of ruthless standardization is that it requires an all-or-nothing approach to replacing Peachtree's existing software. SOA would allow Peachtree to replace only the most broken parts of its existing technology base. Retrofitting older systems with business-service interfaces is generally much cheaper than replacement. The benefits of broad standardization depend largely on the success of one large, multiyear project. The best approach with SOA is a series of small but independent projects within an overall portfolio of improvement initiatives. This provides many opportunities to assess, adjust, reprioritize, and redesign along the way. Furthermore, after SOA-based systems are implemented, the organization can continue to improve them.

SOA's business design models are the best match for Peachtree. They will allow the company to manage the risks of business and technology change (including SOA's own risks). Max should direct Candace to redo her decision analysis and strategy planning, looking at SOA through a business lens.

ONE OF THE PROBLEMS facing Max Berndt is all too familiar to leaders of health care systems: To what extent can or should the work of physicians in the various hospitals be standardized? Max and his colleagues will probably be frustrated if they try to herd doctors into a corral made of the latest computer technology.

Many students bent on careers in medicine see a future in which they will work for themselves and control their professional lives in a way unlike their friends in other careers. That vision was a reality generations ago, but today it is a seldom-realized fantasy. Very few doctors work in solo practice – most are either in private groups or employees of medical schools or large networks like Peachtree.

Having lost the mom-and-pop character of practice administratively, doctors adamantly protect independence in their relationships with patients and in their other day-to-day activities. Most did not enter medicine interested in, or equipped for, administrative responsibilities. Unlike Max, many do not want in a well-known institution and with the collaboration of talented colleagues.

Most of Peachtree's facilities, however, are not teaching hospitals. They are community hospitals, established by citizens and doctors to provide health care for their communities, and are probably structured as not-for-profit corporations. Most of the physicians who admit patients to this kind of hospital are self-employed. Some – particularly in hospital-based specialties such as radiology, emergency medicine, and laboratory medicine – may be employed by the community hospitals directly or by contract with private group practices.

Given the differences in how Peachtree's doctors are employed, and considering how they value their independence, one can understand how difficult it would be to persuade them to follow regimented patterns in their work. The transition to a computerized system for charting clinical information presents a problem to those charged with establishing a workable IT strategy. Younger doctors who are

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The spark of independence glows in the psyche of many doctors, and trying to regiment them will only increase its intensity.

to run a company and will rebel against the regimentation that they see as a part of the corporate culture.

Within a health care system like Peachtree, consisting of community hospitals and major teaching institutions, the terms of employment take several forms. Many of the doctors in the teaching hospitals are probably members of a "practice plan," a multispecialty group practice controlled by either the medical school or the teaching hospital. These doctors – each of whom, we can assume, has an appointment in a clinical department of one of the medical schools (such as medicine, surgery, pediatrics, or radiology) – are salaried, perhaps with a bonus based on clinical productivity. They have chosen this form of work because they want to participate in the teaching programs of the medical school, in some cases perform medical research, and care for their patients well versed in computer technology will have less difficulty accepting such a system. Older doctors who are not particularly computer literate will have a harder time adjusting.

Making the work of doctors more computer compatible is only one factor that management and the board should consider. They must accept that many physicians will resist applying sophisticated technology to their day-to-day activities. Peachtree should not attempt to change the essential features of how doctors work in its community hospitals. That spark of independence still glows in the psyche of many doctors, and trying to regiment them will only increase its intensity.

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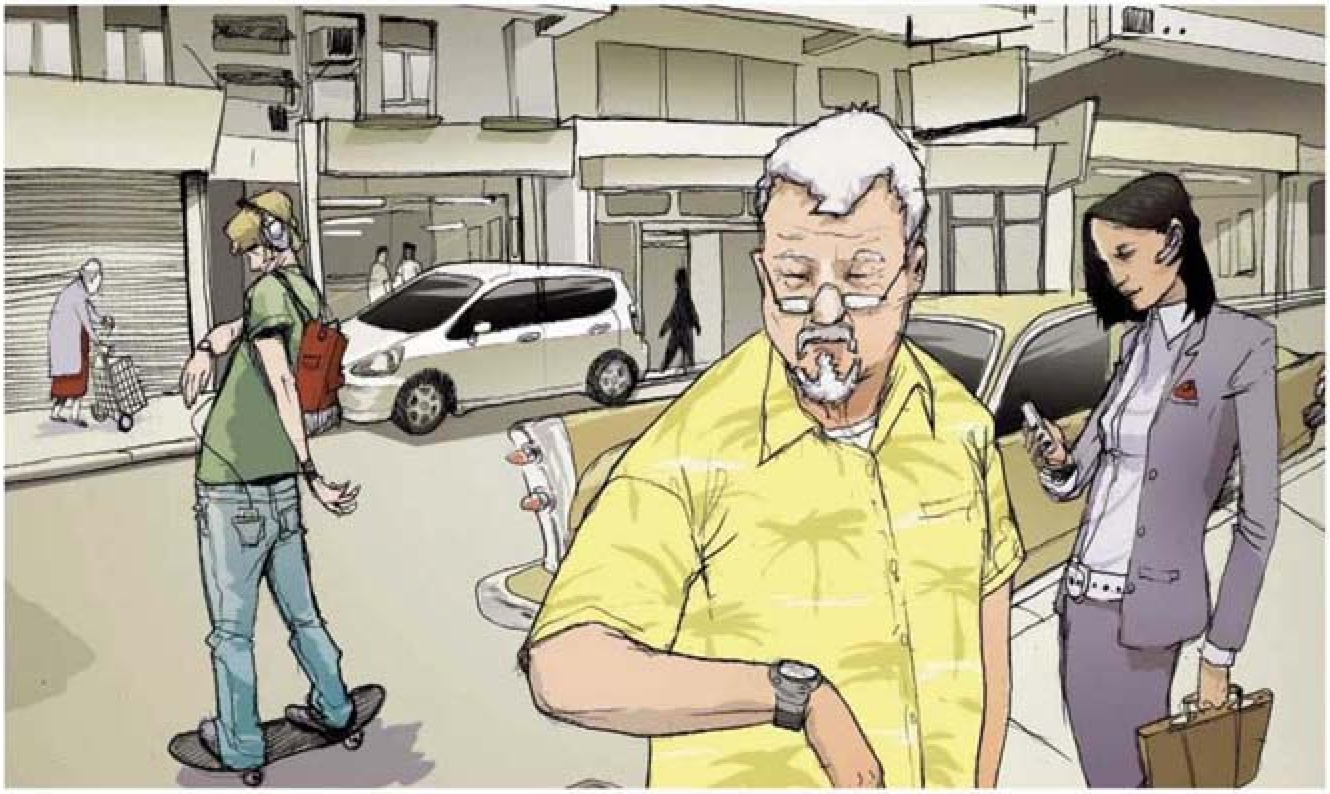

Matt Vincent

The Next 20 Years: How Customer and Workforce Attitudes Will Evolve

Generations are among the most powerful forces in history. Tracking their march through time lends order – and even a measure of predictability – to long-term trends.

by Neil Howe and William Strauss

DURING THE MIDDLE AGES, travelers reported an unusual custom among villagers in central France. Whenever an event of local importance occurred, the elders boxed the ears of a young child to make sure he remembered that event all his life.

Like those medieval villagers, each of us carries deeply felt associations with various events in our lives. For Americans, Pearl Harbor, the Kennedy and King assassinations, the *Challenger* explosion, and 9/11 are burned into our consciousness; it is impossible to forget what we were doing at the time. As we grow older, we realize that the sum total of such events has in many ways made us who we are. Exactly *how* they affected us is related to how old we were when they occurred.

This is what constitutes a generation: It is shaped by events or circumstances according to which phase of life its members occupy at the time. As each generation ages into the next phase – from youth to young adulthood to midlife to elderhood – its attitudes and behaviors mature, producing new currents in the public mood. In other words, people do not "belong" to their age brackets. A woman of 40 today has less in common with 40-year-old women across the ages than with the rest of her generation, which is united by memories, language, habits, beliefs, and life lessons.

Generations follow observable historical patterns and thus offer a very powerful tool for predicting future trends. To anticipate what 40-year-olds will be like 20 years from now, don't look at today's 40-year-olds; look at today's 20-year-olds.

People of a given age may vary quite dramatically from era to era. Recall, for example, Sproul Hall at UC Berkeley in 1964 and the students wearing computer punch cards that proclaimed "I Am a Student! Do Not Fold, Spindle, or Mutilate!" They were mocking the automated treatment the university was supposedly giving them. In the years after World War II, Americans had grown used to the Silent Generation's conformist college students. Now a new generation was arriving: the baby boom raised in the aftermath of the war. By the end of the 1960s these confrontational, megaphone-toting students had launched a "consciousness revolution" to demand that their war-hero elders live up to higher moral standards.

Twenty years later U.S. campuses experienced another surprising shift. The *Wall Street Journal* noted in 1990, "It is college presidents, deans, and faculties – not students – who are the zealots and chief enforcers of Political Correctness." This batch of students, Generation X, was born during the consciousness revolution. The children of divorce, latchkeys, and ad hoc day care, they showed much less ideological passion than their elders and brought a new pragmatism to the nation's campuses.

Today graying college leaders on the verge of retirement continue to carry the ideological torch, crusading for various causes in ways that often irritate their younger Gen X colleagues. Meanwhile, undergraduates are showing yet another generational personality: The members of this rising Millennial Generation tend to be upbeat, team-oriented, close to their parents, and confident about their future. Unlike Boomers, they do not want to "teach the world to sing." Unlike Gen Xers, they don't "just do it" – they plan ahead.

Rather than puzzling over why 20-year-olds were self-absorbed moralizers in the 1960s but are busy and risk-averse achievers today, one must recognize them as members of distinct generations. To learn why they (or any two generations) are different, one can look at how they were raised as children, what public events they witnessed in adolescence, and what social mission they took on as they came of age.

Our focus as scholars has been on understanding generational personae and how they come together in society to create a national character that continually evolves as new generations emerge and old ones pass away. This would be a fascinating study even if it were solely for the purposes of historical understanding. But its value is far greater than that. What we have found is that generations shaped by similar early-life experiences often develop similar collective personae and follow similar life trajectories. The patterns are strong enough to support a measure of predictability. Historical precedent makes it possible to foresee how the generations alive today will think and act in decades to come.

Rather than puzzling over why 20-year-olds were self-absorbed moralizers in the 1960s but are busy and risk-averse achievers today, one must recognize them as members of distinct generations.

In this article we will share some highlights of our ongoing effort to do just that. For businesspeople who manage operations or sell products in the United States, the analysis offered here has enormous implications for strategic planning, brand positioning, and management of the workplace. (More broadly, of course, it informs discussions of war and peace and America's capacity to face its most difficult challenges.) For executives in other countries, the analysis suggests insights that might also be gained in their parts of the world: the insights that come from seeing change through the lens of generations.

The Generational Constellation

Any society is the sum of its parts – the generations that coexist at that moment in time. America today combines six. (Nineteen generations have come of age since the time of the *Mayflower*, in the 1620s. See the exhibit "America as a Sequence of Generations" for details.)

The GI Generation (born 1901–1924, now age 83–106) arrived after the Great Awakening of the late nineteenth cen-

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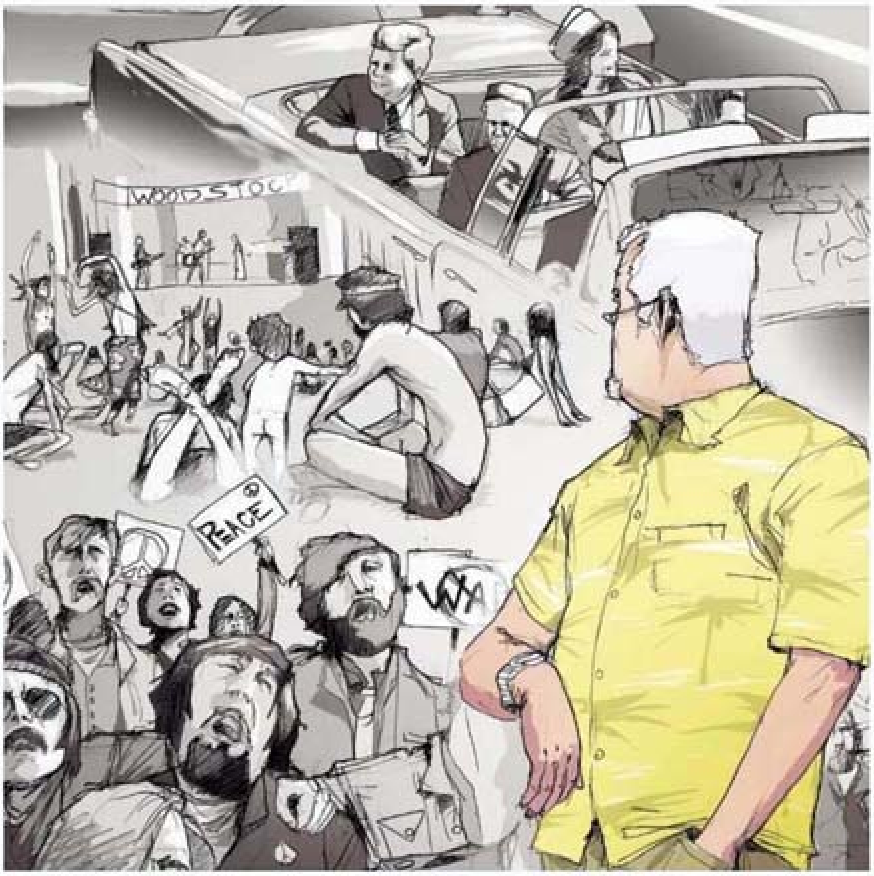
tury. Zealously protected by Progressive-era parents, its members enjoyed a "good kid" reputation and accounted for the sharpest rise in school achievement ever recorded. As young adults, they were the first Miss Americas and all-American athletes. In midlife they built up the postwar "affluent society," erecting suburbs, inventing miracle vaccines, plugging missile gaps, and launching moon rockets. Though they defended stable families and conventional mores, no generation in the history of polling got along worse with its own children. They were greatly invested in civic life, and focused more on actions and behavior than on values and beliefs. Their unprecedented grip on the presidency (1961 through 1992) began with the New Frontier, the Great Society, and Model Cities, but encompassed Vietnam, Watergate, Iran-contra, and budget deficits. As "senior citizens" (a term popularized to describe them), the GIs safeguarded their "entitlements" but had little influence over culture and values. Early in this century they were honored with memorials, films, and books. Roughly half of those still alive are in dependent care.



The Silent Generation (born 1925–1942, now age 65–82) grew up as the seen-but-not-heard Little Rascals and Shirley Temples of the Great Depression and World War II. Its members came of age just too late to be war heroes and just too early to be youthful free spirits. Instead they became, like James Dean, "rebels without a cause," part of a "lonely crowd" of risk-averse technicians in an era in which early marriage, the invisible handshake, and climbing the career ladder seemed to guarantee success. As gray-flannel conformists, they accepted the institutional civic life and conventional culture of the GIs until the mid-1960s, when they stopped taking their cues from those higher up on the age ladder and started looking down – following Bob Dylan's lead ("I was so much older then, I'm younger than that now"). They became America's leading civil-rights activists, rock and rollers, antiwar leaders, feminists, public-interest lawyers, and mentors for young firebrands. They were America's moms and dads during the divorce epidemic. They rose to political power after Watergate, their congressional behavior characterized by a push toward institutional complexity and a vast expansion of the legal process. To date they are the first generation never to elect a U.S. president or to appoint a chief justice of the Supreme Court. As elders, they have focused on discussion, inclusion, and process (as with the Iraq Study Group's list of 79 recommendations) but not on decisive action. Benefiting more than other generations have or will from ample late-in-life payouts (defined-benefit pensions, retiree health care, golden parachutes), they have entered retirement with a hip lifestyle and unprecedented affluence.

The Boom Generation (born 1943–1960, now age 47–64) began as feed-on-demand Dr. Spock babies. They were the indulged products of postwar optimism, Tomorrowland rationalism, and a *Father Knows Best* family order. Though community spirit was strong during their youth, the older generations were determined to raise young people who would never follow a Hitler, a Stalin, or a Big Brother. Coming of age, Boomers loudly proclaimed their scorn for the secular blueprints of their parents – institutions, civic participation, and team playing – while seeking inner life, self-perfection, and deeper meaning. The notion of a melting pot, the full-time mom, the suburbs and big auto at home, and the troops and domino theory abroad all came under their withering criticism. During the Boomers' youth, crime rates, substance abuse, and sexual risk taking all surged while academic achievement and SAT scores fell. The consciousness revolution climaxed with Vietnam War protests, the Summer of Love (1967), the Democratic convention in Chicago (1968),

America as a Sequence of Generations

A generation encompasses a series of consecutive birth years spanning roughly the length of time needed to become an adult; its members share a location in history and, as a consequence, exhibit distinct beliefs and behavior patterns. Nineteen generations have lived on American soil since the Puritans came to New England; the twentieth is just now arriving.

GENERATION	Birth years	Famous member (man)	Famous member (woman)	Era in which members came of age	Archetype
Puritan	1588–1617	John Winthrop	Anne Hutchinson	Puritan Awakening	Prophet
Cavalier	1618–1647	Nathaniel Bacon	Bridget Bishop	–	Nomad
Glorious	1648–1673	Robert "King" Carter	Hannah Dustin	Glorious Revolution Crisis	Hero
Enlightenment	1674–1700	Cadwallader Colden	Mary Musgrove	–	Artist
Awakening	1701–1723	Jonathan Edwards	Eliza Lucas Pinckney	Great Awakening	Prophet
Liberty	1724–1741	George Washington	Mercy Warren	–	Nomad
Republican	1742–1766	Thomas Jefferson	"Molly Pitcher"	American Revolution Crisis	Hero
Compromise	1767–1791	Andrew Jackson	Dolley Madison	–	Artist
Transcendental	1792–1821	Abraham Lincoln	Elizabeth Cady Stanton	Transcendental Awakening	Prophet
Gilded	1822–1842	Ulysses S. Grant	Louisa May Alcott	Civil War Crisis	Nomad
Progressive	1843–1859	Woodrow Wilson	Mary Cassatt	–	* Artist
Missionary	1860–1882	Franklin D. Roosevelt	Emma Goldman	Third Great Awakening	Prophet
Lost	1883–1900	Harry Truman	Dorothy Parker	–	Nomad
GI	1901–1924	John F. Kennedy	Katharine Hepburn	Depression–WW II Crisis	Hero
Silent	1925–1942	Martin Luther King, Jr.	Nancy Pelosi	–	Artist
Boom	1943–1960	George W. Bush	Hillary Clinton	Consciousness Revolution	Prophet
Generation X	1961–1981	Barack Obama	Sarah Palin	–	Nomad
Millennial	1982–2005?	Mark Zuckerberg	Hilary Duff	Millennial Crisis?	Hero?
Homeland	2005–2025?	–	–	–	

* The absence of a hero archetype during the mid-1800s is the one exception we have observed in a cycle that extends back through American and Anglo-American history to the Renaissance. Exceptions like this, which we suspect may be more frequent in other modern societies (from Europe to China), demonstrate that the course of history is never predetermined. In *The Fourth Turning* we speculate on why the cycle sometimes misses a beat. In the U.S. case, the timing and extreme severity of the Civil War apparently prevented the Progressive Generation from assuming an expanded civic role. Public institutions remained mostly in the hands of the Gilded Generation until nearly the end of the century.

Woodstock (1969), and Kent State (1970). In the 1970s Boomer women began challenging the glass ceiling in the workplace. Both genders designated themselves the arbiters of the nation's values, crowding into fields like teaching, religion, journalism, law, marketing, and the arts. During the 1980s many Boomers refashioned themselves as yuppie individualists in an era of deregulation, tax cuts, and entrepreneurship. During the 1990s they trumpeted a "culture war," touted a divisive "politics of meaning," and waged scorched-earth political battles between "red" and "blue" zones. As parents, they have developed very close individual relationships with their children, to the point of hovering. From first birth cohort to last, their generation has suffered declining economic prosperity.

Generation X (born 1961–1981, now age 26–46) grew up in an era of failing schools and marriages, when the collective welfare of children sank to the bottom of the nation's priorities, and dozens of films portrayed children who were literally demons or throwaway survivalists. Xers learned early on to distrust institutions, starting with the family, as the adult world was rocked by the sexual revolution, the rise in divorce, and an R-rated popular culture. With their mothers entering the workplace before child care was widely available, many endured a latchkey childhood. By the mid-1980s MTV, hip-hop, and a surging interest in business and military careers had marked a new and hardening pragmatism in their mood. Surveys (and pop culture) pointed to greater risk taking among the young. Over the next decade crime and teen pregnancy rates soared. After navigating a sexual battleground of AIDS and blighted courtship rituals as young adults, Xers have dated cautiously and married late. Many of them have begun to construct the strong families that they missed in childhood. In jobs they prefer free agency over corporate loyalty, with three in five saying they someday "want to be my own boss." They are already the greatest entrepreneurial generation in U.S. history; their high-tech savvy and marketplace resilience have helped America prosper in the era of globalization. Of all the generations born in the twentieth century, Gen X includes the largest share of immigrants. Xers have made barely any impression in civic life; they believe that volunteering or helping people one-on-one is more efficacious than voting or working to change laws.

The Millennial Generation (born 1982 to roughly 2005, now age 25 or younger) arrived after the consciousness revolution, when "Baby on Board" first began to appear in minivan windows. As abortion and divorce rates ebbed, popular culture began recasting babies as special and stigmatizing hands-off parental styles. Hollywood replaced cinematic demons with adorable children who inspired adults to become better people. The fertility rate rebounded, following the baby bust of Generation X, and surveys showed a climb in the percentage of children who were "wanted." Child abuse and child safety were hot topics through the 1980s, while books preaching family values became best sellers. By the mid-1990s politicians were defining adult issues (from tax cuts to Internet access) in terms of their effects on children. Educators spoke of standards, cooperative learning, and "no child left behind." Millennials as a generation have seen steady decreases in high-risk behaviors. As the oldest of them graduate into the workplace, record numbers are gravitating toward large institutions and government agencies, seeking teamwork, protection against risk, and solid work–life balance. Their culture is becoming less edgy, with a new focus on upbeat messages and big brands, and more conventional, with a resurgence of oldies and remakes. Their close relationships with their parents and extended families are carrying over into their young adult lives.

The Homeland Generation (born roughly 2005–2025) is now beginning to arrive in America's nurseries. Gen Xers are adopting a highly protective style of nurturing this generation, but half of its babies will have Millennial parents. It is still too early to set their first birth year, which will become clear in time.

Prophet, Nomad, Hero, Artist

Society undergoes change in large part because the generations within it wax and wane, arrive and depart. But shifts also occur because, as even the snapshot descriptions above make clear, the people who compose a generation change as they age. To predict how any given generation will mature, we can look at the experiences of previous generations born under similar circumstances. In particular, it's useful to consider generations with comparable "age locations" relative to key eras. (See the exhibit "The Generational Diagonal.")

It matters very much to the makeup of a generation whether it comes of age during or after a period of national crisis, or during or after a period of cultural renewal or awakening. We like to label these four major kinds of generations with the shorthand of archetypes: *prophet, nomad, hero,* and *artist*. The generations of each archetype share not only a similar age location in history, but also similar attitudes toward family, culture and values, risk, and civic engagement. As each archetype ages, its persona undergoes profound and characteristic changes.

Prophet generations are born after a great war or other crisis, during a time of rejuvenated community life and consensus around a new societal order. Prophets grow up as increasingly indulged children, come of age as the narcissistic young crusaders of a spiritual awakening, cultivate principles as moralistic midlifers, and emerge as wise elders guiding another historical crisis. Because of their location in history, such generations tend to be remembered for their coming-of-age passion and their principled elder stewardship. Their primary endowments relate to vision, values, and religion.

The Generational Diagonal

Generations are formed by the way historical events and moods shape their members' lives – and by the fact that these events and moods affect people very differently depending on the phase of life they occupy at the time. Consider the era of the Great Depression and World War II. For the children of that time (the Silent Generation), its economic and geopolitical crises led to tight adult protection. For young adults (GIs), they meant challenge, teamwork, trial, and sacrifice. For those in midlife (Lost), they imposed a new sense of responsibility and a need for practical leadership. For elders (Missionaries), they offered an opportunity to champion long-held visions and establish a legacy.

This is the "generational diagonal." Chart each phase of life along one axis and each historical era along the other. Track each generation's mind-set and behaviors across these phases and eras. What you get is a panoramic view of an evolving societal mood. As one era fades into the next, you can see how and why that mood changes. It's a simple matter of generational aging.

The generational diagonal can help provide new answers to historical questions, such as why the Great Awakening and the American Revolution happened when they did, and why the Gilded Era followed the Civil War. It can also explain why SAT scores fell through the 1970s, and why attitudes toward having and raising children became much more positive in the early 1980s. Perhaps most important, it provides a powerful tool for predicting what to expect from each phase of life – and from society as a whole – in the decades to come.

ERA	1908–1929	1929–1946	1946–1964	1964–1984	1984–2005?	2005?–2025?
		(CRISIS)		(AWAKENING)		(CRISIS)
KEY EVENTS	Women's suffrage World War I Roaring Twenties Scopes trial	Crash of '29 New Deal Pearl Harbor D-day	McCarthyism Levittown Affluent society Little Rock	Kent State Woodstock Watergate Tax revolt	Morning in America Culture wars Long Boom Y2K	Post–9/11 America
entering ELDERHOOD age 63–83	Progressive (artist) **empathic**	Missionary (prophet) **wise**	Lost (nomad) **tough**	GI (hero) **civic**	Silent (artist) **empathic**	Boom (prophet) **wise**
entering MIDLIFE age 42–62	Missionary (prophet) **moralistic**	Lost (nomad) **pragmatic**	GI (hero) **powerful**	Silent (artist) **indecisive**	Boom (prophet) **moralistic**	Generation X (nomad) **pragmatic**
entering YOUNG ADULTHOOD age 21–41	Lost (nomad) **alienated**	GI (hero) **heroic**	Silent (artist) **sensitive**	Boom (prophet) **visionary**	Generation X (nomad) **alienated**	Millennial (hero) **heroic**
entering YOUTH age 0–20	GI (hero) **protected**	Silent (artist) **suffocated**	Boom (prophet) **indulged**	Generation X (nomad) **abandoned**	Millennial (hero) **protected**	Homeland (artist) **suffocated**

Nomad generations are born during a cultural renewal, a time of social ideals and spiritual agendas, when youth-fired attacks break out against the established institutional order. They grow up as underprotected children, come of age as the alienated young adults of a post-awakening world, mellow into pragmatic midlife leaders during a crisis, and age into tough post-crisis elders. Because of their location in history, such generations tend to be remembered for their rising-adult years of hell-raising and their midlife years of get-it-done leadership. Their primary endowments relate to liberty, survival, and honor.

Hero generations are born after a spiritual awakening, during a time of individual pragmatism, self-reliance, laissez-faire, and national (or sectional or ethnic) chauvinism. Heroes grow up as increasingly protected children, come of age as the valiant young team workers of a crisis, demonstrate hubris as energetic midlifers, and emerge as powerful elders beset by another spiritual awakening. Because of their location in history, such generations tend to be remembered for their collective coming-of-age triumphs and for their hubristic elder achievements. Their primary endowments relate to community, affluence, and technology.

Artist generations are born during a great war or other crisis, a time when worldly perils boil off the complexity of life, and public consensus, aggressive institutions, and personal sacrifice prevail. Artists grow up as overprotected children, come of age as the sensitive young adults of a post-crisis world, break free as indecisive midlife leaders during a spiritual awakening, and age into empathic post-awakening elders. Because of their location in history, such generations tend to be remembered for their quiet years of rising adulthood and their midlife years of flexible, consensus-building leadership. Their primary endowments relate to pluralism, expertise, and due process.

We've said that historical events and circumstances shape generations. It seems clear that the reverse is also true, giving rise to a rhythm in history itself. Our four archetypes have recurred in the same order, with only one exception, throughout American history, and we have observed this general pattern in many other societies around the world as well. What may at first seem to be amazing coincidence turns out to be simply the reaction of each generation to what it perceives as the excesses of its elders. Thus Boomers in middle age (a prophet generation, focused on values, individualism, and inner life) have been raising Millennial children (a hero generation, focused on actions, community, and institutional life). Archetypes create opposing archetypes. In other words, your generation isn't like the generation that shaped you. It's like *the generation that shaped* the generation that shaped you.

What does all this mean about the customers and employees who are the lifeblood of your business? Let's take a close look at the aging of the four generations of Americans whose presence will still be vital 20 years from now. The last of the GIs will have passed on, and the Silents will have entered late elderhood, with its increasing dependence and disengagement from public life. It will be Boomers, Gen Xers, Millennials, and Homelanders who play the central roles in shaping tomorrow's social mood.

Deep into old age, Boomers will take pride in continuing to dominate America's culture, religion, and values. Experiencing a physical decline, they will elevate the soul over the body.

The Elderhood of Boomers

In 2006 the media were filled with stories about Boomers reaching their sixties, from Presidents Bush and Clinton to the characters on the television series *Twenty Good Years*. Boomers approached old age with a splash, determined to transform elderhood in some meaningful way. Glimpses of this can be caught in the "conscious aging" movement, in which older Boomers are constructing a new social ethic of decline and death, much as they did with sex and procreation in their youth. Whereas their youthful ethos stemmed from self-indulgence, their elder ethos will hinge on self-denial. To be sure, much of it will be symbolic only: Just as aging GIs glorified national consumption but personally maintained their frugal habits, aging Boomers will glorify the virtues of self-denial but personally maintain (to the extent their incomes allow) their creature-comfort indulgence.

Deep into old age, Boomers will take pride in continuing to dominate America's culture, religion, and values. Experiencing a physical decline, they will elevate the soul over the body. Graying feminists, environmentalists, humanists, and evangelicals will impart a new passion to old enthusiasms as they rail against shopping malls, globalization, bureaucracies, pop culture, and all the other false idols of the modern world. Many Boomers, after disengaging from the world of work, will become religious or ideological missionaries. Elder priests, ministers, rabbis, and imams will sharpen their sermonizing about good and evil and demand that civic ritual be infused with a sense of the sacred. As Gen Xers increasingly take over cultural institutions, Boomers' resistance to the Gen X lifestyle will become more pronounced. Convinced that their own cultural values are superior, they will focus on shaping the outlook of

Millennials. They will try to impress younger Americans more by who they are than by what they do – more by their passions than by their accomplishments. They will remain dominant consumers of culture – theater, art galleries, even rock concerts – though much of their Woodstock and Earth Day message will sound remote and preachy to younger generations. "Cultural tourism" and wilderness outings will gray with Boomers, as they continue to overnight at monasteries, visit wineries, explore biodiverse beaches, and gaze on pristine mountains.

Elder Boomers will seek products, services, and living environments that express their convictions. Some will eschew high-tech medicine in favor of holistic self-care, natural foods, and mind-body healing techniques. As the oldest of them reach the age where they need more medical care, some hospitals are opening wings that feature natural foods, alternative medicine, and spiritual counseling. However frail they may become, Boomers will want to be in control of their surroundings. The GI-era surge in planned-care communities, already slowing among Silent retirees, will be thrown into reverse. Unlike elderly GIs, who sought out tight peer communities far from their families (such as Sun City, Arizona), elderly Boomers will avoid large-scale preplanned communities and keep their families around them. Experts have already identified "naturally occurring retirement communities," where Boomers are simply aging in place.

In the workplace and the economy. As Boomers reach the traditional retirement age, many will remain involved in the working world. The very word "retirement" will acquire negative connotations of indolence and mindless consumption. The new goal for "serious" elders will be not to retire but to replenish or reflect – if not simply to keep working.

By forging an antiretirement ethic, Boomers will in part be making a virtue out of necessity: This generation (especially its later-born members) has experienced a much slower growth in income than the Silent, and today faces an insurmountable lag in average household net worth. Boomers have neither saved as much nor been as well insured by their employers – and they expect that public programs like Social Security and Medicare will be cut owing to the size of their generation. But later retirement will also reflect the Boomer mind-set. Even affluent Boomers may pursue new careers late in life, often in high-prestige but low-paying (or unpaid) emeritus positions. Rather than aging as institutional fixtures, elder Boomers will try to become consultants and independent contractors, working remotely to maintain a self-sufficient lifestyle. To younger generations in the workplace, old Boomers will appear highly eccentric. Their prized otherworldliness will strike younger workers as incompetence, and what they see as ethical perfectionism will sometimes look to the young like hypocrisy. However much the rising generations may respect Boomers for their vision and values, they may also dismiss them as insufficiently plugged in.

Houses, cars, and computers will be produced for and advertised to individual consumers. Older generations will look back wistfully to a time when products (and jobs) came in standard shapes and sizes.

Retiring Boomers will experience not only a disappointing growth in wealth, on average, but also a widening inequality in its distribution. When they were growing up, the range of household incomes was relatively narrow, but during their adulthood it has broadened substantially under the rubrics of individuality, markets, and choice. In old age Boomers will argue heatedly over this trend. The market for high-end goods and services will remain strong (this generation includes an unprecedented number of centimillionaires), but the middle and low-end markets will suffer.

In the community and politics. Elder Boomers will be closer physically, financially, and attitudinally to their grown children than their own parents were to them. Many aging Boomers will remain at the head of multigenerational households. They will urge young people to serve community ahead of self – shaping the young to be quite unlike themselves. Having spread a vocabulary of self-esteem and self-love throughout today's schools and media, some Boomers will criticize young people for repeating it back to them.

Many elder Boomers will be frustrated as they lose influence in politics, unsure whether their Gen X successors are up to the task. They will not, however, think of themselves as "senior citizens" or cling to political power deep into their old age. Social Security was a generational bond for GIs and a play-by-the-rules annuity for Silents. To maintain the same level of dependence on the young, Boomers would have to wage political war on their Millennial children – something they will not do. (Nor could they win if they did.) As they become increasingly less able to turn fiscal benefits in their direction, the "Money can't buy me love" generation will once again focus its energy on culture and values.

The Midlife of Generation Xers

Gen Xers will retain their reputation for alienation and disaffection as they enter their fifties – meaning that the midlife age bracket of American society will no longer be associated with moral authority but, rather, with toughness, grittiness, and practicality. More than people of other generations, Gen Xers will deflect a generational identity, thinking of themselves as not Boomers and not Millennials rather than as Generation X.

Having had so many choices and taken so many risks in their youth, they will feel like Generation Exhausted. For their Silent parents, a midlife crisis meant breaking out of early conformity and taking more risks with marriage and career. But Xers entering midlife will veer in the opposite direction, searching for greater security in their families and jobs and for a steady anchor in their communities.

Many will continue to flock to *Survivor*-style self-testing and Texas Hold 'Em–style risk-taking, but such pursuits will seem less fresh to other generations, and even to Gen Xers themselves. The high-stakes gambles many of them took with their stray cash as young adults (in lotteries, casinos, stock options, and derivative markets) will increasingly be stigmatized in the eyes of younger people. As the Gen X pop culture elite loses influence, celebrities who persist in its ways will be chastised by wholesome Millennial youths.

As they fill the ranks of midlife consumers, Gen Xers will continue to evaluate products in terms of their efficiency, convenience, and mass customization. Houses, cars, and computers will be produced for and advertised to individual consumers. Older generations will look back wistfully to a time when products (and jobs) came in standard shapes and sizes.

In the workplace and the economy. In a Gen X–dominated economy there will be no shelter from the gale winds of the open marketplace. The results will be both positive and negative, for this generation and for others.

As business leaders, Gen Xers will be more effective at pushing efficiency and innovation than any other generation in memory. Their market orientation, which has already produced remarkable productivity gains, will reach maximum impact as they enter midlife. Even as mature workers, Gen Xers will want to be free agents – negotiating their own deals, seeking incentives ranging from commissions to options, and switching employers at a moment's notice. Some of them will be running large corporations as hired guns. Others, after years of gigs and assignments, will at last realize they will never have a "career."

Top Xer managers will excel at making quick decisions, streamlining the middle ranks, and downsizing bureaucracy. Top Xer executives, now key players in decentralized flat organizations, will take creative risks and exploit opportunities on their own. As consumers and parents on the demand side and entrepreneurs and CEOs on the supply side, Xers will seek new ways of removing professional middlemen (lawyers, accountants, brokers, advisers) from business transactions. Those along the chain who don't add essential value may be squeezed out. Sectors that are currently sheltered from market forces – such as agriculture, health care, education, and public works – may find their long-held positions under attack.

Mature Gen X entrepreneurs will probe every corner of the marketplace in search of unrealized gain, as they did in their youth. Companies will be created, dissolved, or reorganized overnight. But in personal finances this generation will fare even worse than Boomers did in the 1990s. Many Gen Xers will find their incomes disappointing, their fringe benefits pared down, and their public safety nets fraying. A few will be wildly successful; a larger number will be poor or near poor; most will be doing all right but losing ground. While the media (as ever) will be saturated with tales of wealthy celebrities, middle-aged workers will generally be seen as modest-wage job hoppers who retain the flexibility to change life directions in a snap. Throughout the economy they will be doing the jobs that others don't want to do.

In the community and politics. Gen Xers in midlife will set about fortifying their social environment. As many of them confront financial difficulties, they will take pride in their ability to "have a life" and to wall off their families from economic turmoil. Their divorce rate will be well below that of Boomers and Silents at the same age. They will be extremely protective of their offspring; large numbers will spend hard-earned money and may relocate to ensure the quality of their children's schools and the safety of their daily lives. As their children reach college age, Gen Xers will apply to every facet of higher education the same no-child-left-behind attitude they applied to K–12 education.

Their aversion to large-scale institutional politics may gradually subside as Gen Xers enter midlife. In every age bracket they have entered thus far, voter participation rates have fallen to historical lows. This has given their generation a libertarian flavor – they are more oriented toward ownership and personal connections and less likely to trust bureaucracies. They have far less representation in Congress or as state governors than any prior U.S. generation at the same age.

This could change, however – not, perhaps, in the number who vote or run for public office but in the importance of leaders who do step forward. History contains several examples of a nomad generation that rapidly rises to power

Mature Gen X entrepreneurs will probe every corner of the marketplace in search of unrealized gain, as they did in their youth. Companies will be created, dissolved, or reorganized overnight.

and displaces an older generation of prophets. These have resulted less from patient party politics than from the sudden emergence of a charismatic individual. Such leaders will bring an idiosyncratic style to public life. Barack Obama (born 1961) is waging an explicitly anti-Boomer campaign that will set the tone for future Gen X forays into leadership on the national level.

Gen X political leaders will seek pragmatic, no-nonsense solutions and will argue far less than Boomers ever did. Having grown up in a time when walls were being torn down, families dissolved, and loyalties discarded, they will focus on reconstructing the social frameworks that produce civic order. They will waste no time on the obviously insoluble and won't fuss over the merely annoying. To them, the outcome will matter more than the method, money, or rhetoric used to get there.

The Young Adulthood of Millennials

Millennials will prove false the assumption (prompted by the experience of Boomers and Xers) that each generation of young adults is more alienated and risk prone than the one before. Many Millennials will want to correct for the impracticality of Boomers and the indiscipline of Gen Xers. Many elders will be pleased with how these young people are doing, while others may misinterpret their confidence as self-centeredness. As they move through their twenties, Millennials will already be accustomed to meeting and beating adult expectations. They will revive the ideal of the common man, whose virtue is defined less by self than by a collegial center of gravity.

Millennials will develop community norms based on rules, standards, and personal responsibility; every arena will become more mannerly, structured, and civic-minded. In college they will lean less toward countercultural dissent and more toward the "rah-rah" aspect of campus life; school colors will become an important badge of belonging. In religion Millennials will favor friendly rituals and community building over personal spirituality. Even in their thirties they will remain much closer to their parents (living nearer to them and relying more on their advice) than Boomers and Gen Xers were at the same age. Companies that today "comarket" their products to teens and their parents will now broaden their efforts to reach the entire extended family.

Millennials will gravitate toward big brands. Likewise, their pop culture will be bland, mainstream, and friendly (while seeming derivative to older generations). Young film stars will be linked with positive themes, will display more modesty in sex and language, and will bring new civic purpose to screen violence. As in Disney's *High School Musical,* stories and songs will be upbeat and team-oriented but lacking in depth. Sports players will be more coachable, more loyal to teams and fans, and less inclined toward taunting. Celebrities will win praise as good role models.

Millennials will carve out fresh concepts of public cyberspace and use information to empower groups rather than individuals. As the first generation to grow up with mobile digital technology, Millennials expect nonstop interaction with their peers in forms that would have been unimaginable to prior generations of young adults. They will develop new standards for social networking, identifying a clear range of acceptable online attitudes and behaviors.

In the workplace and the economy. Millennials will face tough challenges as they enter the workplace. They are saddled with far larger student loans (in real dollars) than any earlier generation. Housing costs have skyrocketed in many urban areas, while entry-level pay in most occupations remains unchanged. The vagaries of a globalizing labor market and jobs without benefits or security will come as a shock to members of this sheltered generation, many of whom expected that all their careful preparation would guarantee them a comfortable future. A wedge will separate those whose families can help them start out in life from those whose families cannot. Most of the latter will find it difficult to begin careers in public service, teaching, or the arts. The issues of economic class and privilege will loom large for young Millennial workers – partially displacing the concerns about gender, race, and ethnicity that preoccupied young Boomer and Xer workers.

Millennials will be more confident, trusting, and teachable in the workplace than their Boomer and Gen X colleagues. They will also be viewed as more pampered, risk averse, and dependent. Many employers are already complaining about their need for constant feedback and their weakness in basic job skills such as punctuality and proper dress – though most employers who manage large numbers of them agree that they can perform superbly when given clear goals and allowed to work in groups. Millennials will have more of a knack for cooperation and organization than for out-of-the-box initiative. They will tend to treat coworkers as partners rather than rivals.

Businesses will respond to the surge of Millennials in the workplace by building a more ordered work environment with clearer lines of authority and supervision and a greater number of team projects. Nonmonetary benefits will increase as young workers put a higher

If Boomer- and Xer-led businesses adjust to the Millennial work style, economic productivity could surge even as job turnover declines. If they do not, they should brace for opposition.

premium on job security; employers will find it easier to cultivate loyalty in a generation with unusually long time horizons. As they seek balance between their work lives and their private lives, Millennials will try to get their careers off to a "perfect" start. Many will decide against the high-risk paths to advancement (on which years of hard work can go unrewarded) frequently offered by corporate and professional employers.

If Boomer- and Xer-led businesses adjust to the Millennial work style, economic productivity could surge even as job turnover declines. If they do not, they should brace for opposition. If young workers perceive that they are being treated unfairly, they will demonstrate their talent for organizing – and may even revitalize the union movement. Unlike young Gen Xers, who typically quit and move on when they have a workplace problem, Millennials are used to staying put and waiting until someone in charge solves the problem.

In the community and politics. Millennials' close family relationships will continue as they move into young adulthood. They will have a much tighter personal, social, and economic interdependence with their parents than prior generations had. And they will seek to create stable and long-lasting families as they begin having their own children.

Millennials will use their digital empowerment to build and maintain close peer bonds. New parents will create online support groups and cover personal Web pages with pictures of their children. Virtual communities will serve the needs of young adults, from finding jobs to buying houses to babysitting to pursuing hobbies. First-wave Millennials already depend on online communities such as Craigslist and Freecycle to help them set up their lives after college.

As more of them reach voting age, Millennials will become a political powerhouse. They will see politics as a tool for turning collegial purpose into civic progress. Young adult voters will confound the pundits with huge turnouts, massing to support favored candidates – especially elders who can translate spiritual resolve into public authority. They will reject what they perceive as the negativism, moralism, and selfishness of the national politics they witnessed as children. When they encounter leaders who cling to those old ways, they will work to defeat them. Their stand on the issues is likely to cut across conventional labels. In their willingness to use government aggressively to protect the community, strengthen the middle class, and reduce economic risk, they will seem liberal. Yet in their conventional life goals, respect for rules, and patriotism, they will seem conservative.

Just as the political agenda of the 1990s centered on children, the political agenda of the 2010s and 2020s will center on young adults. With the allegiance of youth more readily available to politicians, younger voters may power a national party to victory for the first time since the 1930s. Some elders will fear the rise of a generation they perceive as capable but naive, more interested in large-scale public action than in personal privacy or liberty.

The Childhood of Homelanders

As parents, as legislators, and as media producers, Gen Xers will substantially shape the Homeland Generation. Already gaining a reputation as extremely protective parents, these Xer stay-at-home dads and security moms will want to protect their children from the *Dazed and Confused* childhood they themselves experienced during the consciousness revolution. The rules created for Millennials, no longer controversial, will become customary. Homelanders will be tracked by mobile digital technology, screened by psychological software, and surveilled by entertainment controls that limit their access to anything inappropriate. Older Americans will regard them as well-behaved and diligent – yet also as innocent, risk averse, and emotionally fragile.

The Cycle Continues

If you are a marketer planning the next generation of consumer products or services, or an architect thinking about the design of buildings that will serve workers for decades, or a manager in any area of business that must foresee changing attitudes in the broader population, the availability of a strong predictive model is tremendously important. Can you be confident that the coming decades will produce the changes we've described? Is the generational perspective the right one to support long-term decision making?

With every passing year we become more confident that it is. In the late 1980s, when we formulated our theory, first-wave Millennials were still very young children, and crime, teen pregnancy, and substance abuse had reached alarming levels among Gen Xers. Experts in teen behavior were predicting a continued rise in negative behaviors as the Millennials entered their teen years. But, looking back at the youthful behavior of earlier hero generations with similar locations in history (such as the GIs), we predicted declines in those behaviors across the board. Sure enough, in 2000, when the first Millennials graduated from high school, news stories about improving teen behavior began to appear.

Today, as ever, forecasters make the faulty assumption that the future will be a straight-line extrapolation from the recent past. They predict that the next set of people in each phase of life will behave like a more extreme version of the current set. In truth, social change is nonlinear – but it is not chaotic. An understanding of generational archetypes allows us to predict much about the decades ahead.

Over the next 20 years each of today's generations will enter its next phase of life. In doing so, each will transform that phase in ways that echo through our history. This is how history repeats and society progresses. Each new young generation fills a role being vacated by an older generation, a role that now feels fresh, functional, desirable, and even necessary for society's well-being.

Boomers will transform old age as champions of values. They will urge the nation to act decisively on those values – even if doing so requires civic risk and sacrifice. Generation X will transform midlife as practical problem solvers. Gen X traits criticized for decades – survivalism, pragmatism, realism – will be recognized as vital national resources. Millennials will transform young adulthood as America's new junior citizens, deeply engaged in civic life. They will revitalize community and public purpose, filling the role being vacated by senior-citizen GIs.

History suggests that with the generations so aligned, the risk of a major crisis (whether geopolitical, military, economic, or environmental) will be great – but so, too, will be the opportunity to fix national or even global problems that today seem beyond solution. In business as in government, family life, and other areas, the people who succeed in navigating this future will be those who understand how history creates generations, and generations create history.

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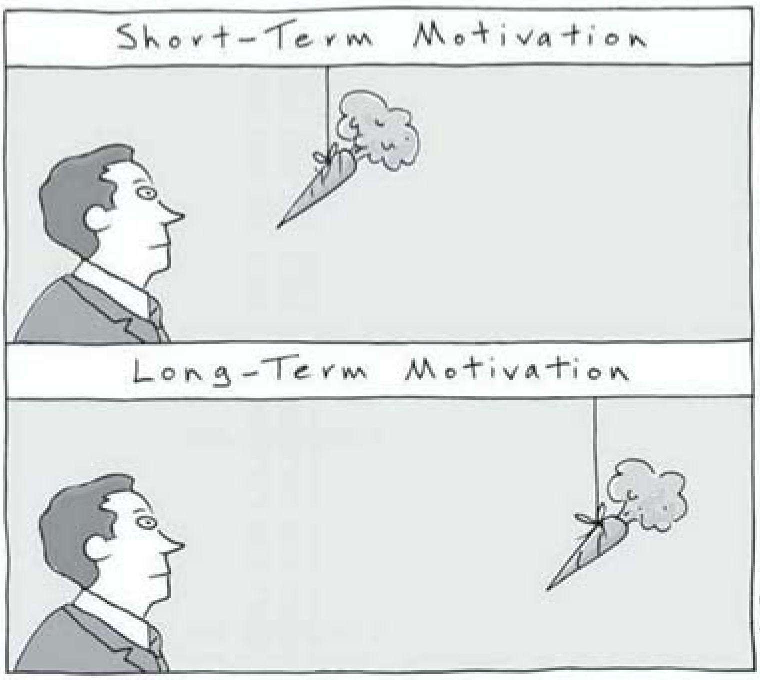

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Perspectives from Global Business Leaders

Four top executives talk about what it takes to hold on to the long-term view.

PERSPECTIVES FROM:

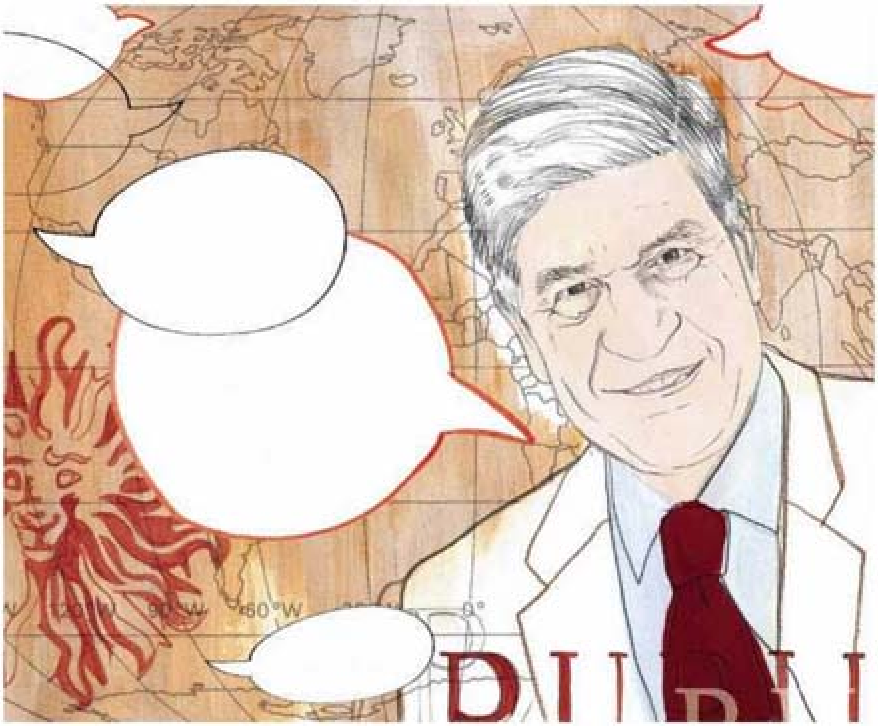
FOR MOST CHIEF EXECUTIVES, there is no end to things that must be done today. Or tomorrow. Or by the end of the quarter. Those things are obvious, they're ever present, and they often yield fast results. What's much more difficult for many CEOs is determining what they need to do in the long term. Many things on that list are intangible, hard to quantify in the dollars and euros of global commerce, and easy to put off. But long-term issues left unattended have a way of sneaking up on you very tangibly, right now, today, and the decisions you end up making in haste leave you with problems that linger for decades to come. Then there's always the issue of trade-offs. CEOs have to fight fires; how can you ensure that this doesn't consume all of your energy? And how can you be sure that your short-term measures don't have unwanted long-term consequences?

Courtney Wotherspoon

To help readers think through what it takes to manage for the long term, HBR Senior Editors David Champion and Steven Prokesch, and Executive Director Vincent Dessain and Research Assistant Ane Damgaard Jensen of Harvard Business School's Europe Research Center, in Paris, interviewed four top executives of global companies. The essays that form this article are based on the transcripts of those interviews.

In the first essay, veteran CEO Maurice Lévy, who has over the past 20 years turned the French advertising agency Publicis Groupe into the fourth largest agency in the world, points out that a company's long-term future can be secured only by making the right decisions today. He is followed by Mike Eskew, chairman and CEO of United Parcel Service, a global provider of logistics and package-delivery services, who emphasizes the importance of staying true to your vision and values over the long haul, however difficult that might be. In the third perspective, Wulf H. Bernotat, CEO of E.ON, one of Europe's largest energy suppliers, offers a sobering assessment of the challenges facing business leaders and politicians as they look for ways to balance high energy needs against environmental damage. Our final perspective comes from Marianne Barner, director of corporate communications and the ombudsman for children's issues at Swedish furniture retailer IKEA, who offers more specific guidance on how corporations can contribute to the improvement of the environment and society in general.

None of these perspectives offers a complete overview of what it means to manage for the long term – there is simply too much territory for that. Instead, each focuses on just one part of it. Nor do the perspectives offer definitive answers; rather, they provide a general sense of the terrain and its challenges, and the kinds of decisions and trade-offs you will face while striving to secure your company's long-term future.



Look to Your Front Line for the Future

MAURICE LÉVY is the chairman and CEO of **Publicis Groupe,** the world's fourth largest advertising group, based in Paris.

BUILDING THE FUTURE is really about building the present. Yes, you must be able to see where you want to go, but you will never get there if you spend too much time only looking toward it. Instead, the decisions you make and the people you work with today are what will get you to where you need to be – never lose touch with them. And to build the present, a business leader must be careful to stay close to the front line – the people who deal with your customers and markets.

That's particularly true in a service business like ours, where, in a sense, others map out your long-term future. Today, four global groups, of which we are one, dominate the advertising industry. That's a direct consequence of our clients' decision to develop global businesses. If Publicis had not gone global as well, we couldn't have given clients the global service they now demand – and we wouldn't be here today.

The trick, as in everything, was in knowing when to make our moves. Given that we had no control over our clients' pace of globalization – let alone our competitors' plans – we couldn't go global according to a fixed schedule. We had to seize good acquisition opportunities, such as our purchase of Saatchi & Saatchi in 2000, as they presented themselves. The temptation in these situations is to move as quickly as possible. But that would have been just as bad as moving too late. Having a widespread network with common clients is a result of moving at the right time. Managing such a global group of ad agencies would have crippled us financially had it not been for the glue of the common clients.

Creative businesses like ours have a natural tendency to latch onto new ideas, and moving forward prematurely is an ever-present danger. In the mid- to late 1990s, there was a lot of buzz about the Internet; most people thought that it would quickly become the dominant medium of communication. Over the long term, that's probably what will happen, but at the time, we believed that it would be hard to change people's consumption and information-gathering habits and, so, we refrained from investing heavily in Internet-advertising capabilities. For a while there, it looked as though we had missed some good opportunities, but after the bubble burst, we ended up looking clever.

The executive committee is not always the best place to smell the future, and we should accept that.

How do we decide exactly which moves to make? We hold strong views and enjoy a lively debate. I was always arguing with my predecessor and mentor, Marcel Bleustein-Blanchet, the founder of Publicis. Those exchanges could get quite heated; I would often stalk back to my office, slam the door, and refuse to speak to him for two or three days. Most of the ideas discussed at Publicis Groupe in Paris originate from the agencies in the field. The executive committee is not always the best place to smell the future, and we should accept that. Our job is to listen and to interpret what we hear from people working and talking in the field. All of our subsidiary businesses have regional committees, and they share information and try to see how to transfer ideas across cultures: Will this beer campaign in Brazil work in South Africa, or will that French soap campaign succeed in Russia? As this work percolates, we can start to pick out broader, global patterns, keeping ourselves ahead of the curve, but not too far ahead.

I think the fact that we are led less by the central office and systems than are our American counterparts also has contributed to our success. We learned this the hard way, following our purchase of Farner, a Swiss network that is based mainly in German-speaking countries. At the time we bought the company in 1973, we were the number four advertising agency in Germany. By 1979, we had lost every piece of business that Farner had handled. Why? Those of us in Paris had thought that being one of Europe's top creative agencies, as well as the new owners, we had the right to tell Farner's people how to manage the details of their business. Predictably, the Farner people left and took their clients – who were perfectly happy with their work – with them.

Two other pieces of advice. First, for service companies to survive over the long term, managers must be willing to turn down business that they don't understand. Early in my tenure as CEO, one of my managers asked me to look over a potentially lucrative piece of business in the financial sector: He didn't fully understand what the client was trying to sell. When I had the client come in to talk to me about it, the description wasn't reassuring. I concluded that we could not accept the business, and the client went elsewhere. Two years later the company collapsed and the client was in jail – and the agency that had taken on the account also folded.

Second, companies that survive have leaders who know when to step aside. I've been CEO for about 20 years, and in that time we've changed the company completely. It's been a great experience and, I think, a great achievement. But I'm also aware that being the right man for the past 20 years doesn't necessarily make me the right man for the next 20 years – or even the best person to decide who *is* the right person for the future. That's why I plan to stand back from the decision concerning my successor, who will take over in 2010. I'll present two or three candidates to the board and, with the board's agreement, give them opportunities to demonstrate their capabilities. The candidates and their visions of the future will be very different from one another, giving the board a real choice.

Stick with Your Vision

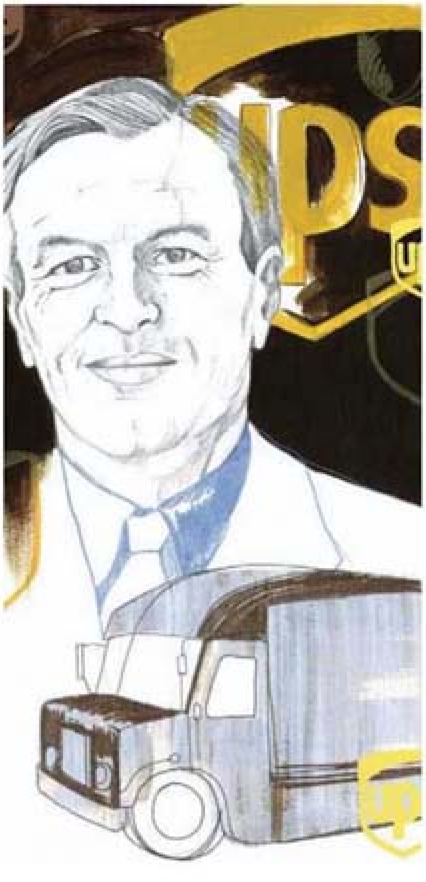
MIKE ESKEW is the chairman and CEO of **United Parcel Service**, a global provider of logistics and delivery services headquartered in Atlanta.

COMPANIES THAT BECOME slaves to the short term are the ones most likely to fail in this age of globalization, just-in-time outsourcing, rapid technological change, and empowered consumers. You cannot simply create solutions for your customers week by week. You have to prepare for what they will need in five or ten years from now, too, and that takes research, effort, and scenario planning.

You also must have the mettle to stick with your vision. United Parcel Service's expansion beyond North America is a case in point. In the mid-1970s, we saw the world was slowly growing more interconnected and interdependent and concluded that we had to get a foothold in the international marketplace. Today, our fastest-growing and most profitable business is international small packages. But it took more than 20 years for those international operations to produce consistent profits, partly because of our heavy investments in the expansion during that period. Another reason, frankly, was the need to experiment and learn from our mistakes. I know because I was on the team in 1976 that started our operation in Germany, which was our first outside North America. We rushed in with a kick-the-door-in strategy that depended on a U.S.-centric platform and then learned the hard way that we couldn't impose expatriate managers and U.S. procedures on a foreign operation – that we needed to adapt our way of doing things to the local culture and practices. But we did learn. Rather than abandon our vision in the face of losses, we persisted. We applied those same lessons when we started expanding around the world in the early 1980s.

It's true that we were a private company then – UPS went public in 1999. But being a public company has not fundamentally changed our willingness or our ability to invest for the long term. We have found that by communicating and executing our long-term strategy effectively, we can attract investors who will stick with us for the long haul.

Over the past five years, we have invested $26 billion in capital expenditures, acquisitions, dividends, and share repurchases – all to enhance the long-term value for share owners. Today, we are well on our way to transforming UPS from a company that satisfies customers' small-package-delivery needs to one that enables global commerce by providing logistics and distribution solutions to customers ranging from individuals to multinational corporations. The unmatched global infrastructure that those investments created gives UPS a distinct competitive advantage. Our high-tech, integrated network allows us to offer industry-leading products – like our Delivery Intercept service to stop and reroute packages already in our system – and new tracking and alerting systems to deal more easily with cross-border moves through customs. Our infrastructure and business model have produced consistent and superior returns.



That said, a long-term vision and strategy cannot be an excuse for compromising on how you serve customers in the here and now. You also must execute well every day. This takes ambidextrous leadership. It involves making sure all of our 427,700 employees understand where we're going and what each needs to do today and tomorrow to get us there. That, of course, is one of those things that sounds easy but is a huge challenge. It requires relentless communication, which is a big part of my job. Perhaps more important, it requires a culture based on an authentic respect for employees and customers. We have such a culture. It's one of our greatest competitive advantages, and I consider the job of nurturing that culture one of my key responsibilities.

Three pillars of our culture are training, employee stock ownership, and promotion from within. We're famous for the extreme care we take in designing job processes and measuring performance (if it moves, we measure it).

Our fastest-growing and most profitable business today, international small packages, took more than 20 years to produce consistent profits.

But this approach works only if people know how to do their jobs, which is why we spend more than $400 million every year on training. Our highly trained workforce is a crucial element of our business model, which helps explain why we want people to spend their careers at UPS. We encourage them to stay by promoting from within whenever possible. (Ten of the 12 members of our Management Committee began their UPS careers in entry-level positions.) Encouraging employees to own UPS stock is a philosophy that dates back to 1927, when our founder, Jim Casey, instituted a policy that UPS should be "owned by its managers and managed by its owners." Today, all of our U.S. employees – including hourly workers – and many of our international employees can purchase stock at a discounted price, and at least half of every manager's bonus is paid in UPS shares.

These policies have empowered employees, produced a management turnover rate in the low single digits, and provided us with a cadre of superb frontline managers. The loyalty and expertise of our employees in general and our frontline managers in particular allow us to adapt on a daily basis to most situations and to consistently excel in serving customers.

There are plenty of managers who profess a belief in serving customers, innovating, empowering employees, and making all employees feel like owners. These are more than words for us: They represent our way of life. We sincerely believe these attitudes and approaches are good for business. They're why UPS, which turns 100 in August, is still growing.

Take Responsibility for Climate Change

WULF H. BERNOTAT is the CEO of **E.ON,** one of Europe's largest energy companies, based in Düsseldorf, Germany.

WE ALL KNOW the main contributors to carbon dioxide emissions: Europe, the United States, China, India, and Russia. The sheer size of these economies – and the expected growth rates in the developing ones – makes avoiding an increase in global CO_2 emissions unlikely in the short term. That's why we need to manage that increase carefully.

Those of us in the energy industry can do a lot about it, and we're already making progress. E.ON is working on a design for a gas-fired power station that will convert 60% of the gas consumed into energy. A couple of coal projects hope to reach efficiency rates of 46%, and other projects that aim for efficiency rates approaching 50% are already under way. By achieving those kinds of numbers in countries like Russia or China, where power stations have efficiency rates of 35% or less, we could reduce CO_2 growth rates significantly and immediately. E.ON is also investing €8 billion in sustainable and new energy technology between now and 2012. We're researching and developing clean coal technology that could create a new generation of power stations worldwide. And we're planning to build more large-scale offshore wind farms in the UK and Germany.

As for consumption, we have to start educating people that energy is a scarce resource to be used as efficiently as possible. When I walk into a hotel room in the United States, for example, I always find all the lights switched on. Worse, there's no main switch, requiring you to turn off each light individually when you leave. As an energy provider, we have to be at the forefront of that education. E.ON has already invested a great deal of time showing our customers – individual home owners and large corporations alike – how to cut down on unnecessary energy consumption. We also teach communities and schoolchildren about responsible energy use and conservation.

We must be realistic, though, about how much businesses can do. There is plenty of talk in the press about switching to a renewable and clean energy source like wind or solar or geothermal power. But it will take a long time and many billions of euros before such alternatives can serve as the mainstay of a power grid. With coal, you can rely on your power stations at all times, and you can switch gas on and off to manage fluctuations in demand. But due to the poor design and planning regime for energy in general, currently Germany must run power stations in parallel with wind farms to make up for sudden changes in our generation of wind power. There's nuclear energy, of course, which is emission free and reliable. But nuclear is not a total solution because not all countries that are capable of managing a nuclear program, including Germany, want to invest in it. The truth is, if the Ger-

We have to start educating people that energy is a scarce resource to be used as efficiently as possible.

man people don't start switching off lights and living in an environmentally responsible way, we will be forced to use such sources. What is clear is that a diverse and reliable mix of energy generation – from solar power to nuclear power – is the only way to ensure a secure supply while protecting our environment.

That said, finding a long-term solution is also a political challenge, not only a business one, and the developed world has to take the lead. Countries like China, India, and Russia argue that their per capita emission levels are much lower than Europe's or the United States'. They are also already doing a lot – for example, China sets higher standards for car emissions than the United States does. What's more, such countries believe – justifiably in my view – that they are entitled to achieve the same level of prosperity that the United States and Europe have achieved.

When it comes to reducing emissions, the United States can afford the most and does the least. In the short term, Americans must think seriously about their state-based infrastructure and regulatory framework, which breed inefficiencies. Considering that California's consumer-led price regulation forced utilities to skimp on investing in new plants and infrastructure, however, I'm not optimistic about the country's ability to assure a reliable energy supply, let alone an environmentally friendly one.

Europe isn't doing much better. It seems to me that, realistically, only five or six of the 27 EU members even take the issue seriously – and those five or six don't seem all that committed. Moreover, the German government, which provides about €400 million for the development of renewable energy technology, should ask whether that is really enough for such a rich country.

One of Europe's greatest problems is the lack of consensus about what kind of energy industry we want and how to achieve it while balancing Europe-wide and country-specific climate change targets. For example, for about 20 years now, governments have tried to break up the big utilities to bring about price reductions through competition. Then when Russia turned off the gas pipeline to Ukraine in 2006 for a couple of days, security of supply topped the political bill. People started worrying about dependence on Russia for supplies. All of a sudden, encouraging the development of large energy suppliers like E.ON, which can negotiate on more equal terms with the likes of Gazprom, Russia's giant gas supplier, seemed sensible. And all the talk about climate change militates against fragmentation as well: How can small suppliers mobilize the large-scale investments needed to deal with climate change?

The 2005 creation of the Emissions Trading System is Europe's greatest achievement in this area. Granted, ETS got off to a rocky start because trading liquidity has been slow to build. But if the U.S. experiment with sulfur dioxide emissions trading is any indication, the market will pick up as financial institutions assume a larger role. The real benefit of this market is that it puts a price on carbon emissions. By tightening the link between environmental concern and business performance, the market will make it easier for companies like E.ON to borrow against future savings in carbon emissions to finance current investments in less carbon-intensive power stations. More fundamentally, putting a price on carbon will give managers dollar or euro numbers for their environmental objectives that are as solid as any of the other variables to which they manage. Above all, we need a stable, long-term regulatory framework (and targets) to allow companies like E.ON to invest in technology and infrastructure that will help protect our environment and ensure a reliable energy supply today and tomorrow.

Be a Socially Responsible Corporation

MARIANNE BARNER is the director of corporate communications and the ombudsman for children's issues at **IKEA,** a global home furniture retailer founded in Sweden.

CORPORATE SOCIAL RESPONSIBILITY is part of our daily business. IKEA has set a sustainability objective requiring that all our activities have an overall positive impact on people and the environment. We have a list of key performance indicators to measure our progress on CSR issues, such as the environment. Of course, it's not easy to link our CSR performance directly to financial performance, but we believe that our efforts have a positive impact on the numbers. Since we're not a public company, I feel that the link between financials and CSR progress is less of an issue for us.

Our mission is to create a better everyday life for the many – the people we aim to serve – which has made it easy for us to incorporate social and environmental goals into our strategic planning. It means that we have to reflect what our customers and other stakeholders value. In the 1980s, in the wake of a scare in Denmark about the harmful effects of formaldehydes used in manufacturing furniture, we started paying close attention to the materials and processes our suppliers used in the manufacture of the goods we sell. Child labor, which is a major concern of ours,

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surfaced at the beginning of the 1990s, following the 1989 Convention on the Rights of the Child. We also focus heavily on sustainable forestry, as you would expect from a furniture supplier that uses a lot of wood.

Geographically, IKEA focuses on where it can make a difference. We obviously can't save 250 million children from exploitation, but changing the lives of 80,000 children in, say, Uttar Pradesh is still a big accomplishment. To help us in these tasks, we've partnered with NGOs such as Save the Children and UNICEF as well as the WWF. We're also in touch with Greenpeace.

Save the Children in particular helped us formulate our strategy on preventing child labor. It pointed out to us that all actions should be in the best interests of the child. That principle helps us to determine what to do when we find an individual child employed at a supplier and, more broadly, what we can do in the community. A child working in a factory may serve the short-term interests of the child's family but not the child's own interests. And offered a choice, most parents would not send their children to work.

Our partnerships with NGOs are a relatively small part of how we are making ourselves a socially responsible company. More important is what we do in development and design, where keeping prices low and meeting our CSR goals requires some clever thinking. We also have to exercise control over our suppliers, to ensure that they are adhering to our product specifications and codes of conduct. This sounds a little like policing and, inevitably, there's an element of that, but increasingly they're willing and able to own the compliance themselves. Obviously, it helps when you are a large and long-term customer, and that's one reason why we've been consolidating our business, bringing the number of our suppliers down from 2,500 to 1,300 or so over the past few years.

Going forward, we will reflect the growing concern in the developed world about climate change. Climate change has become a dinner-table conversation topic everywhere. There's a lot to do in this area. We are building roughly 20 new stores a year and our design decisions – such as the lightbulbs we use – can make a difference to our CO_2 emissions. Down the line, we're looking at alternative transportation for our delivery services – IKEA Switzerland, for example, is considering the use of electric cars for home delivery. And in building new stores, we're looking at locations with transportation options other than using a car. Our goal is to become 100% reliant on renewable energy for our energy needs and to cut overall energy consumption by 25%.

So far, our biggest problem in embedding CSR has been communicating to our people what we're doing. Like most large retailers, we have a high staff turnover in the stores. And the plight of children can seem remote. But when it comes to climate change, I think everyone will get engaged. It hits us all so directly. We offered screenings of Al Gore's film *An Inconvenient Truth* in some of our units, and the interest was incredible.

No company will be able to shirk social responsibility. My advice to managers is that becoming a socially responsible corporation takes longer than you think and involves not a giant leap but thousands of small steps.

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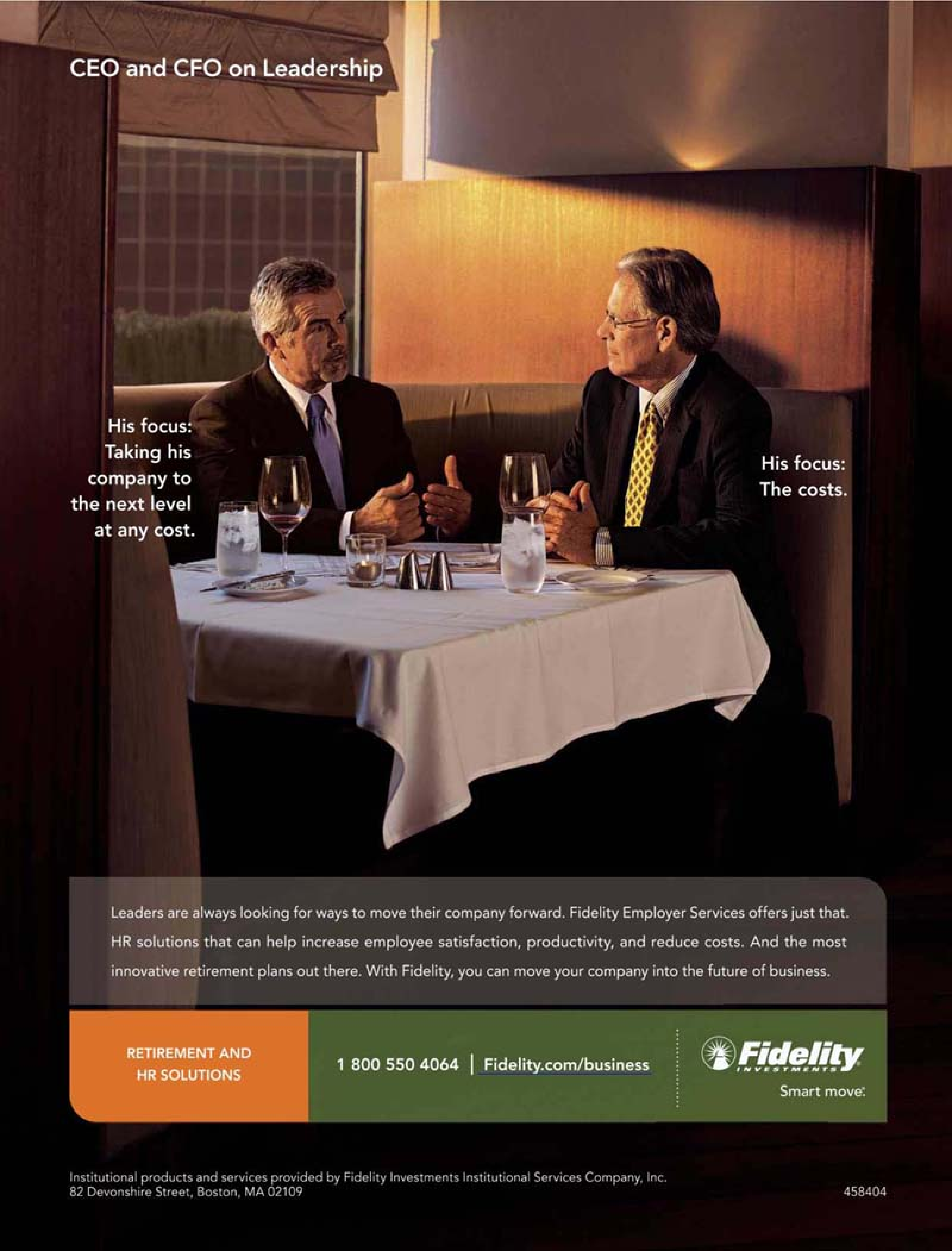
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THE 4 PRINCIPLES OF ENDURING SUCCESS

What separates great companies from the merely good? A comprehensive new study of long-lived, large companies reveals surprising answers.

by Christian Stadler

WHEN YOUR COMPANY IS DOING WELL, revenue is pouring in, and your stock is rising, how do you know if you could be doing better? How can you tell which of your management practices are making the difference and which are merely doing no visible harm? Benchmarking is the obvious answer, but not by comparing poor companies with good ones. The way to get at this problem is to compare good companies with even better ones.

Boris Kulikov

That's exactly what we did. For the last four years, Hans Hinterhuber, Franz Mathis, and I have led a team of eight researchers in a study of Europe's oldest and best companies, which we call the Enduring Success Project.

To date, most of the research on high performance has focused on U.S. companies. The seminal work of Jim Collins and Jerry Porras, popularized in their 1994 best-selling book *Built to Last,* is just one case in point. This is not entirely surprising: U.S. corporate data are relatively sound and easily available, and American schools tend to dominate business academia. Indeed, extending the research to European companies proved daunting, as much of the data we used were far from readily available.

Our goal was to understand why some companies have managed to perform at a very high level over very long periods of time. What can we learn from their experience? What did they do that set them apart from other old, large corporations that, while successful (else they would not have lasted so long), were not so extraordinary? To answer these questions, we compared each firm in a sample of companies that had turned in exceptional performance over the past 50 years with another old company in the same industry (and preferably from the same country) whose performance was solid but not quite as good. (For the full list of companies, see the exhibit "What Do We Mean by 'Great'?") Over the life of the project, a board of seasoned advisers – Alfred D. Chandler, Jr.; Arie de Geus; Edgar Jones; Michael Mirow; Jerry Porras; Peter Schütte; Risto Tainio; and Gianmario Verona – supported our efforts.

The project yielded four main findings, which we call the *four principles of enduring success:*

1. Exploit before you explore. Throughout their history, the great companies in our sample have all emphasized exploiting existing assets and capabilities over exploring for new ones.

2. Diversify your business portfolio. Good companies tend to stick to their knitting, but the great companies know when to diversify. They are careful also to maintain a wide range of suppliers and a broad base of customers.

3. Remember your mistakes. Great companies tell and retell stories of past failures to make sure they don't repeat them.

4. Be conservative about change. Great companies very seldom make radical changes – and take great care in their planning and implementation.

These conclusions took us by surprise. Not only were some of the principles counterintuitive (Would you expect sustained exploitation to beat out sustained innovation?), but many of the usual suspects were missing. We fully expected, for example, to find that corporate culture was a differentiating factor; there has certainly been a lot of literature proclaiming corporate values as a key to performance. But when we looked more closely, we found that while a strong corporate culture is a sine qua non for success, it does not make the difference between a good company and a great one. Gold medalist Siemens, for example, has a strong culture that can be traced back to company founder Werner von Siemens. But so does AEG, the silver medalist we compared it with. The same applies to other silver medalists in our sample, like Prudential, Ericsson, and BP.

We also observed that companies have to work very, very hard to adhere to the four principles in the face of the constant temptation to diverge from them. Nokia, for example, had always managed operations extremely well, but it nearly forgot about this when innovative new cell phones generated fantastic revenue growth opportunities. The company set overly ambitious sales targets, which increased costs and created logistics and quality problems; profits fell in the mobile phone business. Picking up the warning signals, Nokia renewed its focus on profitability rather than growth: The product mix was narrowed and execution was returned to the top of the agenda, ensuring continuous strong performance. Like Nokia, the other gold medal companies that for a while deviated from the principles usually turned in performances below their comparison companies in that period.

In the following pages, I'll describe and illustrate our four principles in detail. First, though, let me explain in more depth how we arrived at them.

The Project

With support from the OeNB Jubiläumsfonds, we began our project with all 40 European companies older than 100 that featured in the *Fortune* Global 500 of 2003. Over the next four months, we calculated those companies' total shareholder returns (TSR) for each of the last 50 years.

Collecting the data we needed to make this estimation was trickier than we expected. Centralized financial databases for British companies go back only to 1964; for continental European companies, they extend only to 1972. By visiting libraries, stock exchanges, and corporate archives, we were able to find old reports and newspapers containing most of the information we sought. Finland turned out to be particularly tough. It was only when Seppo Ikäheimo from the Helsinki School of Economics kindly pointed us toward Kim Lindström, an elderly investor who is often referred to as Finland's Warren Buffett, that we were able to obtain the necessary numbers.

From the 40 companies we tracked, we selected nine whose stock had outperformed the major market indexes

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What Do We Mean by "Great"?

Companies that have applied the four principles of enduring success have been rewarded with exceptional long-term performance gains. In terms of total return for shareholders, top companies did 62 times better than the general market. An investment of $1 in 1953 would be worth $4,077 today. By contrast, our comparison companies beat the general market by a factor of eight, and our $1 would have reaped $713.

Cumulative Stock Returns on $1 invested, 1953–2006

Top Companies	Comparison Companies
Siemens	AEG
Nokia	Ericsson
Allianz	Aachener und Münchener (A&M)
Legal & General	Prudential
Munich Re	Cologne Re
Royal Dutch Shell	BP
GlaxoSmithKline	Wellcome
HSBC	Standard Chartered
Lafarge	Ciments Français

(Dow Jones, DAX, and FTSE) by a factor of at least 15 over the entire period. Their average performance, of course, was much higher: These gold medalists outperformed the market by a factor of 62. We then looked for a set of comparison companies, ideally a match in terms of country, industry, and age. As their longevity implies, these silver medalists also turned in solid performances (outstripping the market by a factor of eight) and even beating out the gold medalists at times and for relatively short periods (six years in one exceptional case but usually for only a year or two).

Having collected the raw data and selected our paired samples, we then surveyed and interviewed financial analysts and business scholars to identify the key performance indicators for the industries represented in our two samples. We found eight to ten such measures for each industry (which were not always the same) and determined that the gold medalists outperformed their counterparts, on average, in 90% of them. (See the exhibit "What Makes the Difference?")

With our sample and the financial data in place, we were ready to begin a careful analysis of each pair of companies, a process that was to take three and a half years. This analysis involved a detailed study of the corporate histories of each company (In the case of HSBC, this comprised four volumes totaling 3,114 pages!) We then collected and coded thousands of pages of material (articles, archival material, organizational charts, project reports, and so on) to ensure that we did not miss any crucial developments. We talked to hundreds of analysts and scholars and conducted formal interviews with active and retired executives from the companies in our two samples. Throughout this process, a number of hypotheses emerged about the basic differences between the great companies and the merely good ones, which we discussed and tested against the hard data. In the final stages of this project, Davis Dyer from Winthrop Group and the Monitor Company challenged our ideas in the light of current management thinking. Four of these hypotheses survived the tests: our four principles of enduring success.

While the overall pattern was remarkably consistent across time and throughout all industries, we are aware of the limitations of our work. The complexity and diversity of history always produces counterexamples. Research in other regions might also reveal different insights. Our intention is merely to contribute to the ongoing discussion about what really works – not to claim discovery of the ultimate truth.

Let me now turn to the first principle of enduring success.

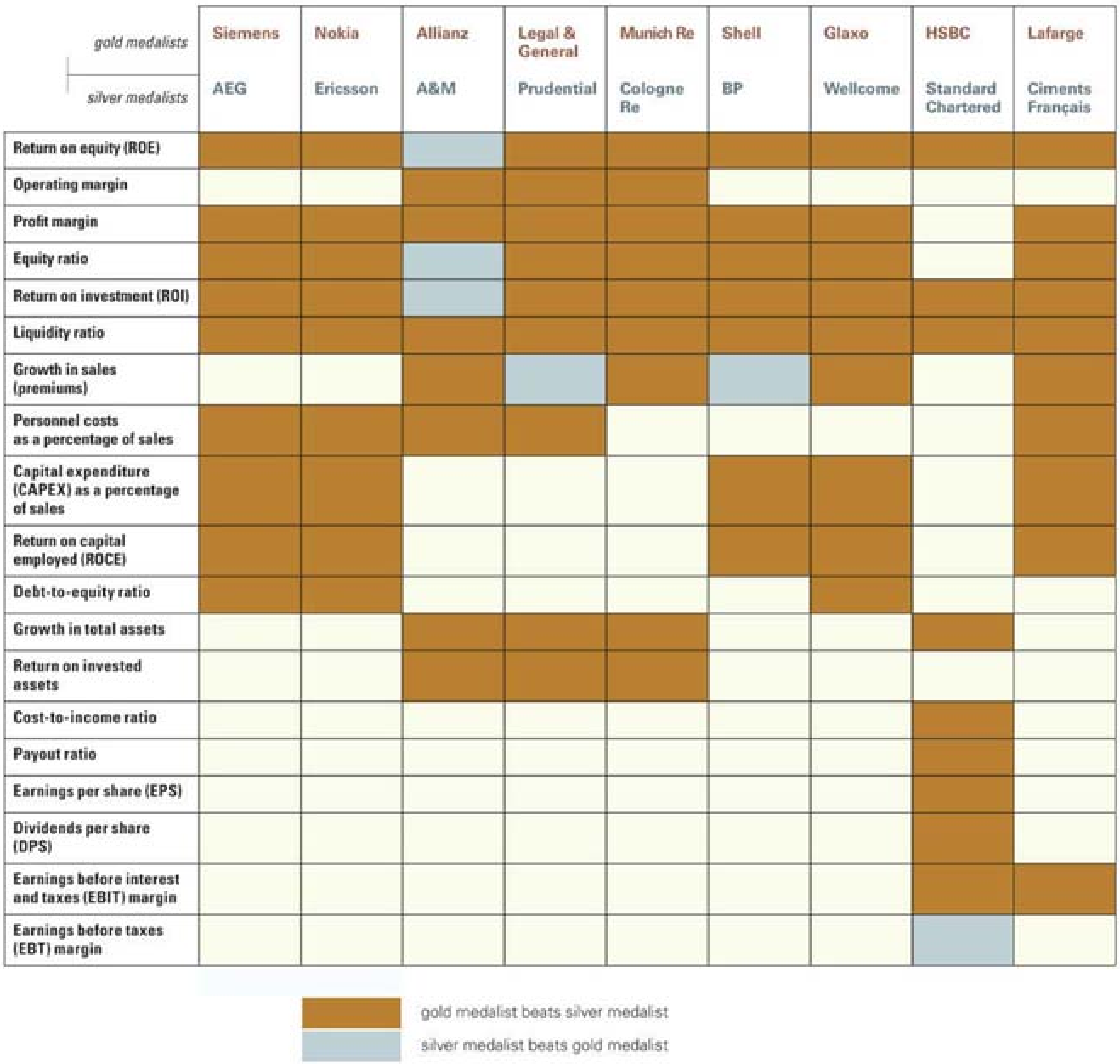
PRINCIPLE 1

Exploit Before You Explore

Publicly available data on company performance offer no simple measure that captures the tension between exploration and exploitation for many industries over time. We decided, therefore, to look at multiple metrics. To measure

What Makes the Difference?

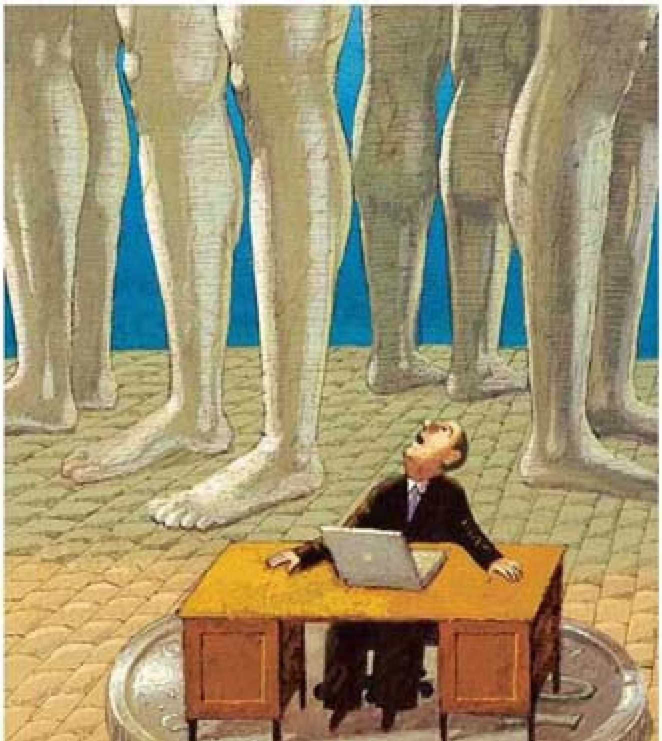
Through a survey of financial analysts and business scholars, we identified the eight to ten key performance indicators for each industry in our study. Applying a U-test of statistical significance, we were able to determine which factors made the performance difference between gold and silver medalists.



exploration, we used R&D spending as a percentage of sales and patents issued as a percentage of sales. For exploitation, we used return on equity, return on sales, and return on investment.

Historical analysis of the companies reveals a clear pattern: Though they did not neglect exploration, as a strategy the gold medalists consistently chose to pursue exploitation efforts over exploration initiatives. It seems that companies can compensate for insufficient exploration capabilities by being more efficient exploiters. But they are not able, over the long run, to make up for a lack of exploitation capabilities through better exploration. In other words, great companies don't innovate their way to growth – they grow by efficiently exploiting the fullest potential of existing innovations. The contrasting tales of Glaxo, the consummate exploiter, and Wellcome, the inspired innovator, illustrate this point very clearly. (Glaxo purchased Wellcome in 1995, but they were independent of each other long enough for us to treat them as two companies in this study.)

When Henry Wellcome started his business together with Silas Burroughs in 1880, he wanted to make a name for himself as a medical pioneer. In pursuit of this aim, he sponsored much of the field research then under way in tropical medicine – arguably the biotech of its time. He actively encouraged the researchers he supported to publish their findings, a practice largely unheard of at the time. Inevitably, the pioneering work he sponsored produced commercial products, and for a long time the company prospered. But after he handed over operational control to George E. Pearson in 1924, the commercial success began to fade, even though the quality of the firm's science remained undiminished. The problem, we found, was that the scientists in Wellcome's research labs had by then largely lost interest in commercial success. What they really cared about was their reputations as researchers. As the once closely linked worlds of medical research and commerce started to separate, Wellcome was left on the wrong side.



Glaxo's story was very different. Founder Joseph Edward Nathan, who with his brother-in-law created the company as a general merchant in 1861, started a new subsidiary in 1905 to commercialize a patent he had purchased for manufacturing dried milk. Thanks to a well-organized marketing campaign waged by his son Alec, the company quickly became Britain's leading supplier of dried infant milk. It was to be the first of many occasions that the firm exploited someone else's invention.

Seventy-six years later, Glaxo reprised the trick with Zantac, the ulcer medication it introduced in 1981. At the time, ulcer treatment was one of the hottest areas in pharmaceutical research, and the leaders were SmithKline, Pfizer, and Eli Lilly. Glaxo was a latecomer, launching Zantac five years after SmithKline's best-selling ulcer medication, Tagamet. Zantac had no remarkable scientific or medical advantage over Tagamet. The only difference was that Zantac was packaged in such a way that fewer pills were required each day.

According to conventional wisdom in the industry, a me-too product like Zantac could never win more than 50% of the market. But Glaxo viewed the apparent second-mover disadvantage as an opportunity. As the pioneer, SmithKline had already invested in educating doctors about the new type of ulcer medication, and Glaxo's market research indicated that doctors viewed Zantac as "another Tagamet" – in other words, as a product whose benefits they were very familiar with. Glaxo's salespeople therefore could concentrate on promoting the benefits of Zantac versus Tagamet. Glaxo decided to put a price premium on Zantac to stress its superiority over Tagamet. It was a bold but successful move.

Throughout this time, SmithKline continued to invest heavily in R&D, but Glaxo fared much better in terms of sales and profitability – so much so that it was eventually able to purchase its more innovative competitor in 2000 (once again buying, rather than building, its pipeline).

We observed the market's preference for exploitation over exploration again and again throughout our sample. At Ericsson, for example, a 30,000-strong army of researchers had made the company a pioneer with its GPRS wireless data communication and third-generation mobile technology standards. Unfortunately, these advances came at a high price: large-scale duplication of research efforts, hefty R&D expenditures, and big, risky bets on the future direction of mobile technology. When the telecom industry entered into recession in 2001, Ericsson was hit hard. It laid off approximately 60,000 people and closed many research centers. Eventually it decided to combine its mobile business with Sony's.

All the while, Nokia, its stronger competitor (which entered the telecom sector in the 1960s, long ago enough for us to treat it as a telecom company), focused on exploitation. With margins under pressure in the mid-1990s, Nokia formed troubleshooting teams to streamline operations, cut inventories, and renegotiate component prices and delivery terms. When the telecom industry recession hit, Nokia was far better prepared than Ericsson, and it remains a leading global competitor in mobile telephony.

PRINCIPLE 2

Diversify Your Business Portfolio

It's a well-known rule of strategy that diversification works only if the diversifying company can exploit economies of scope by combining related businesses. Experience tends to bear the rule out. In the 1960s and 1970s, for example, consultants and academics argued that corporations needed to diversify their portfolios to reduce the impact of dips in the economic cycle. They presented convincing empirical research to back this argument, and many firms followed their advice. Practically everyone regretted the decision. The urge to diversify persisted even after the disasters of the 1970s: In the 1980s, BP remained in the nutrition business, for instance, including fish feed. France's largest water utility, Vivendi, saw itself as a budding media and entertainment group.

Few people today would dispute that conglomeration is a poor strategy. But the antidote – firms focusing on a single business or set of capabilities – does not seem much better when viewed from a long-term perspective. Single-business companies do indeed perform very well in the short run, but when we observe these corporations over several decades, a different picture emerges: Many of the single-business firms simply cease to exist. A study by Richard Whittington of Oxford's Saïd Business School and Michael Mayer of the University of Bath School of Management of the top 100 domestically owned industrial firms in France, Germany, and the UK bears this out. Using a measure of diversification developed in the 1970s by Richard Rumelt of UCLA's Anderson School of Management, Whittington and Mayer found that 68% of the single-business companies that had made the top 100 in 1970 dropped out by 1983, and 42% of the firms that were in the top 100 in 1983 dropped out by 1993. Firms with multiple – but related – businesses fared rather better: Only 37% of those listed in 1970 failed to remain on the list by 1983, and 35% of those on the list that year dropped off by 1993. It's not hard to imagine why single-business firms might struggle to stay on the list. Once their primary offering reaches the end of its life span, the only possible next steps are decline, merger, or sale.

Few people would dispute that conglomeration is a poor strategy. But great companies are as suspicious of focusing too narrowly as they are careful about diversifying.

Which is why great companies are as suspicious of focusing too narrowly as they are careful about diversifying. The story of the German insurance giant Allianz, another of our gold medalists, is a study in how to build a broad customer base. From its creation in 1890, the company had a strategy of diversifying its business portfolio. Its very first foray into the market was arguably a diversification, since the company's founders decided to avoid writing fire insurance premiums – then the staple (if declining) business of most insurers – and concentrated instead on a new type of policy, sold largely by foreign companies: transport insurance. As Germany industrialized, the bet paid off, and the company soon had a cash cow on its hands. Instead of plowing the proceeds back into the transport business, Allianz quickly branched out into the fledgling casualty, and then the industrial, insurance businesses, selling its first equipment policies in 1900, just ten years after the corporation's creation.

Over the next two decades, Allianz continued to diversify. By 1918, it had created a whole division focused on the new market for auto insurance, and within a few years it became the dominant player in the life insurance market, with the foundation of Allianz Life as a joint venture with Munich Re and several banks. Allianz's move into this business had been carefully prepared in advance; in 1918, Allianz had discussed a partnership with life insurer Karlsruher Lebensversicherung. Failing to reach an agreement, Allianz formed a partnership with Friedrich Wilhelm Lebensversicherungs in 1921 whereby the two insurers cross-sold each other's products, providing Allianz with an opportunity to gain insight into the life business. A closer union failed, but based on these experiences, Allianz formed its own business in 1922. Within three decades of its creation, Allianz had become the leading German insurance company in all the lines of insurance it offered, both life and nonlife.

Silver medalist Aachener und Münchener, founded in 1824, showed little ambition to become a broadly based insurance provider. "*Schuster bleib bei deinen Leisten*" (loosely translated as "stick to your knitting") is an old German proverb that aptly describes the company's approach. In stark contrast to Allianz, A&M did not diversify out of its original business (selling fire insurance to farmers) for the first 40 years of its existence and then only when increased competition and slowing demand for the policies forced its hand. When it did diversify, the new businesses represented little more than product extensions. A&M's first diversifications were in reinsurance and insurance against hail, both of which were targeted at its existing customer base. This reflected the attitude of A&M's agents, who did not feel they were capable of selling to factories.

Not until 1924 – a century after the company was founded and 25 years after first considering the possibility – did the first real diversification occur, with A&M's acquisition of the Aachen-Potsdamer Lebensversicherung, a life insurance business. Another step to gain a broader base of customers was the formation of the Rheinische Gruppe, a loose cooperative of 15 insurance companies with A&M, Colonia, and Vaterländische at the core. Both deals were steps in the right direction, but they proved too little too late. The life insurance business was relatively small, and the Rheinische Gruppe never quite cohered, leaving A&M heavily dependent on its rural business. When Russia occupied East Germany after World War II, an agricultural region that gave A&M 40% of its fire insurance business was lost entirely.

Geographic diversification is as important as product range, as the contrasting experiences of the two leading French cement producers show. Gold medalist Lafarge began as a family-controlled cement producer in southern France. In a business that in the eighteenth and early nineteenth centuries relied heavily on regional contacts, the family was well positioned to succeed, enjoying as it did a particularly good relationship with officials of the state-run *Corps des Ponts et Chaussées* (Department of Bridges and Roads). But Lafarge felt that it could not rely on its home market alone and diversified internationally at an early date. The first step abroad was a large contract to deliver 110,000 tonnes of lime for the construction of the Suez Canal in 1864. Other projects followed in Spain, Italy, Greece, Lebanon, Chile, Russia, Serbia, Romania, and Bulgaria. After World War II, Lafarge used the cash generated by postwar growth to speed its internationalization and diversify into related industries, such as aggregates and ready-mix concrete. When the first oil crisis ended the building boom in France in 1973, Lafarge was doing business in 15 countries. Growth opportunities in the developing world thus compensated for the slowdown in France.

The story of Ciments Français was quite the opposite. Originally, in 1846, a producer of Portland cement in northern France, the firm operated almost exclusively in France for the next 100 years. The only exception was a small presence in Morocco, starting in the 1950s. In 1971, Ciments Français united with Poliet et Chausson to become the largest cement producer in France, just before the oil crisis, which drove down revenues in its main market in the Paris region by 40% between 1974 and 1979. The company never recovered. In

FOUR PRINCIPLES OF ENDURING SUCCESS

1 **Exploit before you explore.** In managing growth, the tension between leveraging existing assets and developing new ones is well known. Great companies have a clear priority: exploitation.

2 **Diversify your business portfolio.** Great companies are adaptive. They diversify their supply bases, products, customers, and geographic markets.

3 **Remember your mistakes.** Great companies do not fall into the same trap twice. Meaningful stories are passed on from one generation to the next from which successive generations draw clear object lessons.

4 **Be conservative about change.** Great companies go through radical change only at very select moments in their history, and they do so cautiously.

1992, the biggest shareholder, the French bank Paribas, sold a 40% stake of Ciments Français to Italcementi.

Supply-side diversification also matters. On March 17, 2000, a fire in a Philips factory in Albuquerque, New Mexico, disrupted the global mobile-phone supply chain. Gold medalist Nokia had alternative suppliers in the U.S. and Japan, which were able to jump in and deliver most of the components destroyed in Albuquerque. Silver medalist Ericsson, on the other hand, had no backup suppliers. In an early cost-cutting exercise, the company had decided to concentrate on a single supplier – and paid the price. While the Albuquerque incident had no lasting negative effect for Nokia, it marked the beginning of Ericsson's steady decline in mobile telephony.

PRINCIPLE 3

Remember Your Mistakes

Powerful experiences often develop into enduring stories that are passed on from generation to generation. Successful companies, naturally, have good stories to tell, and they tell them constantly. This practice helps motivate people and inspires them to act in ways that produced success in the past and are likely to continue to in the future. Glaxo, for example, never tires of retelling the story of Alec Nathan's successful marketing campaign for dried milk, and company leaders drew on this story explicitly seven decades later for the Zantac launch.

But what really separates the great from the good is that the great companies also remember their mistakes. Take the case of Shell. In the years before World War II, Shell was very much a one-man band. Henri Deterding had led the merger in 1907 of his Royal Dutch Petroleum Company with Shell Transport and Trading to form the Royal Dutch/Shell Group. Under his firm control, the corporation prospered and became one of the main rivals to the great American oil companies that emerged from the breakup of the Standard Oil Trust.

Deterding's strong personality and impressive record gave him a position of unchallenged power inside Shell. Unfortunately, it also put him in a position to consider financial and moral support for Adolf Hitler, whom Deterding saw as the man most likely to preserve Europe from the Communists. Deterding visited Germany frequently and eventually married a German. Luckily for Shell, he retired in 1936, before he could make any commitments that would have embarrassed the company later on.

The company did not forget its narrow escape: Deterding's successors were never allowed to be so powerful. In 1964, the board rejected advice from McKinsey & Company to install an American-style chief executive officer, whose official powers would have matched those Deterding once wielded. Instead, the board installed a Committee of Managing Directors as the top executive authority in the company. Its chairman was only marginally more responsible than its other members. These arrangements stayed in place for decades, and only recently – following a crisis triggered by the company's overstatement of its proven oil and gas reserves – has Shell opted for a classic CEO leadership model. Still, even now, it has remained remarkably careful to avoid placing an authoritarian leader at the top. "On the one side, we have our chief executive with more power to drive speed or to put his foot down about the things he wants to achieve, and at the same time we thought how we can put checks and balances around that person," says Jeroen van der Veer, Shell's CEO, in describing this transformation of the governance structure.

BP, in contrast, appears not to have drawn any lessons when in 1951 Iran nationalized its assets, which accounted for fully 75% of the company's oil supply. After receiving compensation two years later following a coup, BP failed to diversify its asset base significantly in the ensuring decades, ending up heavily dependent on a small number of sites in Alaska and the North Sea. As oil prices plummeted toward the end of the 1990s, those assets lost value, and BP found itself caught short again. Doggedly repeating its mistake, it embarked on a new elephant hunt and is now as heavily dependent on sites in Russia and other former Soviet states as it was on its Iranian assets.

Although BP has already suffered dramatically from its failure to observe the principle of diversification, it is clear the company has not taken the lesson to heart. It is striking how easily then-CEO John Browne brushed off concerns about taxes and the role of the Russian state. "The temperature always keeps changing – from cold to medium," he said in a 2005 interview in the *Guardian*, "but the back taxes were sorted out for 2001, and I expect there will be further large claims for 2002 and so on, but equally these are not unusual. There are many other places in the world where large claims are made. Discussions usually take place, and a settlement is reached."

Gold medalist HSBC also recalls the lessons of its past mistakes. The Hong Kong and Shanghai Banking Corporation was set up in 1865 by the merchant community in Hong Kong to finance international trade. A close relationship with the bank's main customers guaranteed a strong start, but there were also drawbacks. Financing investments in fixed assets in China turned out to be riskier than anticipated, and access to London capital was more complicated for HSBC than it was for its UK-based competitors. This hit HSBC doubly hard when a severe recession struck in 1873. The bank decided to adopt a more balanced management approach, which continues to dominate its strategy to this day. In 1876, it established a second executive board in London, creating a balance of power between the trade finance business in the East and the capital allocation center in London. The bank also increased its efforts to build up reserves and made sure that senior managers no longer had business interests outside the bank.

Silver medalist Standard Chartered (the Chartered Bank of India, Australia and China at its founding in 1853), in contrast, did not learn from its biggest mistake, which was creating a centralized London-based management system, which had a limited understanding of the China market. It lost major business to HSBC on numerous occasions – in the mid-1860s, for instance, it lost out because repayment periods for trade bills were shortened by London against the advice of local managers. Nonetheless, the company stuck to the old system. In the following decades, the firm survived despite, not because of, its centralized management. Local branch managers simply ignored orders from London, which they saw as unfit.

PRINCIPLE 4

Be Conservative About Change

Schumpeterian logic tells us that creative destruction is the only way to survive in modern capitalism: Change is inevitable, and it's better to lead than follow it. At least that's the conventional wisdom. Great companies beg to differ. They go through radical change only at very selective moments in their history. Jumping onto every new management wave is not for them. They use their core values and principles as guidelines and approach change in a culturally sensitive manner that requires patience to work through.

In the 1960s, gold medalist Siemens and archrival AEG were operating in the same business environment: a postwar Germany that was enjoying miraculous economic growth and providing great opportunities for companies in electrical engineering. Broadly speaking, the two corporations had similar strategies and structures. Both were geared toward growth, and both had ambitions to establish themselves in foreign markets. Both should have fared very well into the 1970s. But while AEG had been able to catch up with Siemens in the 1950s, its profit margins started to fall at the end of the 1960s, never to recover again. What happened?

The answer seems to lie in the way the two companies managed major changes in the 1960s. Gold medalist Siemens took a very deliberate approach to its changes, initiating them only when it could see a clear strategic case for restructuring the business portfolio and then taking its time over implementation to make the transformation as painless as possible for the workforce.

Change came to Siemens for four reasons, any one of which would on its own have provided ample justification. First, management recognized that the long-standing separation between its high-current (power generation) and low-current (telecommunications) technologies was no longer appropriate. Indeed, duplications in research and production had been primarily caused by a lack of cooperation between its Halske (low-current) and Schuckert (high-current) subsidiaries. Second, as the group faced pressure to merge these two subsidiaries, management was also aware that the company's long-standing consumer business was fitting less and less well with the high- and low-current activities, which were driving growth. Third, on top of these strategic considerations was the fear of what would happen when then-chairman Ernst von Siemens retired. In the absence of a family heir, no one in the organization could ensure that the company's independent subsidiaries would work together effectively. Finally, the German government was preparing legislation that would force the corporation to reveal sensitive information about its operations unless it consolidated its subsidiaries.

Siemens was very deliberate in the way it responded to those pressures. It began laying the groundwork for the disposition of its consumer businesses in 1957, when it brought its radio, TV, and appliances businesses together to create a new subsidiary, Siemens Electrogeräte. Over the following years, it closed or sold off the radio and TV production businesses, leaving it with a rump appliance business, which it spun off into a joint venture with Robert Bosch, a leading appliance maker, in 1967, a full decade after it had begun the process. Initially, BSH Bosch und Siemens Hausgeräte was hardly more than a joint sales force, and only over the years did it start to integrate production.

The company was no less deliberate in its response to the pressure to integrate Halske and Schuckert. The decision to merge them was announced in 1965, but it was not until 1969 that the two subsidiaries were formally replaced by six divisions: components, data technology, energy technology, installation technology, medical technology, and telecommunications. Culturally, the change took even longer.

Schumpeterian logic tells us that creative destruction is the only way to survive in modern capitalism. Great companies beg to differ. They go through radical change very, very selectively.

Management left many of the traditional arrangements and practices in place for as long as 20 years after the reorganization had been formally completed. Indeed, for years people at Siemens used to talk about the "*die Männer von Schuckert und die Herren von Halske*" (the men of Schuckert and the sirs of Halske), capturing the two very different cultures. Arguably, the convergence was not completed until the late 1980s, when another transformation process was initiated.

Silver medalist AEG took a far hastier and less sensitive approach. Change took root only with the appointment of Hans Heyne as CEO in 1962 and was primarily motivated by his desire to reduce costs while maintaining growth. As a board statement explained at the time: "We have to concentrate all our forces on the reduction of costs. This should be achieved particularly through reorganization." The result was that AEG reorganized radically and rapidly, without making any real changes to its overall business portfolio.

On the surface, some of Heyne's changes (the creation of five new units and the consolidation of AEG's radio and telecom businesses with those of its subsidiary Telefunken) bore a superficial resemblance to the reforms then taking place at Siemens. The strategic effect, however, was entirely the opposite. Whereas Siemens had consolidated its consumer businesses to dispose of them, AEG consolidated its radio and telecom businesses to hold on to them.

By 1970, AEG became a virtually unmanageable conglomerate, and Heyne's abrasive personality and leadership style had left deep wounds. Heyne's personal distrust of AEG's traditional business practices is evident from a statement in which he refers to advice he received from other managers in the industry: "These men advised me well, but they also told me prior to taking over AEG that I need to secure special mandates from the board to cover my back. Otherwise I would not get anything through in AEG, where things have been on the same track for years." Despite his intentions, he created an atmosphere in which managers were unable to take responsibility, a culture that stood in stark contrast to long-standing tradition. Fear, not creativity, took hold. Many top managers left, and those who remained were often referred to as *Heyne's Würstchen* (Heyne's little sausages).

...

We sometimes think we live in the most revolutionary of times. But recalling challenges of the past should remind us that every generation thinks it lives in the most revolutionary of times. The outstanding companies in our sample survived and prevailed during the Great Depression, two world wars, and two energy crises, not to mention the advent of the telephone, the television, and the computer. They did so by consistently adhering to the four principles of enduring success. There is no reason why we should not be able to use the same chart to navigate the stormy seas of global competition and disruptive information technologies today.

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To order, see page 195.

"We're looking for a more comprehensive research strategy than simply 'Google it.'"

Chris Wildt

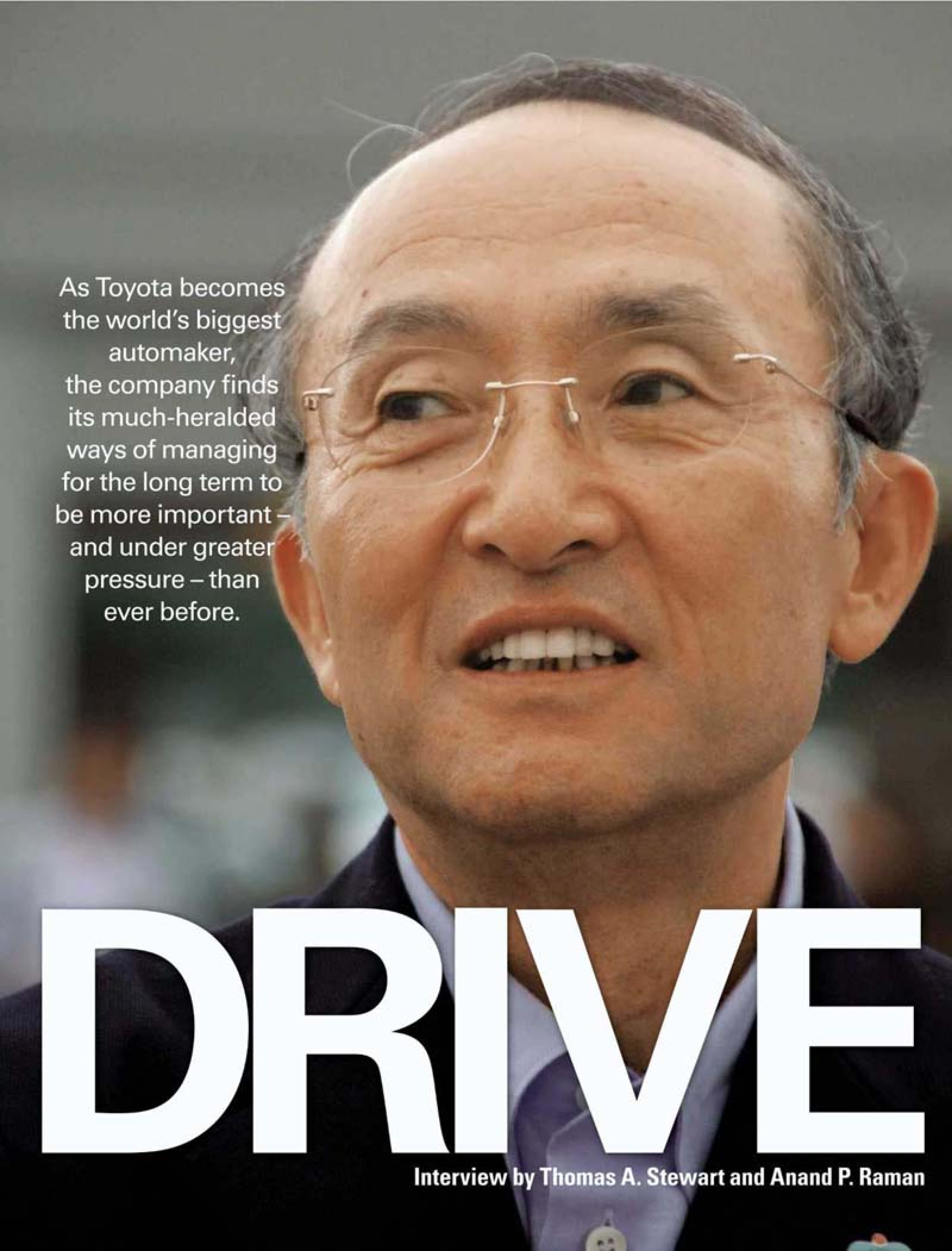
TOYOTA'S WAY is to measure everything – even the noise that car doors make when they open and close as workers perform their final inspections on newly manufactured automobiles. By any measure, whether esoteric or mundane, Toyota Motor Corporation has become one of the most successful companies in the world today. This year marks the 70th anniversary of Toyota's founding, 50 years since the Japanese company started exporting cars to the United States, and a decade since it launched the world's first commercial hybrid, the Prius. If, as Toyota officially forecast last December, it sells 9.34 million vehicles in 2007, it will overtake America's General Motors to become the world's biggest automobile manufacturer.

Toyota is, arguably, already the best carmaker on the planet. For almost 15 years J.D. Power and other research firms have consistently rated Toyota and its luxury line, Lexus, among the top automotive brands in terms of reliability, initial quality, and long-term durability. Toyota is also the most profitable car manufacturer: In the financial year that ended in March 2007, it made a profit of $13.7 billion, whereas GM and Ford reported losses of $1.97 billion and $12.61 billion, respectively, in 2006. In fact, Toyota's market capitalization on May 10, 2007 – of $186.71 billion – was more than one and a half times GM's ($16.60 billion), Ford's ($15.70 billion), and DaimlerChrysler's ($81.77 billion) combined.

In the history of the modern corporation, Toyota's march to the top from its humble beginnings as a textile machinery manufacturer in the mill town of Koromo – now Toyota City – is one of the most remarkable examples ever of managing for the long term. Toyota's rise wasn't quick or inevitable. Even in the early 1980s Ford and GM

Kaku Kurita

LESSONS FROM TOYOTA'S LONG



As Toyota becomes the world's biggest automaker, the company finds its much-heralded ways of managing for the long term to be more important – and under greater pressure – than ever before.

DRIVE

Interview by Thomas A. Stewart and Anand P. Raman marketed bigger, better-looking, and plusher cars than Toyota did – although its soulless creations were more reliable and fuel efficient. The Japanese manufacturer closed the gap little by little, improvement by improvement. In 1970 GM had a 40% chunk of the U.S. car and light-trucks market, whereas Toyota had only a 2% sliver. Toyota's market share inched up to 3% in 1980, to 8% in 1990, and to 9% in 2000, entering double digits for the first time only in 2006, when it rose to 13% and GM's fell to 26%. Toyota's ascension is best captured by the Japanese word *jojo*: "slowly, gradually, and steadily."

Every executive has two questions about Toyota today: What can my company learn from the world's greatest manufacturer? and (sotto voce) How is Toyota handling success? The answer to the former is obvious (plenty), but the jury is still out on the latter. Toyota is more confident than ever in some ways. The company is proud of the fact that its management principles are different from those taught in B-schools. Senior executives take great pleasure in explaining that other companies find it difficult to emulate Toyota because its management tools matter less than its mind-set. To some observers, the company has become insufferable. For instance, after it unveiled the Lexus LS600h L at the New York Auto Show in April 2006, the influential blogger Peter DeLorenzo complained, "The tone, the language, and everything about the presentation confirmed to me that the 'creeping' arrogance that has been brewing at Toyota for years has finally blossomed into full bloom for everyone to see."

A long and deep look at Toyota, especially in Japan, reveals a different picture. The company appears to be running scared. Toyota's executives were blindsided last year by a series of problems with its automobiles that blemished the company's reputation for manufacturing quality products. They are worried about always being the second (or the sixth, according to the 2006 Formula One standings) to enter new markets and to incorporate new technologies in vehicles. They are also gravely concerned about not having enough people to sustain their global growth. In fact, almost every aspect of Toyota is straining to keep pace with the company's rapid expansion and with technological change.

These pressures are compounded by three factors. First, in order to meet demand, Toyota has added the capacity to produce 3 million automobiles over the past six years. Perhaps the only other automaker to boost production that fast, according to industry experts, was the Ford Motor Company, under Henry Ford in the early 1900s. Second, Toyota's ambitions have dramatically expanded. The company wants to develop Lexus into a big luxury brand in Europe, attacking European carmakers' biggest source of profits; to grow sales of its full-size pickup truck, the Tundra, in the United States, thereby assaulting American automakers' last redoubt; and to develop a new breed of vehicles for emerging markets such as China and India. Third, the rate of technological change both in manufacturing processes and in products is unprecedented. For instance, Toyota's vision is to develop "dream cars" that are revolutionary in safety and environmental benignity.

The Toyota Way

Toyota has developed distinct business beliefs and methods whose origins lie in five principles laid down in 1935 by the original company's founder, Sakichi Toyoda. However, the Toyota Way wasn't formally documented until 2001, when the company recognized that the growing number of Toyota employees outside Japan needed to be rigorously trained in its use.

In the company's own words, here are the two pillars of the Toyota Way.

I. CONTINUOUS IMPROVEMENT	II. RESPECT FOR PEOPLE
CHALLENGE We form a long-term vision, meeting challenges with courage and creativity to realize our dreams.	**RESPECT** We respect others, make every effort to understand each other, take responsibility, and do our best to build mutual trust.
KAIZEN "Continuous improvement" We improve our business operations continuously, always driving for innovation and evolution.	**TEAMWORK** We stimulate personal and professional growth, share the opportunities of development, and maximize individual and team performance.
GENCHI GENBUTSU "Go and see for yourself" We go to the source to find the facts to make correct decisions, build consensus, and achieve our goals.	

A series of interviews with Katsuaki Watanabe, Toyota's 65-year-old president, and several executive vice presidents revealed that Toyota's future will depend on its ability to strike the right balance – between the short term and the long term; between being a Japanese company and being a global company; between the manufacturing culture of Toyota City and the design culture of Los Angeles, where some of Toyota's cars take shape; between the cautiousness of Toyota's veterans, who are worried about growing too fast, and the confidence of its youngsters, who have seen only success. And Watanabe, who is using the Toyota Way to remake the company, told HBR's editor, Thomas A. Stewart, and senior editor Anand P. Raman that Toyota must also balance incremental improvements with radical reform. What follows is an edited version of our interview with the company's president that incorporates (and identifies) some comments by Toyota executive vice presidents.

Mr. Watanabe, you have spoken recently about how the early part of the twenty-first century is Toyota's "second founding period," when the company will set a course that will create a more prosperous society in the future. Almost in the same breath, you spoke about "fixing the foundations" of the company. Is Toyota poised for long-term growth, or does the company face a crisis?

Toyota must keep growing even as it builds a stronger foundation for the future; it has to do both for the company's long-term health. There are three keys to building a stronger foundation: We must improve product quality, keep reducing costs, and, in order to attain those two objectives, develop human resources. We have to create a stronger foundation at every stage of the supply chain, from product development to after-sales service. Our products must be the best in the world; we must be the first to offer them to customers; we must manufacture them at the lowest cost; and we must sell them through the best service networks. My focus is on how Toyota can achieve all those things at the same time.

What does becoming number one in the global automobile industry mean to you?

To me, becoming number one isn't about being the world leader in terms of how many automobiles we manufacture or sell in a year, or about generating the most sales revenues or profits. Being number one is about being the best in the world in terms of quality on a sustained basis. I attach the greatest value and importance to quality; that lies at the root of my management style. It's critical for Toyota to keep making the highest-quality vehicles in the world – the best products in every way, manufactured without any defects. Unless we enhance quality today, we can't hope for growth in the future. That's why we are investing in the development of new technologies, new processes, and human resources. My top priority is to ensure that we do that resolutely, surefootedly, and in a thorough fashion. We've never tried to become number one in terms of volumes or revenues; as long as we keep improving our quality, size will automatically follow.

That's an ambitious agenda. But there are several pressures operating on Toyota right now. For instance, between 2004 and 2006 the company recalled more vehicles than ever before. When you took over as CEO in June 2005, you talked openly about "big-company disease" and the risks of complacency. How do you manage the tensions that growth and globalization have created?

Since I became CEO, Toyota has continued to grow very rapidly. We produced around 3 million more cars in 2006 than we did in 2000. We opened about a dozen new facilities during that period, and we are building five more plants. In 1995 there were 26 Toyota factories; in 2007 there will be 63. I've personally visited our new manufacturing facilities in China and the United States and seen the new plants we're building in Thailand, Canada, China, and Russia. Sure, every Toyota plant faces distinct challenges and difficulties, but I realize that our system may be overstretched.

We must make that issue visible. Hidden problems are the ones that become serious threats eventually. If problems are revealed for everybody to see, I will feel reassured. Because once problems have been visualized, even if our people didn't notice them earlier, they will rack their brains to find solutions to them. That's the DNA we've all inherited through the Toyota Production System. What are the problems with the new models we have launched? Have we trained our new workers well enough to produce quality? Are our new facilities operating all right? What would be the most appropriate way of marketing and selling the Tundra, given market conditions in the United States? As long as we know what needs and challenges we face, we can come up with countermeasures.

If there are problems that go beyond our immediate capability to deal with them, we must stop if necessary, postponing projects and growth. When I drive, I have my hands on the steering wheel but I also constantly think about when I should apply the accelerator and when I should brake. I may not need to brake right now, but if a time comes at Toyota when I need to put my foot on the brake pedal rather than on the accelerator, I won't hesitate to do so.

When a Toyota worker on the shop floor notices a problem, he or she has the freedom to pull the *andon* cord immediately, stop the line, and ensure that the problem is fixed before restarting production. But is it really possible to do that with the entire company? Don't you have to fix things as you go along?

The same principle applies to management, too, and it's my job to pull the andon cord. Soon after I became president, as you know, we confronted several quality-related problems. We created teams specializing in different areas and instructed them to analyze the root causes of problems in each area. We found that in several cases the problems had occurred because of design flaws or because of short lead times that didn't allow our engineers to build a sufficient number of physical prototypes. If we had thought about product designs more clearly or had the time to conduct more experiments, we could have avoided those problems.

To prevent more problems, I suggested that we extend the deadlines for several projects by six months, even if that meant delays in new launches, and that we postpone or eliminate other projects. Of course, we couldn't delay some critical projects; we kept our eyes on market conditions and technology trends and invested additional resources to tackle problems related to those projects first. But I will not allow the same problems to recur; we won't use half-baked ideas to tackle half-cooked problems. We have to improve quality even if I have to slow our pace of growth. After examining every project in our pipeline, product by product, market by market, we have created a new product-development plan. Some projects have taken a different direction, and I have halted others – just as workers stop the line.

As Toyota's president, you have a responsibility to the capital markets. As you expand faster around the globe, will the variability of its share price – the company's beta – increase? How does Toyota address that risk in strategic terms?

The priority of Toyota's top management team is to increase shareholder value steadily over the long term. As the company continues to expand outside Japan, we will increasingly face market risk, which will vary from country to country. To create a company that can resist fluctuations all over the world all the time is difficult. However, we use the concept of leveling fluctuations (*heijunka*), which is part of the Toyota Production System, to reduce risk. For example, the conditions in some Asian markets, such as Taiwan and Indonesia, are still tough. Japan's economy is doing better, but the automobile market is stagnant except for the minivehicles [whose engines have less than 660 cc capacity] segment. There will always be such vicissitudes in different markets, so leveling out those peaks and troughs is important. Our basic philosophy is to produce vehicles where customers are. When there are short-term demand fluctuations in one market, we use our operations in Japan to support them.

The more plants Toyota builds in different countries, the stabler its finances will become, because the company will be able to hedge against fluctuations in the yen vis-à-vis euros, dollars, and other currencies. But will your long-term strategy, which you have described as having a full line of products and competing in all regions, maintain stability? GM competes with a full line in all markets, but the strategy has proved to be more of a liability than an opportunity.

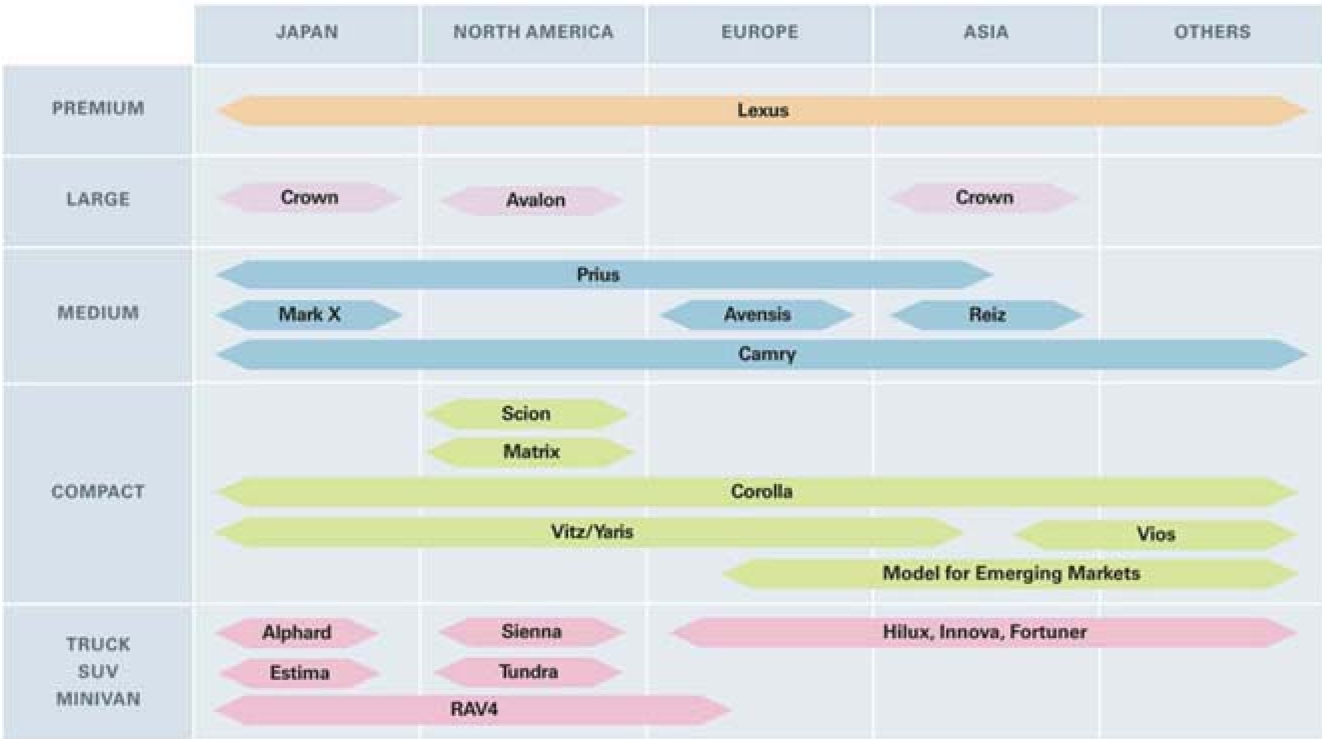
We will create a full line of appropriate products for every region in the world by offering global models and also developing regional models. In Japan we must continue to maintain our market share by launching new products that create new market segments and by revamping our sales channels. In North America we recently entered the full-size pickup truck segment with the redesigned Tundra, and we must engage more closely with Generation Y customers through brands such as the Scion. In Europe we will expand and strengthen the lineup by marketing diesel engine and hybrid vehicles. As I said earlier, we believe in building vehicles where we sell them, so we will increase our production capacity overseas.

However, that can sometimes create inflexibility in terms of capacity utilization, because local demand will fluctuate. To increase efficiency, we have developed a global link production system. Owing to the innovative technologies in our plants in Japan, we are able to transfer the production of different models between them quickly. So we have linked some plants in Japan to our overseas plants. When there is a spike in demand in, say, Europe, our plant in England will maintain stable production while the link plant in Japan manufactures the extra units needed. This system helps us in several ways: It enables us to respond swiftly to changes in demand; it enables high capacity utilization at all plants; and it saves capital expenditure, because we use existing resources in Japan to balance demand in other markets. Our plants in Japan serve as buffers, which is why our "full line, all regions" strategy works efficiently.

Japan, where you have 40% of the automobile market, is your arena for experiments with new products and production processes, and in North America and Europe, where you have 12% and 6% market shares, you plan to deepen penetration to achieve scale and profitability. But

The Long-Term Growth Strategy

In 2006 Toyota President Katsuaki Watanabe unveiled the full extent of Toyota's ambitions. The company strategy puts equal emphasis on taking in opportunities and avoiding or absorbing risks; it utilizes global car models and also regional models. With global models such as the Lexus, the Camry, and the Corolla, and regional models such as the Crown (Asia) and the Tundra (North America), Toyota will offer a full line of appropriate vehicles in all the world's markets.



what is Toyota's vision for BRIC – Brazil, Russia, India, and China? Are they merely sources of raw materials, or are they also markets? Haven't you entered them very late?
Brazil, Russia, India, and China are entirely new markets for us. They are going to be important markets for Toyota eventually. As those economies grow, we need to figure out what kinds of manufacturing facilities we should set up and what sorts of products we need to sell. We will introduce global and regional models and augment our production bases in those countries. I don't think we are too late. Those countries are growth markets, and they will continue to grow. We don't want to be too aggressive in them despite their potential. As our former executive vice president Mr. Yoshimi Inaba said, we would not like to create large capacities and slash the price of products – as some of our rivals do – when demand doesn't pick up as anticipated. As people in BRIC look for better cars, as roads are built, and as energy efficiency becomes more important, the demand for Toyota's cars will go up. We would do better to wait than to jump into the market; we should let the market come to us. Toyota can never be a cheap brand; it's a quality product with a fair price, which in emerging markets may be a premium price. But people will see the value of our products and think, "The next time, I must buy something better – like a Toyota." We may not necessarily be somebody's first car; we definitely want to be the second car that the family buys. We should go slowly and steadily into those markets, ensuring that we stay abreast of their growth but don't go faster than is warranted.

Does the fear that Toyota may have to compromise on quality prevent you from entering the emerging markets more aggressively? Those markets demand low-priced vehicles, which embody cost-quality trade-offs that Toyota may not want to make. Is quality proving to be the enemy of growth?
It's wrong to think of the emerging markets as a single entity. Brazil is different from China, which is different from India, and so on. In Brazil the Corolla sells well; in Russia the Lexus sells extremely well. Sometimes I wonder if it's right for such an expensive car to be selling so well in Russia. Anyway, it would be wrong to say that these markets want lower-quality products. But yes, one factor they have in common is that many of their consumers want low-cost automobiles. The moment I became president, I created a team to work on a project related to that. But I told our engineers, let us not focus on developing low-cost automobiles; let us develop technologies and processes that will allow Toyota to manufacture all our vehicles at lower costs. If we do that, we can produce cars for BRIC and we can use the same processes to reduce the cost of automobiles for other countries, too. By conceptualizing the problem in that fashion, we will also meet our quality standards rather than worrying about whether we have to compromise on them in

emerging markets. We have started developing those technologies already. Our rivals may be trying to create low-cost vehicles for emerging markets, but Toyota will go beyond that and develop the optimal vehicles for all worlds.

Toyota is clearly trying to grow as it has always grown, at a steady pace. But the forces of the global market are pulling you, and you are being pushed to move faster and faster to keep up. Are those forces so strong that they might pull Toyota apart? How are they changing the company's fundamental operating principles?

The Toyota Way has been and will continue to be the standard for everyone who works for Toyota all over the world. Our guiding principles define Toyota's mission and values, but the Toyota Way defines how we work. To me, it's like the air we breathe. The Toyota Way has two main pillars: continuous improvement and respect for people. Respect is necessary to work with people. By "people" we mean employees, supply partners, and customers. "Customer first" is one of the company's core tenets. We don't mean just the end customer; on the assembly line the person at the next workstation is also your customer. That leads to teamwork. If you adopt that principle, you'll also keep analyzing what you do in order to see if you're doing things perfectly, so you're not troubling your customer. That nurtures your ability to identify problems, and if you closely observe things, it will lead to *kaizen*: continuous improvement. The root of the Toyota Way is to be dissatisfied with the status quo; you have to ask constantly, "Why are we doing this?" People can apply these concepts throughout the world, not just in Japan. The question is how long it takes to train people to develop the Toyota mind-set.

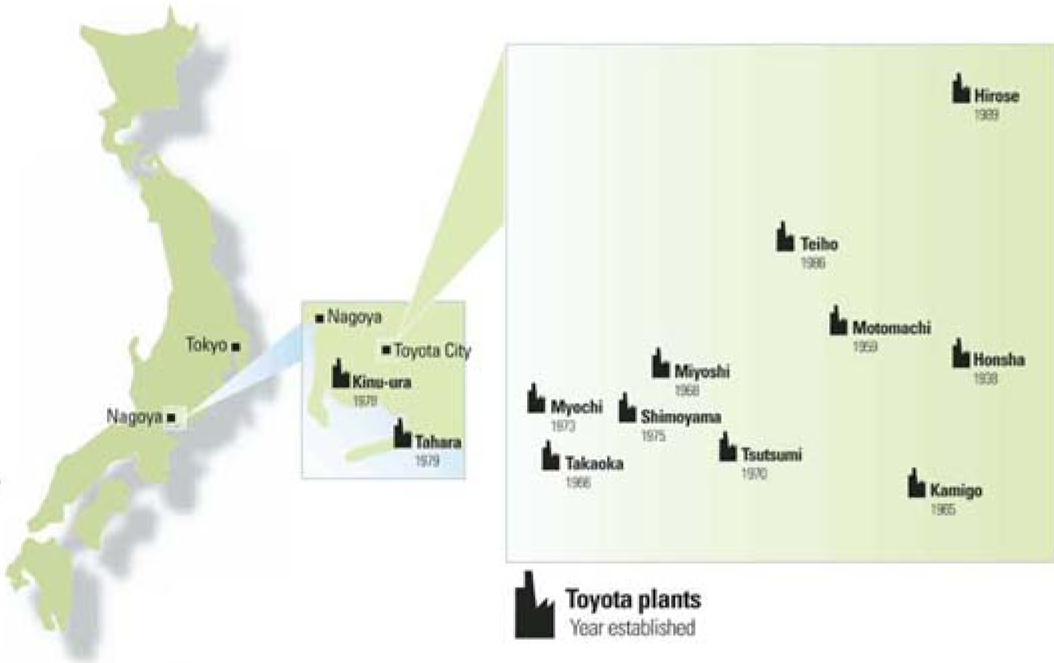
How long does it take, especially if someone isn't Japanese, to learn the Toyota Way?

Just yesterday I spent a whole day with 30 of our young executives. At least 50% of them were from outside Japan. They had been broken up into teams to tackle different problems, and they made presentations based on what they had learned about using the Toyota Way to tackle them. I listened and commented. The managers felt happy and said that they had learned a lot. When I asked, many of them said they were now able to understand the Toyota Way fully. That's totally wrong. Two or three months isn't a long enough period for anyone to understand the Toyota Way. The managers may have understood what's on the surface, but what lies beneath is far greater. I asked them to explore that. There's no end to the process of learning about the Toyota Way. I don't think I have a complete understanding even today, and I have worked for the company for 43 years.

How will Toyota balance demand for its products with the longer-term need for human resources? Making cars is a capital-intensive business, but manufacturing at Toyota is a human capital–intensive business. Your executive vice presidents all say that Toyota is facing a serious

The Advantages of Clustering

Of Toyota's 15 plants in Japan, 12 – along with the manufacturing facilities of most of the company's suppliers – are located in and around sleepy Toyota City, in Aichi Prefecture, a 45-minute drive from Nagoya. Senior executives believe that the cluster not only has allowed the company to use its "just-in-time" manufacturing system but also has shaped Toyota's culture. They plan to create similar clusters overseas.



shortage of trained people. Will you be able to catch up and keep up with the demand for people?

Our demand for people is complicated by many factors that are peculiar to the automobile industry: long product life cycles; large and complex supplier networks; and, increasingly, state-of-the-art technologies vis-à-vis safety, the environment, and traveling comfort. As our executive vice president Mr. Mitsuo Kinoshita said, we need a workforce that is both specialized in new technologies and global because of Toyota's expansion. It takes time to develop Toyota people, who are trained on the job rather than in a classroom. Only when employees start working at Toyota do they learn from their superiors what values and skills they need in order to do their jobs. Most of our plants outside Japan were set up in the past ten years, so even senior employees overseas have relatively little experience with the Toyota Way.

Toyota develops T-type people. [See "Introducing T-Shaped Managers," by Morten T. Hansen and Bolko von Oetinger, HBR, March 2001.] As you may know, the vertical stroke of the T stands for the fact that employees must intensify or deepen what they do, and the horizontal stroke indicates that they must learn other jobs. Creating T-type personnel is a time-consuming process. However, in many countries outside Japan it's tough to employ people for the long term. The moment we start operations, employee turnover begins. So we are learning how to retain people.

We used to transmit the Toyota Way through the mother plant system, whereby a Japanese plant served as the parent of each new overseas plant we set up. That Japanese plant was responsible for training people in the overseas plant and instilling the Toyota Way in them. Because of the rate at which we are growing overseas, we have done away with that system. We now send people from Japan, coordinators, to instill our philosophy and concepts in our overseas companies. When a new company is established, the coordinator will serve as a teacher, or *sensei,* for its employees. After some years a second-generation coordinator will serve as a coach rather than a mentor. After several more years a third-generation coordinator will act as an adviser rather than a coach. The coordinators are critical to training people in the Toyota Way, but we have only about 2,000 coordinators. Our people in Japan take turns serving as coordinators every three to five years. Given the size of our business, we need three times as many coordinators as we have at present.

As you try to keep the learning curve rising as fast as the demand curve for people, how long will it take you to triple the number of coordinators?

It's difficult to say. We spent many years developing our human resources to be able to create 2,000 coordinators. Training a T-type manager takes 20 years or so, as Toyota's executive vice president Mr. Tokuichi Uranishi told you. In addition to knowing the Toyota Production System and the Toyota Way, a coordinator needs communication skills, the ability to sense other people's feelings, and a willingness to work across cultures.

We have taken several steps to cope with the situation. First, we formally documented the Toyota Way. We had communicated its principles orally for decades, but six years ago we decided to write it down so that it could serve as a bible for overseas executives. They also use it as a measurement tool to see where they stand and how they can improve. If we hadn't planned to expand outside Japan so aggressively, we might never have written down the Toyota Way. Second, Toyota retains Japanese employees who are over 60 years old if they wish to continue to work. If they don't want to work overseas, we use them locally, and that frees younger people to serve abroad. Third, we created several new training facilities. In 2002 we set up the Toyota Institute to train executives in the Toyota Way. The institute runs a global leadership school, which develops executives from all over the world for our businesses, and a management development school, which trains our people in the application of the Toyota Way. We also set up a global production center in Japan in 2003, which you visited, and regional centers in Thailand, the United States, and the UK. These centers "train the trainers" in plant management techniques, management roles, and shop-floor skills.

Finally, some of our overseas affiliates, such as Toyota Canada and Toyota Kentucky, have close to 20 years' experience with the Toyota Way. The time has come to send employees from those companies to serve as coordinators, especially to other English-speaking markets. This will be the first time we will be using non-Japanese employees to train other non-Japanese employees. There is a sense of urgency in the company, and we should be able to develop enough people to sustain the pace of our global expansion.

You described the importance of kaizen, continuous improvement, in speaking about the Toyota Way. But we heard on this visit, for the first time, that you have recently started talking about *kakushin* – revolutionary change or radical innovation – as well. Is incremental improvement no longer enough in these revolutionary times?

Fifteen years ago I would have said that as long as we had enough people, Toyota could achieve its goals through kaizen. In today's world, however, change can be produced by kaizen, but it may also need to be brought about by kakushin. When the rate of change is too slow, we have no choice but to resort to drastic changes or reform: *kaikaku.* Take the movement of parts in a factory, for example. Moving components doesn't add to their value; on the contrary, it destroys value, because parts may be dropped or scratched. So the movement of components should be limited as much as possible. I want our production engineers to take on the challenge of ensuring that things move as little as possible – close to the theoretical limit of zero – on shop floors. Doing that requires courage – and radical thinking.

Does the new manufacturing facility that Toyota is building at Takaoka incorporate the kind of radical change you think is needed?

The new manufacturing processes at Takaoka will completely change the way Toyota makes cars. We call them the "simple, slim, and speedy" production system. Right now our processes are complicated, so when a problem occurs, it is difficult to identify the cause. We've tried to make the processes at Takaoka simple, keep the facility slim, and have people close by observe the process. Simple and slim systems make it easier for people to notice abnormalities immediately.

When the first line at Takaoka opens, this summer, it will be Toyota's fastest production line, and it will cut lead times, logistics, and assembly time in half. We also hope to reduce the number of problems at each workstation by 50%. We have installed innovations in the stamping shop, the plastic molding shop, and the paint shop. For instance, instead of a transfer bar, we will use robots. That will allow the line to move 1.7 times faster than it used to. We have cut the length of the line by half. A new painting process allows us to apply three coats at the same time, without having to wait for each coat to dry. This will shorten painting times by 40%. To build in quality, we will go beyond visual inspections and use high-precision instruments to measure several parameters. The testing devices will be located at various stages of the assembly process and will provide data in real time to factory managers and suppliers.

We will have more flexibility than ever before: Each line at Takaoka will be able to produce eight different models, so the plant will produce 16 models on two lines compared with the four or five it used to produce on three lines. In the old plant we used to make 222,000 vehicles a year on each line; now we will be able to make 250,000 units on each line. Toyota needs such radical changes today.

But Toyota is struggling to maintain the basic quality of its products. Is this the right time for you to talk about radical improvements?

It is. People can use revolutionary approaches while making incremental improvements. You can do that. In fact, while trying to come up with incremental improvements, many people come up with revolutionary ideas. The two have different focuses; there's continuous change in kaizen and there's discontinuity in kakushin. I am only trying to get people to make the leap from incremental improvement to radical improvement wherever possible.

In addition to speeding up manufacturing lines, Toyota has launched a cost reduction program called Value Innovation. What is the difference between the program called Construction of Cost Competitiveness for the 21st Century, which you headed before you took over as CEO, and Value Innovation? By how much do you hope to shave costs through VI?

We started the Value Innovation program in April 2005. It goes beyond the item-based approach we used in CCC21. It tries to reduce the cost of the components we use by incorporating several parts into one integrated system and doing away with unnecessary components. Our goal is to shrink the number of components we use by half. When we try to reduce the cost of components, we start with their design and development; we don't focus on price reductions. The process requires collaboration among our supply partners and several Toyota divisions, such as design, production engineering, and purchasing. We pursue cost reduction efforts based on relationships of trust. The improvements that result from VI will strengthen the competitiveness of both Toyota and its suppliers.

Mr. Watanabe, you have said that your job is to "surface problems" and to "surface a vision of the future." How do you and Toyota plan to invent your vision of the future, the dream car?

I don't know how many years it's going to take us, but I want Toyota to come up with the dream car – a vehicle that can make the air cleaner than it is, a vehicle that cannot injure people, a vehicle that prevents accidents from happening, a vehicle that can make people healthier the longer they drive it, a vehicle that can excite, entertain, and evoke the emotions of its occupants, a vehicle that can drive around the world on just one tank of gas. That's what I dream about. We would like to develop such vehicles as quickly as possible. In my vision for the future, the most important themes are the environment, energy, safety, and evoking emotion or comfort. These are four key roads for the company's future, and we must develop technologies for each of them. Our engineers are working right now to develop the technologies we need and to incorporate them into vehicles. If we accelerate our technology development, we can realize the dream car.

As we incorporate the technologies into our vehicles, we need to study each region and match product development with the trends in each market. In Brazil, consumers can use ethanol as fuel because the country produces sugarcane. The United States is most worried about the environment and safety. We need to come up with vehicles there that use intelligent transport system technologies to satisfy consumers' requirements. In China car ownership could reach 380 million units by 2030. What will happen to petroleum prices there? What will the environmental impact be? How do we keep travelers and pedestrians safe? Energy, environment, and safety must be factored in to all the vehicles that Toyota launches in China. We refer to that as developing the right

We have been humble; that has been the traditional Toyota character. Now, of course, we constantly remind ourselves, Don't be arrogant.

car at the right time for the right location. We need to select the appropriate fuel, technology, and supply and production system. When we combine those three elements, we will have a three-dimensional matrix. We want to produce the best cars the world has ever seen, and that, I believe, is critically important for Toyota's future.

In your two years as Toyota's president, what have you learned about being a leader?

I don't look at myself as a leader in the sense that you mean it. I have just been telling everyone in the company that we should do properly what we are trained to do. I can check how well people understand the Toyota Way in day-to-day management in any function. I visit different places to find out myself. However, my own capability and availability are limited. We have a large team of managers at Toyota, including the eight executive vice presidents, who enjoy the freedom to practice the Toyota Way in their areas of responsibility. I trust our managers to do that, but whenever there are problems, I want them to come to me with the bad news first. Other than that, my colleagues call on me to talk, to sound me out. We have hours of debate and discussion, and just as my colleagues air their opinions, I make my own views known. That's my management style. That kind of leadership is important today. Of course, we have to make decisions quickly, but we should do so steadily, thoroughly, and with an open mind. As you may have noticed, I am not afraid to do that.

Many Toyota executives talk about the importance of Toyota City in shaping the company and the values of working in a small town. Do you agree? After all, it could be argued that Detroit's provincialism is also a cause of its problems. In the Toyota of tomorrow – a company that operates out of Shanghai, Los Angeles, São Paulo, and Tokyo – how will you manage the values of Toyota's leaders and employees?

I, too, believe that the driving force behind Toyota's growth is that we are headquartered in Toyota City. We concentrate on work here and all of us tend to hold the same values. It's an excellent environment for nurturing people. Our philosophy of making things of the best possible quality has been fermented in Toyota City, which is somewhat isolated from the rest of the world. We are in the middle of nowhere; there is nothing to do but work! Toyota is the way it is because it has been nurtured in that environment. As long as we can keep that spirit – the almost crazy pursuit of quality – alive, Toyota will remain true to its values. We have been humble; that has been the traditional Toyota character. Now, of course, we constantly remind ourselves, Don't be arrogant. That's why we must train our people all over the world to understand the Toyota Way truly. We also need to gather local employees in each country in locations like Toyota City. That will allow them to soak up our concepts and mind-set. That's another priority for me: to localize our operations and to cluster them together. Thankfully, Toyota people are already transplanting these ideas throughout the world. Without those missionaries, global expansion places Toyota at a huge risk.

On the one hand, many people at Toyota make hundreds of little decisions every day to improve things. On the other hand, the company grows steadily and patiently. How do you manage these two time horizons – the quick rhythms of constant improvement and the steady rhythm of stable growth?

I don't believe the two rhythms are different. Once you indicate the direction in which the company should move, and as long as you have that direction right, you can leave other people to do the things that are necessary to get there. When people are heading in the right direction, the small movements and the major ones will stay aligned. In fact, the small changes are linked to the big changes; the people making all those small decisions together make the major movements possible. Why do you think Toyota has been successful so far? We're doing the same thing we always did; we're consistent. There's no genius in our company. We just do whatever we believe is right, trying every day to improve every little bit and piece. But when 70 years of very small improvements accumulate, they become a revolution.

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To order, see page 195.

To Succeed in the Long Term,

Focus on the Middle Term

Strategy's no-man's-land lies between the budget and the long-term plan.

by Geoffrey A. Moore

BUSINESS STRATEGISTS like to think in portfolio terms. Whether it's a question of cash cows versus rising stars or of businesses that prosper at different points in an economic cycle, it's useful to have a framework for analyzing the mix and balancing investments wisely. With the publication of *The Alchemy of Growth* in the 1990s, Mehrdad Baghai and his colleagues from McKinsey & Company taught us to view portfolio management as having three time horizons. In their formulation, Horizon 1 corresponds to managing the current fiscal-reporting period, with all its short-term concerns, Horizon 2 to onboarding the next generation of high-growth opportunities in the pipeline, and Horizon 3 to incubating the germs of new businesses that will sustain the franchise far into the future.

This time-horizon perspective is especially valuable for an executive team trying to ensure that its enterprise will endure and grow over the long term. Like good farmers, managers see that they must simultaneously harvest the current crop, till the ground for next season, and investigate new crops for the future. When enterprises find themselves

Andy Potts

caught off guard by a changing marketplace, management often assumes its mistake was in failing to invest sufficiently in Horizon 3 projects. That turns out to be wrong.

Consider lessons learned over the past two decades from the technology sector, where managing for the long term has a faster cycle time than in other industries. Think of the truly great technology franchises that lost their way during that period – AT&T, Digital Equipment Corporation, Kodak, Polaroid, Silicon Graphics, Sun, Wang, Xerox, and others. None of them abandoned their ambitious and futuristic R&D agendas. They all invested for the long term, many brilliantly so. The trouble was, none could bring their long-term investments to fruition. None, in other words, could successfully move their businesses from Horizon 3 through Horizon 2 to Horizon 1. It is Horizon 2 that is the point of concern and debate in this scenario.

Is your organization suffering from a similar Horizon 2 vacuum? Is it relying upon an aging portfolio, hoping to be rescued by next-generation offerings that seem to float forever just out of reach? If so, you are in a dangerous position and need to recognize the business dynamics that put you there. Executive teams in a few companies have already done so and are actively working to counter the devastating effects these dynamics can have on otherwise promising innovations. In this article, we'll look at interventions being made at one company, Cisco Systems, as it seeks to extend and perpetuate its franchise. But first let's examine the common problems that make such interventions necessary.

Betwixt and Between

At first glance, Horizon 2 projects at an established company would seem to have everything going for them: entrée to an existing customer base via a sales force already deployed, access to a supply chain already operating with scale efficiency, and financial sponsorship from investors highly sympathetic to their causes. What's not to like? How could projects like IBM's OS/2, Lotus's Notes, Microsoft's Search, Apple's Newton, and Intel's forays into anything beyond the microchip possibly have failed? How is it that Kodak hired George Fisher out of Motorola in 1993 to lead its digital-imaging renovation, and Antonio Perez is only now, in 2007, getting traction on that effort? What is the undoing of these innovations?

The first thing to recognize is that Horizon 2 lies in a kind of no-man's-land in the corporation. The company's budgeting, reporting, and management processes all focus on the current fiscal year – with compensation and incentive systems underscoring accountability for it. Financial reporting to investors forces an even more myopic concentration on the current quarter. And so it is that Horizon 1 stakes major claims on time, talent, and management attention. Meanwhile, the same managers, cognizant of their stewardship role, periodically go through the exercise of extracting themselves from day-to-day concerns in order to contemplate their long-range strategic options. They draw on the data of research analysts and the frameworks of business authors and strategy specialists to draft multiyear plans and make long-term investments. In particular, the capital expenditure process in asset-intensive businesses ensures that Horizon 3 gets significant attention over the course of a year.

All this leaves little time and management attention for goals that are short of long-term but not contained in the budget year. These projects are strategic but not yet material. Like planes in the Bermuda Triangle, they have a disconcerting tendency to fall off the radar.

When Companies Eat Their Young

Horizon 2 problems actually begin with something we could call Horizon 3 lobbing behavior. Lab-centric inventors are notorious for throwing prototype-stage products over the transom long before there is any business to be commercialized. These inventors take no responsibility for building a stream of business to a level where a deployment-oriented organization could take it over. In their defense, it's not what they're hired to do; their job is to stay on the leading edge. Nor do they typically have the skills required for entrepreneurial deployment. But absent that activity, genuinely valuable opportunities go nowhere. The organization lets them twist, in the memorable words of John Ehrlichman, slowly, slowly in the wind. Sometimes, as the history of Xerox PARC demonstrates, the result is doubly damaging, because the uptake happens elsewhere. The innovation produces massive returns for everyone but the sponsoring enterprise.

Top management often recognizes the organization's tendency to shun offerings that are not quite ready for prime time and tries to fix the problem by mandating that they be sold to customers. Under such marching orders, however, salespeople develop compensating behaviors. One common tactic is to use Horizon 2 innovations as "demo bait" – exploiting their novel appeal to get meetings with current customers, only to, at the end of the day, sell more of the established Horizon 1 products and services. (It's the equivalent of what happened when the sleek, black NeXT computers debuted and were prominently displayed in every Businessland store. Virtually no one bought one, but a lot of the people who came to see them bought something else.) If salespeople are pressured to make actual Horizon 2 sales, they may shift to another tactic and bundle the Horizon 2 offerings with Horizon 1 products. This gives the illusion of sales while creating a generation of shelfware that never ends up getting

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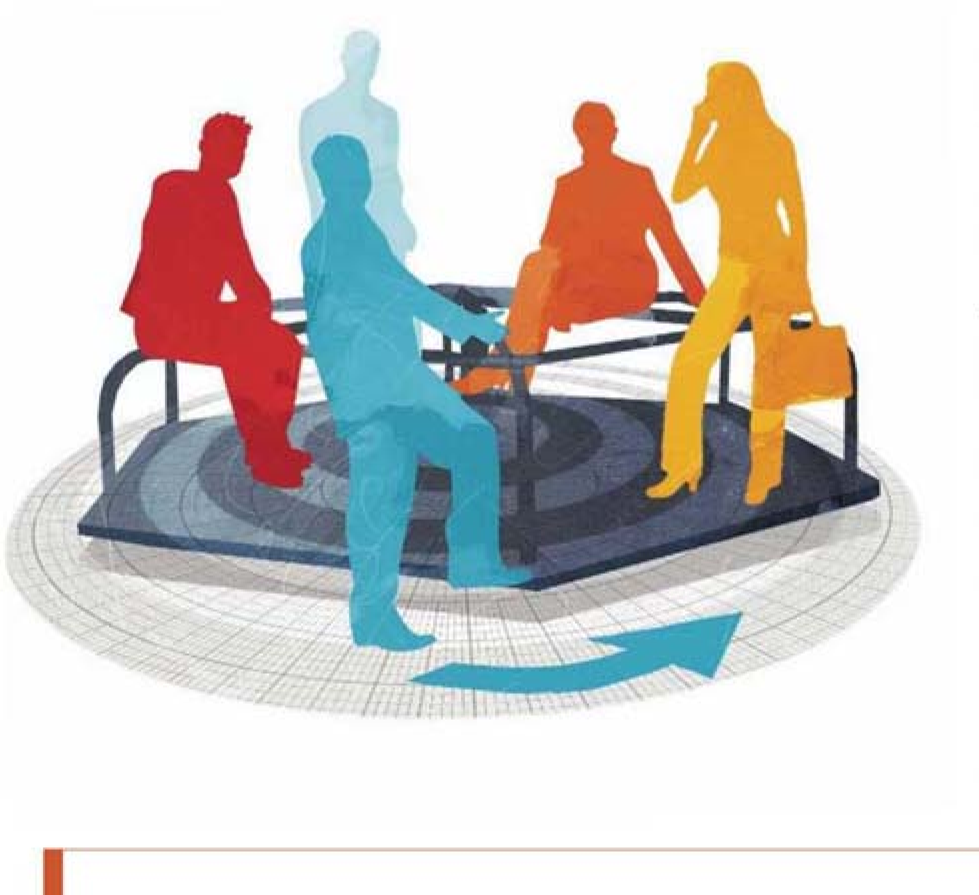
adopted, since its benefits were neither bought nor sold with any conviction.

When initial sales are sluggish, the situation quickly becomes critical, because Horizon 2 offerings are expected to be self-funding; their grace period expired when they graduated from corporate R&D. In reality, they can't pay their way. Think of Horizon 2 offerings as the adolescents of the business world. As they've matured from PowerPoint to Release 1.0, they've acquired all sorts of blemishes. No longer darlings with limitless potential, they aren't indulged like the babies of the family, the Horizon 3 projects. But they are still dependents. Whether or not it is explicitly acknowledged, they are subsidized by sponsors who extract resources from Horizon 1 operations sharing the same quarters.

That largesse dries up when Corporate calls on these resources to help meet its Horizon 1 commitments. Periodically, the pressure is on to route all the returns gained through ever more efficient Horizon 1 operations straight to the bottom line instead of using them to nurture Horizon 2 projects. This, of course, is a cycle that is hard to break once it has begun. Every target met by extreme measures only increases the need to route future savings to the bottom line. Struggling to make the current quarter's numbers, enterprises effectively bleed their Horizon 2 innovations dry.

All these are forms of organizational neglect, but the problem can spill over into organizational aggression when Horizon 1 managers engage in resource hoarding. Compelled to make bigger and bigger numbers with offerings that are less and less differentiated, they become expert at securing the funding and personnel necessary to do so. A favorite method: stealing from Horizon 2 projects. It may be difficult for Horizon 1 people to commandeer resources that are explicitly dedicated to Horizon 2 projects, but those projects, like their older brethren, also depend on getting their portion of various shared resources such as IT, marketing, prototype manufacturing, system testing, and customer service. To a veteran Horizon 1 manager, any shared resource is subject to pillaging.

When this happens, Horizon 2 managers cry foul, and occasionally Horizon 1 must own up to the theft. The excuse – "We just borrowed it to make the quarter, after which we returned it" – is often accepted. Given the delicate state of Horizon 2 ventures, however, this is equivalent to borrowing some yolk from an incubating egg.



The Flywheel Effect

For all the reasons discussed, a Horizon 2 offering has a hard time getting established in an organization. Like a kid attempting to hop on a merry-go-round in motion, it needs a burst of energy to get on board and even then is resented for the initial drag it creates.

In fact, the momentum of an efficiently run, mature business is much like that of a flywheel. Picture a potter's wheel, rotating smoothly despite irregular pumps of the potter's foot. In the same way,

A Horizon 2 project needs a burst of energy to get on board and even then is resented for the initial drag it creates.

a business is powered by surges of energy, usually in the form of productivity enhancements, but turns them into a steady output. As the business matures and markets commoditize, this flywheel must become increasingly efficient at maintaining velocity. Allocation of resources becomes extremely disciplined, lest revenues and earnings suffer. Part of that discipline is the routine slapping away of Horizon 2 offerings that threaten the steady consumption of deployment resources.

Horizon 2 projects fail to be embraced because they cannot deliver Horizon 1–level returns but are nevertheless held to the same yardstick. All companies have their established ways of assessing performance. Many have also devised their own methods of gauging whether research and development projects are progressing as hoped. Unfortunately, few have found a way to measure Horizon 2 efforts that takes into account their particular challenges. Instead, companies compare these projects either with those of Horizon 1 (which are much more reliable and lucrative) or with those of Horizon 3 (which are much more inspiring). Regardless of which standard Horizon 2 offerings are held to, they fall short, and whatever organization is sponsoring them is found wanting. Such has been the fate of every pen-based tablet computer ever launched.

Thus the advantages of in-house innovations at asset-rich corporations – access to mainstream customers, friendly capital, and a mature supply chain – turn out for the most part to be illusory. Innovations are better off in bootstrapped start-ups, because at least there they can get access to the market and suppliers, and their investors will use fairer standards of measurement. It should be no surprise that Internet telephony languished at AT&T and thrived at Skype.

If anything could make the situation worse, it would be a talent deficit. And sadly, that is inevitable. Call it Horizon 2 avoidance. Seeing how Horizon 2 efforts fare, most sensible employees stick with the battle zone of Horizon 1 or the playground of Horizon 3. In either case, they are taken care of. Horizon 2 teams, though, are often summarily dismissed. Such outcomes lead to a form of risk avoidance one might call the Dilbertization of maturing enterprises, a downward slide that makes regaining the summit of performance nearly impossible.

The scarcest Horizon 2 resource is a leader who knows how to build a business to a level where existing operations can take it over.

Emerging Best Practice: Rules of the Road

This litany of dysfunctions is so prevalent in established enterprises that one wonders how any of them endure. But for many companies, the situation seems not so dire. For one thing, a flywheel's inertial momentum can be astonishingly powerful, able to carry staggeringly uninnovative enterprises for decades if need be, as a number of U.S. airlines and automobile companies have demonstrated. For another, when such momentum is managed thoughtfully and nourished with incremental innovations, it can stave off commoditization's effects for a remarkably long time, as we have seen in hypermature sectors like wholesale distribution, transportation and logistics, grocery, and hospitality.

Once a sector has been disrupted, however, such cozy dynamics disappear. Today, in addition to technology companies, enterprises in the financial services, telecommunications, general merchandise retailing, health care, entertainment, and media industries are all under enormous pressure to innovate or else become marginalized. As a result, they are scrambling to break through the choke point of Horizon 2. One of the most successful companies in meeting this challenge is Cisco Systems. Its recent actions suggest a set of "rules of the road," outlined below.

Isolate and insulate Horizon 2 from Horizon 1. When Cisco CEO John Chambers realized that his greatest growth opportunities were in developing economies, he saw they would not get the attention they needed from standard geographic sales coverage (Americas, EMEA, Asia-Pacific). So he created a new territory with 138 countries across all 24 time zones, managed by a single sales executive. That executive, Paul Mountford, has separated out a dozen or so of the less-developed markets for Horizon 2 treatment and designated the remainder as Horizon 3 for the time being. In the Horizon 2 countries (many of which are asset rich, like Dubai and Azerbaijan), Cisco's sales teams are focused on winning transformational deals with PTT directorates and ministries of the interior. Such deals require sustained executive attention at the highest levels, something that wasn't possible when these countries were buried under their Horizon 1 counterparts and the best salespeople were off pursuing lower-hanging fruit.

Use acquisitions in the short term to help fill the Horizon 2 vacuum. When the industry downturn hit, once Cisco had stopped the bleeding, it found itself with a serious Horizon 2 vacuum in a number of emerging high-growth categories. The company returned to growth by acquiring Andiamo Systems to anchor its entry into storage area networks, Linksys and Airespace to attack the wireless network market, and a host of software companies to gain ground in the security market. Chambers then called out several advanced technologies as billion-dollar opportunities for the middle term – including the three areas mentioned above plus voice over Internet protocol (VoIP), where Cisco was leveraging some earlier acquisitions – to give them higher visibility both internally and with investors. This higher visibility secured the access to resources needed to drive growth, resources that otherwise would have been drawn to the more revenue-rich and margin-rich router and switch opportunities. Thus, for example, even when Cisco's storage area networks business brought in well under $100 million in revenues, Chambers consistently reported on its progress in his quarterly analyst calls.

For the long term, incubate businesses, not products. To maximize returns, enterprises must also grow Horizon 2 candidates in-house, moving them from Horizon 3. Here, Chambers, working with head of product development Charlie Giancarlo, has made another organizational realignment, forming the Emerging Markets Technology Group under Marthin DeBeer. From the outside this resembles every other corporate venturing group sponsoring "intrapreneurship," but a closer look reveals a key difference in mission. Chambers has challenged DeBeer to generate new businesses, not new products. He knows the latter will get lost in the bottom of salespeople's bags. And DeBeer, for his part, is building those businesses with Horizon 2–oriented entrepreneurs, not Horizon 3–oriented R&D wizards. DeBeer has called for each unit to focus the early market development of its disruptive innovation on a single high-value segment to reduce the initial set of product requirements and accelerate its time to adoption. Such an approach prevents fledgling enterprises from being crushed by the weight of worldwide deployments, a lesson Cisco learned painfully with its early VoIP efforts.

Adapt "crossing the chasm" thinking to the dynamics of operating inside a major enterprise. For some time the venture community has known that the fastest way to grow a disruptive innovation into something really profitable is to focus on dominating a niche market where the new technology solves a mission-critical problem. Companies routinely go from $5 million to $50 million in revenues and build strong brands by being a big fish in a small pond. It's the strategy I described more than a decade ago as the way to cross the chasm between innovation-loving early adopters and the risk-averse mass market.

Established enterprises, however, cannot afford to be so precise in their focus. The challenge of achieving growth atop an already huge revenue base requires them to operate on a grander scale, and all their processes, metrics, and targets reflect this fact. But these norms are toxic to Horizon 2 ventures, so it is critical to negotiate exceptions to all of them for the duration of the Horizon 2 timeline. In this context Cisco is currently considering or experimenting with a host of options, including such radical notions as not putting Horizon 2 products on the price list, putting all of them on new-product hold, not compensating the general sales force for orders sold outside the target market, not requiring divisions to use Cisco's standard suppliers or contracts, and not separating out consultative field-based support services from transactional factory-based support services (that is, recognizing that the one form of customer hand-holding can be hard to distinguish from the other in an early-stage product). Of course, all these "exceptions" would be standard operating procedure for crossing the chasm in a start-up. It's just that managing Horizon 2 ventures in an established enterprise is more like trying to cross the chasm inside the belly of a whale.

Focus on leaders, not funding. The scarcest Horizon 2 resource is a leader who understands entrepreneurial deployment and knows how to build a business to a level where existing operations can take it over. While many companies are generous with their funding and give their young units a more than adequate head count, they are stingy with their experienced, make-it-happen leaders. These folks inevitably get assigned to the high-revenue opportunities, leaving the adolescent projects to fend for themselves. This normally results in a series of false starts that ultimately lead the executive team to abandon the effort in disgust. There is no substitute for assigning your best people to Horizon 2 challenges, and that is precisely what Cisco has done with choices like Mountford and DeBeer. These are full-time commitments in which success is measured primarily by growth coming from a timely and effective entry into a hot market category. The company has made the job one that a seasoned manager will relish, not avoid.

Enforce portfolio commitments by blocking resource migration across horizon boundaries. Each company must decide which resources and how many it wants to invest in each of the three horizons. Once that portfolio allocation is determined, management must address the resource hoarding and poaching problems that disrupt developing Horizon 2 businesses. The worst thing you can do to a Horizon 2 venture is to be fickle in your commitments. So it is critical to determine up front which leaders and how much funding you want to devote to it, and then stick to that resolution. When enterprises that focus primarily on making their numbers organize Horizon 2 efforts inside Horizon 1 businesses, they tacitly give people permission to rob Horizon 2 to meet Horizon 1 goals, thereby initiating a downward spiral into franchise dissolution.

Horizon 2 projects require customized processes, metrics, and performance targets.

Found Horizon

Broadly speaking, what Cisco is doing through these various moves is attempting to assemble a best practice where one has been sorely lacking. Large enterprises excel in Horizon 1 operations and also perform effectively in Horizon 3. They fail when it comes to Horizon 2, largely because the market development and organizational management demands of fledgling enterprises don't match up with established corporate norms.

The advice can be summed up quickly. A Horizon 2 effort must be organized in such a way that its core functions are insulated and isolated until it can produce material revenues (which, depending on the size of the company, could be anywhere from $50 million to $100 million). During this adolescent phase, such projects require customized processes, metrics, and performance targets. They also require experienced entrepreneurial leaders who can navigate both the uncharted waters of emerging markets and the highly charted channels for getting things done inside the corporation.

Finally, the CEO should call out Horizon 2 ventures specifically to give them board-level visibility. At regular intervals, their progress should be measured and communicated not in terms of revenues or global market share but in terms of niche-market metrics such as customer-acquisition velocity and fish-to-pond ratio within the targeted segments.

Do this, and over time you will find you have effectively managed for the long term. The key, it turns out, is to focus intensely on the Horizon 2 challenge. Only then will your Horizon 3 investments live to support you in Horizon 1.

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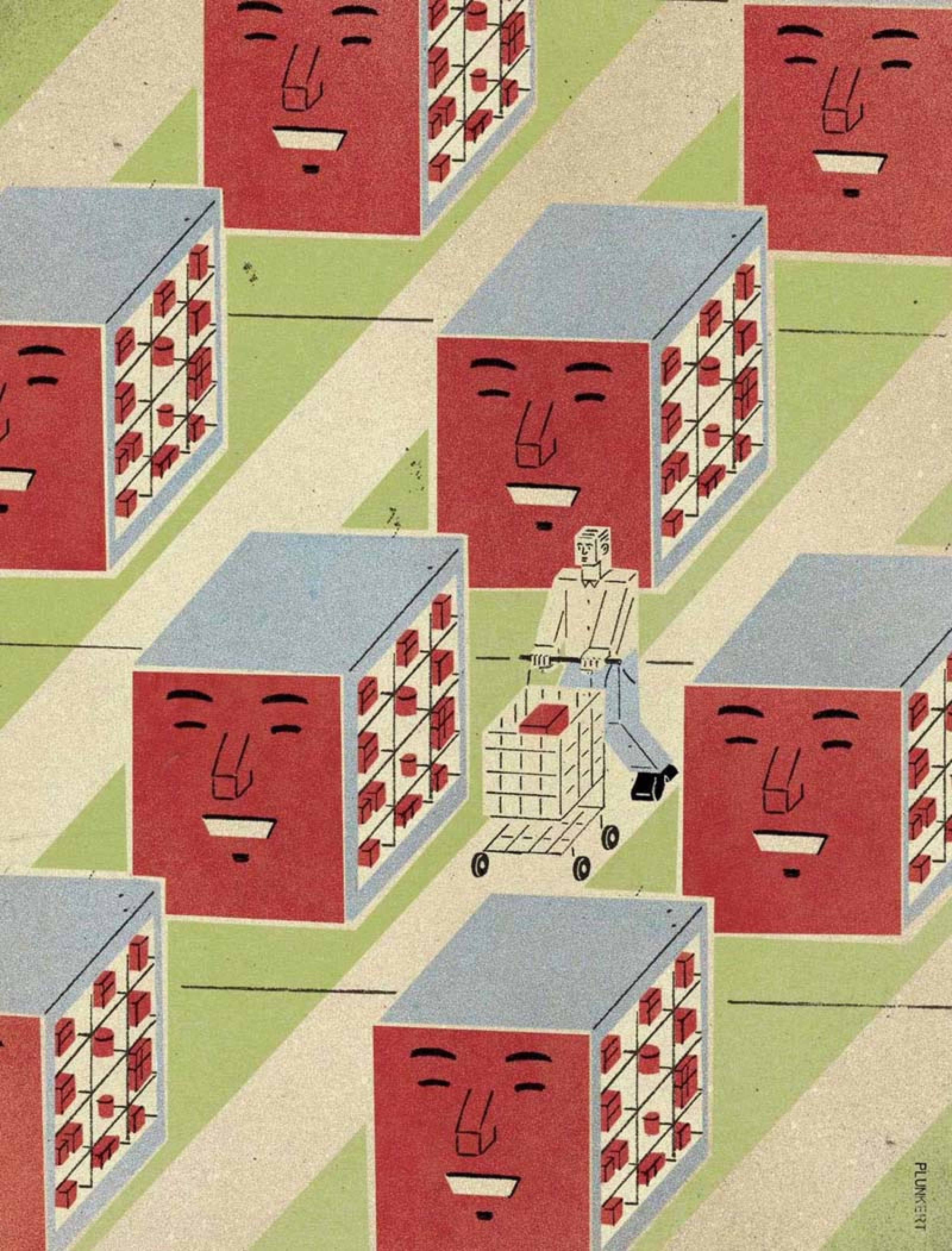
To order, see page 195.

"Sure, it's easy for *you* to plan for the long haul...with your *nine* lives!"

Roy Delgado


PLUNKERT

by Dave Ulrich and Norm Smallwood

BUILDING A LEADERSHIP BRAND

QUICK: WHAT DO THE FOLLOWING FIRMS HAVE IN COMMON? General Electric, whose motto is "imagination at work," is a diversified company with $163 billion in annual revenue. It is famous for developing leaders who are dedicated to turning imaginative ideas into leading products and services. A GE manager can be trusted to be a strong conceptualist as well as a decisive thinker; an inclusive, competent team leader; and a confident expert in his field.

Johnson & Johnson, whose credo begins, "We believe our first responsibility is to the doctors, nurses and patients, to mothers and fathers and all others who use our products and services," earned $53 billion in revenue last year. It is celebrated for developing leaders who provide scientifically sound, high-quality products and services that help heal and cure disease and improve the quality of life. A J&J manager is known for being socially responsible and a stickler for product development and differentiation. She takes a product to market in

You want your leaders to be the kind of people who embody the promises your company makes to its customers. To build this capability, follow these five principles.

David Plunkert

a disciplined way; she is committed to building consumer trust, to product quality, and to safety.

"Good help to those in need" is the mission of Bon Secours Health System, a nonprofit health care firm based in Marriottsville, Maryland, that operates a variety of hospitals and nursing care facilities. Consistent with its purpose as a Catholic health care ministry, the 19,000-person organization develops leaders who put a premium on "reflective integration." That means Bon Secours expects its managers to do more than just run health care units. They must also balance the business of health care with compassion and caring.

Give up? One obvious connection among these firms – and others such as PepsiCo, Goldman Sachs, Disney, Boeing, and Herman Miller – is that they turn out strong leaders, in some cases becoming "leader feeder" firms, whose managers are well equipped to run other organizations. But there's a less obvious answer as well: These companies go beyond standard-issue leader training, doing something they themselves aren't even necessarily aware of. Instead of merely strengthening the abilities of individual leaders, these companies focus on building a more general leadership capability. Specifically, they build what we call *leadership brand.*

Leadership brand is a reputation for developing exceptional managers with a distinct set of talents that are uniquely geared to fulfill customers' and investors' expectations. A company with a leadership brand inspires faith that employees and managers will consistently make good on the firm's promises. A Nordstrom customer knows that the retailer's employees and managers will give her white glove service. Parents who take their kids to a Disney theme park assume that ride operators and restaurant personnel will be upbeat, friendly, and gracious. McKinsey clients understand that smart, well-educated consultants will bring the latest management knowledge to bear on their problems. A leadership brand is also embedded in the organization's culture, through its policies and its requirements for employees. For example, the tagline of Lexus is "the pursuit of perfection." Internally, the Lexus division translates that promise into the expectation that managers will excel at managing quality processes, including lean manufacturing and Six Sigma.

In observing 150 successful leader feeder firms of various sizes over the past decade, we have found that most of them have developed a similar outside-in approach, which helps them produce an excellent pipeline of leaders generation after generation. They also tend to enjoy remarkably steady profits year after year, because they have secured the ongoing confidence of external constituents whose expectations are comfortably filled by leaders throughout the organization.

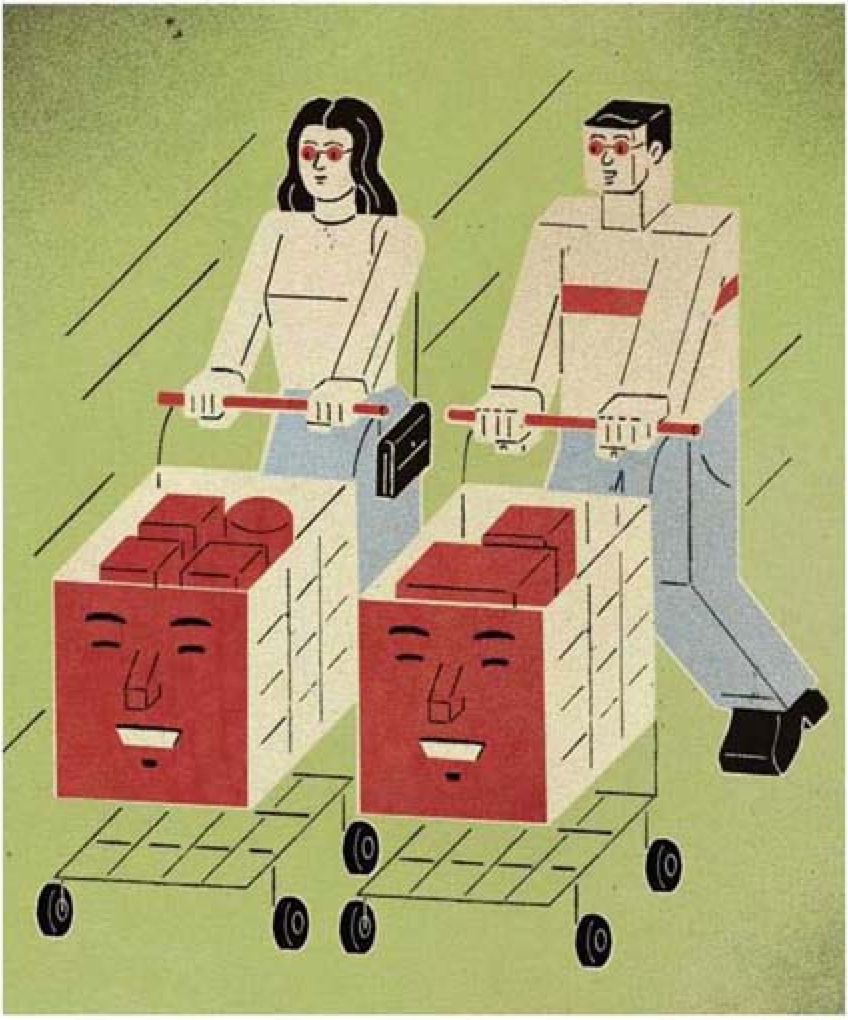
Building a strong leadership brand requires that companies follow five principles. First, they have to do the basics of leadership – like setting strategy and grooming talent – well. Second, they must ensure that managers internalize external constituents' high expectations of the firm. Third, they need to evaluate their leaders according to those external

Embodying the Brand

Organizations can strengthen their leadership brands by working hard to translate what they stand for in the marketplace into a set of managerial behaviors.

	This organization is known for...	Leaders at this organization are known for...
Wal-Mart	Always low prices	Managing costs efficiently, getting things done on time
FedEx	Absolutely, positively, doing whatever it takes	Managing logistics, meeting deadlines, solving problems quickly
Lexus	Pursuit of perfection	Managing quality processes (lean manufacturing and design, Six Sigma) for continuous improvement
Procter & Gamble	Brands you know and trust	Developing consumer insights, precisely targeted marketing, product innovation
McKinsey	Being a CEO's trusted adviser	Leading teams that deconstruct business problems, synthesize data, and develop solutions
Boeing	People working together as a global enterprise for aerospace leadership	Solving global problems, working as teams, possessing technical excellence in aerospace
Apple	Innovation and design	Creating new products and services that break the industry norms
PepsiCo	Appealing to the younger generation	Building the next generation of talent

perspectives. Fourth, they must invest in broad-based leadership development that helps managers hone the skills needed to meet customer and investor expectations. And finally, they should track their success at building a leadership brand over the long term. Before considering these principles in more detail, however, let us consider why relatively few companies are able to establish leadership brands in the first place.



The Misguided Focus on Individuals

In recent years, thousands of companies have spent millions on their own corporate universities; yet most have failed to develop true leadership bench strength. That's because, in too many cases, the approach to leadership training is detached from what the firm stands for in the eyes of customers and investors. Rather, training is the same from company to company, regardless of whether the company is a fast-food chain or an aerospace contractor: A senior executive extols the importance of leadership; outside experts talk about business strategy, elicit 360-degree feedback, or take personality inventories; everyone spends time socializing and playing golf. Leadership practices are piecemeal and are seldom integrated with the firm's brand, let alone with the daily operations of the organization.

At the root of this unfortunate problem is a persistent focus on developing the individual leader. HR and succession-planning teams tend to concentrate on finding and developing the ideal candidate, who they hope will raise corporate fortunes. In our experience, many firms rely on a competency model that identifies a set of generic traits – vision, direction, energy, and so on – and then try to find and build next-generation leaders that fit the model. Consider what happened when we held a workshop for nine companies that were all household names. We asked the representatives from each organization to send us their leadership competency models, which listed the "unique" characteristics that they sought in their leaders ("has a strong vision," "fosters teamwork," "demonstrates emotional intelligence," and the like). We then deleted the names of the corporations from each model. During the workshop, we asked the representatives to pick out their own. Few were able to do so; there was little difference among the models of a telecommunications company, a consumer products company, a financial services company, and an aerospace company. The conclusion was obvious: By focusing on the desirable traits of individual leaders, the firms ended up creating generic models. And vanilla competency models generate vanilla leadership.

Once it selects a candidate, a company will try to train her to be more emotionally and socially adept, to set direction, to build relationships of trust, and so on. Eventually, she may develop a personal reputation that distinguishes her from other executives; she may even become a "celebrity leader" of the kind featured in popular business magazines. With this leader in place, her firm feels that its long-term success is assured. This can be a trap, however, for a

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powerful and charismatic leader can develop a personal brand that overpowers the organization's own brand. When employees become more dedicated to the individual who is in charge than focused on what customers want, the company can wind up in trouble. Moreover, an institution that becomes too beholden to an individual leader runs a risk if the leader turns out to be less than perfect. When Sandy Weill, a celebrity leader and a master of acquisitions, left Citigroup after a long string of mergers, the firm continued to struggle with a series of ethical problems; it's been left to his successor, Chuck Prince, to figure out what holds the place together.

Certainly, a strong, energetic, and intelligent leader can help an organization; but given the short tenure of most CEOs and the changing fortunes of the corporation in a dynamic marketplace, we think that too intense a spotlight on the individual leader is both naive and incomplete. Expanding the competency model to include an external focus allows companies to offset that risk, by enabling them to tailor their leadership model to their own requirements.

We believe that long-term success – the kind that lasts generation after generation – depends on making the critical distinction between leaders and leadership. A focus on leaders emphasizes the personal qualities of the individual; a focus on leadership emphasizes the methods that secure the ongoing good of the firm and, in the process, also builds future leaders.

How to Build a Leadership Brand

A product's brand connects a company's output and reputation with customers' needs and investors' hopes. A leadership brand, by extension, is based on marketplace expectations for the behavior of a company's representatives. The following principles explain how to develop a leadership brand.

Nail the prerequisites of leadership. Any brand takes a long time to build and includes two major elements: the fundamentals and the differentiators. A quality product like a Lexus automobile, for example, has the fundamentals of any car: the chassis, the drivetrain, the wheels. It also has brand differentiators – the quietness of its engine and the high level of its maintenance service among them – that bespeak high quality. Both the fundamentals and the differentiators must be carefully crafted, but the fundamentals must be in place first.

As a prerequisite to building a leadership brand, firms must master what we call the Leadership Code. Roughly speaking, the code consists of these requirements: First, leaders must master strategy; they need to have a point of view about the future and be able to position the firm for continued success with customers. Next, they must be able to execute, which means they must be able to build organizational systems that work, to deliver results, and to make change happen. Additionally, they must manage today's talent, knowing how

What's Your Leadership Branding Capability?

The following chart will help you discover the level of branded leadership within your organization. If you score 24 or less, then you should start by working on the fundamentals of leadership. A score from 25 to 34 means that you should pick one or more dimensions where you are not yet strong and focus on improving them. A score from 35 to 44 means that you are well on your way to becoming a leadership brand company. If you score 45 or higher, pat yourself on the back – and buy your company's stock.

Leadership Brand Assessment	
How does your organization rate on the following statements, on a scale from 1 (low) to 5 (high)?	
We know how we want to be viewed by our target customers, and we have articulated a clear company identity based on this.	
We have articulated a clear statement of leadership brand that is connected to our firm's identity.	
We have translated our statement of leadership brand into a set of desired leadership actions.	
We have a process to identify development gaps in our next generation of leaders.	
Our individual leadership development plans include acquiring skills, knowledge, and perspective that matter to our target customers.	
We invest in training experiences that include customer perspectives.	
We create job experiences that develop customer perspectives within our leaders.	
We encourage our leaders to invest in life experiences that help them build relevant customer knowledge and skills.	
We gauge the effectiveness of leadership investments by our business results.	
We rigorously communicate to all stakeholders the degree to which we invest in building a leadership brand.	
Total:	

to motivate, engage, and communicate with employees. They must also find ways to develop tomorrow's talent and groom employees for future leadership. Finally, they must show personal proficiency – demonstrating an ability to learn, act with integrity, exercise social and emotional intelligence, make bold decisions, and engender trust.

Companies often put too much emphasis on one kind of fundamental at the expense of the others. One company we worked with identified 12 requirements for a successful leader (characteristics like personal integrity, willingness to learn, and consistency), but nine of them fell into the personal proficiency domain of the code. Another company listed ten requirements (such as the ability to make decisions quickly, manage change, deliver results, and work well in teams), but eight of them fell into the execution domain. A successful leadership development model should incorporate all elements of the Leadership Code. An individual leader may have a predisposition in some areas and should be strong in at least one but must demonstrate a high level of competence in all of them.

Canadian Tire works to develop executives who demonstrate all the prerequisites of leadership. The Toronto-based conglomerate, which had Can$8.3 billion in revenue last year, regularly assesses the abilities of up-and-coming managers in each dimension. Those with the highest potential often have towering strengths but need to be challenged in a completely new way in order to grow in other dimensions – or to demonstrate their readiness for the next level. The company encourages such growth by pushing executives out of their comfort zone and moving them into new territory. For example, Canadian Tire recently took the CFO of its financial services division and put him in charge of a retail banking pilot. The firm also moved its retail VP of home products into a position as president of the petroleum division. Managing unfamiliar territory forces executives to learn new skills and not always rely on their core strengths. The results-focused CFO, for instance, demonstrated an ability to inspire and direct a large team during the pilot project. The retail VP had an opportunity to build the strategy for an entire stand-alone small business unit and learn how to engage frontline employees. Over time, the most promising leaders at Canadian Tire will move into assignments that develop all the core skills of leadership.

Without excellence in all the fundamentals, leaders can be good, but they will not be outstanding. Once these basics are established, companies can move on to shaping their organization's leadership brand.

Connect your executives' abilities to the reputation you're trying to establish. Building a leadership brand begins with a clear statement, somewhat similar to a mission statement, that connects what the firm wants to be known for by its best customers – the 20% of customers who represent 80% of value – with specific leadership skills and behavior. Apple, for example, wants to be known for its outstanding ability to innovate and design user-friendly technology; to that end, it hires the best technologists and designers and encourages them to break new ground. Wal-Mart wants to be known for its everyday low prices, so it hires managers who are frugal and unassuming themselves, and who can drive a hard bargain.

When Israel-based Teva, the world's largest generic pharmaceutical company, set about developing such a statement, its top leaders decided they wanted their company to be known for five qualities: leadership of the market, global reach, partnership, integrity, and product affordability. Teva's management then worked to turn this desired identity into a set of attributes that would help leaders meet customer expectations. For example, under the category of global reach, Teva wanted leaders who could combine sensitivity to local culture with global vision to help meet customer demands anywhere in the world. In the category of integrity, Teva wanted leaders who could make sure that employees delivered products and services on time, every time; fulfilled promises; and met targets. To build partnerships, the firm needed leaders who knew how to recruit and develop talent, so that physicians, health care organizations, and consumers would view Teva's employees as experts who could help them solve problems. To bring products to market cost-efficiently, Teva's leaders had to be proficient at sourcing and at wringing the highest possible productivity from the company's assets. Finally, when it came to market leadership, Teva would look to its leaders to foster innovation by

> Long-term success depends on making a critical distinction: A focus on **leaders** emphasizes the personal qualities of the individual; **leadership** emphasizes the methods that secure the ongoing good of the firm.

helping the organization collaborate with leading scientists around the globe and import the best ideas and research into the company.

The Teva executive team felt that these traits and abilities, if developed by leaders throughout the company and woven into everyday practices, would both communicate their desired brand to their external constituents and create the kind of internal culture they were after. After extensive deliberations Teva developed a statement of leadership brand that clearly established the company's priorities:

> Teva leaders set ambitious goals based on excellence in execution, have a global mind-set, master complexity, and embody team leadership so that Teva retains the most talented employees, doubles sales every five years, and provides a broad basket of qualitative products that customers trust.

Notice that this statement of leadership brand is unique in content – other companies do not necessarily need these abilities to deliver these specific results. Critically, it integrates business and customer goals (retain employees, double sales every five years, provide a broad basket of trusted products) with a small, targeted set of leadership skills (excellence at execution, mastery of complexity, and team leadership). The statement also gives Teva's different business and geographic units room to develop individual brand identities but is specific enough to guarantee that leaders across the organization all share a common approach and goals. The development of this statement allowed the company to enact the next principle.

Assess leaders against the statement of leadership brand. Once a company has crafted a statement of leadership brand, it needs to continually evaluate individuals to make sure that they are living up to it. This requires firms to assess leaders more from the customer's point of view and measure results less by what the individual manager – or the company – produces. Instead of worrying about goods *shipped* on time, customers care about whether they *received* their goods on time. Instead of concerning themselves about the firm's product error rates, customers notice when products they receive aren't fully operational on arrival. Rather than just tracking employee commitment to the firm, a company should also try to calculate the impact of employee commitment on customers. By grounding a leader's results in customer expectations in this way, a firm begins to build its leadership brand.

One way to assess leaders' behavior through a customer lens is to open up feedback sessions to customers. A board of directors charged with evaluating the CEO recently went a couple of steps further, by asking not only customers but also investors and community leaders to comment on the actions and accomplishments of the CEO. Through this review, the CEO learned that he was not spending adequate time connecting with community leaders and with some segments of customers.

In another instance, a division of a large technology company asked a group of targeted customers – ones who were especially able to anticipate market trends – to evaluate its mission and values statement. (The statement focused on serving customers, fostering innovation, developing dedicated people, encouraging social responsibility, and ensuring financial stability.) The division asked the group two questions: (1) Is this the mission you want us to be known for? (2) What do we have to do to demonstrate that we live up to this mission better than our competitors do? This exercise allowed customers to articulate both the actions and the outcomes that they expected from the leaders in the organization.

The company also invited customers to participate in periodic assessments of the company's leaders through surveys, interviews, and focus groups. Those customers were asked whether they would buy more from the firm if its leaders behaved according to their expectations. The answer, not surprisingly, was yes. As the firm began implementing the customers' suggestions and its leaders started to alter their behavior, its sales rose 20% annually among those surveyed. As this firm discovered, the more satisfied customers were with the way the corporation was run, the more products and services they purchased. That translated into a higher price/earnings ratio in the long term.

Let the customers and investors do the teaching. If your best customers or investors could observe the training you offer your company leaders, how would they respond? Would they see the development of leaders who have the knowledge and skills to meet their requirements? Or would

To build a leadership brand, firms should assess leaders from the **customer's point of view.** One way to do that is to open up feedback sessions to customers.

they see training that is perfunctory and has little to do with their needs and desires?

Companies can do several things to ensure that leadership development incorporates external expectations. Customers might participate in training sessions as "live" cases by coming into the classroom in person or on video. Companies may give customers a voice in the design of training programs, or the training team can make sure that customer expectations inform every aspect of the course. Customers and investors can also help deliver a program as expert faculty. Alternatively, they might simply attend the training and offer feedback about the relevancy of the material taught.

Steve Kerr, formerly the chief learning officer at GE, recalled to us how investor relations professionals at the company studied influential analysts "the way the Ritz-Carlton people study the names, photos, and habits of their best customers." During a leadership training session, a senior investor relations professional showed slides of the most important analysts who covered the company's stock. Each picture was taken at the analyst's home. "You see that car? I've washed that car!" the investor relations person exclaimed. "You see that dog? I've walked that dog!" The investor relations manager may not have had the suds or animal hairs to prove it, but it is common practice at the firm for senior executives to interact often with analysts and top customers. During leadership training sessions at GE's Crotonville facility, panels of customers, analysts, and even reporters hold honest discussions with executives.

The most powerful way to develop leaders who have a customer lens is to give them job assignments that demand it. Procter & Gamble ensures that its leaders acquire both a consumer and a P&L perspective early by assigning new management hires not to a staff position in finance or HR but rather to a brand team. Getting a new MBA to work directly on the Puffs facial tissue or the Pur water filter system brands helps orient her to consumer expectations. Combine that consumer-centric perspective with the fact that P&G people tend to stay at the company for their entire career, and you see how the firm has developed a powerful leadership capability.

Teva, likewise, offers a variety of work experiences that help leaders expand their knowledge of customers. Executives frequently spend time in a line job where they have direct customer contact, and then later move to a staff job (in, say, finance, IT, or HR) where they can apply the customer understanding they've acquired. Executives may be assigned to a project that explores ways to add value for customers. That might involve spending time observing physicians who are prescribing a Teva product such as the multiple sclerosis drug Copaxone, and then bringing back ideas for improvements. Managers may also take part in an executive exchange, where they work in a health care organization for a period of time.

Industry Leader Feeder Firms

Whereas some feeder firms produce managers who can do well in virtually any industry, "leader source" firms develop managers who go on to positions in the top echelons of one industry.

Automotive industry
Leader source: Johnson Controls
Graduates: Michael F. Johnston (Visteon), Charles G. McClure (ArvinMeritor)

Consumer products industry
Leader source: Kraft Foods
Graduates: Robert Eckert (Mattel), James Kilts (formerly of Gillette), Doug Conant (Campbell Soup), Richard Lenny (Hershey)

Financial services industry
Leader source: Merrill Lynch
Graduates: Jeffrey Peek (CIT Group), Herbert M. Allison, Jr. (TIAA-CREF)

Medical industry
Leader source: Pharmacia
Graduates: Stephen MacMillan (Stryker), Fred Hassan (Schering-Plough)

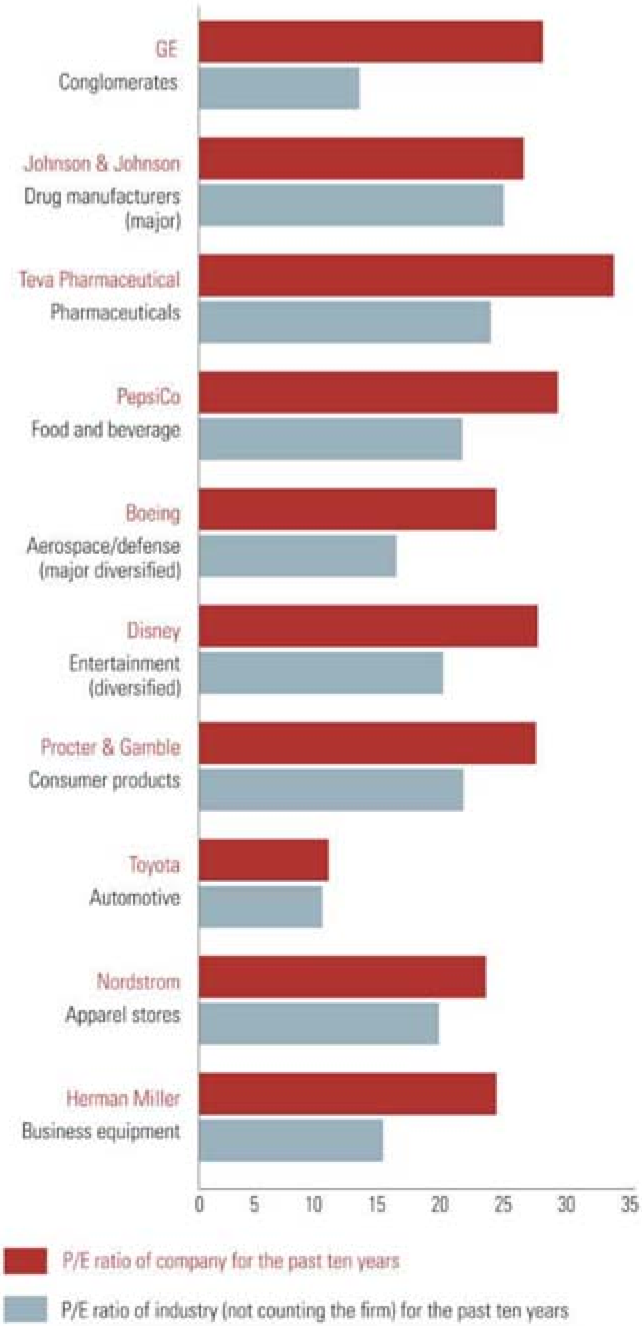
Working in environments outside headquarters, or even outside one's country, can also go a long way toward deepening a manager's sense of leadership brand. An executive of a petrochemical firm might, for example, be given the opportunity to work in many places – in Asia, Europe, Latin America, and the Middle East. Experience with many cultures can give that person a strong feel for what the company represents in each of those regions, and reinforce some of the underlying and shared assumptions about how the organization relates to its customers.

Track the long-term success of your leadership brand efforts. The result of a leadership brand focus is good management that is unmoored from individualism, yet lasts over time. As companies begin to develop and "graduate" excellent leaders, they engender a reputation for very high quality management – the essence of a leadership brand. Such leadership bench strength can easily be seen in the degree to which leaders that leave the firm go on to top positions in other corporations. (See the exhibit "Industry Leader Feeder Firms.")

Companies with strong leadership brands tend not to be as affected by changes in management as companies with weaker leadership brands. Moreover, such firms are

Leadership Brand and P/E Ratio

Leaders who organize resources to serve customers, who motivate employees to be customer focused, and who track their business's success with customers can turn their company's leadership brand into market share. Firms with a strong leadership brand also benefit, over time, from a rising price/earnings ratio. When we compared the P/E ratios of a sample of public companies that had strong leadership brands with the ratios of their industry over the past decade, we found that the leadership brand companies had consistently higher ratios.



so confident about their bench strength that they turn what most organizations view as a negative – the loss of a leader – into a positive. The consulting firm McKinsey, for example, continues to build its leadership brand reputation by tracking and publishing the feats of its successful alumni.

General Electric – perhaps the ultimate leader feeder firm – is the embodiment of this phenomenon. Everyone thought Reg Jones, the firm's CEO from 1972 to 1981, was irreplaceable. Then came Jack Welch, and everyone thought he was irreplaceable. Now Jeff Immelt has shown himself to be more than steady at the helm. GE's stock price has remained stable even when its top managers leave. The firm has an organizational capability that transcends any one individual.

At the end of the day, a leadership brand shows up not only in stable stock prices but in a higher market value. Increasingly, the market value of a company is determined by its intangibles – its ability to keep promises, design and deliver on a compelling strategy, ensure technical excellence, hire and retain smart people, build strong organizational capabilities, and, especially, develop strong leadership. Intangible value grows as customers and investors gain greater confidence about the future fortunes of one firm over others in the same industry. One way companies can evaluate the success of leadership brand efforts is by looking at how much confidence investors have in their future earnings. A publicly traded corporation's price/earnings ratio is a simple – though not a perfect – indicator of that confidence. Companies with strong leadership brands, we have found, tend to have above-average P/E ratios. (See the exhibit "Leadership Brand and P/E Ratio.")

...

By adapting the five principles outlined here, a firm can create a leadership brand that differentiates the organization to employees inside and to customers and investors outside. The effort requires commitment from individuals throughout an organization: Boards of directors need to encourage the building of leadership brands; senior executives need to sponsor leadership brand initiatives; HR professionals need to design and facilitate programs that foster leadership brands. The CEO of a company must function as its "brand manager" and be the driving force behind building it as an organizational capability.

As leaders at all levels of the company learn how to master both the core skills of leadership and the essence of the leadership brand, they will increase the value of their organizations. By focusing on leadership, not just leaders, and by evaluating everything from a customer perspective, firms create the institutional systems and processes that will sustain them year after year.

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THERE IS NO EASY OIL. MUCH OF IT IS SCATTERED IN HUNDREDS OF ISOLATED POCKETS. AND BUILDING LOTS OF OIL RIGS IS JUST NOT AN OPTION, ENVIRONMENTALLY OR ECONOMICALLY. THEN SHELL ENGINEER JAAP VAN BALLEGOOIJEN WATCHED HIS SON DRINK A MILKSHAKE. SUCKING THE BITS OF FROTH FROM THE CORNERS OF THE GLASS WITH HIS BENDY STRAW. HEY PRESTO, THE SNAKE WELL DRILL WAS BORN. A DRILL THAT CAN BEND ROUND CORNERS AND SNAKE FROM SIDE TO SIDE TO REACH THOSE SCATTERED POCKETS OF OIL, ALL FROM ONE RIG. REAL ENERGY SOLUTIONS FOR THE REAL WORLD. WWW.SHELL.COM/REALENERGY

The Long View

"In the corporation we have a species with a maximum life expectancy in the hundreds of years but an average life expectancy of less than 50 years. If this species were *Homo sapiens,* we could rightly say that it was still in the Neanderthal age."

Arie de Geus
"The Living Company"
Harvard Business Review
March–April 1997

"Obviously, we were thinking long term when we assembled this board."

Teresa Burns Parkhurst, Dave Carpenter, Roy Delgado, and Mike Lynch

"Are we talking about human years?"

"Ms. Sneed, the consultant from Eternal Management Solutions is here-*ish*."

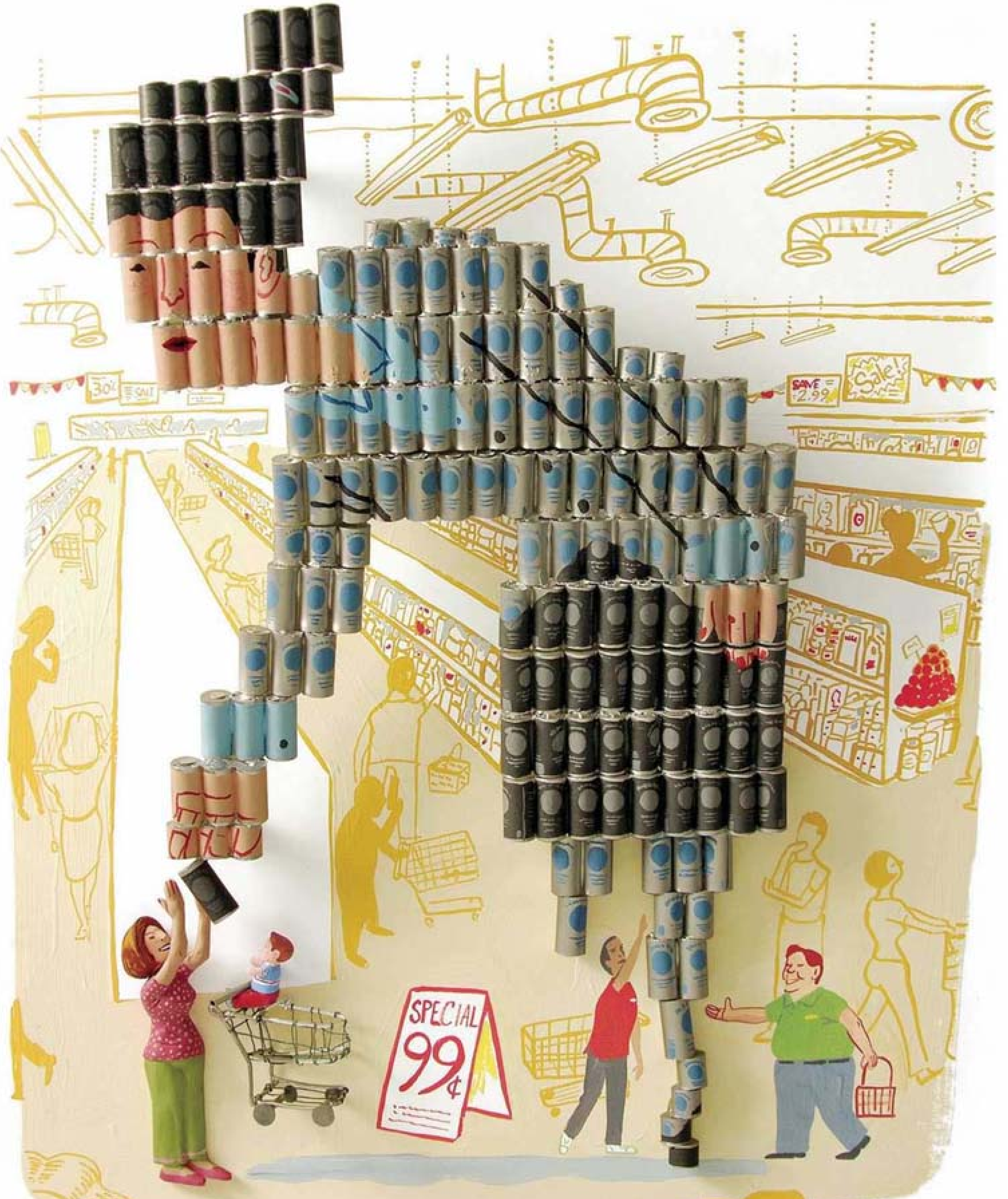
If Brands Are Built over Years, Why Are They Managed over Quarters?

Companies become so entranced with their ability to price and sell in real time that they neglect investments in their brands' long-term health.

by Leonard M. Lodish and Carl F. Mela

THE NUMBERS TELL A SOBERING STORY about the state of branded goods: From 2003 to 2005, global private-label market share grew a staggering 13%. Furthermore, price premiums have eroded, and margins are following suit. Consumers are 50% more price sensitive than they were 25 years ago. In recent surveys of consumer-goods managers, seven out of ten cited pricing pressure and shoppers' declining loyalty as their primary concerns.

Dave Wheeler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Brands are on the wane. For the many consumer-goods companies struggling against this trend, it's tempting to blame the big-box discount retailers. Plenty of anecdotes support their point of view. Recall what happened to Vlasic, for 50 years a beloved brand in America's kitchen cupboards, when it started discounting its pickles by offering them in gallon-size jars in the late 1990s. Wal-Mart began selling the product for an unheard-of $2.99 – a price so low that Wal-Mart soon made up 30% of Vlasic's business. The super-cheap gallon jar cannibalized Vlasic's other channels and shrank its margins by 25%. When Vlasic asked for pricing relief, Wal-Mart responded by refusing an immediate price increase and reviewing its commitments to the line. By 2001, Vlasic had filed for bankruptcy.

Wal-Mart and other powerful retailers have undoubtedly weakened some brands, but a number of consumer-product companies have done a better job than Vlasic at managing both their relationships with retailers and their brands. For example, when Foot Locker cut Nike orders by about $200 million to protest the terms Nike had placed on prices and selection, Nike cut its allocation of shoes to Foot Locker by $400 million. Consumers, frustrated because they couldn't find the shoes they wanted, stopped shopping at Foot Locker. Sales at a competitor, Finish Line, increased. In the end, Foot Locker acceded to Nike's terms.

At the core of the differences in how Vlasic and Nike managed their brands is a crucial disparity in strategic perspective. Vlasic used a short-term sales strategy, focusing on a single, large channel partner and discounting its product to attract consumers. In addition, the company reduced advertising by 40% between 1995 and 1998. Nike, on the other hand, positioned itself for the long term. It maintained strong relationships with a variety of retailers and invested in brand equity, allocating $1.2 billion annually to its advertising budget. By setting its sights on a distant horizon, Nike continued to own its customers – and its brand – while Vlasic ceded both to the channel.

Our research into the role of marketing strategy in brand performance indicates that companies are paying too much attention to short-term data and not enough to the long-term health of their brands. They routinely overinvest in price promotions and underinvest in advertising, new-product development, and new forms of distribution. As a result of these shortsighted approaches, powerhouse brands have been weakened, often beyond recovery. It's time for changes in how companies measure brand performance, how they communicate about their brands to the markets, and how they oversee brand managers. Those changes won't happen without a major shift in thinking at the senior-management level. Corporate managers have the ability to make these sweeping changes. Do they have the will?

Companies routinely overinvest in promotions and underinvest in advertising, product development, and new forms of distribution. As a result, powerhouse brands have been weakened, often beyond recovery.

The Genesis of the Short-Term View

One wonders how manufacturers became so myopic about their brands. We suggest three factors: an abundance of real-time sales data that make short-term promotional effects more apparent, thus pushing manufacturers to overdiscount; a corresponding dearth of usable information to help assess the effect of long-term investments in brand equity, new products, and distribution; and the short tenure of brand managers. We'll discuss each in turn.

Data are proliferating. Before the 1980s, brand managers had to wait up to two months to get sales numbers. Matching weekly discounts to changes in sales was a difficult and error-prone task. That all changed with the advent of store scanners, which gave managers real-time sales data. These figures made it possible to attribute a spike in sales to a price promotion. (See the exhibit "Scanner Data Reveal the Immediate Effect of Price Promotions.")

Although scanner data showed brand managers the clear link between discounting and sales, the numbers didn't necessarily tell them much about whether a given promotion was profitable. For that assessment, they needed to compare sales at the discounted price with those that probably would have occurred without the promotion. To help brand managers predict the level of sales in the absence of a discount, and thus to assess the immediate profitability of promotions,

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baseline sales models were developed – in part by Leonard Lodish. (It's important to note that, contrary to the belief of many brand managers, baseline sales are estimates – albeit very good ones – not measures of actual sales. Baseline sales are estimated by extrapolating from periods when there are no price reductions or other kinds of promotions.) This new metric further highlighted the short-term effects of trade promotions.

The profusion of data has had major consequences for the allocation of marketing dollars. According to various sources, from 1978 to 2001 trade promotion spending increased from 33% to 61% of firms' marketing budgets. This growth occurred largely at the expense of advertising, whose effects play out over a longer time frame and are thus more difficult to measure. Advertising spending fell from 40% to 24% of marketing expenditures during this period. That level has held fairly constant in recent years.

The reallocation of spending away from long-term brand building and toward temporary price reductions was predicated on a short-term mind-set. Promotions yield an incontrovertible boost in sales, known as *lift over baseline*. This effect, however, is generally short-lived. To understand how promotions affect brands in the long run, consider some consequences of short-term sales approaches.

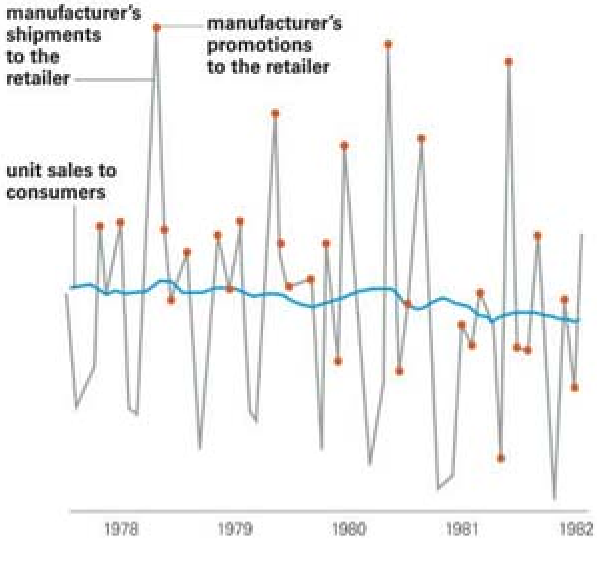
Scanner Data Reveal the Immediate Effect of Price Promotions

Before real-time sales data became widely available, managers had a hard time knowing if price promotions boosted sales to consumers. For information on retail sales to consumers, they had to rely on periodic retailer inventory audits, which didn't necessarily align with periods during which products were promoted to consumers. The chart on the left comes from this pre-scanner-data environment. It shows, for a packaged food product, the manufacturer's total U.S. shipments to the retailer, the months in which the manufacturer promoted the product to the retailer, and aggregate consumer sales on a monthly basis (the data were extrapolated from a small but representative sample of stores in the United States).

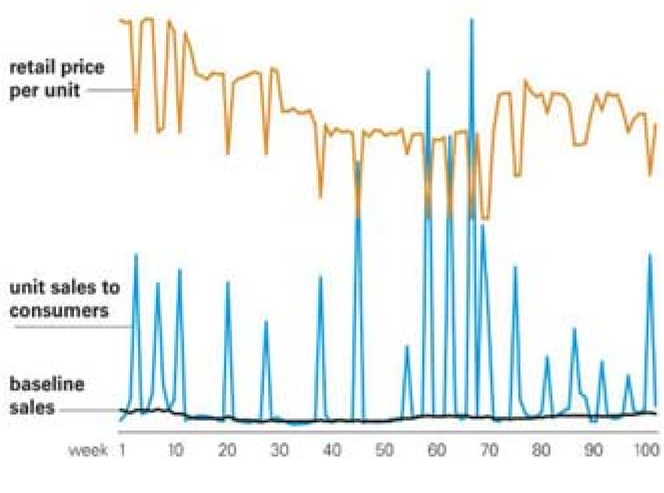
A manager examining this chart sees that sharp increases in the manufacturer's shipments to the retailer coincide, on average, with the manufacturer's promotional periods (the times when shipments to the retailer decrease during these promotions may be explained by a shortage of the product or by competing promotions from other manufacturers). But even though retailers usually pass along a manufacturer's promotion to consumers – in the form of a price reduction – a manager hoping to see a spike in consumer sales during promotional periods will be disappointed here. The line representing sales to consumers remains relatively flat.

The chart on the right was compiled using weekly, store-level scanner data from the orange juice category. The short-term effect of retail price reductions on consumer sales is unmistakable. (The relatively flat line in this chart shows baseline sales: an estimate of sales volume in the absence of a price promotion.)

Without Scanner Data...
managers can't see any meaningful fluctuations in sales to consumers.



With Scanner Data...
managers can see that price reductions coincide with sharp increases in sales to consumers.



• *Changes in consumer behavior.* Shoppers aren't naive; regular sales promotions encourage them to wait for the next sale rather than purchase a product at full price. As more people make purchasing decisions exclusively on price (a behavior that results in decreased sales when the product is not discounted), baseline sales eventually decrease and lift over baseline increases. From a short-term perspective, this lift makes promotions look highly profitable, so managers push for more discounts. Eventually, most of a product is sold at a discount, and profit margins decrease. The average brand manager, who believes that baselines do not change with pricing policy, is left to wonder what went wrong.

In addition, customers often stockpile a product if they think the price is particularly good. In the short term, this behavior may give the appearance of an increase in sales; over the longer term, however, customers simply delay purchases as they work through their inventory. In other words, stockpiling can amplify the immediate effect of a promotion without increasing overall sales.

• *Diluted brand equity.* By focusing consumers' attention on extrinsic brand cues such as price instead of on intrinsic cues such as quality, promotions make brands appear less differentiated. Consumers, over time, become more price sensitive, and the product gradually becomes commoditized. Even stores can be threatened with commodity status. A factor cited in Kmart's bankruptcy was the retailer's reliance on discounts to attract consumers to the store. When it tried to curtail price promotions, sales plummeted. By communicating to shoppers that low prices were its main draw, Kmart had given customers no reason to develop any loyalty.

• *Competitive response.* When one firm increases its discounts, others usually follow suit. As a result, individual promotions increase but overall sales do not, further lowering everyone's margins.

Together, these factors can substantially diminish the usefulness of sales promotions. In a study of 24 brands in Europe using data from 2002 to 2005, Information Resources, Inc. (IRI) found that the total impact of discounts is only 80% of their short-term effect (in other words, the effects measured over the long term turn out to be 20% less positive than they first appear). In contrast, the long-term effect of advertising can be 60% greater than its short-term impact. Research on 71 brands by a consumer-packaged-goods marketer in the United States resulted in a similar conclusion: Price sensitivity measured weekly is seven times higher than it is when the same data are assessed quarterly. This difference can be ascribed, in part, to the fact that weekly data recognize increases in purchases but ignore subsequent competitive price reactions and changes in consumer behavior. Nonetheless, the increased availability of short-term data dramatically affects perceptions of the value of promotions. As promotional measurement becomes even more granular (with daily and hourly data for sales available on demand), this short-term orientation will probably be reinforced.

Long-term effects are harder to measure. While immediate increases in sales arising from discounts are striking, the effects of discounts and of other components in the marketing mix – such as advertising, new products, and distribution – can be understood only over the long term. However, because long-term effects are more difficult to measure than short-term ones, few companies pay much attention to them. Research to help managers take a longer view is increasingly available. Studies by Lodish and colleagues found that advertising has a small short-term effect on sales compared with the effect of a price promotion – but a TV advertising campaign that does generate significant sales increases during the first year will continue to do so for two more years, even if the ads are no longer being aired. The revenue arising from the first year of advertising approximately doubles over the subsequent two-year period. Equally important, if a TV campaign does not have a significant impact during the first year, it will have no long-term impact (and roughly half of all TV ads generate no lift in sales, according to some recent research).

One might conclude that TV advertising is difficult to justify on a short-term basis. We disagree with this view for two reasons. First, advertisers who test their ads in the market can isolate the campaigns that will increase revenues over the long term, since advertisements that are successful in the short run also have a positive long-term effect. Second, even campaigns that don't do much to boost sales can increase margins by differentiating brands and thus allowing companies to raise prices. Indeed, Victoria's Secret has conducted a number of regional and local TV advertising tests in which consumers in some regions were exposed to the ads and others were not. According to Jill Beraud, chief marketing

Shoppers aren't naive; regular sales promotions encourage them to wait for the next sale rather than purchase a product at full price.

officer of Limited Brands, the parent company of Victoria's Secret, the brand's TV ads do not generally increase short-term sales enough to justify the cost. However, Victoria's Secret has linked increases in TV advertising to its ability to charge higher prices over the long term. The investment in TV advertising helps build the overall strength of the brand and decrease customers' price sensitivity.

Companies have paid even less attention to the long-term effects of distribution and new products than they have to the effects of advertising. By coupling recent statistical advances with five years of data on 25 packaged-goods categories, Carl Mela and colleagues examined the long-term effects of distribution (the number and kind of stores carrying the product) and of product-line length (the number of items) and variety (the extent to which items are distinct). Results indicate that increases in the length and variety of a product line play a major role in boosting a brand's baseline sales. Moreover, increased product-line variety and distribution in leading retailers reduce consumers' sensitivity to price. Together, these results suggest that increasing variety and high-quality distribution raises sales and prices in the long run. Also of note, discounts had a deleterious long-term effect on brand performance.

An example of a company that has considered the effects of distribution is Lacoste, known for tennis shirts adorned with a tiny alligator. When the French company started selling the shirts in the United States in the 1950s, they became a fashion rage. General Mills acquired the brand in 1969, and it continued to sell well. However, in the mid-1980s, General Mills lowered the price on the shirts and broadened distribution to include discount outlets instead of adding high-end stores. The short-term effect was predictable: Sales increased. Yet the brand went from elite stores' racks to clearance bins and lost its cachet. Lacoste repurchased the brand in 1992. The company limited distribution to higher-quality clothing retailers, advertised the brand through celebrities, and raised prices. A change in senior leadership in 2002 precipitated an even stronger brand focus. Since that time, sales have jumped 800%. However, in the initial years after Lacoste repurchased the brand, the company's marketing efforts had little immediate effect on revenues. Had the company assumed a short-term sales perspective, it may not have been able to reinvigorate the brand.

Despite the growing evidence that marketing strategies – other than price promotions – yield positive long-term returns, companies continue to manage their brands with a short-term perspective. This orientation is exacerbated by Wall Street analysts who focus on quarterly figures to value firms and advise clients. Lauren Lieberman, Lehman Brothers' equity analyst for cosmetics, household products, and personal care products, gave us a Wall Street point of view: "We analyze quarterly revenue and profit performance because it's the best gauge we've got. But what we really value is sustainable top-line growth because we feel it is indicative of higher returns to shareholders over time."

Of course this habit of looking chiefly at quarterly performance communicates itself to the companies being watched. Managers we interviewed at a major packaged-goods firm said that distribution in high-end stores and product innovation play the greatest role in increasing sales in the long term – but they focus their marketing programs and research efforts on discounting and advertising. When asked

about the emphasis on discounts, they said they are judged on quarterly sales because investors focus on those numbers, and that the link between discounts and the current quarter's sales is transparent. Thus, short-term numbers drive out those that tell the fuller story, leading managers to manage brands with the data they have, not the data they need.

Brand managers have short tenures. The use of short-term sales data as a yardstick for brand performance can interact in unfortunate ways with the tenure of a brand manager – which is typically quite brief, often less than a year. Any brand manager who takes a long-term perspective –

It is hard to see how companies can attain any insights into brand building with just 52 weeks of data, yet many firms have only that.

investing in advertising or new-product development – is likely to benefit the performance of subsequent managers, not her own.

In sum, the increasing availability of more thinly sliced short-term sales data has led to a greater emphasis on short-term marketing productivity, to the detriment of the long-run health of brands. Scanner data have been available for decades now, so it should be easier, not harder, to take a long-term view of brands. Unfortunately, most companies discard these data, unaware of how they can be used to track a brand not just over quarters but over many years.

A Long-View Dashboard

In the short term, discounts lift sales over baseline levels. But baselines and lifts are not immutable: They change in response to marketing strategy. Those changes signal a long-term shift in brand performance. Higher baseline sales mean that consumers are buying more of a product at full price. Think of this as a *quantity premium*. Whereas the baseline measure reflects only the volume sold when a product is not discounted, the lift-over-baseline measure represents the difference between discounted and nondiscounted sales. Smaller lifts reflect greater customer loyalty because loyals tend to buy regardless of the discount status. Brands with loyal customers face less pressure to reduce their prices and therefore enjoy a *price premium*. Together, quantity and price premiums reflect a brand's long-term health. If both increase, demand and margins will be higher – along with brand equity and profits. If consumers pay less of a premium for the brand and baseline demand is decreasing, then the brand is headed in the wrong direction – and the firm has a problem.

A C-suite manager can monitor how a brand is doing in the long term by watching the following dashboard of measures each quarter:

- Baseline sales. Recall that this is an estimate of sales at a nondiscounted price. This measure reflects a brand's quantity premium.
- The changes in baseline sales over months, quarters, and years and the statistical significance of those changes.
- The estimated response to regular prices and price promotions. An increased response to promotions reflects a decrease in the price premium a brand can command.
- The changes in response to regular and discounted prices over months, quarters, and years and the statistical significance of those changes.

Given the relatively short tenure of brand managers and the significant reallocation of resources that changes in long-term marketing strategy entail, someone higher up in the firm must track these measures. Such measures can also be useful tools for communicating the benefits of long-term marketing investments to a firm's analysts.

To see what insights the dashboard can yield, consider the example of a large consumer-packaged-goods firm that, in conjunction with IRI, tracked the performance of one of its beverages from 1994 to 1999. The analysis revealed a 3% decline in baseline sales – an indication that shoppers were increasingly buying the beverage only when it was on sale – and a 14% increase in price sensitivity over that period. The overall brand decline was not obvious from the short-term sales data because the firm had increased discounts, which had led to a 7% growth in sales during the period. The damage to the brand became apparent when the company tried to raise prices in 1999. Consumers' resistance to paying full price cost the brand more than $5 million in revenues. This debacle prompted a review of the brand's strategy: Management discovered an 8% increase in promotion spending and a 7% decrease in advertising budgets.

How long-term metrics can redress short-term myopia. We believe that the dashboard approach can improve brand performance over the long term in three ways.

First, this view prevents an exclusive focus on short-term data. If firms supplement sales data with data for quantity and price premiums, they will have a more complete sense of how various marketing programs affect their brands. Specifically, managers can establish whether price promotions have damaging long-term effects on brand equity and can therefore make more strategic decisions about marketing spending. Moreover, Wall Street analysts can use data on price premiums to get a better sense of a company's profitability.

Second, brand managers' performance can be judged on a combination of quarterly sales and quantity and price premiums. The temptation to discount a strong brand will be reduced, because damage to the brand's long-term health will become more apparent. This will encourage managers not only to take a long-term view of performance but also to expend some effort determining which factors contribute to a brand's strength. In addition, plots of dashboard metrics over time can serve as early warning systems to alert brand managers to problems.

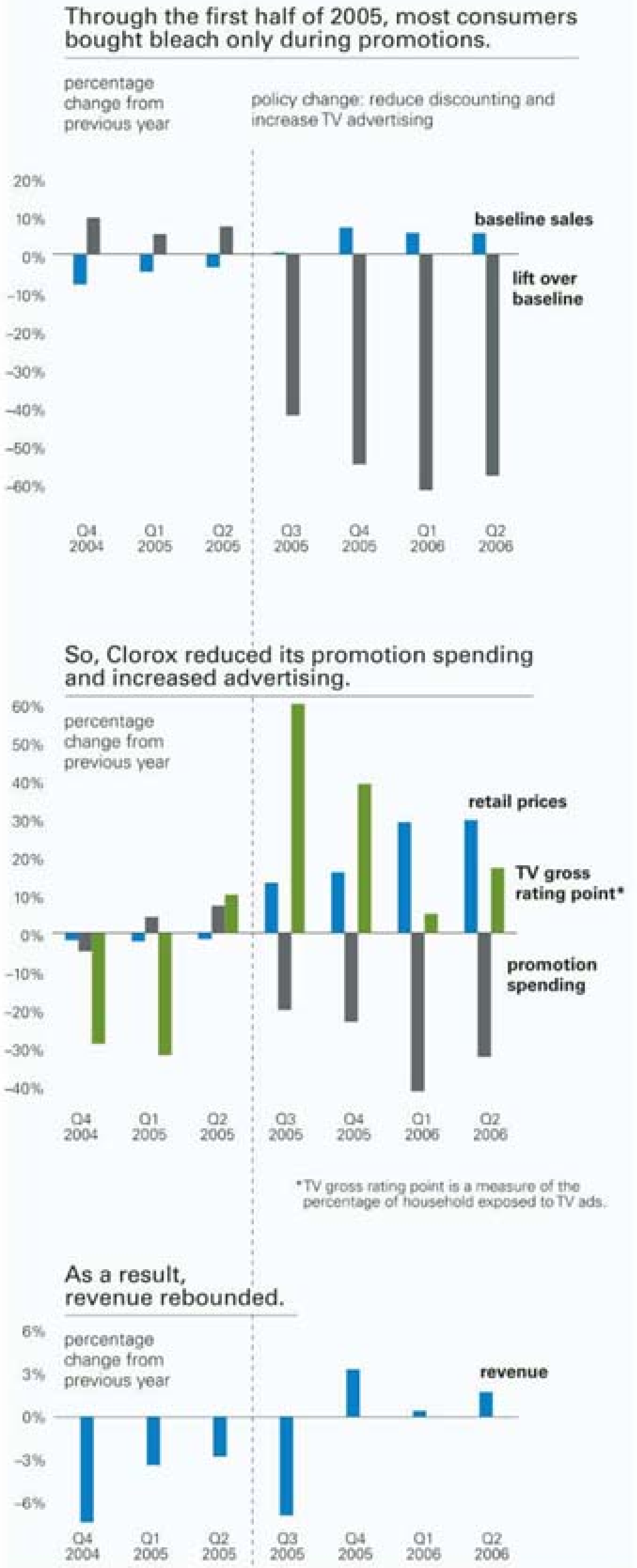
Finally – and most broadly – long-term metrics inform a company's marketing decisions. Consider, for example, the launch of a new product. When Kraft introduced DiGiorno Rising Crust Pizza, thereby creating a high-quality tier in the frozen pizza category, the company anticipated that the new product would cannibalize Tombstone, a mid-tier Kraft pizza. A recent study using long-term metrics shows, however, that the launch of DiGiorno had a consequence that Kraft did not anticipate: The new product did not just steal sales from Tombstone but caused its price premium – and that of all mid-tier pizza brands – to drop sharply. Apparently, DiGiorno made the mid-tier brands seem more ordinary to consumers; as a result, Tombstone was less able to withstand discounting from other pizzas like it. Ultimately, the introduction of DiGiorno was highly profitable for Kraft, but the company, unaware of the effect on Tombstone's price premium, may have overstated the profitability of the launch. One can easily imagine that in other situations, a company armed with such metrics might have concluded that a launch would be unprofitable.

Data and methodology. A company doesn't truly have a long-term orientation unless it holds on to its data for longer periods and carefully analyzes the numbers.

We are astonished by the paucity of longitudinal data collected by the firms we visit. It is hard to see how companies can attain any insights into brand building with just 52 weeks of data, yet many firms have only that. Even major data suppliers such as IRI and ACNielsen discard data after five years – at the same time that they're building more capacity and processing power to collect hour-by-hour measures. Hour-level data can undoubtedly be useful for monitoring stock-outs. However, it is difficult to imagine that local stock-outs affect market capitalization as much as brand equity, which often takes many years to build. Interbrand calculates the market value of the Coca-Cola brand to be $67 billion. This value developed over decades. It would be fascinating to study the evolution of Coke's marketing mix – but in all likelihood it would be impossible to do so, because the data have probably vanished.

A detailed look at methods for analyzing long-term marketing results is beyond the scope of this article. The baseline sales and price sensitivity measures we propose for the dashboard are relatively easy and available from many data suppliers. Ideally, firms should collect and retain these measures over a long period – five years or more. Other analyses are more difficult. To assess the long-term effect of marketing strategy on brand performance, one would need to statistically link marketing policy over years or quarters to price and quantity premiums. This approach allows managers to

How Clorox Rescued Its Brand



gauge simultaneously the long-term effects of marketing campaigns on price premiums and the short-term effects of a given week's discounts on that week's sales.

An Application

Some blue-chip companies have adopted a longer view of brand management and are starting to show positive results. For example, Clorox, a leading consumer-packaged-goods firm, is ahead of the curve in its use of long-term metrics to steward its brand. Until the second quarter of 2005, the Clorox bleach product line was in a seemingly endless cycle of discounting. Almost once a month, the price of a 96-ounce bottle of regular Clorox bleach was reduced to $0.99 at retail – even cheaper than most bottled waters. The company had also reduced its advertising spending. From a short-term perspective, the promotions appeared to be quite profitable. Yet consumers learned to lie in wait for these deals, which increased short-term sales but decreased baseline sales.

In the midst of this, Stephen Garry, director of advanced analytics at Clorox, introduced long-term metrics to measure brand performance. The top chart in the exhibit "How Clo-ity – was extremely high (not depicted in the chart) and increasing. These numbers indicated weakness in the brand from the perspective of both sales and margins. In response, Garry initiated an effort to reverse this trend by reducing discounting and increasing television advertising. The changes, implemented in July 2005, are depicted in the middle chart.

As a result of the policy change, baseline sales increased dramatically and lift over baseline decreased. Consumers were no longer buying from promotion to promotion but were instead purchasing more volume at full price. These changes had a positive long-term effect on the company's revenues and profits by increasing the brand's quantity and price premiums.

As shown in the bottom chart, revenue (which was low before the policy change) eventually began to turn around as a result of the reduction in discounting. Clorox further indicated to us that profits, which continued to fall in the short term (the third and fourth quarters of 2005), rebounded sharply in the first and second quarters of 2006.

Note the implication for the analyst who typically focuses on short-term metrics such as quarterly revenue. In the third quarter of 2005, the analyst might have downgraded the brand as a result of revenue and profit decreases. Yet these short-term decreases reflect the time it takes for consumers to acclimate to the price changes and respond to the advertising. Clorox, with the foresight and temerity to monitor the attendant long-term changes in brand health, persevered with its strategy. The ensuing quarters yielded higher revenues and substantially increased gross profits. Without long-term brand-health measures, the analyst may have come to a misleading conclusion about the value of the brand or Clorox may not have realized the fruition of its strategy. Armed with long-term metrics, firms and analysts can assume a longer-term perspective on the brand, leading to improved profitability.

•••

Brand management today is like driving a car by looking only a few feet ahead. The drivers can change direction rapidly, but they're not necessarily on a path that will take them where they want to go. In the face of an increasingly fragmented media and powerful retailers, brand managers cannot afford to be steering their brands in the v

"Philip, please remind everyone to bring their Decade-at-a-Glance planners to the management meeting."

Teresa Burns Park


Your market is changing.
Your competition is changing.
Your organization is changing.
And you?
What are you changing?


LINO

The Making *of* an Expert

New research shows that outstanding performance is the product of years of deliberate practice and coaching, not of any innate talent or skill.

THIRTY YEARS AGO, two Hungarian educators, László and Klara Polgár, decided to challenge the popular assumption that women don't succeed in areas requiring spatial thinking, such as chess. They wanted to make a point about the power of education. The Polgárs homeschooled their three daughters, and as part of their education the girls started playing chess with their parents at a very young age. Their systematic training and daily practice paid off. By 2000, all three daughters had been ranked in the top ten female players in the world. The youngest, Judit, had become a grand master at age 15, breaking the previous record for the youngest person to earn that title, held by Bobby Fischer, by a month.

by K. Anders Ericsson, Michael J. Prietula, and Edward T. Cokely

Lino

Consistently and overwhelmingly, the evidence showed that **experts are always made, not born.**

Today Judit is one of the world's top players and has defeated almost all the best male players.

It's not only assumptions about gender differences in expertise that have started to crumble. Back in 1985, Benjamin Bloom, a professor of education at the University of Chicago, published a landmark book, *Developing Talent in Young People,* which examined the critical factors that contribute to talent. He took a deep retrospective look at the childhoods of 120 elite performers who had won international competitions or awards in fields ranging from music and the arts to mathematics and neurology. Surprisingly, Bloom's work found no early indicators that could have predicted the virtuosos' success. Subsequent research indicating that there is no correlation between IQ and expert performance in fields such as chess, music, sports, and medicine has borne out his findings. The only innate differences that turn out to be significant – and they matter primarily in sports – are height and body size.

So what *does* correlate with success? One thing emerges very clearly from Bloom's work: All the superb performers he investigated had practiced intensively, had studied with devoted teachers, and had been supported enthusiastically by their families throughout their developing years. Later research building on Bloom's pioneering study revealed that the amount and quality of practice were key factors in the level of expertise people achieved. Consistently and overwhelmingly, the evidence showed that *experts are always made, not born.* These conclusions are based on rigorous research that looked at exceptional performance using scientific methods that are verifiable and reproducible. Most of these studies were compiled in *The Cambridge Handbook of Expertise and Expert Performance,* published last year by Cambridge University Press and edited by K. Anders Ericsson, one of the authors of this article. The 900-page-plus handbook includes contributions from more than 100 leading scientists who have studied expertise and top performance in a wide variety of domains: surgery, acting, chess, writing, computer programming, ballet, music, aviation, firefighting, and many others.

The journey to truly superior performance is neither for the faint of heart nor for the impatient. The development of genuine expertise requires struggle, sacrifice, and honest, often painful self-assessment. There are no shortcuts. It will take you at least a decade to achieve expertise, and you will need to invest that time wisely, by engaging in "deliberate" practice – practice that focuses on tasks beyond your current level of competence and comfort. You will need a well-informed coach not only to guide you through deliberate practice but also to help you learn how to coach yourself. Above all, if you want to achieve top performance as a manager and a leader, you've got to forget the folklore about genius that makes many people think they cannot take a scientific approach to developing expertise. We are here to help you explode those myths.

Let's begin our story with a little wine.

What Is an Expert?

In 1976, a fascinating event referred to as the "Judgment of Paris" took place. An English-owned wineshop in Paris organized a blind tasting in which nine French wine experts rated French and California wines – ten whites and ten reds. The results shocked the wine world: California wines received the highest scores from the panel. Even more surprising, during the tasting the experts often mistook the American wines for French wines and vice versa.

Two assumptions were challenged that day. The first was the hitherto unquestioned superiority of French wines over American ones. But it was the challenge to the second – the assumption that the judges genuinely possessed elite knowledge of wine – that was more interesting and revolutionary. The tasting suggested that the alleged wine experts were no more accurate in distinguishing wines under blind test conditions than regular wine drinkers – a fact later confirmed by our laboratory tests.

Current research has revealed many other fields where there is no scientific evidence that supposed expertise leads to superior performance. One study showed that psychotherapists with advanced degrees and decades of experience aren't reliably more successful in their treatment of randomly assigned patients than novice therapists with just three months of training are. There are even examples of expertise seeming to decline with experience. The longer physicians have been out of training, for example, the less

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able they are to identify unusual diseases of the lungs or heart. Because they encounter these illnesses so rarely, doctors quickly forget their characteristic features and have difficulty diagnosing them. Performance picks up only after the doctors undergo a refresher course.

How, then, can you tell when you're dealing with a genuine expert? Real expertise must pass three tests. First, it must lead to performance that is consistently superior to that of the expert's peers. Second, real expertise produces concrete results. Brain surgeons, for example, not only must be skillful with their scalpels but also must have successful outcomes with their patients. A chess player must be able to win matches in tournaments. Finally, true expertise can be replicated and measured in the lab. As the British scientist Lord Kelvin stated, "If you can not measure it, you can not improve it."

Skill in some fields, such as sports, is easy to measure. Competitions are standardized so that everyone competes in a similar environment. All competitors have the same start and finish lines, so that everyone can agree on who came in first. That standardization permits comparisons among individuals over time, and it's certainly possible in business as well. In the early days of Wal-Mart, for instance, Sam Walton arranged competitions among store managers to identify those whose stores had the highest profitability. Each store in the Nordstrom clothing chain posts rankings of its salespeople, based on their sales per hour, for each pay period.

Nonetheless, it often can be difficult to measure expert performance – for example, in projects that take months or even years to complete and to which dozens of individuals may contribute. Expert leadership is similarly difficult to assess. Most leadership challenges are highly complex and specific to a given company, which makes it hard to compare performance across companies and situations. That doesn't mean, though, that scientists should throw up their hands and stop trying to measure performance. One methodology we use to deal with these challenges is to take a representative situation and reproduce it in the laboratory. For example, we present emergency room nurses with scenarios that simulate life-threatening situations. Afterward, we compare the nurses' responses in the lab with actual outcomes in the real world. We have found that performance in simulations in medicine, chess, and sports closely correlates with objective measurements of expert performance, such as a chess player's track record in winning matches.

Testing methodologies can be devised for creative professions such as art and writing, too. Researchers have studied differences among individual visual artists, for instance, by having them produce drawings of the same set of objects. With the artists' identities concealed, these drawings were evaluated by art judges, whose ratings clearly agreed on the artists' proficiency, especially in regard to technical aspects

Things to Look Out for When Judging Expertise

Individual accounts of expertise are often unreliable. Anecdotes, selective recall, and one-off events all can present insufficient, often misleading, examples of expertise. There is a huge body of literature on false memories, self-serving biases, and recollections altered as a result of current beliefs or the passage of time. Reporting is not the same thing as research.

Many people are wrongly believed to possess expertise. Bear in mind that true expertise is demonstrated by measurable, consistently superior performance. Some supposed experts are superior only when it comes to explaining why they made errors. After the 1976 Judgment of Paris, for example, when California wines bested French wines in a blind tasting, the French wine "experts" argued that the results were an aberration and that the California reds in particular would never age as well as the famous French reds. (In 2006, the tasting of the reds was reenacted, and California came out on top again.) Had it not been for the objective results from the blind tastings, the French wine experts may never have been convinced of the quality of the American wines.

Intuition can lead you down the garden path. The idea that you can improve your performance by relaxing and "just trusting your gut" is popular. While it may be true that intuition is valuable in routine or familiar situations, informed intuition is the result of deliberate practice. You cannot consistently improve your ability to make decisions (or your intuition) without considerable practice, reflection, and analysis.

You don't need a different putter. Many managers hope that they will suddenly improve performance by adopting new and better methods – just as golf players may think that they can lower their scores with a new and better club. But changing to a different putter may increase the variability of a golfer's shot and thus hinder his or her ability to play well. In reality, the key to improving expertise is consistency and carefully controlled efforts.

Expertise is not captured by knowledge management systems. Knowledge management systems rarely, if ever, deal with what psychologists call knowledge. They are repositories of images, documents, and routines: external data that people can view and interpret as they try to solve a problem or make a decision. There are no shortcuts to gaining true expertise.

of drawing. Other researchers have designed objective tasks to measure the superior perceptual skills of artists without the help of judges.

Practice Deliberately

To people who have never reached a national or international level of competition, it may appear that excellence is simply the result of practicing daily for years or even decades. However, living in a cave does not make you a geologist. Not all practice makes perfect. You need a particular kind of practice – *deliberate practice* – to develop expertise. When most people practice, they focus on the things they already know how to do. Deliberate practice is different. It entails considerable, specific, and sustained efforts to do something you *can't* do well – or even at all. Research across domains shows that it is only by working at what you can't do that you turn into the expert you want to become.

To illustrate this point, let's imagine you are learning to play golf for the first time. In the early phases, you try to understand the basic strokes and focus on avoiding gross mistakes (like driving the ball into another player). You practice on the putting green, hit balls at a driving range, and play rounds with others who are most likely novices like you. In a surprisingly short time (perhaps 50 hours), you will develop better control and your game will improve. From then on, you will work on your skills by driving and putting more balls and engaging in more games, until your strokes become automatic: You'll think less about each shot and play more from intuition. Your golf game now is a social outing, in which you occasionally concentrate on your shot. From this point on, additional time on the course will not substantially improve your performance, which may remain at the same level for decades.

Why does this happen? You don't improve because when you are playing a game, you get only a single chance to make a shot from any given location. You don't get to figure out how you can correct mistakes. If you were allowed to take five to ten shots from the exact same location on the course, you would get more feedback on your technique and start to adjust your playing style to improve your control. In fact, professionals often take multiple shots from the same location when they train and when they check out a course before a tournament.

This kind of deliberate practice can be adapted to developing business and leadership expertise. The classic example is the case method taught by many business schools, which presents students with real-life situations that require action. Because the eventual outcomes of those situations are known, the students can immediately judge the merits of their proposed solutions. In this way, they can practice making decisions ten to 20 times a week. War games serve a similar training function at military academies. Officers can analyze the trainees' responses in simulated combat and provide an instant evaluation. Such mock military operations sharpen leadership skills with deliberate practice that lets trainees explore uncharted areas.

Let's take a closer look at how deliberate practice might work for leadership. You often hear that a key element of leadership and management is charisma, which is true. Being a leader frequently requires standing in front of your employees, your peers, or your board of directors and attempting to convince them of one thing or another, especially in times of crisis. A surprising number of executives believe that charisma is innate and cannot be learned. Yet if they were acting in a play with the help of a director and a coach, most of them would be able to come across as considerably more charismatic, especially over time. In fact, working with a leading drama school, we have developed a set of acting exercises for managers and leaders that are designed to increase their powers of charm and persuasion. Executives who do these exercises have shown remarkable improvement. So charisma can be learned through deliberate practice. Bear in mind that even Winston Churchill, one of the most charismatic figures of the twentieth century, practiced his oratory style in front of a mirror.

Genuine experts not only practice deliberately but also *think* deliberately. The golfer Ben Hogan once explained, "While I am practicing I am also trying to develop my powers of concentration. I never just walk up and hit the ball." Hogan would decide in advance where he wanted the ball to go and how to get it there. We actually track this kind of thought process in our research. We present expert performers with a scenario and ask them to think aloud as they work their way through it. Chess players, for example, will describe how they spend five to ten minutes exploring all the possibilities for their next move, thinking through the con-

It takes time to become an expert. Even the most gifted performers need a minimum of ten years of intense training before they win international competitions.

sequences of each and planning out the sequence of moves that might follow it. We've observed that when a course of action doesn't work out as expected, the expert players will go back to their prior analysis to assess where they went wrong and how to avoid future errors. They continually work to eliminate their weaknesses.

Deliberate practice involves two kinds of learning: improving the skills you already have and extending the reach and range of your skills. The enormous concentration required to undertake these twin tasks limits the amount of time you can spend doing them. The famous violinist Nathan Milstein wrote: "Practice as much as you feel you can accomplish with concentration. Once when I became concerned because others around me practiced all day long, I asked [my mentor] Professor Auer how many hours I should practice, and he said, 'It really doesn't matter how long. If you practice with your fingers, no amount is enough. If you practice with your head, two hours is plenty.'"

It is interesting to note that across a wide range of experts, including athletes, novelists, and musicians, very few appear to be able to engage in more than four or five hours of high concentration and deliberate practice at a time. In fact, most expert teachers and scientists set aside only a couple of hours a day, typically in the morning, for their most demanding mental activities, such as writing about new ideas. While this may seem like a relatively small investment, it is two hours a day more than most executives and managers devote to building their skills, since the majority of their time is consumed by meetings and day-to-day concerns. This difference adds up to some 700 hours more a year, or about 7,000 hours more a decade. Think about what you could accomplish if you devoted two hours a day to deliberate practice.

It's very easy to neglect deliberate practice. Experts who reach a high level of performance often find themselves responding automatically to specific situations and may come to rely exclusively on their intuition. This leads to difficulties when they deal with atypical or rare cases, because they've lost the ability to analyze a situation and work through the right response. Experts may not recognize this creeping intuition bias, of course, because there is no penalty until they encounter a situation in which a habitual response fails and maybe even causes damage. Older professionals with a great deal of experience are particularly prone to falling into this trap, but it's certainly not inevitable. Research has shown that musicians over 60 years old who continue deliberate practice for about ten hours a week can match the speed and technical skills of 20-year-old expert musicians when tested on their ability to play a piece of unfamiliar music.

Moving outside your traditional comfort zone of achievement requires substantial motivation and sacrifice, but it's a necessary discipline. As the golf champion Sam Snead once put it, "It is only human nature to want to practice what you can already do well, since it's a hell of a lot less work and a hell of a lot more fun." Only when you can see that deliberate practice is the most effective means to the desired end – becoming the best in your field – will you commit to excellence. Snead, who died in 2002, held the record for winning the most PGA Tour events and was famous for having one of the most beautiful swings in the sport. Deliberate practice was a key to his success. "Practice puts brains in your muscles," he said.

Take the Time You Need

By now it will be clear that it takes time to become an expert. Our research shows that even the most gifted performers need a minimum of ten years (or 10,000 hours) of intense training before they win international competitions. In some fields the apprenticeship is longer: It now takes most elite musicians 15 to 25 years of steady practice, on average, before they succeed at the international level.

Though there are historical examples of people who attained an international level of expertise at an early age, it's also true that, in the nineteenth and early twentieth centuries, people could reach world-class levels more quickly. In most fields, the bar of performance has risen steadily since that time. For instance, amateur marathon runners and high school swimmers today frequently better the times of Olympic gold medalists from the early twentieth century. Increasingly stiff competition now makes it almost impossible to beat the ten-year rule. One notable exception, Bobby Fischer, did manage to become a chess grand master in just nine years, but it is likely that he did so by spending more time practicing each year.

Many people are naive about how long it takes to become an expert. Leo Tolstoy once observed that people often told him they didn't know whether or not they could write a novel because they hadn't tried – as if they only had to make a single attempt to discover their natural ability to write. Similarly, the authors of many self-help books appear to assume that their readers are essentially ready for success and simply need to take a few more easy steps to overcome great hurdles. Popular lore is full of stories about unknown athletes, writers, and artists who become famous overnight, seemingly because of innate talent – they're "naturals," people say. However, when examining the developmental histories of experts, we unfailingly discover that they spent a lot of time in training and preparation. Sam Snead, who'd been called "the best natural player ever," told *Golf Digest,* "People always said I had a natural swing. They thought I wasn't a hard worker. But when I was young, I'd play and practice all day, then practice more at night by my car's headlights. My hands bled. Nobody worked harder at golf than I did."

Not only do you have to be prepared to invest time in becoming an expert, but you have to start early – at least in some fields. Your ability to attain expert performance is clearly constrained if you have fewer opportunities to engage in deliberate practice, and this is far from a trivial constraint. Once, after giving a talk, K. Anders Ericsson was asked by a member of the audience whether he or any other person could win an Olympic medal if he began training at a mature age. Nowadays, Ericsson replied, it would be virtually impossible for anyone to win an individual medal without a training history comparable with that of today's elite performers, nearly all of whom started very early. Many children simply do not get the opportunity, for whatever reason, to work with the best teachers and to engage in the sort of deliberate practice that they need to reach the Olympic level in a sport.

Find Coaches and Mentors

Arguably the most famous violin teacher of all time, Ivan Galamian, made the point that budding maestros do not engage in deliberate practice spontaneously: "If we analyze the development of the well-known artists, we see that in almost every case the success of their entire career was dependent on the quality of their practicing. In practically every case, the practicing was constantly supervised either by the teacher or an assistant to the teacher."

Research on world-class performers has confirmed Galamian's observation. It also has shown that future experts need different kinds of teachers at different stages of their development. In the beginning, most are coached by local teachers, people who can give generously of their time and praise. Later on, however, it is essential that performers seek out more-advanced teachers to keep improving their skills. Eventually, all top performers work closely with teachers who have themselves reached international levels of achievement.

Having expert coaches makes a difference in a variety of ways. To start with, they can help you accelerate your learning process. The thirteenth-century philosopher and scientist Roger Bacon argued that it would be impossible to master

mathematics in less than 30 years. And yet today individuals can master frameworks as complex as calculus in their teens. The difference is that scholars have since organized the material in such a way that it is much more accessible. Students of mathematics no longer have to climb Everest by themselves; they can follow a guide up a well-trodden path.

The development of expertise requires coaches who are capable of giving constructive, even painful, feedback. Real experts are extremely motivated students who seek out such feedback. They're also skilled at understanding when and if a coach's advice doesn't work for them. The elite performers we studied knew what they were doing right and concentrated on what they were doing wrong. They deliberately picked unsentimental coaches who would challenge them and drive them to higher levels of performance. The best coaches also identify aspects of your performance that will need to be improved at your *next* level of skill. If a coach pushes you too fast, too hard, you will only be frustrated and may even be tempted to give up trying to improve at all.

Relying on a coach has its limits, however. Statistics show that radiologists correctly diagnose breast cancer from X-rays about 70% of the time. Typically, young radiologists learn the skill of interpreting X-rays by working alongside an "expert." So it's hardly surprising that the success rate has stuck at 70% for a long time. Imagine how much better radiology might get if radiologists practiced instead by making diagnostic judgments using X-rays in a library of old verified cases, where they could immediately determine their accuracy. We're seeing these kinds of techniques used more often in training. There is an emerging market in elaborate simulations that can give professionals, especially in medicine and aviation, a safe way to deliberately practice with appropriate feedback.

So what happens when you become an Olympic gold medalist, or an international chess master, or a CEO? Ideally, as your expertise increased, your coach will have helped you become more and more independent, so that you are able to set your own development plans. Like good parents who encourage their children to leave the nest, good coaches help their students learn how to rely on an "inner coach." Self-coaching can be done in any field. Expert surgeons, for example, are not concerned with a patient's postoperative status alone. They will study any unanticipated events that took place during the surgery, to try to figure out how mistakes or misjudgments can be avoided in the future.

Benjamin Franklin provides one of the best examples of motivated self-coaching. When he wanted to learn to write eloquently and persuasively, he began to study his favorite articles from a popular British publication, the *Spectator*. Days after he'd read an article he particularly enjoyed, he would try to reconstruct it from memory in his own words. Then he would compare it with the original, so he could discover and correct his faults. He also worked to improve his sense of language by translating the articles into rhyming verse and then from verse back into prose. Similarly, famous painters sometimes attempt to reproduce the paintings of other masters.

Real experts seek out constructive, even painful feedback. They're also skilled at understanding when and if a coach's advice doesn't work for them.

Anyone can apply these same methods on the job. Say you have someone in your company who is a masterly communicator, and you learn that he is going to give a talk to a unit that will be laying off workers. Sit down and write your own speech, and then compare his actual speech with what you wrote. Observe the reactions to his talk and imagine what the reactions would be to yours. Each time you can generate by yourself decisions, interactions, or speeches that match those of people who excel, you move one step closer to reaching the level of an expert performer.

...

Before practice, opportunity, and luck can combine to create expertise, the would-be expert needs to demythologize the achievement of top-level performance, because the notion that genius is born, not made, is deeply ingrained. It's perhaps most perfectly exemplified in the person of Wolfgang Amadeus Mozart, who is typically presented as a child prodigy with exceptional innate musical genius. Nobody questions that Mozart's achievements were extraordinary compared with those of his contemporaries. What's often forgotten, however, is that his development was equally exceptional for his time. His musical tutelage started before he was four years old, and his father, also a skilled composer, was a famous music teacher and had written one of the first books on violin instruction. Like other world-class performers, Mozart was not born an expert – he became one.

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To order, see page 195.

The goal of forecasting is not to predict the future but to tell you what you need to know to take meaningful action in the present.

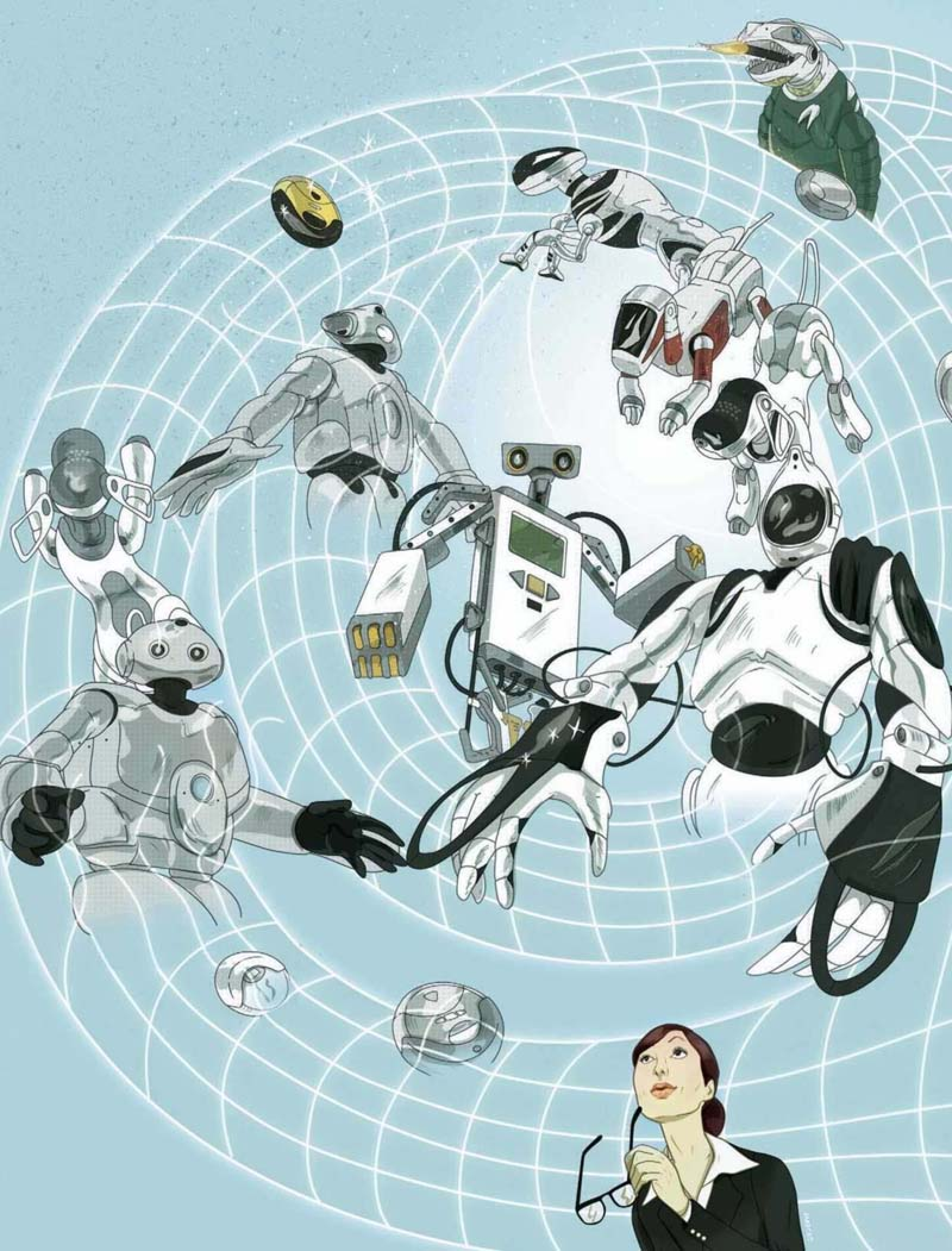
Six Rules for ~~Accurate~~ Effective Forecasting

by Paul Saffo

PEOPLE AT COCKTAIL PARTIES are always asking me for stock tips, and then they want to know how my predictions have turned out. Their requests reveal the common but fundamentally erroneous perception that forecasters make predictions. We don't, of course: Prediction is possible only in a world in which events are preordained and no amount of action in the present can influence future outcomes. That world is the stuff of myth and superstition. The one we inhabit is quite different – little is certain, nothing is preordained, and what we do in the present affects how events unfold, often in significant, unexpected ways.

The role of the forecaster in the real world is quite different from that of the mythical seer. Prediction is concerned

Marcos Chin



with future certainty; forecasting looks at how hidden currents in the present signal possible changes in direction for companies, societies, or the world at large. Thus, the primary goal of forecasting is to identify the full range of possibilities, not a limited set of illusory certainties. Whether a specific forecast actually turns out to be accurate is only part of the picture – even a broken clock is right twice a day. Above all, the forecaster's task is to map uncertainty, for in a world where our actions in the present influence the future, uncertainty is opportunity.

Unlike a prediction, a forecast must have a logic to it. That's what lifts forecasting out of the dark realm of superstition. The forecaster must be able to articulate and defend that logic. Moreover, the consumer of the forecast must understand enough of the forecast process and logic to make an independent assessment of its quality – and to properly account for the opportunities and risks it presents. The wise consumer of a forecast is not a trusting bystander but a participant and, above all, a critic.

Even after you have sorted out your forecasters from the seers and prophets, you still face the task of distinguishing good forecasts from bad, and that's where this article comes in. In the following pages, I try to demythologize the forecasting process so that you can become a more sophisticated and participative consumer of forecasts, rather than a passive absorber. I offer a set of simple, commonsense rules that you can use as you embark on a voyage of discovery with professional forecasters. Most important, I hope to give you the tools to evaluate forecasts for yourself.

RULE 1 > Define a Cone of Uncertainty

As a decision maker, you ultimately have to rely on your intuition and judgment. There's no getting around that in a world of uncertainty. But effective forecasting provides essential context that informs your intuition. It broadens your understanding by revealing overlooked possibilities and exposing unexamined assumptions regarding hoped-for outcomes. At the same time, it narrows the decision space within which you must exercise your intuition.

I visualize this process as mapping a *cone of uncertainty*, a tool I use to delineate possibilities that extend out from a particular moment or event. The forecaster's job is to define the cone in a manner that helps the decision maker exercise strategic judgment. Many factors go into delineating the cone of uncertainty, but the most important is defining its breadth, which is a measure of overall uncertainty. Other factors – relationships among elements, for example, and the ranking of possible outcomes – must also be considered in developing a forecast, but determining the cone's breadth is the crucial first step. Imagine it is 1997, the Toyota Prius has just gone on sale in Japan, and you are forecasting the future of the market for hybrid cars in the United States. External factors to consider would be oil price trends and consumer attitudes regarding the environment, as well as more general factors such as economic trends. Inside the cone would be factors such as the possible emergence of competing technologies (for instance, fuel cells) and an increased consumer preference for small cars (such as the Mini). At the edge of the cone would be wild cards like a terrorist attack or a war in the Middle East. These are just a very few representative examples. (See the exhibit "Mapping the Cone of Uncertainty" for more on the process.)

Drawing a cone too narrowly is worse than drawing it too broadly. A broad cone leaves you with a lot of uncertainty, but uncertainty is a friend, for its bedfellow is opportunity – as any good underwriter knows. The cone can be narrowed in subsequent refinements. Indeed, good forecasting is always an iterative process. Defining the cone broadly at the start maximizes your capacity to generate hypotheses about outcomes and eventual responses. A cone that is too narrow, by contrast, leaves you open to avoidable unpleasant surprises. Worse, it may cause you to miss the most important opportunities on your horizon.

The art of defining the cone's edge lies in carefully distinguishing between the highly improbable and the wildly impossible. Outliers – variously, wild cards or surprises – are what define this edge. A good boundary is one made up of elements lying on the ragged edge of plausibility. They are outcomes that might conceivably happen but make one uncomfortable even to contemplate.

The most commonly considered outliers are wild cards. These are trends or events that have low probabilities of occurrence (under 10%) or probabilities you simply cannot quantify but that, if the events were to occur, would have a disproportionately large impact. My favorite example of a wild card, because its probability is so uncertain and its impact so great, is finding radio evidence of intelligent life somewhere else in the universe. Nobody knows if we will ever receive a message (radio astronomers have been listening since the late 1950s), but if we did, it would send a vast and unpredictable tremor through the zeitgeist. One-third of the world's population would probably worship the remote intelligences, one-third would want to conquer them, and the final third (the readers of this magazine) would want to do some extraterrestrial market research and sell them something.

The tricky part about wild cards is that it is difficult to acknowledge sufficiently outlandish possibilities without losing your audience. The problem – and the essence of what makes forecasting hard – is that human nature is hardwired to abhor uncertainty. We are fascinated by change, but in our effort to avoid uncertainty we either dismiss outliers entirely or attempt to turn them into certainties that they

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Mapping the Cone of Uncertainty

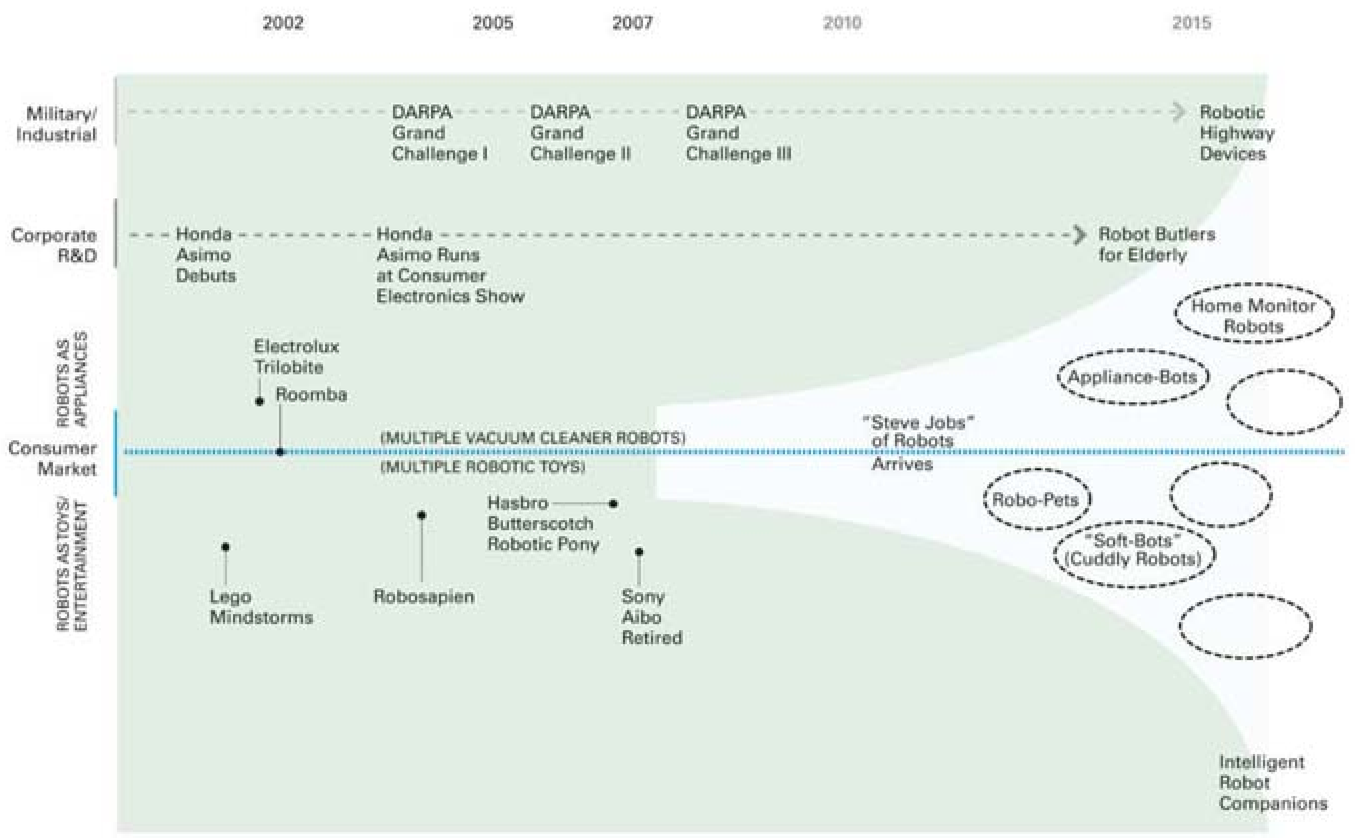
A cone of uncertainty delineates the possibilities that extend out from a particular moment or event. The most important factor in mapping a cone is defining its breadth, which is a measure of overall uncertainty. In other words, the forecaster determines what range of events or products the cone should encompass. Drawing the cone is a dynamic process, and what we see here is just one iteration.

Let's take the case of robot products, a minicraze that has been emerging and subsiding since the mid-1980s. The events before 2007 indicate that activity in this area is building, and it seems only a matter of time before this industry takes off, in the same way PCs took off in the mid-1980s and the Web took off in the mid-1990s.

In drawing this cone, my first step was to note the distinction between appliance-centric robots and entertainment-centric robots, represented by the dotted line across the middle of the cone. The closer to the dotted line a particular product or event is, the more it has in common with the category on the opposite side of the line. The DARPA Grand Challenges, which may end up as the indicators of robotic highway vehicles, are military projects and are thus located far from the dotted line in the middle of the cone.

In the neck of the cone is a key speculation: Who will be the entrepreneur who launches the robot craze? Deeper in the cone are several possible outcomes; the closer to the center of the cone's main axis they are, the more likely these events are to transpire. Along the edges of the cone are less likely events – the wild cards – which, if they did happen, would be transformative (like the emergence of intelligent robot companions).

Note that I've left plenty of blank spaces – this is where I will add to or refine my forecast. Above all, forecasts are meant to be scribbled on, disagreed with, and tossed out – and replaced with new, better ones.



are not. This is what happened with the Y2K problem in the final years before January 1, 2000. Opinions clustered at the extremes, with one group dismissing the predictions of calamity and another stocking up on survival supplies. The correct posture toward Y2K was that it was a wild card – an event with high potential impact but very low likelihood of occurrence, thanks to years of hard work by legions of programmers fixing old code.

The result of the Y2K nonevent was that many people concluded they had been the victims of someone crying Y2K wolf, and they subsequently rejected the possibility of other wild cards ever coming to pass. Consideration of anything unlikely became unfashionable, and as a result, 9/11 was a much bigger surprise than it should have been. After all, airliners flown into monuments were the stuff of Tom Clancy novels in the 1990s (inspired by Clancy, I helped write a scenario for the U.S. Air Force in 1997 that opened with a plane being flown into the Pentagon), and it was widely known that the terrorists had a very personal antipathy toward the World Trade Center. Yet the few people who took this wild card seriously were all but dismissed by those who should have been paying close attention.

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Human nature being what it is, we are just as likely to overreact to an unexpected wild card by seeing new wild cards everywhere. That's a danger because it can lead you to draw a hollow cone – one that is cluttered with distracting outliers at the edge and neglected probabilities at the center. So don't focus on the edge to the exclusion of the center, or you will be surprised by an overlooked certainty. Above all, ask hard questions about whether a seeming wild card in fact deserves to be moved closer to the center.

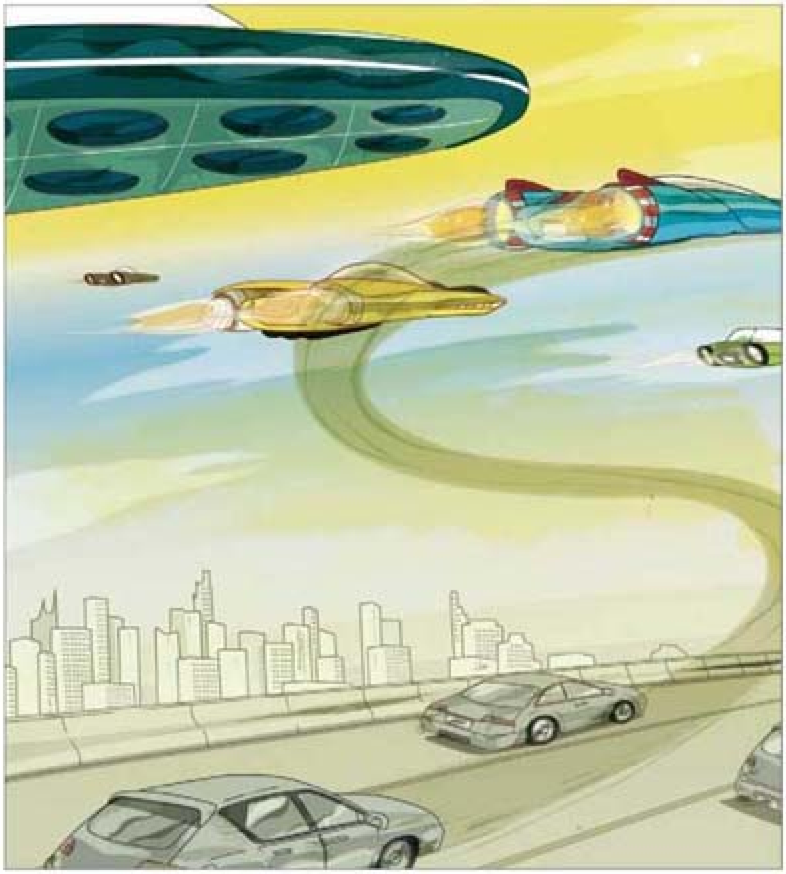
RULE 2 > Look for the S Curve

Change rarely unfolds in a straight line. The most important developments typically follow the S-curve shape of a power law: Change starts slowly and incrementally, putters along quietly, and then suddenly explodes, eventually tapering off and even dropping back down.

The mother of all S curves of the past 50 years is the curve of Moore's Law, the name given to Gordon Moore's brilliant 1965 conjecture that the density of circuits on a silicon wafer doubles every 18 months. We can all feel the consequences of Moore's Law in the extravagant surprises served up by the digital revolution swirling around us. Of course, the curve of Moore's Law is still unfolding – it is still a "J" – with the top of the "S" nowhere in sight. But it will flatten eventually, certainly with regard to silicon circuit density. Even here, though, engineers are sure to substitute denser circuit-carrying materials (like nanoscale and biological materials) as each successive material reaches saturation, so the broadest form of the Moore's Law curve (density regardless of the material) will keep climbing for some time to come. This distinction reveals another important feature of S curves, which is that they are fractal in nature. Very large, broadly defined curves are composed of small, precisely defined and linked S curves. For a forecaster, the discovery of an emergent S curve should lead you to suspect a larger, more important curve lurking in the background. Miss the larger curve and your strategy may amount to standing on a whale, fishing for minnows.

The art of forecasting is to identify an S-curve pattern as it begins to emerge, well ahead of the inflection point. The tricky part of S curves is that they inevitably invite us to focus on the inflection point, that dramatic moment of takeoff when fortunes are made and revolutions launched. But the wise forecaster will look to the left of the curve in hopes of identifying the inflection point's inevitable precursors. Consider Columbus's 1492 voyage. His discovery falls at the inflection point of Western exploration. Columbus was not the first fifteenth-century explorer to go to the New World – he was the first to make it back, and he did so at a moment when his discovery would land like a spark in the economic tinder of a newly emergent Europe and launch thousands upon thousands of voyages westward. Noting the earlier, less successful voyages, a good forecaster would have seen that the moment was ripe for an inflection point and could have advised the Portuguese that it would be unwise to turn down Columbus's request.

Ironically, forecasters can do worse than ordinary observers when it comes to anticipating inflection points. Ordinary folks are simply surprised when an inflection point arrives seemingly out of nowhere, but innovators and would-be forecasters who glimpse the flat-line beginnings of the S curve often miscalculate the speed at which the inflection point will arrive. As futurist Roy Amara pointed out to me three decades ago, there is a tendency to overestimate the short term and underestimate the long term. Our hopes cause us to conclude that the revolution will arrive overnight. Then, when cold reality fails to conform to our inflated expectations, our disappointment leads us to conclude that the hoped-for revolution will never arrive at all – right before it does.



One reason for the miscalculations is that the left-hand part of the S curve is much longer than most people imagine. Television took 20 years, plus time out for a war, to go from invention in the 1930s to takeoff in the early 1950s. Even in that hotbed of rapid change, Silicon Valley, most ideas take 20 years to become an overnight success. The Internet was almost 20 years old in 1988, the year that it began its dramatic run-up to the 1990s dot-com eruption. So having identified the origins and shape of the left-hand side of the S curve, you are always safer betting that events will unfold slowly than concluding that a sudden shift is in the wind. The best advice ever given to me was by a rancher who reminded me of an old bit of folk wisdom: "Son, never mistake a clear view for a short distance."

Once an inflection point arrives, people commonly underestimate the speed with which change will occur. The fact is, we are all by nature linear thinkers, and phenomena governed by the sudden, exponential growth of power laws catch us by surprise again and again. Even if we notice the beginning of a change, we instinctively draw a straight line diagonally through the S curve, and although we eventually arrive in the same spot, we miss both the lag at the start and the explosive growth in the middle. Timing, of course, is everything, and Silicon Valley is littered with the corpses of companies who mistook a clear view for a short distance and others who misjudged the magnitude of the S curve they happened upon.

Also expect the opportunities to be very different from those the majority predicts, for even the most expected futures tend to arrive in utterly unexpected ways. In the early 1980s, for example, PC makers predicted that every home would shortly have a PC on which people would do word processing and use spreadsheets or, later, read encyclopedias on CDs. But when home PC use did finally come about, it was driven by entertainment, not work, and when people finally consulted encyclopedias on-screen a decade after the PC makers said they would, the encyclopedias were online. The established companies selling their encyclopedias only on CD quickly went out of business.

RULE 3 > Embrace the Things That Don't Fit

The novelist William Gibson once observed: "The future's already arrived. It's just not evenly distributed yet." The leading-edge line of an emerging S curve is like a string hanging down from the future, and the odd event you can't get out of your mind could be a weak signal of a distant industry-disrupting S curve just starting to gain momentum.

The entire portion of the S curve to the left of the inflection point is paved with indicators – subtle pointers that when aggregated become powerful hints of things to come. The best way for forecasters to spot an emerging S curve is to become attuned to things that don't fit, things people can't classify or will even reject. Because of our dislike of uncertainty and our preoccupation with the present, we tend to ignore indicators that don't fit into familiar boxes. But by definition anything that is truly new won't fit into a category that already exists.

A classic example is the first sales of characters and in-game objects from the online game EverQuest on eBay in the late 1990s. Though eBay banned these sales in 2001, they anticipated the recent explosive growth of commerce in

Second Life, Linden Lab's virtual world in which members create 3-D avatars (digital alter egos). Through the avatars, members engage in social activities, including the creation and sale of in-world objects in a currency (Linden dollars) that can be exchanged for real dollars through various means. Today there are approximately 12 million subscribers participating in virtual world simulations like Second Life, and they're having an impact measurable in actual dollars. Real transactions connected with Second Life and other online simulations now are (conservatively) estimated at more than $1 billion annually. Where it ends is still uncertain, but it is unquestionably a very large S curve.

More often than not, indicators look like mere oddball curiosities or, worse, failures, and just as we dislike uncertainty, we shy away from failures and anomalies. But if you want to look for the thing that's going to come whistling in out of nowhere in the next years and change your business, look for interesting failures – smart ideas that seem to have gone nowhere.

One must look for the turns, not the straightaways, and thus one must peer far enough into the past to identify patterns.

Let's go back to Second Life. Its earliest graphical antecedent was Habitat, an online environment developed by Lucasfilm Games in 1985. Though nongraphical MUDs (multiple user dimensions) were a cultish niche success at the time, Habitat quickly disappeared, as did a string of other graphical MUDs developed in the 1980s and 1990s. Then the tide turned in the late 1990s, when multiplayer online games like EverQuest and Ultima started to take off. It was just a matter of time before the S curve that had begun with Habitat would spike for social environments as well as for games. Linden Lab's founders arrived on the scene with Second Life at the right time and with the right vision – that property ownership was the secret to success. (Sony missed this crucial point and insisted that everything in EverQuest, including user-created objects, was Sony's property, thus cutting EverQuest out of the wild sales-driven growth of virtual world simulations.) So although the explosive success of Second Life came as a considerable surprise to many people, from a forecasting perspective it arrived just about on time, almost 20 years after Habitat briefly appeared and expired.

As the Second Life example illustrates, indicators come in clusters. Here's another good example. Some readers will recall the flurry of news around the first two DARPA Grand Challenges, in which inventors and researchers were invited by the U.S. Department of Defense to design robots that could compete in a 100-mile-plus race across the Mojave Desert. The first Grand Challenge, which offered a $1 million prize, was held in March 2004. Most of the robots died in sight of the starting line, and only one robot got more than seven miles into the course. The Challenge's ambitious goal looked as remote as the summit of Everest. But just 19 months later, at the second Grand Challenge, five robots completed the course. Significantly, 19 months is approximately one doubling period under Moore's Law.

Around the same time I noticed a sudden new robot minicraze popping up that many people dismissed as just another passing fad. At the center of the craze was the Roomba, an inexpensive ($200 to $300) "smart" vacuum cleaner the size of a pizza pan. What was odd was that my friends with Roombas were as wildly enthusiastic about these machines as they had been about their original 128K Macs – and being engineers, they had never before shown any interest in owning, much less been excited by, a vacuum cleaner. Stranger yet, they gave their Roombas names, and when I checked with Roomba's maker, iRobot, I learned that in fact two-thirds of Roomba owners named their Roombas and one-third confessed to having taken their Roombas on vacation with them or over to friends houses to show them off.

Alone, this is just a curious story, but considered with the Grand Challenge success, it is another compelling indicator that a robotics inflection point lies in the not-too-distant future. What form this approaching robot revolution will take is still too uncertain to call, but I'll bet that it will be greeted with the same wild-eyed surprise and enthusiasm that greeted the rise of the PC in the early 1980s and the World Wide Web in the mid-1990s. Oh, and don't look for these robots to be the multitasking intelligent machines of science fiction. More likely, they'll be like the Roomba, more modest devices that do one or two tasks well or are simply cute and cuddly objects of affection. One indicator: Roomba owners today can even buy costumes for their robots!

RULE 4 > Hold Strong Opinions Weakly

One of the biggest mistakes a forecaster – or a decision maker – can make is to overrely on one piece of seemingly strong information because it happens to reinforce the conclusion he or she has already reached. This lesson was tragically underscored when nine U.S. destroyers ran aground on the shores of central California on the fog-shrouded evening of September 8, 1923.

The lost ships were part of DesRon 11, a 14-ship squadron steaming from San Francisco to San Diego. Misled largely by overreliance on the commander's dead-reckoning navigation, the squadron undershot the turn into the Santa Barbara Channel and instead ended up on the rocks at Point Pedernales, several miles to the northwest.

The squadron had navigated by dead reckoning for most of the trip, but as the ships approached the channel, the squadron's commander obtained bearings from a radio direction station at Point Arguello. The bearing placed his ship, the *Delphy*, north of its dead reckoning position. Convinced that his dead reckoning was accurate, the commander reinterpreted the bearing data in a way that confirmed his erroneous position and ordered a sharp course change towards the rapidly approaching coast. Nine ships followed the disastrous course.

Meanwhile, the deck officers on the *Kennedy*, the 11th boat in the formation, had concluded from their dead reckoning that they in fact were farther north and closer to shore than the position given by the *Delphy*. The skipper was skeptical, but the doubt the deck officers raised was sufficient for him to hedge his bets; an hour before the fateful turn he ordered a course change that placed his ship several hundred yards to the west of the ships in front of them, allowing the *Kennedy* and the three trailing destroyers to avert disaster.

The essential difference between the two skippers' responses was that the *Delphy*'s skipper ignored evidence that invalidated his dead-reckoning information and narrowed his cone of uncertainty at the very moment when the data was screaming out to broaden it. In contrast, the *Kennedy*'s skipper listened to the multiple sources of conflicting weak information and concluded that his ship's position was much less certain than assumed. He hedged their bets and, therefore, saved the ship.

In forecasting, as in navigation, lots of interlocking weak information is vastly more trustworthy than a point or two of strong information. The problem is that traditional research habits are based on collecting strong information. And once researchers have gone through the long process of developing a beautiful hypothesis, they have a tendency to ignore any evidence that contradicts their conclusion. This inevitable resistance to contradictory information is responsible in no small part for the nonlinear process of paradigm shifts identified by Thomas Kuhn in his classic *The Structure of Scientific Revolutions*. Once a theory gains wide acceptance, there follows a long stable period in which the theory remains accepted wisdom. All the while, however, contradictory evidence is quietly building that eventually results in a sudden shift.

Good forecasting is the reverse: It is a process of strong opinions, weakly held. If you must forecast, then forecast often – and be the first one to prove yourself wrong. The way to do this is to form a forecast as quickly as possible and then set out to discredit it with new data. Let's say you are looking at the future cost of oil and its impact on the economy. Early on, you conclude that above a certain price point, say $80 a barrel, U.S. consumers will respond the way they did during the Carter administration, by putting on cardigans and conserving energy. Your next step is to try to find out why this might *not* happen. (So far it hasn't – perhaps because Americans are wealthier today, and, as evidenced by the past decade's strong SUV sales, they may not care deeply enough to change their habits on the basis of cost alone until the oil price is much higher.) By formulating a sequence of failed forecasts as rapidly as possible, you can steadily refine the cone of uncertainty to a point where you can comfortably base a strategic response on the forecast contained within its boundaries. Having strong opinions gives you the capacity to reach conclusions quickly, but holding them weakly allows you to discard them the moment you encounter conflicting evidence.

RULE 5 > Look Back Twice as Far as You Look Forward

Marshall McLuhan once observed that too often people steer their way into the future while staring into the rearview mirror because the past is so much more comforting than the present. McLuhan was right, but used properly, our historical rearview mirror is an extraordinarily powerful forecasting tool. The texture of past events can be used to connect the dots of present indicators and thus reliably map the future's trajectory – provided one looks back far enough.

Consider the uncertainty generated by the post-bubble swirl of the Web, as incumbents like Google and Yahoo, emergent players, and declining traditional TV and print media players jockey for position. It all seems to defy categorization, much less prediction, until one looks back five decades to the emergence in the early 1950s of TV and the subsequent mass-media order it helped catalyze. The present moment has eerie parallels to that era, and inspection of those similarities quickly brings today's landscape into sharp focus: We are in a moment when the old mass-media order is being replaced by a new personal-media order, and it's not just the traditional media players that are struggling to adjust. The cutting-edge players of the information revolution, from Microsoft to Google, are pedaling every bit as hard.

The problem with history is that our love of certainty and continuity often causes us to draw the wrong conclusions. The recent past is rarely a reliable indicator of the future – if it were, one could successfully predict the next 12 months of the Dow or Nasdaq by laying a ruler along the past 12 months and extending the line forward. But the Dow doesn't behave that way, and neither does any other trend. You must look for the turns, not the straightaways, and thus you must peer far enough into the past to identify patterns. It's been written that "history doesn't repeat itself, but sometimes it rhymes." The effective forecaster looks to history to find the rhymes, not the identical events.

So when you look back for parallels, always look back at least twice as far as you are looking forward. Search for similar patterns, keeping in mind that history – especially recent history – rarely repeats itself directly. And don't be afraid to keep looking further back if the double interval is not enough to trigger your forecaster's informed intuition.

The hardest part of looking back is to know when history doesn't fit. The temptation is to use history (as the old analogy goes) the way a drunk uses a lamppost, for support rather than illumination. That's the single worst mistake a forecaster can make, and examples, unfortunately, abound. Jerry Levin, for instance, sold Time Warner to AOL in the mistaken belief that he could use mergers and acquisitions to shoulder his company into digital media the way he did so successfully with cable and movies. He ended up closing the deal just when AOL's decade-old model was being wiped out by new challengers with models allowing them to offer e-mail free of charge. Another case in point: A dark joke at the Pentagon is that the U.S. military is always fighting the last war, and indeed it is evident that in the case of the Iraq conflict, planners in certain areas simultaneously assumed that Iraq II would unfold like Iraq I and dismissed Vietnam as a source of insight because the U.S. had "lost that war."

Even in periods of dramatic, rapid transformation, there are vastly more elements that do not change than new things that emerge.

RULE 6 > Know When *Not* to Make a Forecast

It is a peculiar human quality that we are at once fearful of – and fascinated by – change. It is embedded in our social vocabulary, as we often greet a friend with the simple salutation, "What's new?" Yet it is a liability for forecasters to have too strong a proclivity to see change, for the simple fact is that even in periods of dramatic, rapid transformation, there are vastly more elements that do not change than new things that emerge.

Consider again that whirling vortex of the 1990s, the dot-com bubble. Plenty new was happening, but underlying the revolution were deep, unchanging consumer desires and ultimately, to the sorrow of many a start-up, unchanging laws of economics. By focusing on the novelties, many missed the fact that consumers were using their new broadband links to buy very traditional items like books and engage in old human activities like gossip, entertainment, and pornography. And though the future-lookers pronounced it to be a time when the old rules no longer applied, the old economic imperatives applied with a vengeance and the dot-com bubble burst just like every other bubble before it. Anyone who had taken the time to examine the history of economic bubbles would have seen it coming.

Against this backdrop, it is important to note that there are moments when forecasting is comparatively easy – and other moments when it is impossible. The cone of uncertainty is not static; it expands and contracts as the present rolls into the future and certain possibilities come to pass while others are closed off. There are thus moments of unprecedented uncertainty when the cone broadens to a point at which the wise forecaster will demur and refrain from making a forecast at all. But even in such a moment, one can take comfort in the knowledge that things will soon settle down, and with the careful exercise of intuition, it will once again be possible to make a good forecast.

Consider the events surrounding the fall of the Berlin Wall. In January 1989, the East German leader, Erich Honecker, declared that the wall would stand for "a hundred more years," and indeed Western governments built all their plans around this assumption. The signs of internal collapse are obvious in hindsight, but at the time, the world seemed locked in a bipolar superpower order that despite its nuclear fearfulness was remarkably stable. The cone of uncertainty, therefore, was relatively narrow, and within its boundaries there were a number of easily imaginable outcomes, including the horror of mutual destruction. Uncertainties popped up only where the two superpowers' spheres of influence touched and overlapped. But even here, there was a hierarchy of uncertainty: When change eventually came, it would likely unfold first in South Asia or restive Poland rather than in Berlin, safely encircled by its wall.

But the Berlin Wall came crashing down in the fall of 1989, and with it crumbled the certainty of a forecast rooted in the assumption of a world dominated by two superpowers. A comfortably narrow cone dilated to 180 degrees, and at that moment the wise forecaster would have refrained from jumping to conclusions and instead would have quietly looked for indicators of what would emerge from the geopolitical rubble – both overlooked indicators leading up to the wall's collapse and new ones emerging from its geopolitical detritus.

Indeed, the new order revealed itself within 12 months, and the indicator was Iraq's invasion of Kuwait on August 2, 1990. Before the collapse of the USSR, such an action would have triggered a Cuban Missile Crisis–like conflict between the two superpowers, but without a strong Soviet Union either to restrain Saddam or saber-rattle back, the outcome was very different. And with it, the new geopolitical order was obvious: The cone of uncertainty had narrowed to encompass a world where the myriad players once arrayed in the orderly force field of one superpower or another now were all going in their own directions. All the uncertainty shifted to center on whether the single surviving superpower could remain one at all. Iraq II of course has provided the answer to that question: A unipolar superpower order is not possible. As others have observed, we live in a world where the sole remaining superpower is too powerful to ignore but too weak to make a difference.

Bottom line? Be skeptical about apparent changes, and avoid making an immediate forecast – or at least don't take any one forecast too seriously. The incoming future will wash up plenty more indicators on your beach, sooner than you think.

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Professional forecasters are developing ever more complex and subtle tools for peering ahead – futures markets, online expert aggregations, sophisticated computer-based simulations and even, horizon-scanning software that crawls the Web looking for surprises. That is why it is essential for executives to become sophisticated and participative consumers of forecasts. That doesn't mean you must learn nonlinear algebra or become a forecasting expert in your own right. At the end of the day, forecasting is nothing more (nor less) than the systematic and disciplined application of common sense. It is the exercise of your own common sense that will allow you to assess the quality of the forecasts given to you – and to properly identify the opportunities and risks they present. But don't stop there. The best way to make sense of what lies ahead is to forecast for yourself.

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Innovations in Executive Education

THE HIRING OF MBA graduates rose this spring for the first time in at least five years. In fact, this year's increase is expected to be twenty percent or more. Why? An improving economy, business growth, and employee retirement have reignited the war for talent, making newly minted MBAs a hot commodity once again.

At the same time, top business schools have been transforming their offerings to better address the current challenges companies face. Such efforts include customizing the educational experience, emphasizing global management and cross-enterprise leadership skills, and adding new courses about the role of business in society.

The "Custom" MBA

Tailored management education is on the rise. Last year, the Stanford Graduate School of Business redesigned its MBA curriculum to make it easier for students to tailor their coursework to their personal career aspirations. Similarly, Queen's School of Business in Ontario, Canada, unveiled a new curriculum featuring the "Personal Leadership Pathway," which provides students with a personal development coach, career coach, personal trainer, and academic adviser to help them achieve their goals.

In addition, the Haas School of Business at the University of California, Berkeley, introduced a required leadership course for all first-year students in the full-time MBA program. This course begins with a confidential 360-degree assessment of each student's leadership skills, completed by former supervisors, peers, coworkers, and clients. By the end of the course, students must devise an actionable plan for improving their skills based on the feedback they've received.

Customization is also prevalent at the Thunderbird School of Global Management in Arizona, which launched an MBA program just for executives of the Korean firm LG last year. The Tuck School of Business at Dartmouth, the Darden School of Business at the University of Virginia, and the Sloan School of Management at MIT have all seen an increase in the demand for short-term custom programs. Drexel University's LeBow College of Business' Corporate Learning Solutions offers programs at their two campuses, online, or onsite at corporate offices; scheduling is highly tailored and upon request, they will modify content to meet a company's specific needs. Meanwhile, the corporate education arm of Duke University's Fuqua School of Business forged an alliance with the Indian Institute of

Management—Ahmedabad to offer programs in India and West Asia.

Harvard Business School's response to the increased demand for customization runs the gamut from programs for leaders in science-based industries to offerings for National Football League players. This past spring, the University of Pennsylvania's Wharton School introduced a "career comeback" program to help women return to the workforce after taking time off to raise a family or pursue other interests. Vanderbilt's Owen Graduate School of Management and Virginia's Darden School are among the schools developing customized programs for civil servants.

According to a recent study, more than half of all executive education is now customized, and at a number of leading business schools, specially tailored excecctive education programs now account for a larger portion of overall revenue than the full-time MBA curriculum.

Leading Across the Enterprise—and Around the World

In the traditional business education model, developed in the late 19th century at the University of Pennsylvania's Wharton School of Business, the core functional disciplines such as finance, accounting, and marketing are taught separately. But increasingly, corporate jobs no longer break down so cleanly along functional lines. For example, a marketing executive must be able not only to design a value proposition and bring a product to market, but also to tackle the much broader question of figuring out what customers want.

The need to engage emerging markets, build sustainable value, and drive growth through innovation and entrepreneurship has put a premium on managers with an interdisciplinary perspective. To better replicate this new workplace environment, some schools are dispensing with the traditional functional disciplines. The Richard Ivey School of Business at the University of Western Ontario has rolled out a new MBA curriculum that emphasizes the ability to break down silos and lead initiatives that benefit the entire enterprise. Yale School of Management's new curriculum features a series of courses focused on managing external constituencies—customers, investors, competitors, as well as state and society—in concert with such internal constituencies as operating executives, fund managers, employees, and innovators.

Leading innovation in particular presents a host of cross-disciplinary challenges, which is why many schools are increasingly weaving design thinking into the curriculum. North-

"WITH MINIMAL DISRUPTION TO MY PROFESSIONAL AND PRIVATE LIFE, THE PROGRAM HAD A HUGE IMPACT ON BOTH"

western's Kellogg School of Management, Harvard Business School, the McDonough School of Business at Georgetown, and the Ross School of Business at Michigan have long been recognized for their elective courses in integrated product design, managing product development, and design as a strategic business issue. The Rotman School of Management at the University of Toronto and the Tepper School of Business at Carnegie Mellon have pioneered MBA tracks that emphasize innovation and design. Stanford's Institute of Design, which teaches design thinking and strategy to business, engineering, and design students, and INSEAD's partnership with the Art Center College of Design in Pasadena, California, represent some of the most ambitious efforts in this area.

For so many businesses today, the ability to lead across the enterprise requires a proficiency in global management. The first phase of preparing students to oversee a global enterprise involved courses in managing worldwide IT systems and supply chains. Now, the emphasis has shifted to teaching students how to motivate, communicate, and negotiate cross-culturally. MBA candidates are increasingly seeking business schools that offer a wide range of cultural perspectives. Not surprisingly, interest in schools such as IESE Business School at the University of Navarra in Spain and INSEAD in France, where most of the students hail from somewhere outside the host country, is on the rise.

The Growing Link Between Business and Society

The call for corporate leaders to take greater responsibility for issues at the intersection of business and society has not fallen on deaf ears. In a recent survey of fifty B-schools, eighty-four percent said they require at least one of the three topics—ethics, corporate social responsibility (CSR), and sustainability—to be covered in their MBA curriculum. One-third of the responding schools require all three, and sixty-five percent reported that they have centers related to ethics, CSR, or sustainability for research and training purposes. The survey also revealed a five-fold increase in the number of ethics courses over the past eight years.

Another survey, conducted by the Business and Society Program of the Aspen Institute, which tracks courses in sustainability in some 100 schools, showed that the number of courses has risen from thirteen in 2001 to sixty last year. Stanford and Berkeley's Haas School are among the leaders in offering elective courses devoted to environmental sustainability and social and environmental entrepreneurship. This fall, the Tuck School of Business will unveil a societal leadership elective, which will focus on microfinance as a means of reducing global poverty.

At Columbia Business School, such topics as renewable energy, microfinance, and socially responsible investing are woven into core curriculum courses on finance and accounting. This past spring, the Sloan School introduced a sustainability laboratory, where students have the opportunity to develop new, greener business models.

Collectively, these developments are turning the tide for executive education programs. Leading business schools' efforts to innovate and respond to global business demands are clearly beginning to pay off. •

Managing Our Way to Economic Decline

by Robert H. Hayes and William J. Abernathy

Editor's Note: This 1980 article, with its scathing and richly documented criticism of U.S. managers' focus on short-term financial gain at the expense of long-term competitiveness, sent shock waves through American business when it was first published. The inroads that European and Japanese companies have made into traditional U.S. industrial strongholds since then prove its prescience.

Many of the problems raised by the authors have been addressed over the years, as Harvard Business School's Robert H. Hayes notes in a sidebar written for this issue. But the original article's call for self-examination and action is still relevant today, as U.S. companies face similar uncertainty and emerging competition – this time from China, India, and other developing economies.

DURING THE PAST SEVERAL YEARS, American business has experienced a marked deterioration of competitive vigor and a growing unease about its overall economic well-being. This decline in both health and confidence has been attributed by economists and business leaders to such factors as the rapacity of OPEC, deficiencies in government tax and monetary policies, and the proliferation of regulation. We find these explanations inadequate.

They do not explain, for example, why the rate of productivity growth in America has declined both absolutely and relative to that in Europe and Japan. Nor do they explain why in many high-technology as well as mature industries America has lost

Robert Meganck

its leadership position. Although a host of readily named forces – government regulation, inflation, monetary policy, tax laws, labor costs and constraints, fear of a capital shortage, the price of imported oil – have taken their toll on American business, pressures of this sort affect the economic climate abroad just as they do here.

A German executive, for example, will not be convinced by these explanations. Germany imports 95% of its oil (we import 50%), its government's share of gross domestic product is about 37% (ours is about 30%), and workers must be consulted on most major decisions. Yet Germany's rate of productivity growth has actually increased since 1970 and recently rose to more than four times ours. In France the situation is similar, yet today that country's productivity growth in manufacturing (despite current crises in steel and textiles) more than triples ours. No modern industrial nation is immune to the problems and pressures besetting U.S. business. Why then do we find a disproportionate loss of competitive vigor by U.S. companies?

Our experience suggests that, to an unprecedented degree, success in most industries today requires an organizational commitment to compete in the marketplace on technological grounds – that is, to compete over the long run by offering superior products. Yet, guided by what they took to be the newest and best principles of management, American managers have increasingly directed their attention elsewhere. These new principles, despite their sophistication and widespread usefulness, encourage a preference for (1) analytic detachment rather than the insight that comes from hands-on experience and (2) short-term cost reduction rather than long-term development of technological competitiveness. It is this new managerial gospel, we feel, that has played a major role in undermining the vigor of American industry.

American management, especially in the two decades after World War II, was universally admired for its strikingly effective performance. But times change. An approach shaped and refined during stable decades may be ill suited to a world characterized by rapid and unpredictable change, scarce energy, global competition for markets, and a constant need for innovation. This is the world of the 1980s and, probably, the rest of this century.

The time is long overdue for earnest, objective self-analysis. What exactly have American managers been doing wrong?

The time is long overdue for earnest, objective self-analysis. What exactly have American managers been doing wrong? What are the critical weaknesses in the ways that they have managed the technological performance of their companies? What is the matter with the long-unquestioned assumptions on which they have based their managerial policies and practices?

A Failure of Management

In the past, American managers earned worldwide respect for their carefully planned yet highly aggressive action across three different time frames:

- Short term – using existing assets as efficiently as possible.
- Midterm – replacing labor and other scarce resources with capital equipment.
- Long term – developing new products and processes that open new markets or restructure old ones.

The first of these time frames demanded toughness, determination, and close attention to detail; the second, capital and the willingness to take sizable financial risks; the third, imagination and a certain amount of technological daring.

Our managers still earn generally high marks for their skill in improving short-term efficiency, but their counterparts in Europe and Japan have started to question America's entrepreneurial imagination and willingness to make risky long-term competitive investments. As one such observer remarked to us, "The U.S. companies in my industry act like banks. All they are interested in is return on investment and getting their money back. Sometimes they act as though they are more interested in buying other companies than they are in selling products to customers."

In fact, this curt diagnosis represents a growing body of opinion that openly charges American managers with competitive myopia: "Somehow or other, American business is losing confidence in itself and especially confidence in its future. Instead of meeting the challenge of the changing world, American business today is making small, short-term adjustments by cutting costs and by turning to the government for temporary relief....Success in trade is the result of patient and meticulous preparations, with a long period of market preparation before the rewards are available....To undertake such commitments is hardly in the interest of a manager who is concerned with his or her next quarterly earnings reports."[1]

Robert H. Hayes is the Philip Caldwell Professor of Business Administration, Emeritus, at Harvard Business School and the coauthor of numerous books, including *Operations, Strategy, and Technology: Pursuing the Competitive Edge* (John Wiley & Sons, 2004), coauthored with Gary Pisano, David Upton, and Steven Wheelwright. **William J. Abernathy** was a professor of business administration at Harvard Business School and a leading authority on the automobile industry.

More troubling still, American managers themselves often admit the charge with, at most, a rhetorical shrug of their shoulders. In established businesses, notes one senior vice president of research, "We understand how to market, we know the technology, and production problems are not extreme. Why risk money on new businesses when good, profitable, low-risk opportunities are on every side?" Says another: "It's much more difficult to come up with a synthetic meat product than a lemon-lime cake mix. But you work on the lemon-lime cake mix because you know exactly what that return is going to be. A synthetic steak is going to take a lot longer, require a much bigger investment, and the risk of failure will be greater."[2]

These managers are not alone; they speak for many. Why, they ask, should they invest dollars that are hard to earn back when it is so easy – and so much less risky – to make money in other ways? Why ignore a ready-made situation in cake mixes for the deferred and far less certain prospects in synthetic steaks? Why shoulder the competitive risks of making better, more innovative products?

In our judgment, the assumptions underlying these questions are prime evidence of a broad managerial failure – a failure of both vision and leadership – that over time has eroded both the inclination and the capacity of U.S. companies to innovate.

Familiar Excuses

About the facts themselves there can be little dispute. Exhibits I–IV document our sorry decline. But the explanations and excuses commonly offered invite a good deal of comment.

It is important to recognize, first of all, that the problem is not new. It has been going on for at least 15 years. The rate of productivity growth in the private sector peaked in the mid-1960s. Nor is the problem confined to a few sectors of our economy; with a few exceptions, it permeates our entire economy. Expen-

Exhibit I

Growth in Labor Productivity Since 1960, United States and Abroad

Average annual % change

	Manufacturing 1960–1978	All industries 1960–1976
United States	2.8%	1.7%
United Kingdom	2.9	2.2
Canada	4.0	2.1
Germany	5.4	4.2
France	5.5	4.3
Italy	5.9	4.9
Belgium	6.9*	—
Netherlands	6.9*	—
Sweden	5.2	—
Japan	8.2	7.5

*1960–1977

Source: Council on Wage and Price Stability, *Report on Productivity*, July 1979.

Exhibit II

Growth of Labor Productivity by Sector, 1948–1978

Growth of labor productivity (annual average %)

Time sector	1948–65	1965–73	1973–78
Private business	3.2%	2.3%	1.1%
Agriculture, forestry, and fisheries	5.5	5.3	2.9
Mining	4.2	2.0	–4.0
Construction	2.9	–2.2	–1.8
Manufacturing	3.1	2.4	1.7
Durable goods	2.8	1.9	1.2
Nondurable goods	3.4	3.2	2.4
Transportation	3.3	2.9	0.9
Communication	5.5	4.8	7.1
Electric, gas, and sanitary services	6.2	4.0	0.1
Trade	2.7	3.0	0.4
Wholesale	3.1	3.9	0.2
Retail	2.4	2.3	0.8
Finance, insurance, and real estate	1.0	–0.3	1.4
Services	1.5	1.9	0.5
Government enterprises	–0.8	0.9	–0.7

Source: Bureau of Labor Statistics.

Note: Productivity data for services, construction, finance, insurance, and real estate are unpublished.

"Managing Our Way..."

A Retrospective by Robert H. Hayes

Rereading "Managing Our Way to Economic Decline" 27 years after it appeared, I am struck by how mainstream its assertions and recommendations appear today. Being at the forefront of technology, looking beyond short-term financial results when evaluating investments, focusing on key businesses rather than assembling and managing corporate portfolios, and having managers who understand and are deeply involved in the details of their companies now sound like clichés. So why did the article attract so much attention – worldwide – when it was published? And why did it generate heated criticism?

A main reason was our audacity to question a set of values and practices that appeared to have been highly successful over a long period of time. Until the late 1970s, the United States tended to regard itself as the exemplar of modern management. This view was bolstered by more than three decades of positive trade balances that appeared to provide clear evidence of the superiority of the "American system" of mass production, with its emphasis on low cost and on standardized products. American approaches to business planning, marketing, operations, financial analysis, and organization were considered leading edge. Executives from around the world visited the United States to tour factories, attend executive programs, and study textbooks to learn the secrets of the nation's industrial success.

In the 1970s, a series of shocks – including oil crises, high inflation, and the substantial inroads of imported products in major markets such as textiles, toys, and steel – began to shake America's complacency. Since those industries tended to be low-tech or environmentally unattractive or both, foreign companies' success in those markets was generally not seen as evidence of a serious decline in overall U.S. competitiveness and was instead initially ascribed to cheap labor and cherry-picking.

In the 1980s, after our article had been published, such comfortable illusions were shattered as it became clear that inroads made by foreign companies into an increasing array of critical, higher technology industries – including automobiles, machine tools, and consumer electronics – constituted a serious threat to domestic industries. Even more alarming, many foreign competitors attempted to compete not on the basis of low price, but rather by offering differentiated products that provided superior quality and dependability. Our call to get back to basics became American managers' mantra of the 1980s. For a while, companies focused on improving quality, responsiveness, and technological innovation, and America's competitive situation slowly improved.

Then, the get-rich-quick, bubble mentality of the late 1990s took over, and managers turned their attention from the mundane pursuit of operating excellence to panning for gold in the business opportunities that the "new economy" had created. A few of those opportunities proved profitable, but most did not, and, in the interim, America's international competitiveness deteriorated anew. So perhaps another call to get back to basics is in order.

Today, however, a mastery of the old basics no longer suffices, because fundamental changes in the world economy have added more items to the list. As the economies of China, India, and Eastern Europe have opened up, they've provided access to vast pools of skilled and low-cost workers. Rapid advances in international communications and transport have made it possible to outsource activities that companies had previously performed internally. And rather than buying complementary products and services from separate suppliers, customers are increasingly demanding that suppliers work together to provide them with integrated solutions. These trends mean that the capability to get multiple, far-flung organizations to operate in concurrent fashion has become de rigueur.

For example, organizing and resolving differences among multiple parties in such consortia require a rich understanding of how and when various forms of control and negotiating methods are appropriate. These include innovative incentive and penalty systems, implicit (and continually revised or reinterpreted) contracts, and informal or indirect ways to mobilize and wield group pressure on organizations with which one has no direct or formal business relationship.

Managing the complex information technology that networked organizations require is another new basic. In fact, IT is a universe consisting of a number of worlds, each with its own set of fundamentals, depending on the form of the IT and what it is intended to accomplish.

So if a new "Managing Our Way" article were written today, it would have to go beyond its call for managers to re-embrace the traditional basics – to invest, innovate, lead, and create value where none existed before. It would have to encourage them to be pioneers in creating and implementing a new set of essentials to prevail in today's networked, virtual world. Companies led by such managers will advance to the forefront in the decades ahead.

ditures on R&D by both business and government, as measured in constant (noninflated) dollars, also peaked in the mid-1960s – both in absolute terms and as a percentage of GNP. During the same period, the expenditures on R&D by West Germany and Japan have been rising. More important, American spending on R&D as a percentage of sales in such critical research-intensive industries as machinery, professional and scientific instruments, chemicals, and aircraft had dropped by the mid-1970s to about half its level in the early 1960s. These are the very industries on which we now depend for the bulk of our manufactured exports.

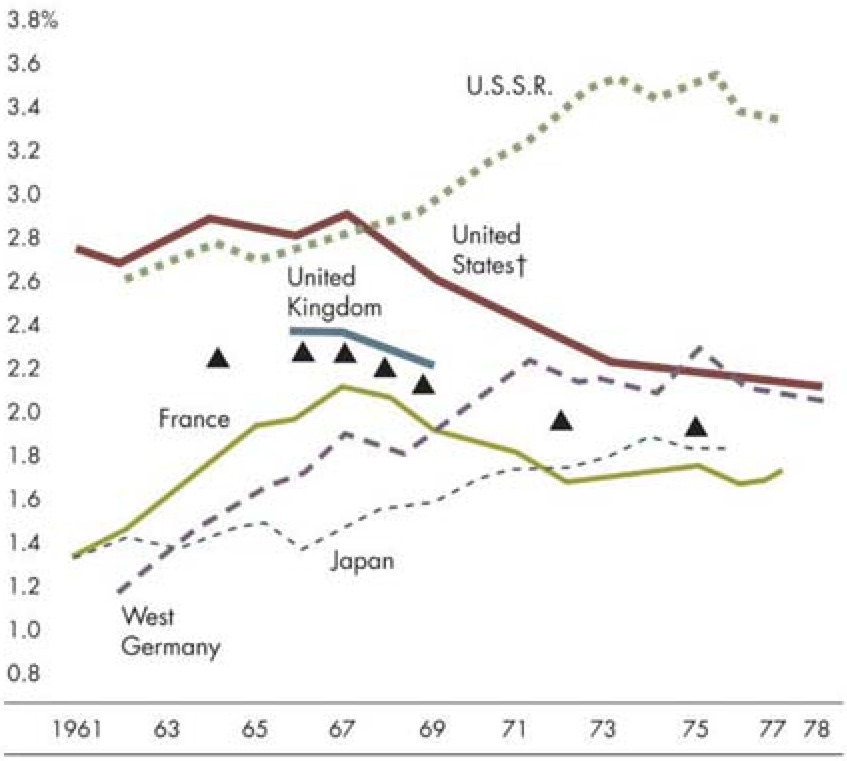
Investment in plant and equipment in the United States displays the same disturbing trends. As economist Burton G. Malkiel has pointed out, "From 1948 to 1973 the [net book value of capital equipment] per unit of labor grew at an annual rate of almost 3%. Since 1973, however, lower rates of private investment have led to a decline in that growth rate to 1.75%. Moreover, the recent composition of investment [in 1978] has been skewed toward equipment and relatively short-term projects and away from structures and relatively long-lived investments. Thus our industrial plant has tended to age...."[3]

Other studies have shown that growth in the incremental capital equipment-to-labor ratio has fallen to about one-third of its value in the early 1960s. By contrast, between 1966 and 1976 capital investment as a percentage of GNP in France and West Germany was more than 20% greater than that in the United States; in Japan the percentage was almost double ours.

To attribute this relative loss of technological vigor to such things as a shortage of capital in the United States is not justified. As Malkiel and others have shown, the return on equity of American business (out of which comes the capital necessary for investment) is about the same today as 20 years ago, *even after adjusting for inflation.* However, investment in both new equipment and R&D, as a percentage of GNP, was significantly higher 20 years ago than today.

Exhibit III

National Expenditures for Performance of R&D as a Percent of GNP by Country, 1961–1978*



*Gross expenditures for performance of R&D including associated capital expenditures.

†Detailed information on capital expenditures for R&D is not available for the United States. Estimates for the period 1972–1977 show that their inclusion would have an impact of less than one-tenth of 1% for each year.

Source: *Science Indicators–1978,* p. 6.

Note: The latest data may be preliminary or estimates.

The conclusion is painful but must be faced. Responsibility for this competitive listlessness belongs not just to a set of external conditions but also to the attitudes, preoccupations, and practices of American managers. By their preference for servicing existing markets rather than creating new ones and by their devotion to short-term returns and "management by the numbers," many of them have effectively forsworn long-term technological superiority as a competitive weapon. In consequence, they have abdicated their strategic responsibilities.

The New Management Orthodoxy

We refuse to believe that this managerial failure is the result of a sudden psychological shift among American managers toward a "super-safe, no-risk" mind-set. No profound sea change in the character of thousands of individuals could have occurred in so organized a fashion or have produced so consistent a pattern of behavior. Instead we believe that during the past two decades American managers have increasingly relied on principles that prize analytical detachment and methodological elegance over insight, based on experience, into the subtleties and complexities of strategic decisions. As a result, maximum short-term financial returns have become the overriding criteria for many companies.

For purposes of discussion, we may divide this *new* management orthodoxy into three general categories: financial control, corporate portfolio management, and market-driven behavior.

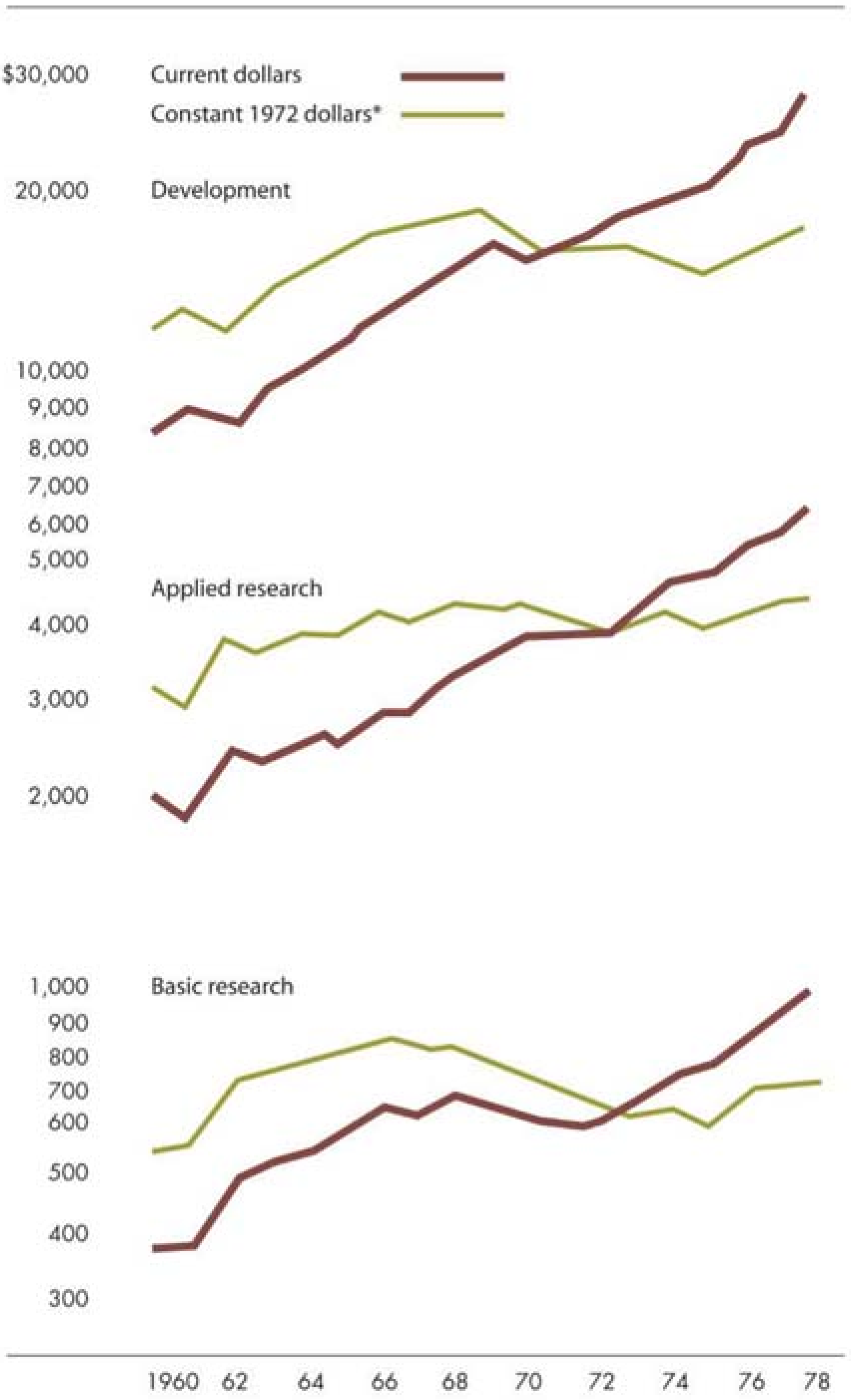
Financial control. As more companies decentralize their organizational structures, they tend to fix on profit centers as the primary unit of managerial responsibility. This development necessitates, in turn, greater dependence on short-term financial measurements like return on investment (ROI) for evaluating the performance of individual managers and management groups. Increasing the structural distance between those entrusted with exploiting actual competitive opportunities and those who must judge the quality of their work virtually guarantees reliance on objectively quantifiable short-term criteria.

Although innovation, the lifeblood of any vital enterprise, is best encouraged by an environment that does not unduly penalize failure, the predictable result of relying too heavily on short-term financial measures – a sort of managerial remote control – is an environment in which no one feels he or she can afford a failure or even a momentary dip in the bottom line.

Corporate portfolio management. This preoccupation with control draws support from modern theories of financial portfolio management. Originally developed to help balance the overall risk and return of stock and bond portfolios, these principles have been applied increasingly to the creation and management of corporate portfolios – that is, a cluster of companies and product lines assembled through various modes of diversification under a single corporate umbrella. When applied by a remote group of dispassionate experts primarily concerned with

Exhibit IV

Industrial R&D Expenditures for Basic Research, Applied Research, and Development, 1960–1978 (in $ millions)



* GNP implicit price deflators used to convert current dollars to constant 1972 dollars.

Source: *Science Indicators–1978*, p. 87.

Note: Preliminary data are shown for 1977 and estimates for 1978.

finance and control and lacking hands-on experience, the analytic formulas of portfolio theory push managers even further toward an extreme of caution in allocating resources.

"Especially in large organizations," reports one manager, "we are observing an increase in management behavior which I would regard as excessively cautious, even passive; certainly overanalytical; and, in general, characterized by a studied unwillingness to assume responsibility and even reasonable risk."

Market-driven behavior. In the past 20 years, American companies have perhaps learned too well a lesson they had long been inclined to ignore: Businesses should be customer oriented rather than product oriented. Henry Ford's famous dictum that the public could have any color automobile it wished as long as the color was black has since given way to its philosophical opposite: "We have got to stop marketing makeable products and learn to make marketable products."

At last, however, the dangers of too much reliance on this philosophy are becoming apparent. As two Canadian researchers have put it, "Inventors, scientists, engineers, and academics, in the normal pursuit of scientific knowledge, gave the world in recent times the laser, xerography, instant photography, and the transistor. In contrast, worshippers of the marketing concept have bestowed upon mankind such products as new-fangled potato chips, feminine hygiene deodorant, and the pet rock...."[4]

The argument that no new product ought to be introduced without managers undertaking a market analysis is common sense. But the argument that consumer analyses and formal market surveys should dominate other considerations when allocating resources to product development is untenable. It may be useful to remember that the initial market estimate for computers in 1945 projected total worldwide sales of only ten units. Similarly, even the most carefully researched analysis of consumer preferences for gas-guzzling cars in an era of gasoline abundance offers little useful guidance to today's automobile manufacturers in making wise product investment decisions. Customers may know what their needs are, but they often define those needs in terms of existing products, processes, markets, and prices.

Deferring to a market-driven strategy without paying attention to its limitations is, quite possibly, opting for customer satisfaction and lower risk in the short run at the expense of superior products in the future. Satisfied customers are critically important, of course, but not if the strategy for creating them is responsible as well for unnecessary product proliferation, inflated costs, unfocused diversification, and a lagging commitment to new technology and new capital equipment.

Exhibit V

Trade-Offs Between Imitative and Innovative Design for an Established Product Line

Imitative design	Innovative design
Market demand is relatively well known and predictable.	Potentially large but unpredictable demand; the risk of a flop is also large.
Market recognition and acceptance are rapid.	Market acceptance may be slow initially, but the imitative response of competitors may also be slowed.
Readily adaptable to existing market, sales, and distribution policies.	May require unique, tailored marketing distribution and sales policies to educate customers or because of special repair and warranty problems.
Fits with existing market segmentation and product policies.	Demand may cut across traditional marketing segments, disrupting divisional responsibilities and cannibalizing other products.

Three Managerial Decisions

These are serious charges to make. But the unpleasant fact of the matter is that, however useful these new principles may have been initially, if carried too far they are bad for U.S. business. Consider, for example, their effect on three major kinds of choices regularly faced by corporate managers: the decision between imitative and innovative product design, the decision to integrate backward, and the decision to invest in process development.

Imitative versus innovative product design. A market-driven strategy requires new product ideas to flow from detailed market analysis or, at least, to be extensively tested for consumer reaction before actual introduction. It is no secret that these requirements add significant delays and costs to the introduction of new products. It is less well known that they also predispose managers toward developing products for existing markets and toward product designs of an imitative rather than an innovative nature. There is increasing evidence that market-driven strategies tend, over time, to dampen the general level of innovation in new product decisions.

Confronted with the choice between innovation and imitation, managers typically ask whether the marketplace shows any consistent preference for innovative products. If so, the additional funding they require may be economically justified; if not, those funds can more properly go to advertising, promoting, or reducing the prices of less-advanced products. Though the temptation to allocate resources so as to strengthen performance in existing products and markets is often irresistible, recent studies by J. Hugh Davidson and others confirm the strong market attractiveness of innovative products.[5]

Nonetheless, managers having to decide between innovative and imitative product design face a difficult series of marketing-related trade-offs. Exhibit V summarizes these trade-offs.

By its very nature, innovative design is, as Joseph Schumpeter observed a long time ago, initially destructive of capital – whether in the form of labor skills, management systems, technological processes, or capital equipment. It tends to make obsolete existing investments in both marketing and manufacturing organizations. For the managers concerned it represents the choice of uncertainty (about economic returns, timing, and so on) over relative predictability, exchanging the reasonable expectation of current income against the promise of high future value. It is the choice of the gambler, the person willing to risk much to gain even more.

Conditioned by a market-driven strategy and held closely to account by a "results now" ROI-oriented control system, American managers have increasingly refused to take the chance on innovative product-market development. As one of them confesses, "In the last year, on the basis of high capital risk, I turned down new products at a rate at least twice what I did a year ago. But in every case I tell my people to go back and bring me some new product ideas."[6] In truth, they have learned caution so well that many are in danger of forgetting that market-driven, follow-the-leader companies usually end up following the rest of the pack as well.

Backward integration. Sometimes the problem for managers is not their reluctance to take action and make investments but that, when they do so, their action has the unintended result of reinforcing the status quo. In deciding to integrate backward because of apparent short-term rewards, managers often restrict their ability to strike out in innovative directions in the future.

Consider, for example, the case of a manufacturer who purchases a major component from an outside company. Static analysis of production economies may very well show that backward integration offers rather substantial cost benefits. Eliminating certain purchasing and marketing functions, centralizing overhead, pooling R&D efforts and resources, coordinating design and production of both product and component, reducing uncertainty over design changes, allowing for the use of more specialized equipment and labor skills – in all these ways and more, backward integration holds out to management the promise of significant short-term increases in ROI.

These efficiencies may be achieved by companies with commodity-like products. In such industries as ferrous and nonferrous metals or petroleum, backward integration toward raw materials and supplies tends to have a strong, positive effect on profits. However, the situation is markedly different for companies in more technologically active industries. Where there is considerable exposure to rapid technological advances, the promised value of backward integration becomes problematic. It may provide a quick, short-term boost to ROI figures in the next annual report, but it may also paralyze the long-term ability of a company to keep on top of technological change.

The real competitive threats to technologically active companies arise less from changes in ultimate consumer preference than from abrupt shifts in component technologies, raw materials, or production processes. Hence those managers whose attention is too firmly directed toward the marketplace and near-term profits may suddenly discover that their decision to make rather than buy important parts has locked their companies into an outdated technology.

Further, as supply channels and manufacturing operations become more systematized, the benefits from attempts to "rationalize" production may well be accompanied by unanticipated side effects. For instance, a company may find itself shut off from the R&D efforts of various independent suppliers by becoming their competitor. Similarly, the commitment of time and resources needed to master technology back up the channel of supply may distract a company from doing its own job well. Such was the fate of Bowmar, the pocket calculator pioneer, whose attempt to integrate backward into semiconductor production so consumed management attention that final assembly of the calculators, its core business, did not get the required resources.

Long-term contracts and long-term relationships with suppliers can achieve many of the same cost benefits as backward integration without calling into question a company's ability to innovate or respond to innovation. European automobile manufacturers, for example, have typically chosen to rely on their suppliers in this way; American companies have followed the path of backward integration. The resulting trade-offs between production efficiencies and innovative flexibility should offer a stern warning to those American managers too easily beguiled by the lure of short-term ROI improvement. A case in point: The U.S. auto industry's huge investment in automating the manufacture of cast-iron brake drums probably delayed by more than five years its transition to disc brakes.

Process development. In an era of management by the numbers, many American managers – especially in mature industries – are reluctant to invest heavily in the development of new manufacturing processes. When asked to explain their reluctance, they tend to respond in fairly predictable ways. "We can't afford to design new capital equipment for just our own manufacturing needs" is one frequent answer. So is, "The capital equipment producers do a much better job, and they can amortize their development costs over sales to many companies." Perhaps most common is, "Let the others experiment in manufacturing; we can learn from their mistakes and do it better."

Each of these comments rests on the assumption that essential advances in process technology can be appropriated more easily through equipment purchase than through in-house equipment design and development. Our extensive conversations with the managers of European (primarily German) technology-based companies have convinced us that this assumption is not as widely shared abroad as in the United States. Virtually across the board, the European managers impressed us with their strong commitment to increasing market share through internal development of advanced process technology – even when their suppliers were highly responsive to technological advances.

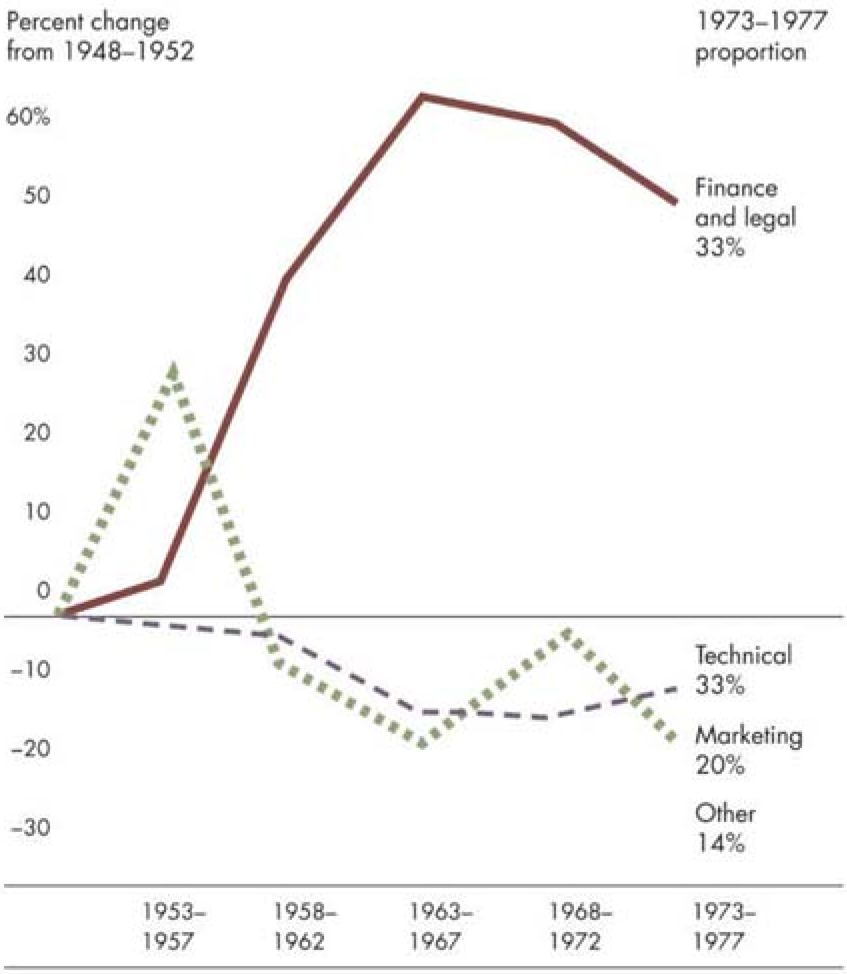
By contrast, American managers tend to restrict investments in process development to only those items likely to reduce costs in the short run. Not all are happy with this. As one disgruntled executive told us, "For too long, U.S. managers have been taught to set low priorities on mechanization projects, so that eventually divestment appears to be the best way out of manufacturing difficulties. Why?

"The drive for short-term success has prevented managers from looking thoroughly into the matter of special manufacturing equipment, which has to be invented, developed, tested, redesigned, reproduced, improved, and so on. That's a long process, which needs experienced, knowledgeable, and dedicated people who stick to their jobs over a considerable period of time. Merely buying new equipment (even if it is possible) does not often give the company any advantage over competitors."

Exhibit VI

Changes in the Professional Origins of Corporate Presidents

Percent Changes from Baseline Years (1948–1952) for 100 Top U.S. Companies



Source: Golightly & Co. International (1978)

We agree. Most American managers seem to forget that, even if they produce new products with their existing process technology (the same "cookie cutter" everyone else can buy), their competitors will face a relatively short lead time for introducing similar products. And as Eric von Hippel's studies of industrial innovation show, the innovations on which new industrial equipment is based usually originate with the user of the equipment and not with the equipment producer.[7] In other words, companies can make products more profitable by investing in the development of their own process technology. Proprietary processes are every bit as formidable competitive weapons as proprietary products.

The American Managerial Ideal

Two very important questions remain to be asked: (1) Why should so many American managers have shifted so strongly to this new managerial orthodoxy? and (2) Why are they not more deeply bothered by the ill effects of those principles on the long-term technological competitiveness of their companies? To answer the first question, we must take a look at the changing career patterns of American managers during the past quarter century; to answer the second, we must understand the way in which they have come to regard their professional roles and responsibilities as managers.

The road to the top. During the past 25 years, the American manager's road to the top has changed significantly. No longer does the typical career, threading sinuously up and through a corporation with stops in several functional areas, provide future top executives with intimate hands-on knowledge of the company's technologies, customers, and suppliers.

Exhibit VI summarizes the currently available data on the shift in functional background of newly appointed presidents of the 100 largest U.S. corporations. The immediate significance of these figures is clear. Since the mid-1950s there has been a rather substantial increase in the percentage of new company presidents whose primary interests and expertise lie in the financial and legal areas and not in production. In the view of C. Jackson Grayson, president of the American Productivity Center, American management has for 20 years "coasted off the great R&D gains made during World War II and constantly rewarded executives from the marketing, financial, and legal sides of the business while it ignored the production men. Today [in business schools] courses in the production area are almost nonexistent."[8]

In addition, companies are increasingly choosing to fill new top management posts from outside their own ranks. In the opinion of foreign observers, who are still accustomed to long-term careers in the same company or division, "High-level American executives…seem to come and go and switch around as if playing a game of musical chairs at an Alice in Wonderland tea party."

Far more important, however, than any absolute change in numbers is the shift in the general sense of what an aspiring manager has to be "smart about" to make it to the top. More important still is the broad change in attitude such trends both encourage and express. What has developed, in the business community as in academia, is a preoccupation with a false and shallow concept of the professional manager, a "pseudoprofessional" really – an individual having no special expertise in any particular industry or technology who nevertheless can step into an unfamiliar company and run it successfully through strict application of financial controls, portfolio concepts, and a market-driven strategy.

The gospel of pseudoprofessionalism. In recent years, this idealization of pseudoprofessionalism has taken on something of the quality of a corporate religion. Its first doctrine, appropriately enough, is that neither industry experience nor hands-on technological expertise counts for very much. At one level, of course, this doctrine helps to salve the conscience of those who lack them. At another, more disturbing, level it encourages the faithful to make decisions about technological matters simply as if they were adjuncts to finance or marketing decisions. We do not believe that the technological issues facing managers today can be meaningfully addressed without taking into account marketing or financial considerations; on the other hand, neither can they be resolved with the same methodologies applied to these other fields.

Complex modern technology has its own inner logic and developmental imperatives. To treat it as if it were something else – no matter how comfortable one is with that other kind of data – is to base a competitive business on a two-legged stool, which must, no matter how excellent the balancing act, inevitably fall to the ground.

More disturbing still, true believers keep the faith on a day-to-day basis by insisting that as issues rise up the managerial hierarchy for decision they be progressively distilled into easily quantifiable terms. One European manager, in recounting to us his experiences in a joint venture with an American company, recalled with exasperation that "U.S. managers want everything to be simple. But sometimes business situations are not simple, and they cannot be divided up or looked at in such a way that they become simple. They are messy, and one must try to understand all the facets. This appears to be alien to the American mentality."

The purpose of good organizational design, of course, is to divide responsibilities in such a way that individuals have relatively easy tasks to perform. But then these differentiated responsibilities must be pulled together by sophisticated, broadly gauged integrators at the top of the managerial pyramid. If these individuals are interested in but one or two aspects of the total competitive picture, if their training includes a very narrow exposure to the range of functional specialties, if – worst of all – they are devoted simplifiers themselves, who will do the necessary integration? Who will attempt to resolve complicated issues rather than try to uncomplicate them artificially? At the strategic level there are no such things as pure production problems, pure financial problems, or pure marketing problems.

Market-driven, follow-the-leader companies usually end up following the rest of the pack as well.

Merger mania. When executive suites are dominated by people with financial and legal skills, it is not surprising that top management should increasingly allocate time and energy to such concerns as cash management and the whole process of corporate acquisitions and mergers. This is indeed what has happened. In 1978 alone there were some 80 mergers involving companies with assets in excess of $100 million each; in 1979 there were almost 100. This represents roughly $20 billion in transfers of large companies from one owner to another – two-thirds of the total amount spent on R&D by American industry.

In 1978, *Business Week* ran a cover story on cash management in which it stated that "the 400 largest U.S. companies together have more than $60 billion in cash – almost triple the amount they had at the beginning of the 1970s." The article also described the increasing attention devoted to – and the sophisticated and exotic techniques used for – managing this cash hoard.

There are perfectly good reasons for this flurry of activity. It is entirely natural for financially (or legally) trained managers to concentrate on essentially financial (or legal) activities. It is also natural for managers who subscribe to the portfolio "law of large numbers" to seek to reduce total corporate risk by parceling it out among a sufficiently large number of separate product lines, businesses, or technologies. Under certain conditions it may very well make good economic sense to buy rather than build new plants or modernize existing ones. Mergers are obviously an exciting game; they tend to produce fairly quick and decisive results, and they offer the kind of public recognition that helps careers along. Who can doubt the appeal of the titles awarded by the financial community; being called a "gunslinger," "white knight," or "raider" can quicken anyone's blood.

Unfortunately, the general American penchant for separating and simplifying has tended to encourage a diversification away from core technologies and markets to a much greater degree than is true in Europe or Japan. U.S. managers appear to have an inordinate faith in the portfolio law of large numbers – that is, by amassing enough product lines, technologies, and businesses, one will be cushioned against the random setbacks that occur in life. This might be true for portfolios of stocks and bonds, where there is considerable evidence that setbacks *are* random. Businesses, however, are subject not only to random setbacks such as strikes and shortages but also to carefully orchestrated attacks by competitors, who focus all their resources and energies on one set of activities.

Worse, the great bulk of this merger activity appears to have been absolutely wasted in terms of generating economic benefits for stockholders. Acquisition experts do not necessarily make good managers. Nor can they increase the value of their shares by merging two companies any better than their shareholders could do individually by buying shares of the acquired company on the open market (at a price usually below that required for a takeover attempt).

There appears to be a growing recognition of this fact. A number of U.S. companies are now divesting themselves of previously acquired companies; others (for example, W.R. Grace) are proposing to break themselves up into relatively independent entities. The establishment of a strong competitive position through in-house technological superiority is by nature a long, arduous, and often unglamorous task. But it is what keeps a business vigorous and competitive.

The European Example

Gaining competitive success through technological superiority is a skill much valued by the seasoned European (and Japanese) managers with whom we talked. Although we were able to locate few hard statistics on their actual practice, our extensive investigations of more than 20 companies convinced us that European managers do indeed tend to differ significantly from their American counterparts. In fact, we found that many of them were able to articulate these differences quite clearly.

In the first place, European managers think themselves more pointedly concerned with how to survive over the long run under intensely competitive conditions. Few markets, of course, generate price competition as fierce as in the United States, but European companies face the remorseless necessity of exporting to other national markets or perishing.

The figures here are startling: Manufactured product exports represent more than 35% of total manufacturing sales in France and Germany and nearly 60% in the Benelux countries, as against not quite 10% in the United States. In these export markets, moreover, European products must hold their own against "world-class" competitors, lower-priced products from developing countries, and American products selling at attractive devalued dollar prices. To survive this competitive squeeze, European managers feel they must place central emphasis on producing technologically superior products.

Further, the kinds of pressures from European labor unions and national governments virtually force them to take a consistently long-term view in decision making. German managers, for example, must negotiate major decisions at the plant level with worker-dominated works councils; in turn, these decisions are subject to review by supervisory boards (roughly equivalent to American boards of directors), half of whose membership is worker elected. Together with strict national legislation, the pervasive influence of labor unions makes it extremely difficult to change employment levels or production locations. Not surprisingly, labor costs in Northern Europe have more than doubled in the past decade and are now the highest in the world.

To be successful in this environment of strictly constrained options, European managers feel they must employ a decision-making apparatus that grinds very fine – and very deliberately. They must simply outthink and outmanage their competitors. Now, American managers also have their strategic options hedged about by all kinds of restrictions. But those restrictions have not yet made them as conscious as their European counterparts of the long-term implications of their day-to-day decisions.

As a result, the Europeans see themselves as investing more heavily in cutting-edge technology than the Americans. More often than not, this investment is made to create new product opportunities in advance of consumer demand and not merely in response to market-driven strategy. In case after case, we found the Europeans striving to develop the products and process capabilities with which to lead markets and not simply responding to the current demands of the marketplace. Moreover, in doing this they seem less inclined to integrate backward and more likely to seek maximum leverage from stable, long-term relationships with suppliers.

Having never lost sight of the need to be technologically competitive over the long run, European and Japanese managers are extremely careful to make the necessary arrangements and investments today. And their daily concern with the rather basic issue of long-term survival adds perspective to such matters as short-term ROI or rate of growth. The time line by which they manage is long, and it has made them painstakingly attentive to the means for keeping their companies technologically competitive. Of course they pay attention to the numbers. Their profit margins are usually lower than ours, their debt ratios higher. Every tenth of a percent is critical to them. But they are also aware that tomorrow will be no better unless they constantly try to develop new processes, enter new markets, and offer superior – even unique – products. As one senior German executive phrased it recently, "We look at rates of return, too, but only after we ask 'Is it a good product?'"[9]

Creating Economic Value

Americans traveling in Europe and Asia soon learn they must often deal with criticism of our country. Being forced to respond to such criticism can be healthy, for it requires rethinking some basic issues of principle and practice.

We have much to be proud about and little to be ashamed of relative to most other countries. But sometimes the criticism of others is uncomfortably close to the mark. The comments of our overseas competitors on American business practices contain enough truth to require our thoughtful consideration. What is behind the decline in competitiveness of U.S. business? Why do U.S. companies have such apparent difficulties competing with foreign producers of established products, many of which originated in the United States?

For example, Japanese televisions dominate some market segments, even though many U.S. producers now enjoy the same low labor cost advantages of offshore production. The German machine tool and automotive producers continue their inroads into U.S. domestic markets, even though their labor rates are now higher than those in the United States, and the famed German worker in German factories is almost as likely to be Turkish or Italian as German.

The responsibility for these problems may rest in part on government policies that either overconstrain or undersupport U.S. producers. But if our foreign critics are correct, the long-term solution to America's problems may not be correctable simply by changing our government's tax laws, monetary policies, and regulatory practices. It will also require some fundamental changes in management attitudes and practices.

It would be an oversimplification to assert that the only reason for the decline in competitiveness of U.S. companies is that our managers devote too much attention and energy to using existing resources more efficiently. It would also oversimplify the issue, although possibly to a lesser extent, to say that it is due purely and simply to their tendency to neglect technology as a competitive weapon.

Companies cannot become more innovative simply by increasing R&D investments or by conducting more basic research. Each of the decisions we have described directly affects several functional areas of management, and major conflicts can only be reconciled at senior executive levels. The benefits favoring the more innovative, aggressive option in each case depend more on intangible factors than do their efficiency-oriented alternatives.

Senior managers who are less informed about their industry and its confederation of parts suppliers, equipment suppliers, workers, and customers or who have less time to consider the long-term implications of their interactions are likely to exhibit a noninnovative bias in their choices. Tight financial controls with a short-term emphasis will also bias choices toward the less innovative, less technologically aggressive alternatives.

The key to long-term success – even survival – in business is what it has always been: to invest, to innovate, to lead, to create value where none existed before. Such determination, such striving to excel, requires leaders – not *just* controllers, market analysts, and portfolio managers. In our preoccupation with the braking systems and exterior trim, we may have neglected the drivetrains of our corporations.

1. Ryohei Suzuki, "Worldwide Expansion of U.S. Exports – A Japanese View," *Sloan Management Review*, Spring 1979.

2. *Business Week*, February 16, 1976, p. 57.

3. Burton G. Malkiel, "Productivity – The Problem Behind the Headlines," HBR May–June 1979.

4. Roger Bennett and Robert Cooper, "Beyond the Marketing Concept," *Business Horizons*, June 1979.

5. J. Hugh Davidson, "Why Most New Consumer Brands Fail," HBR March–April 1976.

6. *Business Week*, February 16, 1976, p. 57.

7. Eric von Hippel, "The Dominant Role of Users in the Scientific Instrument Innovation Process," MIT Sloan School of Management Working Paper 75-764 (January 1975).

8. *Dun's Review*, July 1978, p. 39.

9. *Business Week*, March 3, 1980, p. 76.

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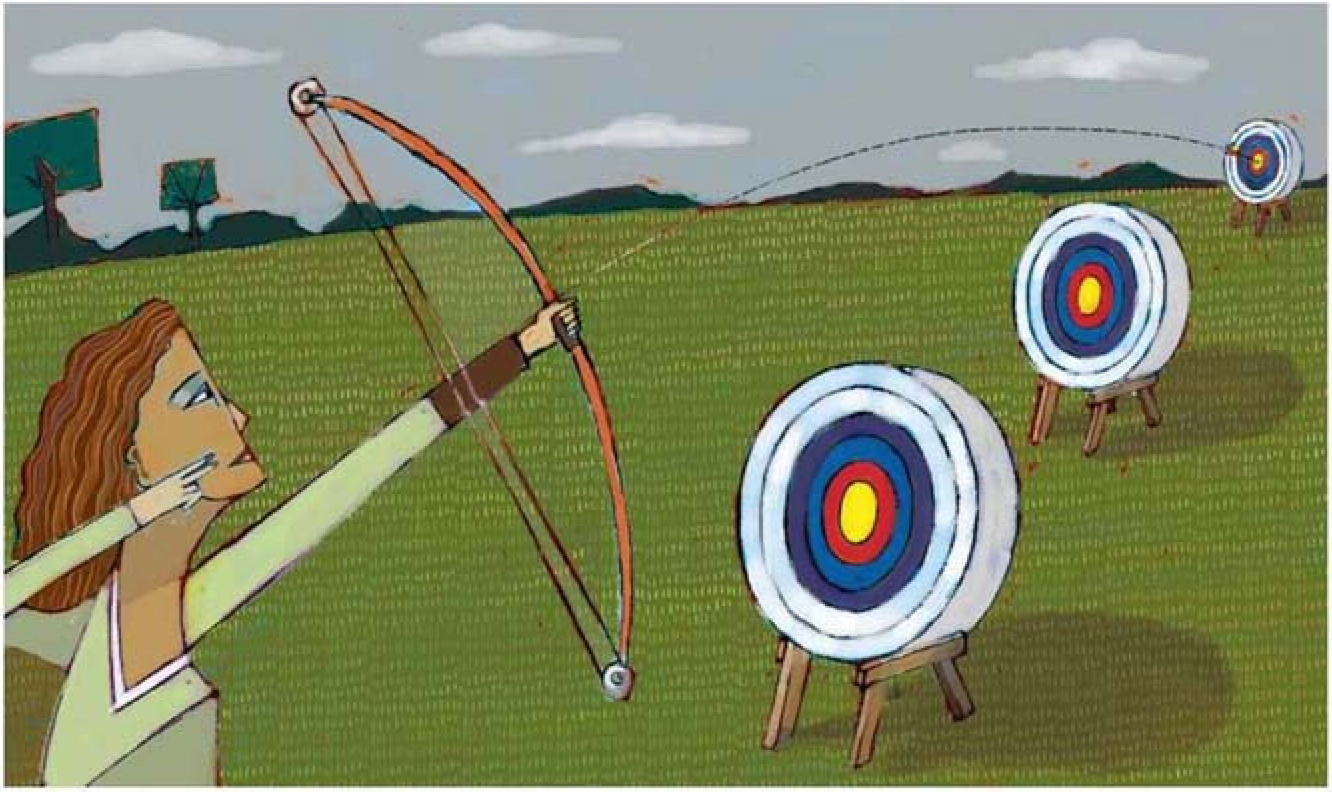

Using the Balanced Scorecard as a Strategic Management System

by Robert S. Kaplan and David P. Norton

Editor's Note: In 1992, Robert S. Kaplan and David P. Norton's concept of the balanced scorecard revolutionized conventional thinking about performance metrics. By going beyond traditional measures of financial performance, the concept has given a generation of managers a better understanding of how their companies are really doing.

These nonfinancial metrics are so valuable mainly because they predict future financial performance rather than simply report what's already happened. This article, first published in 1996, describes how the balanced scorecard can help senior managers systematically link current actions with tomorrow's goals, focusing on that place where, in the words of the authors, "the rubber meets the sky."

As companies around the world transform themselves for competition that is based on information, their ability to exploit intangible assets has become far more decisive than their ability to invest in and manage physical assets. Several years ago, in recognition of this change, we introduced a concept we called the *balanced scorecard.* The balanced scorecard supplemented traditional financial measures with criteria that measured performance from three additional perspectives – those of customers, internal business processes, and learning and growth. (See the exhibit "Translating Vision and Strategy: Four Perspectives.") It therefore enabled companies to track financial results while simultaneously monitoring progress in building the capabilities and acquiring the intangible assets they would need for future growth. The scorecard wasn't

Robert Meganck

a replacement for financial measures; it was their complement.

Recently, we have seen some companies move beyond our early vision for the scorecard to discover its value as the cornerstone of a new strategic management system. Used this way, the scorecard addresses a serious deficiency in traditional management systems: their inability to link a company's long-term strategy with its short-term actions.

Most companies' operational and management control systems are built around financial measures and targets, which bear little relation to the company's progress in achieving long-term strategic objectives. Thus the emphasis most companies place on short-term financial measures leaves a gap between the development of a strategy and its implementation.

Managers using the balanced scorecard do not have to rely on short-term financial measures as the sole indicators of the company's performance. The scorecard lets them introduce four new management processes that, separately and in combination, contribute to linking long-term strategic objectives with short-term actions. (See the exhibit "Managing Strategy: Four Processes.")

The first new process – *translating the vision* – helps managers build a consensus around the organization's vision and strategy. Despite the best intentions of those at the top, lofty statements about becoming "best in class," "the number one supplier," or an "empowered organization" don't translate easily into operational terms that provide useful guides to action at the local level. For people to act on the words in vision and strategy statements, those statements must be expressed as an integrated set of objectives and measures, agreed upon by all senior executives, that describe the long-term drivers of success.

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The second process – *communicating and linking* – lets managers communicate their strategy up and down the organization and link it to departmental and individual objectives. Traditionally, departments are evaluated by their financial performance, and individual incentives are tied to short-term financial goals. The scorecard gives managers a way of ensuring that all levels of the organization understand the long-term strategy and that both departmental and individual objectives are aligned with it.

Lofty vision and strategy statements don't translate easily into action at the local level.

The third process – *business planning* – enables companies to integrate their business and financial plans. Almost all organizations today are implementing a variety of change programs, each with its own champions, gurus, and consultants, and each competing for senior executives' time, energy, and resources. Managers find it difficult to integrate those diverse initiatives to achieve their strategic goals – a situation that leads to frequent disappointments with the programs' results. But when managers use the ambitious goals set for balanced scorecard measures as the basis for allocating resources and setting priorities, they can undertake and coordinate only those initiatives that move them toward their long-term strategic objectives.

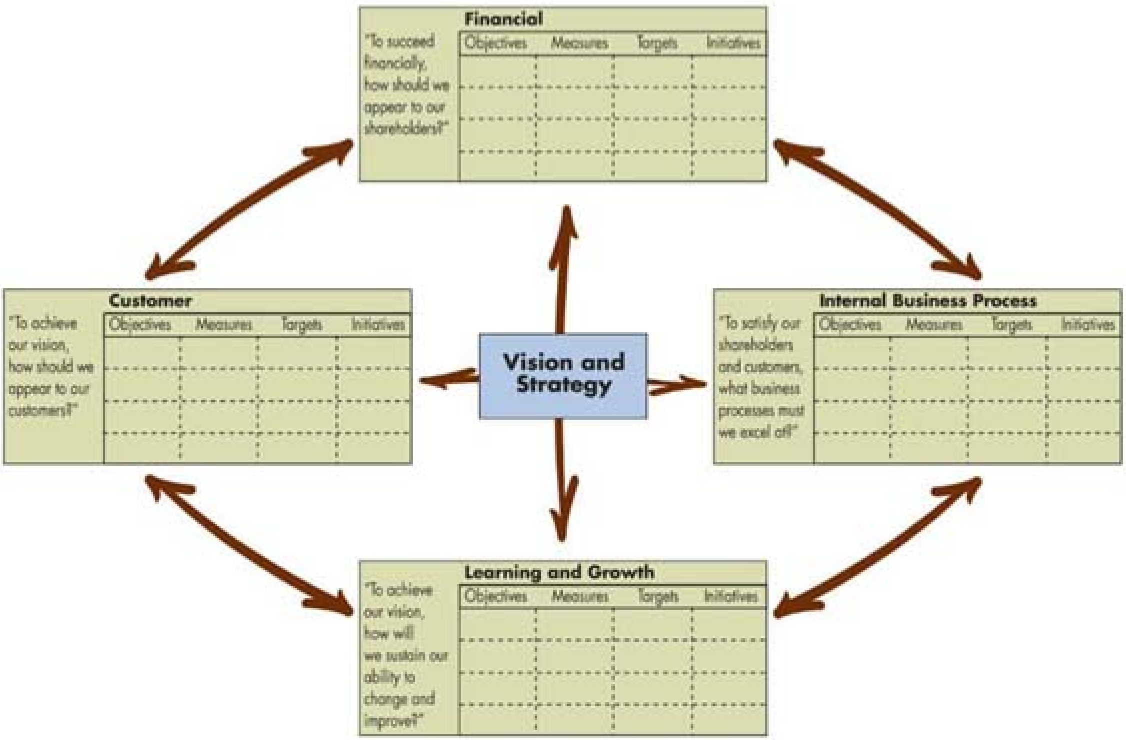
The fourth process – *feedback and learning* – gives companies the capacity for what we call strategic learning. Existing feedback and review processes focus on whether the company, its departments, or its individual employees have met their budgeted financial goals. With the balanced scorecard at the center of its management systems, a company can monitor short-term results from the three additional perspectives – customers, internal business processes, and learning and growth – and evaluate strategy in the light of recent performance. The scorecard thus enables companies to modify strategies to reflect real-time learning.

None of the more than 100 organizations that we have studied or with which we have worked implemented their first balanced scorecard with the intention of developing a new strategic management system. But in each one, the senior executives discovered that the scorecard supplied a framework and thus a focus for many critical management processes: departmental and individual goal setting, business planning, capital allocations, strategic initiatives, and feedback and learning. Previously, those processes were uncoordinated and often directed at short-term operational goals. By building the scorecard, the senior executives started a process of change that has gone well beyond the original idea of simply broadening the company's performance measures.

For example, one insurance company – let's call it National Insurance – developed its first balanced scorecard to create a new vision for itself as an underwriting specialist. But once National started to use it, the scorecard allowed the CEO and the senior management team not only to introduce a new strategy for the organization but also to overhaul the company's management system. The CEO subsequently told employees in a letter addressed to the whole organization that National would thenceforth use the balanced scorecard and the philosophy that it represented to manage the business.

National built its new strategic management system step-by-step over 30

Translating Vision and Strategy: Four Perspectives



months, with each step representing an incremental improvement. (See the exhibit "How One Company Built a Strategic Management System...") The iterative sequence of actions enabled the company to reconsider each of the four new management processes two or three times before the system stabilized and became an established part of National's overall management system. Thus the CEO was able to transform the company so that everyone could focus on achieving long-term strategic objectives – something that no purely financial framework could do.

Translating the Vision

The CEO of an engineering construction company, after working with his senior management team for several months to develop a mission statement, got a phone call from a project manager in the field. "I want you to know," the distraught manager said, "that I believe in the mission statement. I want to act in accordance with the mission statement. I'm here with my customer. What am I supposed to do?"

The mission statement, like those of many other organizations, had declared an intention to "use high-quality employees to provide services that surpass customers' needs." But the project manager in the field with his employees and his customer did not know how to translate those words into the appropriate actions. The phone call convinced the CEO that a large gap existed between the mission statement and employees' knowledge of how their day-to-day actions could contribute to realizing the company's vision.

Metro Bank (not its real name), the result of a merger of two competitors, encountered a similar gap while building its balanced scorecard. The senior executive group thought it had reached agreement on the new organization's overall strategy: "to provide superior service to targeted customers." Research had revealed five basic market segments among existing and potential customers, each with different needs. While formulating the measures for the customer-perspective portion of their balanced scorecard, however, it became apparent that although the 25 senior executives agreed on the words of the strategy, each one had a different definition of *superior service* and a different image of the *targeted customers.*

The exercise of developing operational measures for the four perspectives on the bank's scorecard forced the 25 executives to clarify the meaning of the strategy statement. Ultimately, they agreed to stimulate revenue growth through new products and services and also agreed on the three most desirable customer segments. They developed scorecard measures for the specific products and services that should be delivered to customers in the targeted segments as well as for the relationship the bank should build with customers in each segment. The scorecard also highlighted gaps in employees' skills and in information systems that the bank would have to close in order to deliver the selected value propositions to the targeted customers. Thus, creating a balanced scorecard forced the bank's senior managers to arrive at a consensus and then to translate their vision into terms that had meaning to the people who would realize the vision.

Communicating and Linking

"The top ten people in the business now understand the strategy better than ever before. It's too bad," a senior executive of a major oil company complained, "that we can't put this in a bottle so that everyone could share it." With the balanced scorecard, he can.

One company we have worked with deliberately involved three layers of management in the creation of its balanced scorecard. The senior executive group formulated the financial and customer objectives. It then mobilized the talent and information in the next two levels of managers by having them formulate the internal-business-process and learning-and-growth objectives that would drive the achievement of the financial and customer goals. For example, knowing the importance of satisfying customers' expectations of on-time delivery, the broader group identified several internal business processes – such as order processing, scheduling, and fulfillment – in which the company had to excel. To do so, the company would have to retrain frontline employees and improve the information systems available to them. The group developed performance measures for those critical processes and for staff and systems capabilities.

Broad participation in creating a scorecard takes longer, but it offers several advantages: Information from a larger number of managers is incorporated into the internal objectives; the managers gain a better understanding of the company's long-term strategic goals; and such broad participation builds a stronger commitment to achieving those goals. But getting managers to buy into the scorecard is only a first step in linking individual actions to corporate goals.

The balanced scorecard signals to everyone what the organization is trying to achieve for shareholders and customers alike. But to align employees' individual performances with the overall strategy, scorecard users generally engage in three activities: communicating and educating, setting goals, and linking rewards to performance measures.

Communicating and educating. Implementing a strategy begins with educating those who have to execute it. Whereas some organizations opt to hold their strategy close to the vest, most believe that they should disseminate it from top to bottom. A broad-based communication program shares with all employees the strategy and the critical objectives they have to meet if the strategy is to succeed. Onetime events such as the distribution of brochures or newsletters and the holding of "town meetings" might kick off the program. Some organizations post bulletin boards that illustrate and explain the balanced scorecard measures, then update them with monthly results. Others use groupware and electronic bulletin boards to distribute the scorecard to the desktops of all employees and to encourage dialogue about the measures. The same media allow employees to make suggestions for achieving or exceeding the targets.

The personal scorecard helps to communicate corporate and unit objectives to the people and teams performing the work.

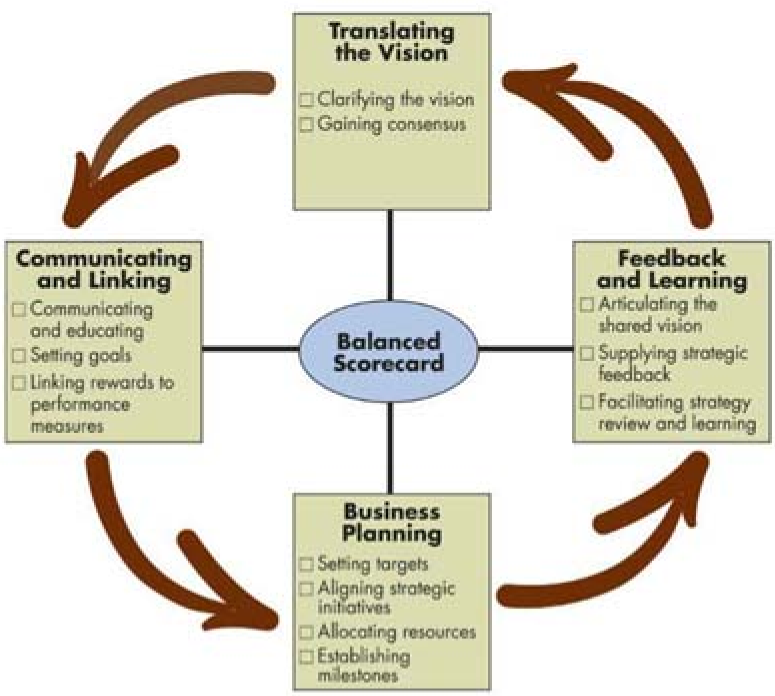
The balanced scorecard, as the embodiment of business unit strategy, should also be communicated upward in the organization – to corporate headquarters and to the corporate board of directors. With the scorecard, business units can quantify and communicate their long-term strategies to senior executives using a comprehensive set of linked financial and nonfinancial measures. Such communication informs the executives and the board in specific terms that long-term strategies designed for competitive success are in place. The measures also provide the basis for feedback and accountability. Meeting short-term financial targets should not constitute satisfactory performance when other measures indicate that the long-term strategy is either not working or not being implemented well.

Should the balanced scorecard be communicated beyond the boardroom to external shareholders? We believe that as senior executives gain confidence in the ability of the scorecard measures to monitor strategic performance and predict future financial performance, they will find ways to inform outside investors about those measures without disclosing competitively sensitive information.

Skandia, an insurance and financial services company based in Sweden, issues a supplement to its annual report called "The Business Navigator" – "an instrument to help us navigate into the future and thereby stimulate renewal and development." The supplement describes Skandia's strategy and the strategic measures the company uses to communicate and evaluate the strategy. It also provides a report on the company's performance along those measures during the year. The measures are customized for each operating unit and include, for example, market share, customer satisfaction and retention, employee competence, employee empowerment, and technology deployment.

Communicating the balanced scorecard promotes commitment and accountability to the business's long-term strategy. As one executive at Metro Bank declared, "The balanced scorecard is both motivating and obligating."

Managing Strategy: Four Processes



Setting goals. Mere awareness of corporate goals, however, is not enough to change many people's behavior. Somehow, the organization's high-level strategic objectives and measures must be translated into objectives and measures for operating units and individuals.

The exploration group of a large oil company developed a technique to enable and encourage individuals to set goals for themselves that were consistent with the organization's. It created a small, fold-up, personal scorecard that people could carry in their shirt pockets or wallets. (See the exhibit "The Personal Scorecard.") The scorecard contains three levels of information. The first describes corporate objectives, measures, and targets. The second leaves room for translating corporate targets into targets for each business unit. For the third level, the company asks both individuals and teams to articulate which of their own objectives would be consistent with the business unit and corporate objectives, as well as what initiatives they would take to achieve their objectives. It also asks them to define up to five performance measures for their objectives and to set targets for each measure. The personal scorecard helps to communicate corporate and business unit objectives to the people and teams performing the work, enabling them to translate the objectives into meaningful tasks and targets for themselves. It also lets them keep that information close at hand – in their pockets.

Linking rewards to performance measures. Should compensation systems be linked to balanced scorecard measures? Some companies, believing that tying financial compensation to performance is a powerful lever, have moved quickly to establish such a linkage. For example, an oil company that we'll call Pioneer Petroleum uses its scorecard as the sole basis for computing incentive compensation. The company ties 60% of its executives' bonuses to their achievement of ambitious targets for a weighted average of four financial indicators: return on capital, profitability, cash flow, and operating cost. It bases the remaining 40% on indicators of customer satisfaction, dealer satisfaction, employee satisfaction, and environmental responsibility (such as a percentage change in the level of emissions to water and air). Pioneer's CEO says that linking compensation to the scorecard has helped to align the company with its strategy. "I know of no competitor," he says, "who has this degree of alignment. It is producing results for us."

As attractive and as powerful as such linkage is, it nonetheless carries risks. For instance, does the company have the right measures on the scorecard? Does it have valid and reliable data for the selected measures? Could unintended or unexpected consequences arise from the way the targets for the measures are achieved? Those are questions that companies should ask.

Furthermore, companies traditionally handle multiple objectives in a compensation formula by assigning weights to each objective and calculating incentive compensation by the extent to which each weighted objective was achieved. This practice permits substantial incentive compensation to be paid if the business unit overachieves on a few objectives even if it falls far short on others. A better approach would be to establish minimum threshold levels for a critical subset of the strategic measures. Individuals would earn no incentive compensation if performance in a given period fell short of any threshold. This requirement should motivate people to achieve a more balanced performance across short- and long-term objectives.

Some organizations, however, have reduced their emphasis on short-term, formula-based incentive systems as a result of introducing the balanced scorecard. They have discovered that dialogue among executives and managers about the scorecard – both the formulation of the measures and objectives and the explanation of actual versus targeted results – provides a

How One Company Built a Strategic Management System...

2A *Communicate to middle managers.* The top three layers of management (100 people) are brought together to learn about and discuss the new strategy. The balanced scorecard is the communication vehicle. *(months 4–5)*

2B *Develop business unit scorecards.* Using the corporate scorecard as a template, each business unit translates its strategy into its own scorecard. *(months 6–9)*

5 *Refine the vision.* The review of business unit scorecards identifies several cross-business issues not initially included in the corporate strategy. The corporate scorecard is updated. *(month 12)*

Time Frame *(in months)*

0 1 2 3 4 5 6 7 8 9 10 11 12

Actions:

1 *Clarify the vision.* Ten members of a newly formed executive team work together for three months. A balanced scorecard is developed to translate a generic vision into a strategy that is understood and can be communicated. The process helps build consensus and commitment to the strategy.

3A *Eliminate nonstrategic investments.* The corporate scorecard, by clarifying strategic priorities, identifies many active programs that are not contributing to the strategy. *(month 6)*

3B *Launch corporate change programs.* The corporate scorecard identifies the need for cross-business change programs. They are launched while the business units prepare their scorecards. *(month 6)*

4 *Review business unit scorecards.* The CEO and the executive team review the individual business units' scorecards. The review permits the CEO to participate knowledgeably in shaping business unit strategy. *(months 9–11)*

better opportunity to observe managers' performance and abilities. Increased knowledge of their managers' abilities makes it easier for executives to set incentive rewards subjectively and to defend those subjective evaluations – a process that is less susceptible to the game playing and distortions associated with explicit, formula-based rules.

One company we have studied takes an intermediate position. It bases bonuses for business unit managers on two equally weighted criteria: their achievement of a financial objective – economic value added – over a three-year period and a subjective assessment of their performance on measures drawn from the customer, internal-business-process, and learning-and-growth perspectives of the balanced scorecard.

That the balanced scorecard has a role to play in the determination of incentive compensation is not in doubt. Precisely what that role should be will become clearer as more companies experiment with linking rewards to scorecard measures.

Business Planning

"Where the rubber meets the sky": That's how one senior executive describes his company's long-range-planning process. He might have said the same of many other companies because their financially based management systems fail to link change programs and resource allocation to long-term strategic priorities.

The problem is that most organizations have separate procedures and organizational units for strategic planning and for resource allocation and budgeting. To formulate their strategic plans, senior executives go off-site annually and engage for several days in active discussions facilitated by senior planning and development managers or external consultants. The outcome of this exercise is a strategic plan articulating where the company expects (or hopes or prays) to be in three, five, and ten years. Typically, such plans then sit on executives' bookshelves for the next 12 months.

Meanwhile, a separate resource-allocation and budgeting process run by the finance staff sets financial targets for revenues, expenses, profits, and investments for the next fiscal year. The budget it produces consists almost entirely of financial numbers that generally bear little relation to the targets in the strategic plan.

Which document do corporate managers discuss in their monthly and quarterly meetings during the following year? Usually only the budget, because the periodic reviews focus on a comparison of actual and budgeted results for every line item. When is the strategic plan next discussed? Probably during the next annual off-site meeting, when the senior managers draw up a new set of three-, five-, and ten-year plans.

7 *Update long-range plan and budget.* Five-year goals are established for each measure. The investments required to meet those goals are identified and funded. The first year of the five-year plan becomes the annual budget. *(months 15–17)*

9 *Conduct annual strategy review.* At the start of the third year, the initial strategy has been achieved and the corporate strategy requires updating. The executive committee lists ten strategic issues. Each business unit is asked to develop a position on each issue as a prelude to updating its strategy and scorecard. *(months 25–26)*

13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26

6A *Communicate the balanced scorecard to the entire company.* At the end of one year, when the management teams are comfortable with the strategic approach, the scorecard is disseminated to the entire organization. *(month 12–ongoing)*

6B *Establish individual performance objectives.* The top three layers of management link their individual objectives and incentive compensation to their scorecards. *(months 13–14)*

8 *Conduct monthly and quarterly reviews.* After corporate approval of the business unit scorecards, a monthly review process, supplemented by quarterly reviews that focus more heavily on strategic issues, begins. *(month 18–ongoing)*

10 *Link everyone's performance to the balanced scorecard.* All employees are asked to link their individual objectives to the balanced scorecard. The entire organization's incentive compensation is linked to the scorecard. *(months 25–26)*

Note: Steps 7, 8, 9, and 10 are performed on a regular schedule. The balanced scorecard is now a routine part of the management process.

The very exercise of creating a balanced scorecard forces companies to integrate their strategic planning and budgeting processes and therefore helps to ensure that their budgets support their strategies. Scorecard users select measures of progress from all four scorecard perspectives and set targets for each of them. Then they determine which actions will drive them toward their targets, identify the measures they will apply to those drivers from the four perspectives, and establish the short-term milestones that will mark their progress along the strategic paths they have selected. Building a scorecard thus enables a company to link its financial budgets with its strategic goals.

For example, one division of the Style Company (not its real name) committed to achieving a seemingly impossible goal articulated by the CEO: to double revenues in five years. The forecasts built into the organization's existing strategic plan fell \$1 billion short of this objective. The division's managers, after considering various scenarios, agreed to specific increases in five different performance drivers: the number of new stores opened, the number of new customers attracted into new and existing stores, the percentage of shoppers in each store converted into actual purchasers, the portion of existing customers retained, and average sales per customer.

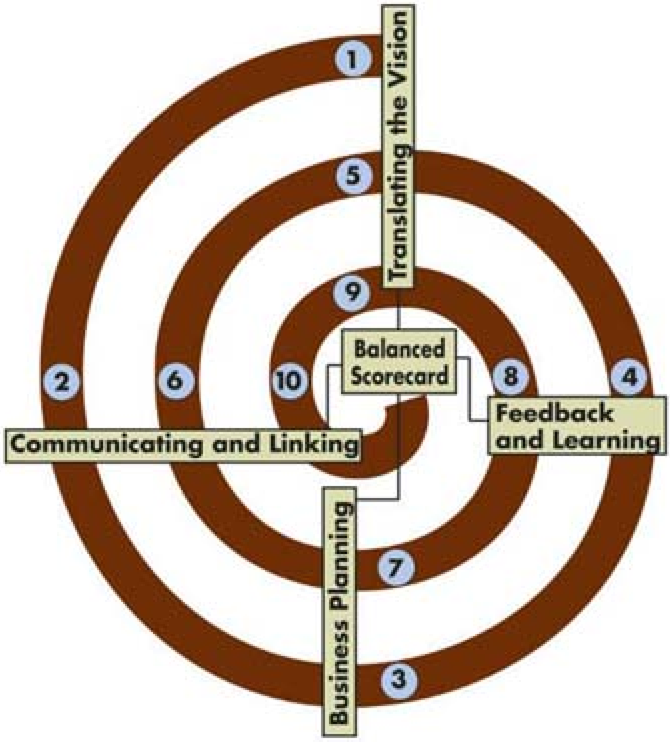
By helping to define the key drivers of revenue growth and by committing to targets for each of them, the division's managers eventually grew comfortable with the CEO's ambitious goal.

Building a scorecard enables a company to link its financial budgets with its strategic goals.

The process of building a balanced scorecard – clarifying the strategic objectives and then identifying the few critical drivers – also creates a framework for managing an organization's various change programs. These initiatives – reengineering, employee empowerment, time-based management, and total quality management, among others – promise to deliver results but also compete with one another for scarce resources, including the scarcest resource of all: senior managers' time and attention.

Shortly after the merger that created it, Metro Bank, for example, launched more than 70 different initiatives. The initiatives were intended to produce a more competitive and successful institution, but they were inadequately integrated into the overall strategy. After building their balanced scorecard, Metro Bank's managers dropped many of those programs – such as a marketing effort directed at individuals with

...Around the Balanced Scorecard



very high net worth – and consolidated others into initiatives that were better aligned with the company's strategic objectives. For example, the managers replaced a program aimed at enhancing existing low-level selling skills with a major initiative aimed at retraining salespersons to become trusted financial advisers, capable of selling a broad range of newly introduced products to the three selected customer segments. The bank made both changes because the scorecard enabled it to gain a better understanding of the programs required to achieve its strategic objectives.

Once the strategy is defined and the drivers are identified, the scorecard influences managers to concentrate on improving or reengineering those processes most critical to the organization's strategic success. That is how the scorecard most clearly links and aligns action with strategy.

The final step in linking strategy to actions is to establish specific short-term targets, or milestones, for the balanced scorecard measures. Milestones are tangible expressions of managers' beliefs about when and to what degree their current programs will affect those measures.

In establishing milestones, managers are expanding the traditional budgeting process to incorporate strategic as well as financial goals. Detailed financial planning remains important, but financial goals taken by themselves ignore the three other balanced scorecard perspectives. In an integrated planning and budgeting process, executives continue to budget for short-term financial performance, but they also introduce short-term targets for measures in the customer, internal-business-process, and learning-and-growth perspectives. With those milestones established, managers can continually test both the theory underlying the strategy and the strategy's implementation.

At the end of the business-planning process, managers should have set targets for the long-term objectives they would like to achieve in all four scorecard perspectives; they should have identified the strategic initiatives required and allocated the necessary resources to those initiatives; and they should have established milestones for the measures that mark progress toward achieving their strategic goals.

Feedback and Learning

"With the balanced scorecard," a CEO of an engineering company told us, "I can continually test my strategy. It's like performing real-time research." That is exactly the capability that the scorecard should give senior managers: the ability to know at any point in its implementation whether the strategy they have formulated is, in fact, working, and if not, why.

The first three management processes – translating the vision, communicating and linking, and business planning – are vital for implementing strategy, but they are not sufficient in an unpredictable world. Together they form an important single-loop-learning process – single-loop in the sense that the objective remains constant, and any departure from the planned trajectory is seen as a defect to be remedied. This single-loop process does not require or even facilitate reexamination of either the strategy or the techniques used to implement it in light of current conditions.

Most companies today operate in a turbulent environment with complex strategies that, though valid when they were launched, may lose their validity as business conditions change. In this kind of environment, where new threats and opportunities arise constantly, companies must become capable of what Chris Argyris calls *double-loop learning* – learning that produces a change in people's assumptions and theories about cause-and-effect relationships. (See "Teaching Smart People How to Learn," HBR May–June 1991.)

Budget reviews and other financially based management tools cannot engage senior executives in double-loop

The Personal Scorecard

Corporate Objectives

- ☐ Double our corporate value in seven years.
- ☐ Increase our earnings by an average of 20% per year.
- ☐ Achieve an internal rate of return 2% above the cost of capital.
- ☐ Increase both production and reserves by 20% in the next decade.

Corporate Targets					Scorecard Measures	Business Unit Targets				
1995	1996	1997	1998	1999		1995	1996	1997	1998	1999
					Financial					
100	120	160	180	250	Earnings (in $ millions)					
100	450	200	210	225	Net cash flow					
100	85	80	75	70	Overhead and operating expenses					
					Operating					
100	75	73	70	64	Production costs per barrel					
100	97	93	90	82	Development costs per barrel					
100	105	108	108	110	Total annual production					
Team/Individual Measures						**Targets**				
1.										
2.										
3.										
4.										
5.										

Name:

Location:

Team/Individual Objectives and Initiatives

1.
2.
3.
4.
5.

learning – first, because these tools address performance from only one perspective, and second, because they don't involve strategic learning. Strategic learning consists of gathering feedback, testing the hypotheses on which strategy was based, and making the necessary adjustments.

The balanced scorecard supplies three elements that are essential to strategic learning. First, it articulates the company's shared vision, defining in clear and operational terms the results that the company, as a team, is trying to achieve. The scorecard communicates a holistic model that links individual efforts and accomplishments to business unit objectives.

Second, the scorecard supplies the essential strategic feedback system. A business strategy can be viewed as a set of hypotheses about cause-and-effect relationships. A strategic feedback system should be able to test, validate, and modify the hypotheses embedded in a business unit's strategy. By establishing short-term goals, or milestones, within the business-planning process, executives are forecasting the relationship between changes in performance drivers and the associated changes in one or more specified goals. For example, executives at Metro Bank estimated the amount of time it would take for improvements in training and in the availability of information systems before employees could sell multiple financial products effectively to existing and new customers. They also estimated how great the effect of that selling capability would be.

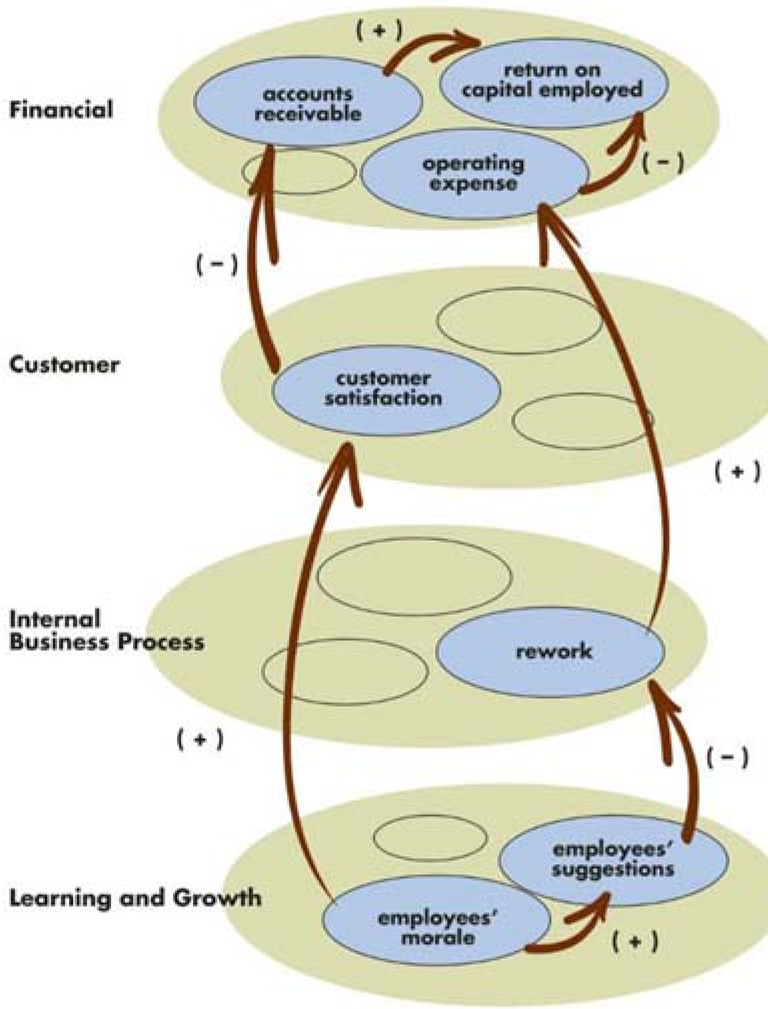
Another organization attempted to validate its hypothesized cause-and-effect relationships in the balanced scorecard by measuring the strength of the linkages among measures in the different perspectives. (See the exhibit "How One Company Linked Measures from the Four Perspectives.") The company found significant correlations between employees' morale, a measure in the learning-and-growth perspective, and customer satisfaction, an important customer perspective measure. Customer satisfaction, in turn, was correlated with faster payment of invoices – a relationship that led to a substantial reduction in accounts receivable and hence a higher return on capital employed. The company also found correlations between employees' morale and the number of suggestions made by employees (two learning-and-growth measures) as well as between an increased number of suggestions and lower rework (an internal-business-process measure). Evidence of such strong correlations help to confirm the organization's business strategy. If, however, the expected correlations are not found over time, it should be an indication to executives that the theory underlying the unit's strategy may not be working as they had anticipated.

Especially in large organizations, accumulating sufficient data to document significant correlations and causation among balanced scorecard measures can take a long time – months or years. Over the short term, managers' assessment of strategic impact may have to rest on subjective and qualitative judgments. Eventually, however, as more evidence accumulates, organizations may be able to provide more objectively grounded estimates of cause-and-effect relationships. But just getting managers to think systematically about the assumptions underlying their strategy is an improvement over the current practice of making decisions based on short-term operational results.

Third, the scorecard facilitates the strategy review that is essential to strategic learning. Traditionally, companies use the monthly or quarterly meetings between corporate and division executives to analyze the most recent period's financial results. Discussions focus on past performance and on explanations of why financial objectives were not achieved. The balanced scorecard, with its specification of the causal relationships between performance drivers and objectives, allows corporate and business unit executives to use their periodic review sessions to evaluate the validity of the unit's strategy and the quality of its execution. If the unit's employees and managers have delivered on the performance drivers (retraining of employees, availability of information systems, and new financial products and services, for instance), then their failure to achieve the expected outcomes (higher sales to targeted customers, for example) signals that the theory underlying the strategy may not be valid. The disappointing sales figures are an early warning.

Managers should take such disconfirming evidence seriously and reconsider their shared conclusions about market conditions, customer value propositions, competitors' behavior, and internal capabilities. The result of such a review may be a decision to reaffirm their belief in the current strategy but to adjust the quantitative relationship among the strategic measures on the balanced scorecard. But they also might conclude that the unit needs a different strategy (an example of double-loop learning) in light of new knowledge about market conditions and internal capabilities. In any case, the scorecard will have stimulated key executives to learn about the viability of their strategy. This capacity for enabling organizational learning at the executive level – strategic learning – is what distinguishes the balanced scorecard, making it invaluable for those who wish to create a strategic management system.

How One Company Linked Measures from the Four Perspectives



Toward a New Strategic Management System

Many companies adopted early balanced scorecard concepts to improve their performance measurement systems. They achieved tangible but narrow results. Adopting those concepts provided clarification, consensus, and focus on the desired improvements in performance. More recently, we have seen companies expand their use of the balanced scorecard, employing it as the foundation of an integrated and iterative strategic management system. Companies are using the scorecard to

- clarify and update strategy;
- communicate strategy throughout the company;
- align unit and individual goals with the strategy;
- link strategic objectives to long-term targets and annual budgets;
- identify and align strategic initiatives; and
- conduct periodic performance reviews to learn about and improve strategy.

The balanced scorecard enables a company to align its management processes and focuses the entire organization on implementing long-term strategy. At National Insurance, the scorecard provided the CEO and his managers with a central framework around which they could redesign each piece of the company's management system. And because of the cause-and-effect linkages inherent in the scorecard framework, changes in one component of the system reinforced earlier changes made elsewhere. Therefore, every change made over the 30-month period added to the momentum that kept the organization moving forward in the agreed-upon direction.

Without a balanced scorecard, most organizations are unable to achieve a similar consistency of vision and action as they attempt to change direction and introduce new strategies and processes. The balanced scorecard provides a framework for managing the implementation of strategy while also allowing the strategy itself to evolve in response to changes in the company's competitive, market, and technological environments.

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To order, see page 195.

The Knowledge-Creating Company

by Ikujiro Nonaka

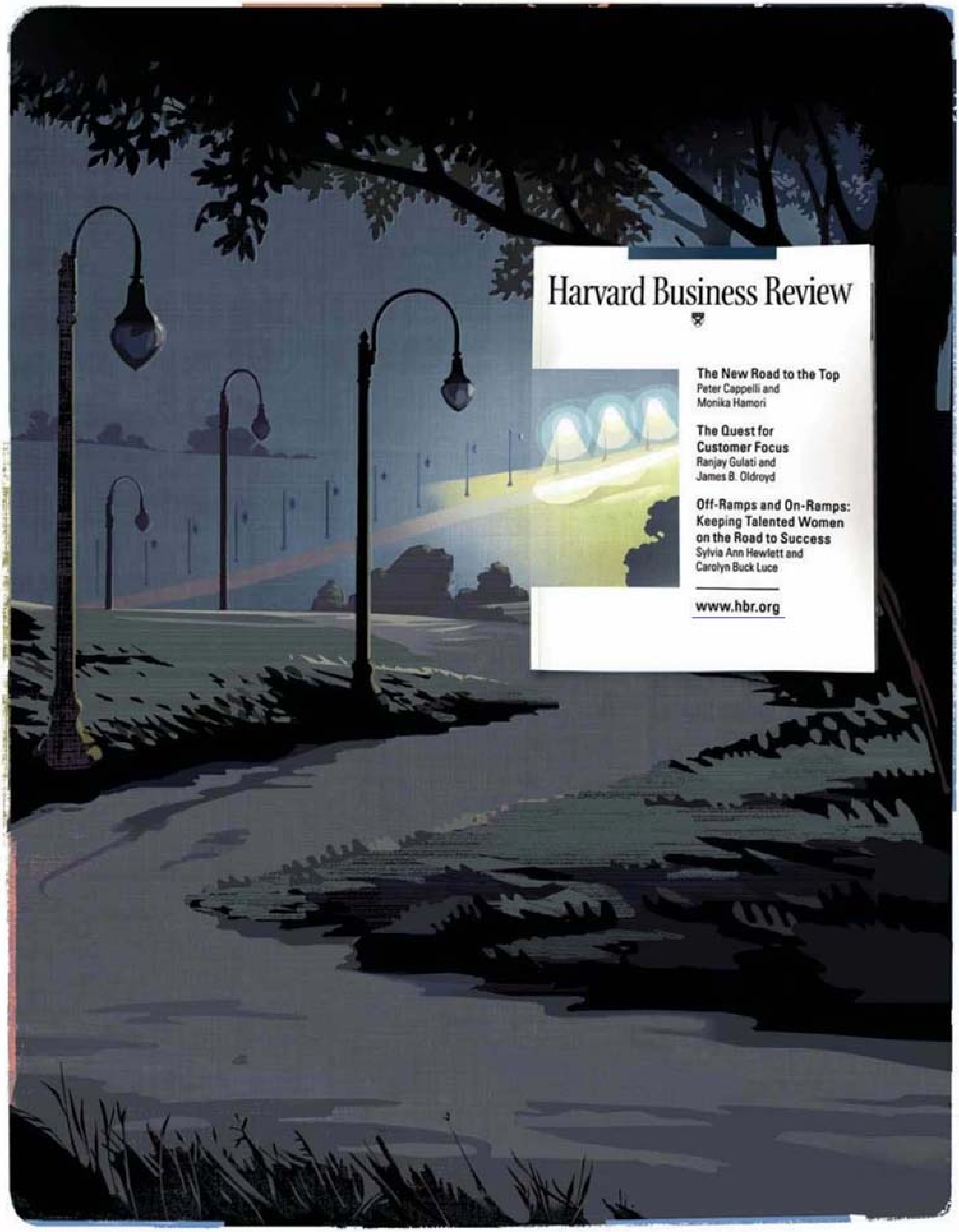
Editor's Note: This 1991 article helped popularize the notion of "tacit" knowledge – the valuable and highly subjective insights and intuitions that are difficult to capture and share because people carry them in their heads. Years later, the piece can still startle a reader with its views of organizations and of the types of knowledge that inform them.

For example, the advice on how to distill objective and transferable, or "explicit," knowledge from tacit knowledge – with a vivid illustration of Matsushita Electric's efforts to build a better bread-making machine – is both arresting and actionable. The next step: ensuring that explicit knowledge is translated back into tacit knowledge that will then go on to yield yet another innovative solution.

IN AN ECONOMY WHERE THE ONLY CERTAINTY IS UNCERTAINTY, the one sure source of lasting competitive advantage is knowledge. When markets shift, technologies proliferate, competitors multiply, and products become obsolete almost overnight, successful companies are those that consistently create new knowledge, disseminate it widely throughout the organization, and quickly embody it in new technologies and products. These activities define the "knowledge-creating" company, whose sole business is continuous innovation.

And yet, despite all the talk about "brainpower" and "intellectual capital," few managers grasp the true nature of the knowledge-creating company – let alone know how to manage it. The reason: They misunderstand what knowledge is and what companies must do to exploit it.

Robert Meganck


Harvard Business Review
The New Road to the Top
Peter Cappelli and
Monika Hamori
The Quest for
Customer Focus
Ranjay Gulati and
James B. Oldroyd
Off-Ramps and On-Ramps:
Keeping Talented Women
on the Road to Success
Sylvia Ann Hewlett and
Carolyn Buck Luce
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Deeply ingrained in the traditions of Western management, from Frederick Taylor to Herbert Simon, is a view of the organization as a machine for "information processing." According to this view, the only useful knowledge is formal and systematic – hard (read: quantifiable) data, codified procedures, universal principles. And the key metrics for measuring the value of new knowledge are similarly hard and quantifiable – increased efficiency, lower costs, improved return on investment.

But there is another way to think about knowledge and its role in business organizations. It is found most commonly at highly successful Japanese competitors like Honda, Canon, Matsushita, NEC, Sharp, and Kao. These companies have become famous for their ability to respond quickly to customers, create new markets, rapidly develop new products, and dominate emergent technologies. The secret of their success is their unique approach to managing the creation of new knowledge.

To Western managers, the Japanese approach often seems odd or even incomprehensible. Consider the following examples:

- How is the slogan "Theory of Automobile Evolution" a meaningful design concept for a new car? And yet, this phrase led to the creation of the Honda City, Honda's innovative urban car.
- Why is a beer can a useful analogy for a personal copier? Just such an analogy caused a fundamental breakthrough in the design of Canon's revolutionary minicopier, a product that created the personal copier market and has led Canon's successful migration from its stagnating camera business to the more lucrative field of office automation.
- What possible concrete sense of direction can a made-up word such as "optoelectronics" provide a company's product-development engineers? Under this rubric, however, Sharp has developed a reputation for creating "first products" that define new technologies and markets, making Sharp a major player in businesses ranging from color televisions to liquid crystal displays to customized integrated circuits.

In each of these cases, cryptic slogans that to a Western manager sound just plain silly – appropriate for an advertising campaign perhaps but certainly not for running a company – are in fact highly effective tools for creating new knowledge. Managers everywhere recognize the serendipitous quality of innovation. Executives at these Japanese companies are *managing* that serendipity to the benefit of the company, its employees, and its customers.

The centerpiece of the Japanese approach is the recognition that creating new knowledge is not simply a matter of "processing" objective information. Rather, it depends on tapping the tacit and often highly subjective insights, intuitions, and hunches of individual employees and making those insights available for testing and use by the company as a whole. The key to this process is personal commitment, the employees' sense of identity with the enterprise and its mission. Mobilizing that commitment and embodying tacit knowledge in actual technologies and products require managers who are as comfortable with images and symbols – slogans such as Theory of Automobile Evolution, analogies like that between a personal copier and a beer can, metaphors such as optoelectronics – as they are with hard numbers measuring market share, productivity, or ROI.

The more holistic approach to knowledge at many Japanese companies is also founded on another fundamental insight. A company is not a machine but a living organism. Much like an individual, it can have a collective sense of identity and fundamental purpose. This is the organizational equivalent of self-knowledge – a shared understanding of what the company stands for, where it is going, what kind of world it wants to live in, and, most important, how to make that world a reality.

In this respect, the knowledge-creating company is as much about ideals as it is about ideas. And that fact fuels innovation. The essence of innovation is to re-create the world according to a particular vision or ideal. To create new knowledge means quite literally to re-create the company and everyone in it in a nonstop process of personal and organizational self-renewal. In the knowledge-creating company, inventing new knowledge is not a specialized activity – the province of the R&D department or marketing or strategic planning. It is a way of behaving, indeed a way of being, in which everyone is a knowledge worker – that is to say, an entrepreneur.

The reasons why Japanese companies seem especially good at this kind of continuous innovation and self-renewal are complicated. But the key lesson for managers is quite simple: Much as manufacturers around the world have learned from Japanese manufacturing techniques, any company that wants to compete on knowledge must also learn from Japanese techniques of knowledge creation. The experiences of the Japanese companies discussed below suggest a fresh way to think about managerial roles and responsibilities, organizational design, and business practices in the knowledge-creating company. It is an approach that puts knowledge creation exactly where it belongs: at the very center of a company's human resources strategy.

The Spiral of Knowledge

New knowledge always begins with the individual. A brilliant researcher has an insight that leads to a new patent. A middle manager's intuitive sense of

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market trends becomes the catalyst for an important new product concept. A shop-floor worker draws on years of experience to come up with a new process innovation. In each case, an individual's personal knowledge is transformed into organizational knowledge valuable to the company as a whole.

Making personal knowledge available to others is the central activity of the knowledge-creating company. It takes place continuously and at all levels of the organization. And as the following example suggests, sometimes it can take unexpected forms.

In 1985, product developers at the Osaka-based Matsushita Electric Company were hard at work on a new home bread-making machine. But they were having trouble getting the machine to knead dough correctly. Despite their efforts, the crust of the bread was overcooked while the inside was hardly done at all. Employees exhaustively analyzed the problem. They even compared X-rays of dough kneaded by the machine and dough kneaded by professional bakers. But they were unable to obtain any meaningful data.

Finally, software developer Ikuko Tanaka proposed a creative solution. The Osaka International Hotel had a reputation for making the best bread in Osaka. Why not use it as a model? Tanaka trained with the hotel's head baker to study his kneading technique. She observed that the baker had a distinctive way of stretching the dough. After a year of trial and error, working closely with the project's engineers, Tanaka came up with product specifications – including the addition of special ribs inside the machine – that successfully reproduced the baker's stretching technique and the quality of the bread she had learned to make at the hotel. The result: Matsushita's unique "twist dough" method and a product that in its first year set a record for sales of a new kitchen appliance.

Ikuko Tanaka's innovation illustrates a movement between two very different types of knowledge. The end point of that movement is "explicit" knowledge: the product specifications for the bread-making machine. Explicit knowledge is formal and systematic. For this reason, it can be easily communicated and shared, in product specifications or a scientific formula or a computer program.

But the starting point of Tanaka's innovation is another kind of knowledge that is not so easily expressible: "tacit" knowledge, like that possessed by the chief baker at the Osaka International Hotel. Tacit knowledge is highly personal. It is hard to formalize and, therefore, difficult to communicate to others. Or, in the words of the philosopher Michael Polanyi, "We can know more than we can tell." Tacit knowledge is also deeply rooted in action and in an individual's commitment to a specific context – a craft or profession, a particular technology or product market, or the activities of a work group or team.

Creating new knowledge is as much about ideals as it is about ideas.

Tacit knowledge consists partly of technical skills – the kind of informal, hard-to-pin-down skills captured in the term "know-how." A master craftsman after years of experience develops a wealth of expertise "at his fingertips." But he is often unable to articulate the scientific or technical principles behind what he knows.

At the same time, tacit knowledge has an important cognitive dimension. It consists of mental models, beliefs, and perspectives so ingrained that we take them for granted and therefore cannot easily articulate them. For this very reason, these implicit models profoundly shape how we perceive the world around us.

The distinction between tacit and explicit knowledge suggests four basic patterns for creating knowledge in any organization.

From tacit to tacit. Sometimes, one individual shares tacit knowledge directly with another. For example, when Ikuko Tanaka apprentices herself to the head baker at the Osaka International Hotel, she learns his tacit skills through observation, imitation, and practice. They become part of her own tacit knowledge base. Put another way, she is "socialized" into the craft.

But on its own, socialization is a rather limited form of knowledge creation. True, the apprentice learns the master's skills. But neither the apprentice nor the master gains any systematic insight into their craft knowledge. Because their knowledge never becomes explicit, it cannot easily be leveraged by the organization as a whole.

From explicit to explicit. An individual can also combine discrete pieces of explicit knowledge into a new whole. For example, when a comptroller of a company collects information from throughout the organization and puts it together in a financial report, that report is new knowledge in the sense that it synthesizes information from many different sources. But this combination does not really extend the company's existing knowledge base either.

But when tacit and explicit knowledge interact, as in the Matsushita example, something powerful happens. It is precisely this exchange *between* tacit and explicit knowledge that Japanese companies are especially good at developing.

From tacit to explicit. When Ikuko Tanaka is able to articulate the foundations of her tacit knowledge of bread making, she converts it into explicit knowledge, thus allowing it to be shared with her project-development team. Another example might be the comptroller who, instead of merely compiling a conventional financial plan for his company, develops an innovative new approach to budgetary control based on his own tacit knowledge developed over years in the job.

From explicit to tacit. What's more, as new explicit knowledge is shared throughout an organization, other employees begin to internalize it – that is, they use it to broaden, extend, and reframe their own tacit knowledge. The comptroller's proposal causes a revision of the company's financial control system. Other employees use the innovation and eventually come to take it for granted as part of the background of tools and resources necessary to do their jobs.

In the knowledge-creating company, all four of these patterns exist in dynamic interaction, a kind of spiral of knowledge. Think back to Matsushita's Ikuko Tanaka:

1. First, she learns the tacit secrets of the Osaka International Hotel baker (socialization).
2. Next, she translates these secrets into explicit knowledge that she can communicate to her team members and others at Matsushita (articulation).
3. The team then standardizes this knowledge, putting it together into a manual or workbook and embodying it in a product (combination).
4. Finally, through the experience of creating a new product, Tanaka and her team members enrich their own tacit knowledge base (internalization). In particular, they come to understand in an extremely intuitive way that products like the home bread-making machine can provide genuine quality. That is, the machine must make bread that is as good as that of a professional baker.

This starts the spiral of knowledge all over again, but this time at a higher level. The new tacit insight about genuine quality developed in designing the home bread-making machine is informally conveyed to other Matsushita employees. They use it to formulate equivalent quality standards for other new Matsushita products – whether kitchen appliances, audiovisual equipment, or white goods. In this way, the organization's knowledge base grows ever broader.

Articulation (converting tacit knowledge into explicit knowledge) and internalization (using that explicit knowledge to extend one's own tacit knowledge base) are the critical steps in this spiral of knowledge. The reason is that both require the active involvement of the self – that is, personal commitment. Ikuko Tanaka's decision to apprentice herself to a master baker is one example of this commitment. Similarly, when the comptroller articulates his tacit knowledge and embodies it in a new innovation, his personal identity is directly involved in a way it is not when he merely crunches the numbers of a conventional financial plan.

Managers must challenge employees to reexamine what they take for granted.

Indeed, because tacit knowledge includes mental models and beliefs in addition to know-how, moving from the tacit to the explicit is really a process of articulating one's vision of the world – what it is and what it ought to be. When employees invent new knowledge, they are also reinventing themselves, the company, and even the world.

When managers grasp this, they realize that the appropriate tools for managing the knowledge-creating company look very different from those found at most Western companies.

From Metaphor to Model

To convert tacit knowledge into explicit knowledge means finding a way to express the inexpressible. Unfortunately, one of the most powerful management tools for doing so is also among the most frequently overlooked: the store of figurative language and symbolism that managers can draw from to articulate their intuitions and insights. At Japanese companies, this evocative and sometimes extremely poetic language figures especially prominently in product development.

In 1978, top management at Honda inaugurated the development of a new-concept car with the slogan "Let's gamble." The phrase expressed senior executives' conviction that Honda's Civic and Accord models were becoming too familiar. Managers also realized that along with a new postwar generation entering the car market, a new generation of young product designers was coming of age with unconventional ideas about what made a good car.

The business decision that followed from the "Let's gamble" slogan was to form a new-product development team of young engineers and designers (the average age was 27). Top management charged the team with two – and only two – instructions: first, to come up with a product concept fundamentally different from anything the company had ever done before; and second, to make a car that was inexpensive but not cheap.

This mission might sound vague, but in fact it provided the team an extremely clear sense of direction. For instance, in the early days of the project, some team members proposed designing a smaller and cheaper version of the Honda Civic – a safe and technologically feasible option. But the team quickly decided this approach contradicted the entire rationale of its mission. The only alternative was to invent something totally new.

Project team leader Hiroo Watanabe coined another slogan to express his sense of the team's ambitious challenge: Theory of Automobile Evolution. The phrase described an ideal. In effect, it posed the question, If the automobile were an organism, how should it evolve? As team members argued and discussed what Watanabe's slogan might possibly mean, they came up with an answer in the form of yet another slogan: "man-maximum, machine-minimum." This captured the team's belief that the ideal car should somehow transcend the traditional human-machine relationship. But that required challenging what Watanabe called "the reasoning of Detroit," which had sacrificed comfort for appearance.

The "evolutionary" trend the team articulated eventually came to be embodied in the image of a sphere – a car simultaneously "short" (in length) and "tall" (in height). Such a car, they reasoned, would be lighter and cheaper but also more comfortable and more solid than traditional cars. A sphere provided the most room for the passenger while taking up the least amount of space on the road. What's more, the shape minimized the space taken up by the engine and other mechanical systems. This gave birth to a product concept the team called "Tall Boy," which eventually led to the Honda City, the company's distinctive urban car.

The Tall Boy concept totally contradicted the conventional wisdom about automobile design at the time, which emphasized long, low sedans. But the City's revolutionary styling and engineering were prophetic. The car inaugurated a whole new approach to design in the Japanese auto industry based on the man-maximum, machine-minimum concept, which has led to the new generation of "tall and short" cars now quite prevalent in Japan.

The story of the Honda City suggests how Japanese companies use figurative language at all levels of the company and in all phases of the product development process. It also begins to suggest the different kinds of figurative language and the distinctive role each plays.

One kind of figurative language that is especially important is metaphor. By "metaphor," I don't just mean a grammatical structure or allegorical expression. Rather, metaphor is a distinctive method of perception. It is a way for individuals grounded in different contexts and with different experiences to understand something intuitively through the use of imagination and symbols without the need for analysis or generalization. Through metaphors, people put together what they know in new ways and begin to express what they know but cannot yet say. As such, metaphor is highly effective in fostering direct commitment to the creative process in the early stages of knowledge creation.

Metaphor accomplishes this by merging two different and distant areas of experience into a single, inclusive image or symbol – what linguistic philosopher Max Black has aptly described as "two ideas in one phrase." By establishing a connection between two things that seem only distantly related, metaphors set up a discrepancy or conflict. Often, metaphoric images have multiple meanings and appear logically contradictory or even irrational. But far from being a weakness, this is in fact an enormous strength. For it is the very conflict that metaphors embody that jump-starts the creative process. As employees try to define more clearly the insight that the metaphor expresses, they work to reconcile the conflicting meanings. That is the first step in making the tacit explicit.

Consider the example of Hiroo Watanabe's slogan, Theory of Automobile Evolution. Like any good metaphor, it combines two ideas one wouldn't normally think of together – the automobile, which is a machine, and the theory of evolution, which refers to living organisms. And yet, this discrepancy is a fruitful platform for speculation about the characteristics of the ideal car.

But while metaphor triggers the knowledge-creation process, it alone is not enough to complete it. The next step is analogy. Whereas metaphor is mostly driven by intuition and links images that at first glance seem remote from each other, analogy is a more structured process of reconciling contradictions and making distinctions. Put another way, by clarifying how the two ideas in one phrase actually are alike and not alike, the contradictions incorporated into metaphors are harmonized by analogy. In this respect, analogy is an intermediate step between pure imagination and logical thinking.

Probably the best example of analogy comes from the development of Canon's revolutionary minicopier. Canon designers knew that for the first personal copier to be successful, it had to be reliable. To ensure reliability, they proposed to make the product's photosensitive copier drum – which is the source of 90% of all maintenance problems – disposable. To be disposable, however, the drum would have to be easy and cheap to make. How to manufacture a throwaway drum?

The breakthrough came one day when task-force leader Hiroshi Tanaka ordered out for some beer. As the team discussed design problems over their drinks, Tanaka held one of the beer cans and wondered aloud, "How much does it cost to manufacture this can?" The question led the team to speculate whether the same process for making an aluminum beer can could be applied to the manufacture of an aluminum copier drum. By exploring how the drum actually is and is not like a beer can, the minicopier development team was able to come up with the process technology that could manufacture an aluminum copier drum at the appropriate low cost.

Finally, the last step in the knowledge-creation process is to create an actual model. A model is far more immediately conceivable than a metaphor or an analogy. In the model, contradictions get resolved and concepts become transferable through consistent and systematic logic. The quality standards for the bread at the Osaka International Hotel lead Matsushita to develop the right product specifications for its home bread-making machine. The image of a sphere leads Honda to its Tall Boy product concept.

Of course, terms like "metaphor," "analogy," and "model" are ideal types. In reality, they are often hard to distinguish from one another; the same phrase or image can embody more than one of the three functions. Still, the three terms capture the process by which organizations convert tacit knowledge into explicit knowledge: first, by linking contradictory things and ideas through metaphor; then, by resolving these contradictions through analogy; and, finally, by crystallizing the created concepts and embodying them in a model, which makes the knowledge available to the rest of the company.

From Chaos to Concept: Managing the Knowledge-Creating Company

Understanding knowledge creation as a process of making tacit knowledge explicit – a matter of metaphors, analogies, and models – has direct implications for how a company designs its organization and defines managerial roles and responsibilities within it. This is the "how" of the knowledge-creating company, the structures and practices that translate a company's vision into innovative technologies and products.

The fundamental principle of organizational design at the Japanese companies I have studied is redundancy – the conscious overlapping of company information, business activities, and managerial responsibilities. To Western managers, the term "redundancy," with its connotations of unnecessary duplication and waste, may sound unappealing. And yet, building a redundant organization is the first step in managing the knowledge-creating company.

Redundancy is important because it encourages frequent dialogue and communication. This helps create a "common cognitive ground" among employees and thus facilitates the transfer of tacit knowledge. Since members of the organization share overlapping information, they can sense what others are struggling to articulate. Redundancy also spreads new explicit knowledge through the organization so it can be internalized by employees.

The organizational logic of redundancy helps explain why Japanese companies manage product development as an overlapping process where different functional divisions work together in a shared division of labor. At Canon, redundant product development goes one step further. The company organizes product-development teams according to "the principle of internal competition." A team is divided into competing groups that develop different approaches to the same project and then argue over the advantages and disadvantages of their proposals. This encourages the team to look at a project from a variety of perspectives. Under the guidance of a team leader, the team eventually develops a common understanding of the "best" approach.

In one sense, such internal competition is wasteful. Why have two or more groups of employees pursuing the same product-development project? But when responsibilities are shared, information proliferates, and the organization's ability to create and implement concepts is accelerated.

At Canon, for example, inventing the minicopier's low-cost disposable drum resulted in new technologies that facilitated miniaturization, weight reduction, and automated assembly. These technologies were then quickly applied to other office automation products such as microfilm readers, laser printers, word processors, and typewriters. This was an important factor in diversifying Canon from cameras to office automation and in securing a competitive edge in the laser printer industry. By 1987 – only five years after the minicopier was introduced – a full 74% of Canon's revenues came from its business machines division.

Another way to build redundancy is through strategic rotation, especially between different areas of technology and between functions such as R&D and marketing. Rotation helps employees understand the business from a multiplicity of perspectives. This makes organizational knowledge more "fluid" and easier to put into practice. At Kao, a leading Japanese consumer-products manufacturer, researchers often "retire" from the R&D department by the age of 40 in order to transfer to other departments such as marketing, sales, or production. And all employees are expected to hold at least three different jobs in any given ten-year period.

Free access to company information also helps build redundancy. When information differentials exist, members of an organization can no longer interact on equal terms, which hinders the search for different interpretations of new knowledge. Thus Kao's top management does not allow any discrimination in access to information among employees. All company information (with the exception of personnel data) is stored in a single integrated database, open to any employee regardless of position.

As these examples suggest, no one department or group of experts has the exclusive responsibility for creating new knowledge in the knowledge-creating company. Senior managers, middle managers, and frontline employees all play a part. Indeed, the value of any one person's contribution is determined less by his or her location in the organizational hierarchy than by the importance of the information he or she provides to the entire knowledge-creating system.

But this is not to say that there is no differentiation among roles and responsibilities in the knowledge-creating company. In fact, creating new knowledge is the product of a dynamic interaction among three roles.

Frontline employees are immersed in the day-to-day details of particular technologies, products, or markets. No one is more expert in the realities of a company's business than they are. But while these employees are deluged with highly specific information, they often find it extremely difficult to turn that information into useful knowledge. For one thing, signals from the marketplace can be vague and ambiguous. For another, employees can become so caught up in their own narrow perspective that they lose sight of the broader context.

According to one Honda researcher, "Senior managers are romantics who go in quest of the ideal."

What's more, even when employees *do* develop meaningful ideas and insights, it can still be difficult to communicate the import of that information to others. People don't just passively receive new knowledge, they actively interpret it to fit their own situations and perspectives. Thus what makes sense in one context can change or even lose its meaning when communicated to people in a different context. As a result, there is a continual shift in meaning as new knowledge is diffused in an organization.

The confusion created by the inevitable discrepancies in meaning that occur in any organization might seem like a problem. In fact, it can be a rich source of new knowledge – *if* a company knows how to manage it. The key to doing so is continuously challenging employees to reexamine what they take for granted. Such reflection is always necessary in the knowledge-creating company, but it is especially essential during times of crisis or breakdown, when a company's traditional categories of knowledge no longer work. At such moments, ambiguity can prove extremely useful as a source of alternative meanings, a fresh way to think about things, a new sense of direction. In this respect, new knowledge is born in chaos.

The main job of managers in the knowledge-creating company is to orient this chaos toward purposeful knowledge creation. Managers do this by providing employees with a conceptual framework that helps them make sense of their own experience. This takes place at the senior management level at the top of the company and at the middle management level on company teams.

Senior managers give voice to a company's future by articulating metaphors, symbols, and concepts that orient the knowledge-creating activities of employees. They do this by asking the questions, What are we trying to learn? What do we need to know? Where should we be going? Who are we? If the job of frontline employees is to know "what is," then the job of senior executives is to know "what ought to be." Or in the words of Hiroshi Honma, senior researcher at Honda: "Senior managers are romantics who go in quest of the ideal."

At some of the Japanese companies I have studied, CEOs talk about this role in terms of their responsibility for articulating the company's "conceptual umbrella": the grand concepts that in highly universal and abstract terms identify the common features linking seemingly disparate activities or businesses into a coherent whole. Sharp's dedication to optoelectronics is a good example.

In 1973, Sharp invented the first low-power electronic calculator by combining two key technologies – liquid crystal displays (LCDs) and complementary metal oxide semiconductors (CMOSs). Company technologists used the term "optoelectronics" to describe this merging of microelectronics with optical technologies. The company's senior managers then took up the word and magnified its impact far beyond the R&D and engineering departments in the company.

Optoelectronics represents an image of the world that Sharp wants to live in. It is one of the key concepts articulating what the company ought to be. As such, it has become an overarching guide for the company's strategic development. Under this rubric, Sharp has moved beyond its original success in calculators to become a market leader in a broad range of products based on LCD and semiconductor technologies, including the electronic organizer pocket notebook and LCD projection systems, as well as customized integrated circuits such as masked ROMs, ASICs, and CCDs (charge-coupled devices, which convert light into electronic signals).

Mazda management justified the decision to develop the rotary engine as an expression of the company's "fate."

Other Japanese companies have similar umbrella concepts. At NEC, top management has categorized the company's knowledge base in terms of a few key technologies and then developed the metaphor "C&C" (for "computers and communications"). At Kao, the umbrella concept is "surface active science," referring to techniques for coating the surface area of materials. This phrase has guided the company's diversification into products ranging from soap detergents to cosmetics to floppy disks – all natural derivatives of Kao's core knowledge base.

Another way top management provides employees with a sense of direction is by setting the standards for justifying the value of the knowledge that is constantly being developed by the organization's members. Deciding which efforts to support and develop is a highly strategic task.

In most companies, the ultimate test for measuring the value of new knowledge is economic – increased efficiency, lower costs, improved ROI. But in the knowledge-creating company, other, more qualitative factors are equally important. Does the idea embody the company's vision? Is it an expression of top management's aspirations and strategic goals? Does it have the potential to build the company's organizational knowledge network?

The decision by Mazda to pursue the development of the rotary engine is a classic example of this more qualitative kind of justification. In 1974, the product-development team working on the engine was facing heavy pressure within the company to abandon the project. The rotary engine was a "gas guzzler," critics complained. It would never succeed in the marketplace.

Kenichi Yamamoto, head of the development team (and currently Mazda's chairman), argued that to stop the project would mean giving up on the company's dream of revolutionizing the combustion engine. "Let's think this way," Yamamoto proposed. "We are making history, and it is our fate to deal with this challenge." The decision to continue led to Mazda's successful rotary-engine sports car, the Savanna RX-7.

Seen from the perspective of traditional management, Yamamoto's argument about the company's "fate" sounds crazy. But in the context of the knowledge-creating company, it makes perfect sense. Yamamoto appealed to the fundamental aspirations of the company – what he termed "dedication to uncompromised value" – and to the strategy of technological leadership that senior executives had articulated. He showed how the rotary-engine project enacted the organization's commitment to its vision. Similarly, continuing the project reinforced the individual commitment of team members to that vision and to the organization.

Umbrella concepts and qualitative criteria for justification are crucial to giving a company's knowledge-creating activities a sense of direction. And yet, it is important to emphasize that a company's vision needs also to be open-ended, susceptible to a variety of different and even conflicting interpretations. At first glance, this may seem contradictory. After all, shouldn't a company's vision be unambiguous, coherent, and clear? If a vision is *too* unambiguous, however, it becomes more akin to an order or an instruction. And orders do not foster the high degree of personal commitment on which effective knowledge creation depends.

A more equivocal vision gives employees and work groups the freedom and autonomy to set their own goals. This is important because while the ideals of senior management are important, on their own they are not enough. The best that top management can do is to clear away any obstacles and prepare the ground for self-organizing groups or teams. Then, it is up to the teams to figure out what the ideals of the top mean in reality. Thus at Honda, a slogan as vague as "Let's gamble" and an extremely broad mission gave the Honda City product-development team a strong sense of its own identity, which led to a revolutionary new product.

Teams play a central role in the knowledge-creating company because they provide a shared context where individuals can interact with each other and engage in the constant dialogue on which effective reflection depends. Team members create new points of view through dialogue and discussion. They pool their information and examine it from various angles. Eventually, they integrate their diverse individual perspectives into a new collective perspective.

This dialogue can – indeed, should – involve considerable conflict and disagreement. It is precisely such conflict that pushes employees to question existing premises and make sense of their experience in a new way. "When people's rhythms are out of sync, quarrels occur and it's hard to bring people together," acknowledges a deputy manager for advanced technology development at Canon. "Yet if a group's rhythms are completely in unison from the beginning, it's also difficult to achieve good results."

As team leaders, middle managers are at the intersection of the vertical and horizontal flows of information in the company. They serve as a bridge between the visionary ideals of the top and the often chaotic market reality of those on the front line of the business. By creating midlevel business and product concepts, middle managers mediate between "what is" and "what should be." They remake reality according to the company's vision.

Thus at Honda, top management's decision to try something completely new took concrete form at the level of Hiroo Watanabe's product-development team in the Tall Boy product concept. At Canon, the company aspiration, "Making an excellent company through transcending the camera business," became a reality when Hiroshi Tanaka's task force developed the "Easy Maintenance" product concept, which eventually gave birth to the personal copier. And at Matsushita, the company's grand concept, "Human Electronics," came to life through the efforts of Ikuko Tanaka and others who developed the midrange concept, "Easy Rich," and embodied it in the automatic bread-making machine.

In each of these cases, middle managers synthesized the tacit knowledge of both frontline employees and senior executives, made it explicit, and incorporated it into new technologies and products. In this respect, they are the true "knowledge engineers" of the knowledge-creating company.

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A Road Map for Natural Capitalism

by Amory B. Lovins, L. Hunter Lovins, and Paul Hawken

Editor's Note: The unsettling warning this article delivers has only grown more urgent since 1999, when it first appeared in HBR. But the value here lies not so much in the alarm that sounds as in the vivid and sometimes startling reconceptualization of how we think about the environment and economic value.

The value to the economy of the services provided by the earth's ecosystem – as distinct from the value of the natural resources we extract from it – runs into tens of trillions of dollars annually, say the authors. They provide numerous examples of companies that leverage this insight in the interest of their own bottom lines and the health of the environment as a whole.

ON SEPTEMBER 16, 1991, a small group of scientists was sealed inside Biosphere II, a glittering 3.2-acre glass and metal dome in Oracle, Arizona. Two years later, when the radical attempt to replicate the earth's main ecosystems in miniature ended, the engineered environment was dying. The gaunt researchers had survived only because fresh air had been pumped in. Despite $200 million worth of elaborate equipment, Biosphere II had failed to generate breathable air, drinkable water, and adequate food for just eight people. Yet Biosphere I, the planet we all inhabit, effortlessly performs those tasks every day for 6 billion of us.

Disturbingly, Biosphere I is now itself at risk. The earth's ability to sustain life, and therefore economic activity, is threatened by the way we extract, process, transport, and dispose of a vast flow

Robert Meganck

of resources – some 220 billion tons a year, or more than 20 times the average American's body weight every day. With dangerously narrow focus, our industries look only at the exploitable resources of the earth's ecosystems – its oceans, forests, and plains – and not at the larger services that those systems provide for free. Resources and ecosystem services both come from the earth – even from the same biological systems – but they're two different things. Forests, for instance, not only produce the resource of wood fiber but also provide such ecosystem services as water storage, habitat, and regulation of the atmosphere and climate. Yet companies that earn income from harvesting the wood fiber resource often do so in ways that damage the forest's ability to carry out its other vital tasks.

Unfortunately, the cost of destroying ecosystem services becomes apparent only when the services start to break down. In China's Yangtze basin in 1998, for example, deforestation triggered flooding that killed 3,700 people, dislocated 223 million, and inundated 60 million acres of cropland. That $30 billion disaster forced a logging moratorium and a $12 billion crash program of reforestation.

The reason companies (and governments) are so prodigal with ecosystem services is that the value of those services doesn't appear on the business balance sheet. But that's a staggering omission. The economy, after all, is embedded in the environment. Recent calculations published in the journal *Nature* conservatively estimate the value of all the earth's ecosystem services to be at least $33 trillion a year. That's close to the gross world product, and it implies a capitalized book value on the order of half a quadrillion dollars. What's more, for most of these services, there is no known substitute at any price, and we can't live without them.

This article puts forward a new approach not only for protecting the biosphere but also for improving profits and competitiveness. Some very simple changes to the way we run our businesses, built on advanced techniques for making resources more productive, can yield startling benefits both for today's shareholders and for future generations.

This approach is called *natural capitalism* because it's what capitalism might become if its largest category of capital – the "natural capital" of ecosystem services – were properly valued. The journey to natural capitalism involves four major shifts in business practices, all vitally interlinked:

- **Dramatically increase the productivity of natural resources.** Reducing the wasteful and destructive flow of resources from depletion to pollution represents a major business opportunity. Through fundamental changes in both production design and technology, farsighted companies are developing ways to make natural resources – energy, minerals, water, forests – stretch five, ten, even 100 times further than they do today. These major resource savings often yield higher profits than small resource savings do – or even saving no resources at all would – and not only pay for themselves over time but in many cases reduce initial capital investments.

- **Shift to biologically inspired production models.** Natural capitalism seeks not merely to reduce waste but to eliminate the very concept of waste. In closed-loop production systems, modeled on nature's designs, every output either is returned harmlessly to the ecosystem as a nutrient, like compost, or becomes an input for manufacturing another product. Such systems can often be designed to eliminate the use of toxic materials, which can hamper nature's ability to reprocess materials.

- **Move to a solutions-based business model.** The business model of traditional manufacturing rests on the sale of goods. In the new model, value is instead delivered as a flow of services – providing illumination, for example, rather than selling lightbulbs. This model entails a new perception of value, a move from the acquisition of goods as a measure of affluence to one where well-being is measured by the continuous satisfaction of changing expectations for quality, utility, and performance. The new relationship aligns the interests of providers and customers in ways that reward them for implementing the first two innovations of natural capitalism – resource productivity and closed-loop manufacturing.

- **Reinvest in natural capital.** Ultimately, business must restore, sustain, and expand the planet's ecosystems so that they can produce their vital services and biological resources even more abundantly. Pressures to do so are mounting as human needs expand, the costs engendered by deteriorating ecosystems rise, and the environmental awareness of consumers increases. Fortunately, these pressures all create business value.

Natural capitalism is not motivated by a current scarcity of natural resources. Indeed, although many biological resources, like fish, are becoming scarce, most mined resources, such as copper and oil, seem ever more abundant. Indices of average commodity prices are at 28-year lows, thanks partly to powerful extractive technologies, which are often subsidized and whose damage to natural capital remains unaccounted for. Yet even despite these artificially

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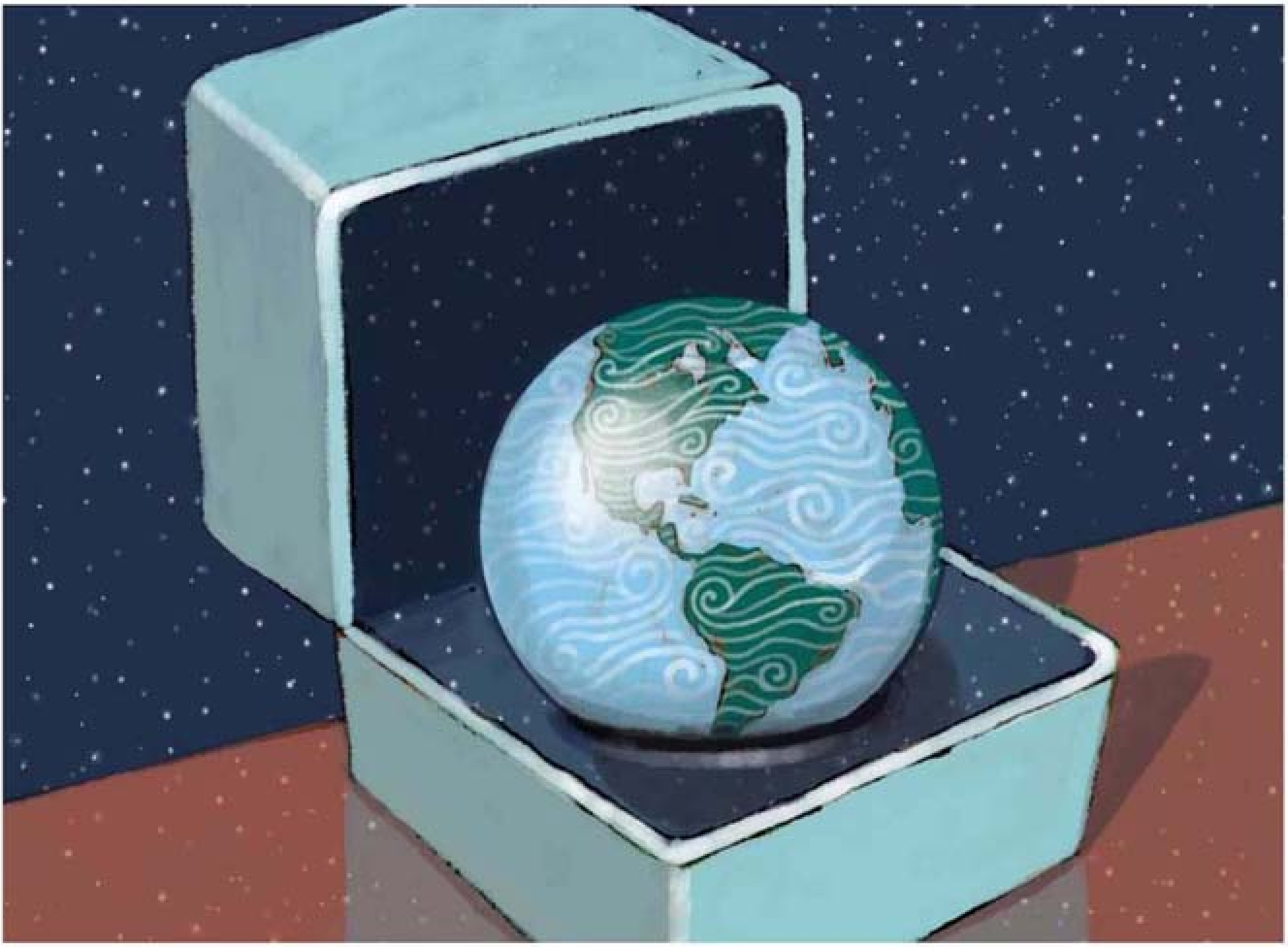

low prices, using resources manyfold more productively can now be so profitable that pioneering companies – large and small – have already embarked on the journey toward natural capitalism.[1]

Still the question arises – if large resource savings are available and profitable, why haven't they all been captured already? The answer is simple: Scores of common practices in both the private and public sectors systematically reward companies for wasting natural resources and penalize them for boosting resource productivity. For example, most companies expense their consumption of raw materials through the income statement but pass resource-saving investment through the balance sheet. That distortion makes it more tax efficient to waste fuel than to invest in improving fuel efficiency. In short, even though the road seems clear, the compass that companies use to direct their journey is broken. Later we'll look in more detail at some of the obstacles to resource productivity – and some of the important business opportunities they reveal. But first, let's map the route toward natural capitalism.

Dramatically Increase the Productivity of Natural Resources

In the first stage of a company's journey toward natural capitalism, it strives to wring out the waste of energy, water, materials, and other resources throughout its production systems and other operations. There are two main ways companies can do this at a profit. First, they can adopt a fresh approach to design that considers industrial systems as a whole rather than part by part. Second, companies can replace old industrial technologies with new ones, particularly with those based on natural processes and materials.

Implementing whole-system design. Inventor Edwin Land once remarked that "people who seem to have had a new idea have often simply stopped having an old idea." This is particularly true when designing for resource savings. The old idea is one of diminishing returns – the greater the resource saving, the higher the cost. But that old idea is giving way to the new idea that bigger savings can cost less – that saving a large fraction of resources can actually cost less than saving a small fraction of resources. This is the concept of expanding returns, and it governs much of the revolutionary thinking behind whole-system design. Lean manufacturing is an example of whole-system thinking that has helped many companies dramatically reduce such forms of waste as lead times, defect rates, and inventory. Applying whole-system thinking to the productivity of natural resources can achieve even more.

Consider Interface, a leading maker of materials for commercial interiors. In its new Shanghai carpet factory, a liquid had to be circulated through a standard pumping loop similar to those used in nearly all industries. A top European company designed the system to use pumps requiring a total of 95 horsepower. But before construction began, Interface's engineer, Jan Schilham, realized that two embarrassingly simple design changes would cut that power requirement to only seven horsepower – a 92% reduction. His redesigned system cost less to build, involved no new technology, and worked better in all respects.

What two design changes achieved this 12-fold saving in pumping power? First, Schilham chose fatter-than-usual pipes, which create much less friction than thin pipes do and therefore need far less pumping energy. The original designer had chosen thin pipes because, according to the textbook method, the extra cost of fatter ones wouldn't be justified by the pumping energy that they would save. This standard design trade-off optimizes the pipes by themselves but "pessimizes" the larger system. Schilham optimized the *whole* system by counting not only the higher capital cost of the fatter pipes but also the *lower* capital cost of the smaller pumping equipment that would be needed. The pumps, motors, motor controls, and electrical components could all be much smaller because there'd be less friction to overcome. Capital cost would fall far more for the smaller equipment than it would rise for the fatter pipe. Choosing big pipes and small pumps – rather than small pipes and big pumps – would therefore make the whole system cost less to build, even before counting its future energy savings.

Schilham's second innovation was to reduce the friction even more by making the pipes short and straight rather than long and crooked. He did this by laying out the pipes first, *then* positioning the various tanks, boilers, and other equipment that they connected. Designers normally locate the production equipment in arbitrary positions and then have a pipe fitter connect everything. Awkward placement forces the pipes to make numerous bends that greatly increase friction. The pipe fitters don't mind: They're paid by the hour, they profit from the extra pipes and fittings, and they don't pay for the oversized pumps or inflated electric bills. In addition to reducing those four kinds of costs, Schilham's short, straight pipes were easier to insulate, saving an extra 70 kilowatts of heat loss and repaying the insulation's cost in three months.

This small example has big implications for two reasons. First, pumping is the largest application of motors, and motors use three-quarters of all industrial electricity. Second, the lessons are very widely relevant. Interface's pumping loop shows how simple changes in design mentality can yield huge resource savings and returns on investment. This isn't rocket science; often it's just a rediscovery of good Victorian engineering principles that have been lost because of specialization.

Whole-system thinking can help managers find small changes that lead to big savings that are cheap, free, or even better than free (because they make the whole system cheaper to build). They can do this because often the right investment in one part of the system can produce multiple benefits throughout the system. For example, companies would gain 18 distinct economic benefits – of which direct energy savings is only one – if they switched from ordinary motors to premium-efficiency motors or from ordinary lighting ballasts (the transformer-like boxes that control fluorescent lamps) to electronic ballasts that automatically dim the lamps to match available daylight. If everyone in America integrated these and other selected technologies into all existing motor and lighting systems in an optimal way, the nation's $220-billion-a-year electric bill would be cut in half. The after-tax return on investing in these changes would in most cases exceed 100% per year.

The profits from saving electricity could be increased even further if companies also incorporated the best off-the-shelf improvements into their building structure and their office, heating, cooling, and other equipment. Overall, such changes could cut national electricity consumption by at least 75% and produce returns of around 100% a year on the investments made. More important, because workers would be more comfortable, better able to see, and less fatigued by noise, their productivity and the quality of their output would rise. Eight recent case studies of people working in well-designed, energy-efficient buildings measured labor productivity gains of 6% to 16%. Since a typical office pays about 100 times as much for people as it does for energy, this increased productivity in people is worth about 6 to 16 times as much as eliminating the entire energy bill.

Energy-saving, productivity-enhancing improvements can often be achieved at even lower cost by piggybacking them onto the periodic renovations that all buildings and factories need. A recent proposal for reallocating the normal 20-year renovation budget for a standard 200,000-square-foot glass-clad office tower near Chicago shows the potential of whole-system design. The proposal suggested replacing the aging glazing system with a new kind of window that lets in nearly six times more daylight than the old sun-blocking glass units. The new windows would reduce the flow of heat and noise four times better than traditional windows do. So even though the glass costs slightly more, the overall cost of the renovation would be reduced because the windows would let in cool, glare-free daylight that, when combined with more efficient lighting and office equipment, would reduce the need for air-conditioning by 75%. Installing a fourfold more efficient, but fourfold smaller, air-conditioning system would cost $200,000 less than giving the old system its normal 20-year renovation. The $200,000 saved would, in turn, pay for the extra cost of the new windows and other improvements. This whole-system approach to renovation would not only save 75% of the building's total energy use, it would also greatly improve the building's comfort and marketability. Yet it would cost essentially the same as the normal renovation. There are about 100,000 20-year-old glass office towers in the United States that are ripe for such improvement.

Major gains in resource productivity require that the right steps be taken in the right order. Small changes made at the downstream end of a process often create far larger savings further upstream. In almost any industry that uses a pumping system, for example, saving one unit of liquid flow or friction in an exit pipe saves about ten units of fuel, cost, and pollution at the power station.

Of course, the original reduction in flow itself can bring direct benefits, which are often the reason changes are made in the first place. In the 1980s, while California's industry grew 30%, for example, its water use was cut by 30%, largely to avoid increased wastewater fees. But the resulting reduction in pumping energy (and the roughly tenfold larger saving in power-plant fuel and pollution) delivered bonus savings that were at the time largely unanticipated.

To see how downstream cuts in resource consumption can create huge savings upstream, consider how reducing the use of wood fiber disproportionately reduces the pressure to cut down forests. In round numbers, half of all harvested wood fiber is used for such structural products as lumber; the other half is used for paper and cardboard. In both cases, the biggest leverage comes from reducing the amount of the retail product used. If it takes, for example, three pounds of harvested trees to produce one pound of product, then saving one pound of product will save three pounds of trees – plus all the environmental damage avoided by not having to cut them down in the first place.

The easiest savings come from not using paper that's unwanted or unneeded. In an experiment at its Swiss headquarters, for example, Dow Europe cut office paper flow by about 30% in six weeks simply by discouraging unneeded information. For instance, mailing lists were eliminated and senders of memos got back receipts indicating whether each recipient had wanted the information. Taking those and other small steps, Dow was also able to increase labor productivity by a similar proportion because people could focus on what they really needed to read. Similarly, Danish hearing-aid maker Oticon saved upwards of 30% of its paper as a by-product of redesigning its business processes to produce better decisions faster. Setting the default on office printers and copiers to double-sided mode reduced AT&T's paper costs by about 15%. Recently developed copiers and printers can even strip off old toner and printer ink, permitting each sheet to be reused about ten times.

Saving a large fraction of resources can actually cost less than saving a small fraction of resources. This is the concept of expanding returns.

Further savings can come from using thinner but stronger and more opaque paper and from designing packaging more thoughtfully. In a 30-month effort at reducing such waste, Johnson & Johnson saved 2,750 tons of packaging, 1,600 tons of paper, $2.8 million, and at least 330 acres of forest annually. The downstream savings in paper use are multiplied by the savings further upstream, as less need for paper products (or less need for fiber to make each product) translates into less raw paper, less raw paper means less pulp, and less pulp requires fewer trees to be harvested from the forest. Recycling paper and substituting alternative fibers such as wheat straw will save even more.

Comparable savings can be achieved for the wood fiber used in structural products. Pacific Gas and Electric, for example, sponsored an innovative design developed by Davis Energy Group that used engineered wood products to reduce the amount of wood needed in a stud wall for a typical tract house by more than 70%. These walls were stronger, cheaper, more stable, and insulated twice as well. Using them enabled the designers to eliminate heating and cooling equipment in a climate where temperatures range from freezing to 113°F. Eliminating the equipment made the whole house much less expensive both to build and to run while still maintaining high levels of comfort. Taken together, these and many other savings in the paper and construction industries could make our use of wood fiber so much more productive that, in principle, the entire world's present wood fiber needs could probably be met by an intensive tree farm about the size of Iowa.

Adopting innovative technologies. Implementing whole-system design goes hand in hand with introducing alternative, environmentally friendly technologies. Many of these are already available and profitable but not widely known. Some, like the "designer catalysts" that are transforming the chemical industry, are already runaway successes. Others are still making their way to market, delayed by cultural rather than by economic or technical barriers.

The automobile industry is particularly ripe for technological change. After a century of development, motorcar technology is showing signs of age. Only 1% of the energy consumed by today's cars is actually used to move the driver: Only 15% to 20% of the power generated by burning gasoline reaches the wheels (the rest is lost in the engine and drivetrain) and 95% of the resulting propulsion moves the car, not the driver. The industry's infrastructure is hugely expensive and inefficient. Its convergent products compete for narrow niches in saturated core markets at commodity-like prices. Auto making is capital intensive, and product cycles are long. It is profitable in good years but subject to large losses in bad years. Like the typewriter industry just before the advent of personal computers, it is vulnerable to displacement by something completely different.

Enter the Hypercar. Since 1993, when Rocky Mountain Institute placed this automotive concept in the public domain, several dozen current and potential auto manufacturers have committed billions of dollars to its development and commercialization. The Hypercar integrates the best existing technologies to reduce the consumption of fuel as much as 85% and the amount of materials used up to 90% by introducing four main innovations.

First, making the vehicle out of advanced polymer composites, chiefly carbon fiber, reduces its weight by two-thirds while maintaining crashworthiness. Second, aerodynamic design and better tires reduce air resistance by as much as 70% and rolling resistance by up to 80%. Together, these innovations save about two-thirds of the fuel. Third, 30% to 50% of the remaining fuel is saved by using a "hybrid-electric" drive. In such a system, the wheels are turned by electric motors whose power is made onboard by a small engine or turbine, or even more efficiently by a fuel cell. The fuel cell generates electricity directly by chemically combining stored hydrogen with oxygen, producing pure hot water as its only by-product. Interactions between the small, clean, efficient power source and the ultralight, low-drag auto body then further reduce the weight, cost, and complexity of both. Fourth, much of the traditional hardware – from transmissions and differentials to gauges and certain parts of the suspension – can be replaced by electronics controlled with highly integrated, customizable, and upgradable software.

We could use wood fiber so much more productively that, in principle, the entire world's wood fiber needs could probably be met by an intensive tree farm about the size of Iowa.

These technologies make it feasible to manufacture pollution-free, high-performance cars, sport utilities, pickup trucks, and vans that get 80 to 200 miles per gallon (or its energy equivalent in other fuels). These improvements will not require any compromise in quality or utility. Fuel savings will not come from making the vehicles small, sluggish, unsafe, or unaffordable, nor will they depend on government fuel taxes, mandates, or subsidies. Rather, Hypercars will succeed for the same reason that people buy compact discs instead of phonograph records: The CD is a superior product that redefines market expectations. From the manufacturers' perspective, Hypercars will cut cycle times, capital needs, body part counts, and assembly effort and space by as much as tenfold. Early adopters will have a huge competitive advantage – which is why dozens of corporations, including most automakers, are now racing to bring Hypercar-like products to market.[2]

In the long term, the Hypercar will transform industries other than automobiles. It will displace about an eighth of the steel market directly and most of the rest eventually, as carbon fiber becomes far cheaper. Hypercars and their cousins could ultimately save as much oil as OPEC now sells. Indeed, oil may well become uncompetitive as a fuel long before it becomes scarce and costly. Similar challenges face the coal and electricity industries because the development of the Hypercar is likely to accelerate greatly the commercialization of inexpensive hydrogen fuel cells. These fuel cells will help shift power production from centralized coal-fired and nuclear power stations to networks of decentralized, small-scale generators. In fact, fuel cell–powered Hypercars could themselves be part of these networks. They'd be, in effect, 20-kilowatt power plants on wheels. Given that cars are left parked – that is, unused – more than 95% of the time, these Hypercars could be plugged into a grid and could then sell back enough electricity to repay as much as half the predicted cost of leasing them. A national Hypercar fleet could ultimately have five to ten times the generating capacity of the national electric grid.

As radical as it sounds, the Hypercar is not an isolated case. Similar ideas are emerging in such industries as chemicals, semiconductors, general manufacturing, transportation, water and wastewater treatment, agriculture, forestry, energy, real estate, and urban design. For example, the amount of carbon dioxide released for each microchip manufactured can be reduced almost 100-fold through improvements that are now profitable or soon will be.

Some of the most striking developments come from emulating nature's techniques. In her book, *Biomimicry*, Janine Benyus points out that spiders convert digested crickets and flies into silk that's as strong as Kevlar without the need for boiling sulfuric acid and high-temperature extruders. Using no furnaces, abalone can convert seawater into an inner shell twice as tough as our best ceramics. Trees turn sunlight, water, soil, and air into cellulose, a sugar stronger than nylon but one-fourth as dense. They then bind it into wood, a natural composite with a higher bending strength than concrete, aluminum alloy, or steel. We may never become as skillful as spiders, abalone, or trees, but smart designers are already realizing that nature's environmentally benign chemistry offers attractive alternatives to industrial brute force.

Whether through better design or through new technologies, reducing waste represents a vast business opportunity. The U.S. economy is not even 10% as energy efficient as the laws of physics allow. Just the energy thrown off as waste heat by U.S. power stations equals the total energy use of Japan. Materials efficiency is even worse: only about 1% of all the materials mobilized to serve America is actually made into products and still in use six months after sale. In every sector, there are opportunities for reducing the amount of resources that go into a production process, the steps required to run that process, and the amount of pollution generated and by-products discarded at the end. These all represent avoidable costs and hence profits to be won.

Redesign Production According to Biological Models

In the second stage on the journey to natural capitalism, companies use closed-loop manufacturing to create new products and processes that can totally prevent waste. This plus more efficient production processes could cut companies' long-term materials requirements by more than 90% in most sectors.

The central principle of closed-loop manufacturing, as architect Paul Bierman-Lytle of the engineering firm CH2M Hill puts it, is "waste equals food." Every output of manufacturing should be either composted into natural nutrients or remanufactured into technical nutrients – that is, it should be returned to the ecosystem or recycled for further production. Closed-loop production systems are designed to eliminate any materials that incur disposal costs, especially toxic ones, because the alternative – isolating them to prevent harm to natural systems – tends to be costly and risky. Indeed, meeting EPA and OSHA standards by eliminating harmful materials often makes a manufacturing process cost less than the hazardous process it replaced. Motorola, for example, formerly used chlorofluorocarbons for cleaning printed circuit boards after soldering. When CFCs were outlawed because they destroy stratospheric ozone, Motorola at first explored such alternatives as orange-peel terpenes. But it turned out to be even cheaper – and to produce a better product – to redesign the whole soldering process so that it needed no cleaning operations or cleaning materials at all.

Closed-loop manufacturing is more than just a theory. The U.S. remanufacturing industry in 1996 reported revenues of $53 billion – more than consumer-durables manufacturing (appliances; furniture; audio, video, farm, and garden equipment). Xerox, whose bottom line has swelled by $700 million from remanufacturing, expects to save another $1 billion just by remanufacturing its new, entirely reusable or recyclable line of "green" photocopiers. What's more, policy makers in some countries are already taking steps to encourage industry to think along these lines. German law, for example, makes many manufacturers responsible for their products forever, and Japan is following suit.

Combining closed-loop manufacturing with resource efficiency is especially powerful. DuPont, for example, gets much of its polyester industrial film back from customers after they use it and recycles it into new film. DuPont also makes its polyester film ever stronger and thinner so it uses less material and costs less to make. Yet because the film performs better, customers are willing to pay more for it. As DuPont chairman Jack Krol noted in 1997, "Our ability to continually improve the inherent properties [of our films] enables this process [of developing more productive materials, at lower cost, and higher profits] to go on indefinitely."

Interface is leading the way to this next frontier of industrial ecology. While its competitors are "down cycling" nylon-and-PVC-based carpet into less valuable carpet backing, Interface has invented a new floor-covering material called Solenium, which can be completely remanufactured into identical new product. This fundamental innovation emerged from a clean-sheet redesign. Executives at Interface didn't ask how they could sell more carpet of the familiar kind; they asked how they could create a dream product that would best meet their customers' needs while protecting and nourishing natural capital.

Solenium lasts four times longer and uses 40% less material than ordinary carpets – an 86% reduction in materials intensity. What's more, Solenium is free of chlorine and other toxic materials, is virtually stainproof, doesn't grow mildew, can easily be cleaned with water, and offers aesthetic advantages over traditional carpets. It's so superior in every respect that Interface doesn't market it as an environmental product – just a better one.

Solenium is only one part of Interface's drive to eliminate every form of waste. Chairman Ray C. Anderson defines waste as "any measurable input that does not produce customer value," and he considers all inputs to be waste until shown otherwise. Between 1994 and 1998, this zero-waste approach led to a systematic treasure hunt that helped to keep resource inputs constant while revenues rose by $200 million. Indeed, $67 million of the revenue increase can be directly attributed to the company's 60% reduction in landfill waste.

Subsequently, president Charlie Eitel expanded the definition of waste to include all fossil fuel inputs, and now many customers are eager to buy products from the company's recently opened solar-powered carpet factory. Interface's green strategy has not only won plaudits from environmentalists, it has also proved a remarkably successful business strategy. Between 1993 and 1998, revenue has more than doubled, profits have more than tripled, and the number of employees has increased by 73%.

Change the Business Model

In addition to its drive to eliminate waste, Interface has made a fundamental shift in its business model – the third stage on the journey toward natural capitalism. The company has realized that clients want to walk on and look at carpets – but not necessarily to own them. Traditionally, broadloom carpets in office buildings are replaced every decade because some portions look worn out. When that happens, companies suffer the disruption of shutting down their offices and removing their furniture. Billions of pounds of carpets are removed each year and sent to landfills, where they will last up to 20,000 years. To escape this unproductive and wasteful cycle, Interface is transforming itself from a company that sells and fits carpets into one that provides floor-covering services.

Under its Evergreen Lease, Interface no longer sells carpets but rather leases a floor-covering service for a monthly fee, accepting responsibility for keeping the carpet fresh and clean. Monthly inspections detect and replace worn carpet tiles. Since at most 20% of an area typically shows at least 80% of the wear, replacing only the worn parts reduces the consumption of carpeting material by about 80%. It also minimizes the disruption that customers experience – worn tiles are seldom found under furniture. Finally, for the customer, leasing carpets can provide a tax advantage by turning a capital expenditure into a tax-deductible expense. The result: The customer gets cheaper and better services that cost the supplier far less to produce. Indeed, the energy saved from not producing a whole new carpet is in itself enough to produce all the carpeting that the new business model requires. Taken together, the fivefold savings in carpeting material that Interface achieves through the Evergreen Lease and the sevenfold materials savings achieved through the use of Solenium deliver a stunning 35-fold reduction in the flow of materials needed to sustain a superior floor-covering service. Remanufacturing, and even making carpet initially from renewable materials, can then reduce the extraction of virgin resources essentially to the company's goal of zero.

Interface's shift to a service-leasing business reflects a fundamental change from the basic model of most manufacturing companies, which still look on their businesses as machines for producing and selling products. The more products sold, the better – at least for the company, if not always for the customer or the earth. But any model that wastes natural resources also wastes money. Ultimately, that model will be unable to compete with a service model that emphasizes solving problems and building long-term relationships with customers rather than making and selling products. The shift to what James Womack of the Lean Enterprise Institute calls a "solutions economy" will almost always improve customer value *and* providers' bottom lines because it aligns both parties' interests, offering rewards for doing more and better with less.

Interface is not alone. Elevator giant Schindler, for example, prefers leasing vertical transportation services to selling elevators because leasing lets it capture the savings from its elevators' lower energy and maintenance costs. Dow Chemical and Safety-Kleen prefer leasing dissolving services to selling solvents because they can reuse the same solvent scores of times, reducing costs. United Technologies' Carrier division, the world's largest manufacturer of air conditioners, is shifting its mission from selling air conditioners to leasing comfort. Making its air conditioners more durable and efficient may compromise future equipment sales, but it provides what customers want and will pay for – better comfort at lower cost. But Carrier is going even further. It's starting to team up with other companies to make buildings more efficient so that they need less air-conditioning, or even none at all, to yield the same level of comfort. Carrier will get paid to provide the agreed-upon level of comfort, however that's delivered. Higher profits will come from providing better solutions rather than from selling more equipment. Since comfort with little or no air-conditioning (via better building design) works better and costs less than comfort with copious air-conditioning, Carrier is smart to capture this opportunity itself before its competitors do. As they say at 3M: "We'd rather eat our *own* lunch, thank you."

The shift to a service business model promises benefits not just to participating businesses but to the entire economy as well. Womack points out that by helping customers reduce their need for capital goods such as carpets or elevators, and by rewarding suppliers for extending and maximizing asset values rather than for churning them, adoption of the service model will reduce the volatility in the turnover of capital goods that lies at the heart of the business cycle. That would significantly reduce the overall volatility of the world's economy. At present, the producers of capital goods face feast or famine because the buying decisions of households and corporations are extremely sensitive to fluctuating income. But in a continuous-flow-of-services economy, those swings would be greatly reduced, bringing a welcome stability to businesses. Excess capacity – another form of waste and source of risk – need no longer be retained for meeting peak demand. The result of adopting the new model would be an economy in which we grow and get richer by using less and become stronger by being leaner and more stable.

Reinvest in Natural Capital

The foundation of textbook capitalism is the prudent reinvestment of earnings in productive capital. Natural capitalists who have dramatically raised their resource productivity, closed their loops, and shifted to a solutions-based business model have one key task remaining. They must reinvest in restoring, sustaining, and expanding the most important form of capital – their own natural habitat and biological resource base.

This was not always so important. Until recently, business could ignore damage to the ecosystem because it didn't affect production and didn't increase costs. But that situation is changing. In 1998 alone, violent weather displaced 300 million people and caused upwards of $90 billion worth of damage, representing more weather-related destruction than was reported through the entire decade of the 1980s. The increase in damage is strongly linked to deforestation and climate change, factors that accelerate the frequency and severity of natural disasters and are the consequences of inefficient industrialization. If the flow of services from industrial systems is to be sustained or increased in the future for a growing population, the vital flow of services from living systems will have to be maintained or increased as well. Without reinvestment in natural capital, shortages of ecosystem services are likely to become the limiting factor to prosperity in the next century. When a manufacturer realizes that a supplier of key components is overextended and running behind on deliveries, it takes immediate action lest its own production lines come to a halt. The ecosystem is a supplier of key components for the life of the planet, and it is now falling behind on its orders.

Failure to protect and reinvest in natural capital can also hit a company's revenues indirectly. Many companies are discovering that public perceptions of environmental responsibility, or its lack thereof, affect sales. MacMillan Bloedel, targeted by environmental activists as an emblematic clear-cutter and chlorine user, lost 5% of its sales almost overnight when dropped as a U.K. supplier by Scott Paper and Kimberly-Clark. Numerous case studies show that companies leading the way in implementing changes that help protect the environment tend to gain disproportionate advantage, while companies perceived as irresponsible lose their franchise, their legitimacy, and their shirts. Even businesses that claim to be committed to the concept of sustainable development but whose strategy is seen as mistaken, like Monsanto, are encountering stiffening public resistance to their products. Not surprisingly, University of Oregon business professor Michael Russo, along with many other analysts, has found that a strong environmental rating is "a consistent predictor of profitability."

Elevator giant Schindler prefers leasing vertical transportation services to selling elevators because leasing lets it capture the savings from its elevators' lower energy and maintenance costs.

The pioneering corporations that have made reinvestments in natural capital are starting to see some interesting paybacks. The independent power producer AES, for example, has long pursued a policy of planting trees to offset the carbon emissions of its power plants. That ethical stance, once thought quixotic, now looks like a smart investment because a dozen brokers are now starting to create markets in carbon reduction. Similarly, certification by the Forest Stewardship Council of certain sustainably grown and harvested products has given Collins Pine the extra profit margins that enabled its U.S. manufacturing operations to survive brutal competition. Taking an even longer view, Swiss Re and other European reinsurers are seeking to cut their storm-damage losses by pressing for international public policy to protect the climate and by investing in climate-safe technologies that also promise good profits. Yet most companies still do not realize that a vibrant ecological web underpins their survival and their business success. Enriching natural capital is not just a public good – it is vital to every company's longevity.

It turns out that changing industrial processes so that they actually replenish and magnify the stock of natural capital can prove especially profitable because nature does the production; people need to just step back and let life flourish. Industries that directly harvest living resources, such as forestry, farming, and fishing, offer the most suggestive examples. Here are three:

- Allan Savory of the Center for Holistic Management in Albuquerque, New Mexico, has redesigned cattle ranching to raise the carrying capacity of rangelands, which have often been degraded not by overgrazing but by undergrazing and grazing the wrong way. Savory's solution is to keep the cattle moving from place to place, grazing intensively but briefly at each site, so that they mimic the dense but constantly moving herds of native grazing animals that coevolved with grasslands. Thousands of ranchers are estimated to be applying this approach, improving both their range and their profits. This "management-intensive rotational grazing" method, long standard in New Zealand, yields such clearly superior returns that over 15% of Wisconsin's dairy farms have adopted it in the past few years.
- The California Rice Industry Association has discovered that letting nature's diversity flourish can be more profitable than forcing it to produce

a single product. By flooding 150,000 to 200,000 acres of Sacramento valley rice fields – about 30% of California's rice-growing area – after harvest, farmers are able to create seasonal wetlands that support millions of wildfowl, replenish groundwater, improve fertility, and yield other valuable benefits. In addition, the farmers bale and sell the rice straw, whose high silica content – formerly an air-pollution hazard when the straw was burned – adds insect resistance and hence value as a construction material when it's resold instead.

• John Todd of Living Technologies in Burlington, Vermont, has used biological Living Machines – linked tanks of bacteria, algae, plants, and other organisms – to turn sewage into clean water. That not only yields cleaner water at a reduced cost, with no toxicity or odor, but it also produces commercially valuable flowers and makes the plant compatible with its residential neighborhood. A similar plant at the Ethel M Chocolates factory in Las Vegas, Nevada, not only handles difficult industrial wastes effectively but is showcased in its public tours.

Although such practices are still evolving, the broad lessons they teach are clear. In almost all climates, soils, and societies, working with nature is more productive than working against it. Reinvesting in nature allows farmers, fishermen, and forest managers to match or exceed the high yields and profits sustained by traditional input-intensive, chemically driven practices. Although much of mainstream business is still headed the other way, the profitability of sustainable, nature-emulating practices is already being proven. In the future, many industries that don't now consider themselves dependent on a biological resource base will become more so as they shift their raw materials and production processes more to biological ones. There is evidence that many business leaders are starting to think this way. The consulting firm Arthur D. Little surveyed a group of North American and European business leaders and found that 83% of them already believe that they can derive "real business value [from implementing a] sustainable-development approach to strategy and operations."

A Broken Compass?

If the road ahead is this clear, why are so many companies straying or falling by the wayside? We believe the reason is that the instruments companies use to set their targets, measure their performance, and hand out rewards are faulty. In other words, the markets are full of distortions and perverse incentives. Of the more than 60 specific forms of misdirection that we have identified,[3] the most obvious involve the ways companies allocate capital and the way governments set policy and impose taxes. Merely correcting these defective practices would uncover huge opportunities for profit.

In nearly every country on the planet, tax laws penalize jobs and income while subsidizing resource depletion and pollution.

Consider how companies make purchasing decisions. Decisions to buy small items are typically based on their initial cost rather than their full life-cycle cost, a practice that can add up to major wastage. Distribution transformers that supply electricity to buildings and factories, for example, are a minor item at just $320 apiece, and most companies try to save a quick buck by buying the lowest-price models. Yet nearly all the nation's electricity must flow through transformers, and using the cheaper but less efficient models wastes $1 billion a year. Such examples are legion. Equipping standard new office-lighting circuits with fatter wire that reduces electrical resistance could generate after-tax returns of 193% a year. Instead, wire as thin as the National Electrical Code permits is usually selected because it costs less up front. But the code is meant only to prevent fires from overheated wiring, not to save money. Ironically, an electrician who chooses fatter wire – thereby reducing long-term electricity bills – doesn't get the job. After paying for the extra copper, he's no longer the low bidder.

Some companies do consider more than just the initial price in their purchasing decisions but still don't go far enough. Most of them use a crude payback estimate rather than more accurate metrics like discounted cash flow. A few years ago, the median simple payback these companies were demanding from energy efficiency was 1.9 years. That's equivalent to requiring an after-tax return of around 71% per year – about six times the marginal cost of capital.

Most companies also miss major opportunities by treating their facilities costs as an overhead to be minimized, typically by laying off engineers, rather than as a profit center to be optimized – by using those engineers to save resources. Deficient measurement and accounting practices also prevent companies from allocating costs – and waste – with any accuracy. For example, only a few semiconductor plants worldwide regularly and accurately measure how much energy they're using to produce a unit of chilled water or clean air for their clean-room production facilities. That makes it hard for them to improve efficiency. In fact, in an effort to save time, semiconductor makers frequently build new plants as exact copies of previous ones – a design method nicknamed "infectious repetitis."

Many executives pay too little attention to saving resources because they are often a small percentage of total costs (energy costs run to about 2% in most industries). But those resource savings drop straight to the bottom line and so represent a far greater percentage of profits. Many executives also think they already "did" efficiency in the 1970s, when the oil shock forced them to rethink old habits. They're forgetting that with today's far better technologies, it's profitable to start all over again. Malden Mills, the Massachusetts maker of such products as Polartec, was already using "efficient" metal-halide lamps in the mid-1990s. But a recent warehouse retrofit reduced the energy used for lighting by another 93%, improved visibility, and paid for itself in 18 months.

The way people are rewarded often creates perverse incentives. Architects and engineers, for example, are traditionally compensated for what they spend, not for what they save. Even the striking economics of the retrofit design for the Chicago office tower described earlier wasn't incentive enough actually to implement it. The property was controlled by a leasing agent who earned a commission every time she leased space, so she didn't want to wait the few extra months needed to refit the building. Her decision to reject the efficiency-quadrupling renovation proved costly for both her and her client. The building was so uncomfortable and expensive to occupy that it didn't lease, so ultimately the owner had to unload it at a fire-sale price. Moreover, the new owner will for the next 20 years be deprived of the opportunity to save capital cost.

If corporate practices obscure the benefits of natural capitalism, government policy positively undermines it. In nearly every country on the planet, tax laws penalize what we want more of – jobs and income – while subsidizing what we want less of – resource depletion and pollution. In every state but Oregon, regulated utilities are rewarded for selling more energy, water, and other resources, and penalized for selling less, even if increased production would cost more than improved customer efficiency. In most of America's arid western states, use-it-or-lose-it water laws encourage inefficient water consumption. Additionally, in many towns, inefficient use of land is enforced through outdated regulations, such as guidelines for ultrawide suburban streets recommended by 1950s civil-defense planners to accommodate the heavy equipment needed to clear up rubble after a nuclear attack.

The costs of these perverse incentives are staggering: $300 billion in annual energy wasted in the United States, and $1 trillion already misallocated to unnecessary air-conditioning equipment and the power supplies to run it (about 40% of the nation's peak electric load). Across the entire economy, unneeded expenditures to subsidize, encourage, and try to remedy inefficiency and damage that should not have occurred in the first place probably account for most, if not all, of the GDP growth of the past two decades. Indeed, according to former World Bank economist Herman Daly and his colleague John Cobb (along with many other analysts), Americans are hardly better off than they were in 1980. But if the U.S. government and private industry could redirect the dollars currently earmarked for remedial costs toward reinvestment in natural and human capital, they could bring about a genuine improvement in the nation's welfare. Companies, too, are finding that wasting resources also means wasting money and people. These intertwined forms of waste have equally intertwined solutions. Firing the unproductive tons, gallons, and kilowatt-hours often makes it possible to keep the people, who will have more and better work to do.

Recognizing the Scarcity Shift

In the end, the real trouble with our economic compass is that it points in exactly the wrong direction. Most businesses are behaving as if people were still scarce and nature still abundant – the conditions that helped to fuel the first Industrial Revolution. At that time, people were relatively scarce compared with the present-day population. The rapid mechanization of the textile industries caused explosive economic growth that created labor shortages in the factory and the field. The Industrial Revolution, responding to those shortages and mechanizing one industry after another, made people a hundred times more productive than they had ever been.

The logic of economizing on the scarcest resource, because it limits progress, remains correct. But the pattern of scarcity is shifting: Now people aren't scarce but nature is. This shows up first in industries that depend directly on ecological health. Here, production is increasingly constrained by fish rather than by boats and nets, by forests rather than by chain saws, by fertile topsoil rather than by plows. Moreover, unlike the traditional factors of industrial production – capital and labor – the biological limiting factors cannot be substituted for one another. In the industrial system, we can easily exchange machinery for labor. But no technology or amount of money can substitute for a stable climate and a productive biosphere. Even proper pricing can't replace the priceless.

Natural capitalism addresses those problems by reintegrating ecological with economic goals. Because it is both necessary and profitable, it will subsume traditional industrialism within a new economy and a new paradigm of production, just as industrialism previously subsumed agrarianism. The companies that first make the changes we have described will have a competitive edge. Those that don't make that effort won't be a problem because ultimately they won't be around. In making that choice, as Henry Ford said, "Whether you believe you can, or whether you believe you can't, you're absolutely right."

1. Our book, *Natural Capitalism*, provides hundreds of examples of how companies of almost every type and size, often through modest shifts in business logic and practice, have dramatically improved their bottom lines.

2. Nonproprietary details are posted at www.hypercar.com.

3. Summarized in the report "Climate: Making Sense *and* Making Money," at www.rmi.org/images/other/Climate/C97-13_ClimateMSMM.pdf.

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To order, see page 195.

Letters to the Editor

Why Didn't We Know?

In the case study, "Why Didn't We Know?" (April 2007), Ralph Hasson highlights a common problem in business: finding and providing enough of the right resources to get the job done. The author makes it clear that inappropriate resource allocation is the reason why the Galvatrens company lacks an effective process to report and deal with misconduct.


Why Didn't We Know?

by Ralph Hasson

The failure to appoint an independent ombudsman is one symptom of this problem. HR's failure to provide companywide training is another. However, the most important symptom is relying on the COO, Harry Mart, to handle this situation even though he is already overloaded with high-priority tasks. It may or may not be true that he's "no good at" taking care of people, but he obviously has too much to do.

In my experience, too many managers have no idea what it takes to perform the tasks they assign to their direct reports. They just keep piling on more work until the subordinate finally cries "Uncle!" Such protests are rarely made, however, because staff members who try to fend off new responsibilities by saying they already have a full plate are not considered to be good employees or team players. Many fear that taking a stand will jeopardize their career development.

The old saw, "If you need something done, give it to the busiest person on staff," still describes common practice. At all levels of business, it may be the primary cause of day-to-day failures.

Kenneth J. Ciszewski
Senior Project Manager
Tech Electronics
Overland, Missouri

Maximizing Your Return on People

After reading about how surveyed dimensions seem to predict successes for companies in "Maximizing Your Return on People" (March 2007), I shook my head and thought, "Why don't research-

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ers measure actual success in hiring and promoting?" And why not correlate measured improvement in talent with corporate success? Some companies do both and are spectacularly successful using little-publicized best practices.

Laurie Bassi and Daniel McMurrer do include a few survey items like "Selection is based on skill requirements" in their article. But if a survey isn't going to measure success in hiring, the other hiring dimensions surveyed are meaningless. To cite an example, the Society for Human Resource Management's benchmarking service measures cost-to-hire, time-to-fill, and many other dimensions, but it doesn't have a single measurement on *quality* of hires. Why not?

Perhaps part of the answer is that companies with awful hiring success might be afraid of measuring it. I have informally surveyed thousands of executives of *Fortune* 500 companies during the past 34 years; about a quarter of managers hired turn out to be the high performers the companies expected. Last year I met with leading human resources executives of Global 100 companies (businesses with sustainable practices), and they reported 20% success, which means an 80% unsuccessful hire rate! They also reported only 25% success when they promote managers.

Brad Smart
President
Smart & Associates
Wadsworth, Illinois

Bassi and McMurrer respond: We agree with Brad Smart that thoughtful hiring and promotion practices are essential if organizations are to be productive, competitive, and profitable. While these practices are necessary, however, they are not sufficient. Even the most capable people can be rendered ineffective by a dysfunctional work environment – one that does not have at least minimal levels of organizational capability on the "human capital drivers" that we outlined.

In fact, it is quite likely that a low level of organizational capability on one or more of these human capital drivers is a significant cause of the abysmally low hiring and promotion success rates that Smart notes.

Just as "it is a poor worker who blames his tools," it is inept managers who blame their employees for their organizations lack of performance. Poor hiring and promotion practices are symptoms of deeper problems. Our diagnostic framework is designed to identify those problems and point to solutions.

Human Due Diligence

I agree with the content and tenor of David Harding and Ted Rouse's article, "Human Due Diligence" (April 2007), but I would add a comment based on my experience during a U.S. corporation's acquisition of a company in France. Financial due diligence was completely and competently undertaken, but the human factor and, more specifically, the human contractual aspects were largely ignored because no one with labor law experience was available.

A few years later, it was discovered that no one had read the personnel files before or since the acquisition. Five days of research revealed information about a series of contract addenda, bonus promises, and past behavioral problems, which required years of effort and a lot of money to resolve. Most of these issues could – and should – have been addressed prior to contract signing by exercising human due diligence.

George Arkedis
President
Zep Industries
Nogent-le-Roi, France

How Managers' Everyday Decisions Create – or Destroy – Your Company's Strategy

I read Joseph L. Bower and Clark G. Gilbert's article, "How Managers' Everyday Decisions Create – or Destroy – Your Company's Strategy" (February 2007), after having read the book from which it was adapted. I agree with the authors that allocation of resources is key to translating and executing strategies to produce profitable outcomes, but I think more attention must be paid to the big picture: the environment in which the company acts and how it evolves. To talk about formulating strategy is one thing, but understanding any uncertainties and their impact on the business through an appropriate study of trends and disruptions is another. The better a company comprehends its potential future, the faster it will adapt.

But the future has never been so uncertain, and management style should reflect this. Senior managers should focus on executing their plans and concentrate on understanding transverse issues and their consequences on the firm's business. The role of middle managers is to focus on executing strategy, which will be eased by continuous communication from senior managers about the evolution of risks and opportunities. The senior managers' role is key: They must promote a culture where sharing data and information daily is routine.

The first step of this process is to understand the future. A company will be better able to shift from one strategic option to another by using foresight than by reinventing its entire strategy process once the environment is considered to have changed. Executives must be open to uncertainty and at ease with both multifunctional and multinational understanding.

Christophe C. Chabert
General Manager, Strategy
Renault
Boulogne-Billancourt
France

The Leadership Team: Complementary Strengths or Conflicting Agendas?

What a relief to read Stephen A. Miles and Michael D. Watkins's article about complementary leadership, "The Leadership Team: Complementary Strengths or Conflicting Agendas?" (April 2007). In performing arts companies, the artistic director/general manager partnership model is common. The artistic director typically has more power than the business director, but the genius of the vision maker must be supported and balanced by the pragmatism of the manager. As the general manager of a nonprofit theater company, I work within that model every day.

I also teach graduate arts management students how to make such a partnership work. There is still little academic research on the effectiveness of complementary leadership in a creative organization. In fact, when I raised this issue during a presentation about leadership at an Ivy League university in 2005, the collaborative partnership approach was dismissed as irrelevant and ineffective. But I know from experience that an effective partnership can generate great results for resource-poor nonprofit arts organizations. And if it works for us, it can work for other organizations.

Complementary leadership is by no means a perfect model. It's hard work because you continually have to be thinking about someone else's world view. Common vision, communication, and trust are essential for success. For example, my artistic director could have said this more dramatically, but he's in the rehearsal room. Because I'm sitting in front of the computer, you're getting the more prosaic version, but he does trust me to speak on his behalf.

Ann Tonks
General Manager
Melbourne Theatre Company
Southbank, Victoria, Australia

Realizing What You're Made Of

Glenn E. Mangurian's "Realizing What You're Made Of" (March 2007) offers a potent example of the human capacity to overcome. Our functionality as individuals, and the feats we can accomplish, hinge on resilience, connection, and ambition.

After a successful 12-year career in law, and a subsequent three years spent suffering from the debilitating effects of depression, I am building a new life beyond anything I had imagined previously. Mangurian reminds us that our circumstances do not dictate our abilities. One must constantly seek a grander perspective and assist others when they are incapable of seeking it on their own. To that end, I have shared this article with a colleague currently embroiled in a crisis of his own.


Realizing What You're Made Of

Jeff Beno
Encinitas, California

Mangurian responds: Jeff Beno's letter echoes dozens that I received after the publication of my article. It's true that "Our circumstances do not dictate our abilities." All of us will experience a personal crisis beyond what we think we are capable of handling. When that happens, we discover our vulnerability and, at the same time, that our ability to overcome adversity is much stronger than we realize.

I have been touched by the many readers who have responded to my story of resilience. Their letters underscore the fact that happiness is not the absence of negativity but rather the abundance of meaningful relationships and experiences. People won't remember how far you fall but rather how high you bounce back.

Off-Ramp – or Dead End?

As described by Sharman Esarey and Arno Haslberger in the case study "Off-Ramp – or Dead End?" (February 2007), Cheryl Jamis's predicament is all too real. Equally talented (and ambitious) professionals make very different choices when faced with the dilemmas of parenthood. I've seen law firm partners quit to stay at home with their children and hedge fund managers work out creative care arrangements to stay in the corporate game.

What struck me most was not the case itself, but the responses of the commentators. They accurately summed up the risks of challenging the assumptions of company leaders, starting a business, and taking time out from the whirl of business activity. However, none of them questioned why Cheryl felt so conflicted by her options. Instead, they tended to assume that the only logical choice involved investing the best hours of Cheryl's days and weeks in pursuit of her career.

Why not ask Cheryl more fundamental questions: What do you really want for your life? When Emma reaches adulthood and you are in your sunset years, what legacy do you want to leave behind? What, if anything (beyond the parental guilt we all feel occasionally), is behind your persistent uneasiness in logging more hours?

Perhaps Cheryl would say that her career is of vital importance. But it is possible that, if push came to shove, she might choose her legacy as a parent over her legacy as a professional. In our practice, my colleagues and I often come across people who are wrestling with the same issues. One retired executive from a *Fortune* 100 company who did the math said, "When I retired, I calculated the number of days I was away from my family, and it totaled more than five years back to back. I had always thought I was in control, but actually I was just doing what everyone else wanted me to do."

Sacrificing career for parenthood isn't for everyone, but neither is the converse universally correct. Those sorts of assumptions can get us into real trouble, the kind that no position or promotion could ever compensate for. It's better to weigh the legacy question and make the best choice for you.

Ted Harro
President
Noonday Ventures
Palatine, Illinois

In "Off-Ramp – or Dead End?" (February 2007), four commentators were asked the question, "Should Cheryl stick it out or leave?" but they all seemed to answer the question, What's wrong with this woman? They essentially advise Cheryl to stop being a victim, give up and leave, show some leadership skills, or tell her daughter to stop whining.

They all fail to ask the more relevant question, What's wrong with this career model? Their advice is aligned with the old "work is primary" standard, created after World War II. Then, there was a tacit "psychological contract." Employees gave total commitment to their organization in exchange for lifelong employment. This culture was predicated on two conditions that no longer exist: stay-at-home moms who freed up men from family responsibilities, and relatively stable organizations.

Given today's realities of dual-working and single parents, technology that permits work anytime and anyplace, and continual organizational upheavals, a new "career self-agency" model has evolved, where employees manage their own careers and determine their own terms of employment.

Women who negotiate flexible work arrangements (FWAs), such as telecommuting and flexhours, are not "off ramping" or "opting out." Rather they are rejecting the outdated "work is primary" mold in favor of the "career self-agency" paradigm that fits 21st century realities. Like Cheryl, these women are passionate and committed, and they are using FWAs to determine how to work full-time while meeting outside-work demands.


Off-Ramp – or Dead End?

In a 2006 Simmons study of 400 female middle to senior managers, 90% had used FWAs over the course of their careers; 88% had used FWAs to stay employed full-time, and only 18% had left the workforce temporarily. Even more significant, women who used FWAs saw no difference in salary and number of promotions compared to those who did not.

The person who really needs advice in this case is Cheryl's boss. We would urge him to establish a culture that rewards results, not face time; to create job structures that allow talented employees to shift how they work as their lives change; and to relinquish outdated concepts of when and where work gets done. By doing so, Cheryl's boss will be able to attract and retain talent (especially relevant with the looming labor shortage), and reduce the real costs of training and then losing skilled employees.

Mary Shapiro, Cynthia Ingols, Stacy Blake-Beard
Professors
Simmons School of Management
Boston

As a working mother, I read your recent case study, "Off-Ramp – or Dead End?" (February 2007), with great interest. I agree that Cheryl Jamis seems disorganized. But I do not believe that her problems can be ascribed totally to the second shift or glass ceiling issues facing working women.

One point that the commentators neglect to mention is Jamis's specific choice of child care. An au pair is generally an untrained and inexperienced student from another country who takes on light housekeeping and child care in return for room and board for a short period of time. I assumed from this detail that Jamis could have already churned through at least three au pairs in her daughter's short life.

Jamis, a respected marketing manager, would hardly hire – and fire, frequently – the least qualified and most junior staff member to take care of her company's highest priorities, yet her choice of one of the lowest-cost options for child care escapes without comment. She might find that if she invested more in child care, both in terms of picking the right person and paying that person an above-average salary, she would reap enormous benefits.

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Executive Summaries

JULY–AUGUST 2007

"Great companies don't innovate their way to growth – they grow by efficiently exploiting the fullest potential of existing innovations."
–page 62

STRATEGY & COMPETITION

62 | The Four Principles of Enduring Success

Christian Stadler

When your company is doing well, and money is pouring in, how do you know if it could be doing better? How can you tell which management practices are making the difference – and which are merely not doing obvious harm?

To find out, Professor Stadler and a team at Innsbruck University's business school conducted a massive benchmarking study comparing nine pairs of European companies over 50 years. Each pair was from the same industry (and, preferably, the same country) and included one exceptional performer and one less impressive, but solid performer.

The project yielded four main findings, which Stadler calls *the four principles of enduring success:*

Exploit before you explore. Great companies don't innovate their way to growth – they grow by efficiently exploiting the fullest potential of existing innovations.

Diversify your business portfolio. Good companies, conscious of the dangers of irrational conglomeration, tend to stick to their knitting. But the great companies know when to diversify, and they remain resilient by maintaining a wide range of suppliers and a broad base of customers.

Remember your mistakes. Good companies tell stories of success, but great companies also tell stories of past failures to avoid repeating them.

Be conservative about change. Great companies very seldom make radical changes – and take great care in their planning and implementation.

How much difference do these principles make? An investment of $1 in 1953 in the group of companies in the study that consistently applied them – insurers Allianz, Legal & General, and Munich Re; financial services firm HSBC; building materials maker Lafarge; high-tech firms Nokia and Siemens; oil giant Shell; and pharmaceutical firm GlaxoSmithKline – would be worth $4,077 today. A $1 investment in the comparison companies – Aachener und Münchener, Prudential Limited, and Cologne Re; Standard Chartered; Ciments Français; Ericsson and AEG; BP; and Wellcome – would have yielded $713.

Reprint R0707D

FORETHOUGHT

18 Private Equity's Long View

Walter Kiechel III

When getting a company ready to sell in the short term, it turns out, PE firms employ many of the best strategy practices – use debt aggressively, focus on cash flow, reduce costs, concentrate on the dominant part of the business and sell the rest – that make for success in the long term. They just do it in months, not years. **Reprint F0707A**

Forward-Thinking Cultures

Mansour Javidan

Singapore is the most future-oriented country in the world, new research from Thunderbird business school reveals, whereas Russia is the least. Yet people the world over aspire to plan for the future, a fact global managers can use to inspire workers in present-oriented cultures to look ahead. **Reprint F0707B**

The Hidden Good News About CEO Dismissals

Chuck Lucier and Jan Dyer

Four times more CEOs are being fired today than in 1995, a Booz Allen Hamilton study finds. That's good news. It's not that CEOs are being pressured to think more in the short term; it's that boards are finally clearing away the dead wood. **Reprint F0707C**

A Growing Focus on Preparedness

Darrell Rigby and Barbara Bilodeau

Scenario-planning tools are getting better, and companies are using them more effectively to prepare for an uncertain future, according to the latest results from Bain & Company's ongoing 14-year survey of corporate tool use. **Reprint F0707D**

The Cost of Myopic Management

Natalie Mizik and Robert Jacobson

A study of 2,859 firms shows that companies unwisely cutting costs to artificially improve performance are fooling no one for long. Their stock rises sharply right afterward but falls precipitously in the next few years, as poor management comes home to roost. **Reprint F0707E**

A Formula for the Future

A Conversation with CEO Craigie Zildjian

The oldest family-run business in the U.S., the Zildjian Company has been making cymbals, first in Turkey and then in America, since 1623. As a 14th-generation leader of the company, Craigie Zildjian sees innovation in collaboration with customers as her best path to continued success. **Reprint F0707F**

Productivity Is Killing American Enterprise

Henry Mintzberg

When they cut R&D, underinvest in their brands, and – worse – cut worker and middle management ranks, leaders are merely punishing their employees (and stockholders) for their own inability to create real value, says this McGill University professor. Productivity improvements come from better management or applying new technologies, not from making fewer people do more work. **Reprint F0707G**

Where More R&D Dollars Should Go

Jim Scinta

Companies are expecting to spend more on R&D this year, but they're putting it in the wrong place – too much on new project development and not enough on the basic research that will produce tomorrow's revenues. **Reprint F0707H**

Reviews

Featuring *Panasonic: The Largest Corporate Restructuring in History*, by Francis McInerney.

HBR CASE STUDY

29 Too Far Ahead of the IT Curve?

John P. Glaser

Peachtree Healthcare has major IT infrastructure problems, and CEO Max Berndt is struggling to find the right fix. He can go with a single set of systems and applications that will provide consistency across Peachtree's facilities but may not give doctors enough flexibility. Or he can choose service-oriented architecture (SOA), a modular design that will allow Peachtree to standardize incrementally and selectively but poses certain risks as a newer technology. What should he do? Four experts comment on this fictional case study, authored by John P. Glaser, CIO for Partners HealthCare System.

George C. Halvorson, the chairman and CEO of Kaiser Permanente, warns against using untested methodologies such as SOA in a health care environment, where lives are at stake. He says Peachtree's management must clarify its overall IT vision before devising a plan to achieve each of its objectives.

Monte Ford, the chief information officer at American Airlines, says Peachtree can gradually replace its old systems with SOA. An incremental approach, he points out, would not only minimize risk but also enhance flexibility and control, and would allow IT to shift priorities along the way.

Randy Heffner, a vice president at Forrester Research who focuses on technology architectures for computer-based business systems, thinks SOA's modular approach to business design would best meet Peachtree's need for flexibility. He says that Peachtree's CIO sees SOA as a new product category but should instead view it as a methodology.

John A. Kastor, a professor at the University of Maryland School of Medicine, questions the goal of standardized care. He argues that it would be difficult to persuade doctors, many of whom are fiercely independent, to follow rigid patterns in their work.

Reprint R0707A
Reprint Case only R0707X
Reprint Commentary only R0707Z

GENERAL MANAGEMENT

41 The Next 20 Years: How Customer and Workforce Attitudes Will Evolve

Neil Howe and William Strauss

Business projects with very long time horizons – such as those involving product R&D, workplace design, and total compensation planning – have to contend with a crucial question: What will be the needs, demands, and desires of consumers and employees decades from now? If you think the answer is "Just more of the same," you're in for a surprise.

Howe and Strauss, the authors of *Generations, The Fourth Turning, Millennials Rising,* and other books, have studied the differences among generations for some 30 years. Their extensive research has revealed a fascinating pattern – one so strong that it supports a measure of predictability. On the basis of historical precedent, they say, we can foresee how the generations that are alive today will think and act in decades to come.

Three of those generations will still be vital forces in American society 20 years from now: Boomers, Generation X, and Millennials. Their attitudes and behaviors will have profound effects on the economy, the workplace, and social institutions in general. For example, as aging Boomers eschew high-tech medicine in favor of holistic self-care, natural foods, and mind-body healing techniques, some hospitals are opening new wings featuring alternative medicine and spiritual counseling. Gen Xers, having grown up in an era of failing schools and marriages, will remain alienated, disaffected, and pragmatic as they enter midlife. Already the greatest entrepreneurial generation in U.S. history, they will be highly effective at pushing innovation, efficiency, and mass customization. In contrast, young adult Millennials will favor teamwork, close family relationships, job security, and a bland popular culture. Their unprecedented digital empowerment and talent for organizing will create a political powerhouse and may even revitalize the union movement.

Reprint R0707B

GENERAL MANAGEMENT

54 Who Owns the Long Term? Perspectives from Global Business Leaders

Maurice Lévy, Mike Eskew, Wulf H. Bernotat, and Marianne Barner

Day-to-day management is challenging enough for CEOs. How do they manage for the long term as well? We posed that question to four top executives of global companies.

According to Maurice Lévy, chairman and CEO of Publicis Groupe, building the future is really about building the present and keeping close to the front line – those who deal with your customers and markets. He also attributes his company's success in large part to knowing when to take action: In a market where clients' needs steer your long-term future, timing is everything.

UPS Chairman and CEO Mike Eskew emphasizes staying true to your vision and values over the long run, despite meeting obstacles along the way. It took more than 20 years, and many lessons learned, to produce consistent profits in what is today the company's fastest-growing and most profitable business: international small packages.

Wulf H. Bernotat, CEO of E.ON, examines the challenges facing business leaders and politicians as they try to balance energy needs against potential environmental damage. He calls for educating people about consumption and waste, and he maintains that a diverse and reliable mix of energy sources is the only way to ensure a secure supply while protecting our environment.

Finally, Marianne Barner, the director of corporate communications and ombudsman for children's issues at IKEA, discusses how the company is taking steps to improve the environment and be otherwise socially responsible. For example, it's partnering with NGOs to address child labor issues and, on its own, is working to help mitigate climate change. IKEA's goals include using renewable sources for 100% of its energy needs and cutting its overall energy consumption by 25%.

Reprint R0707C

LEADERSHIP

THE HBR INTERVIEW

74 Lessons from Toyota's Long Drive

Katsuaki Watanabe

Interviewed by Thomas A. Stewart and Anand P. Raman

Last December the Toyota Motor Corporation officially forecast that it would sell 9.34 million cars in 2007 – which could make it the world's largest automaker. However, rapid growth and globalization have created many pressures for the company, and the strain of success is already beginning to show. Two HBR editors interviewed Toyota's president, Katsuaki Watanabe, and several top executives to learn about the strategies they're developing to cope in the future.

For well over a decade, J.D. Power and other research firms have consistently rated Toyotas among the top automobiles for quality, reliability, and durability. But in 2006 a series of problems with its cars threatened to sully the company's reputation. What's more, speedy expansion to meet demand and the struggle to keep pace with technological change have combined to challenge Toyota's grand ambitions and its famed "Toyota Way."

For Watanabe, being number one means "being the best in the world in terms of quality." If Toyota's quality continues to improve, he says, volume and revenues will follow. If problems arise from overstretching, he wants them made visible, because then his people will "rack their brains" to solve them – and if that means postponing growth, so be it.

Toyota's long-term strategy involves developing both global and regional car models in order to compete worldwide with a full line of products. Watanabe aims to achieve his goals through a combination of *kaizen* ("continuous improvement") and *kakushin* ("radical innovation"). One of his visions for the future is a "dream car": a vehicle that cleans the air, prevents accidents, promotes health, evokes excitement, and can drive around the world on a single tank of gas.

Reprint R0707E

STRATEGY & COMPETITION

84 To Succeed in the Long Term, Focus on the Middle Term

Geoffrey A. Moore

When a mature company fails to endure over the long term, it's often due to the "Horizon 2 vacuum," argues Moore, author of *Crossing the Chasm* and several other books on innovation strategy, and managing director of the consulting firm TCG Advisors. The reference is to the strategic horizons outlined by McKinsey's Mehrdad Baghai and colleagues in *The Alchemy of Growth*: Horizon 1 is today's cash-generating business, Horizon 2 is the set of innovations just being commercialized, and Horizon 3 consists of forward-thinking R&D.

Most companies understand they must invest in their future, so the funding and management of Horizon 3 is not the problem. The trouble starts when those innovations are brought to market and must compete with the mainstay business for company resources. They disappear from top management's radar screen and suffer a level of neglect few ventures could survive.

Cisco Systems is one company that has recognized the problem and tried to address it. To begin with, CEO John Chambers has insulated Horizon 2 projects from many of the pressures of Horizon 1 – for example, by reorchestrating sales coverage so that emerging markets won't be neglected. He has also kick-started some Horizon 2 businesses by augmenting them with acquisitions, increasing their scale, and giving them more management attention. For the same reason, he has challenged his head of product development to think in terms of new businesses, not simply new products – knowing that the latter tend to get lost in salespeople's bags. Most important, Cisco is handicapping its Horizon 2 projects so that they need not compete head-to-head with established businesses. Their success is judged by metrics that are appropriate to new businesses, and they are given the benefit of Cisco's best managerial talent.

Reprint R0707F

LEADERSHIP

92 Building a Leadership Brand

Dave Ulrich and Norm Smallwood

How do some firms produce a pipeline of consistently excellent managers? Instead of concentrating merely on strengthening the skills of individuals, these companies focus on building a broad organizational leadership capability. It's what Ulrich and Smallwood – cofounders of the RBL Group, a leadership development consultancy – call a *leadership brand*.

Organizations with leadership brands take an "outside-in" approach to executive development. They begin with a clear statement of what they want to be known for by customers and then link it with a required set of management skills. The Lexus division of Toyota, for instance, translates its tagline – "The pursuit of perfection" – into an expectation that its leaders excel at managing quality processes. The slogan of Bon Secours Health System is "Good help to those in need." It demands that its managers balance business skills with compassion and caring. The outside-in approach helps firms build a reputation for high-quality leaders whom customers trust to deliver on the company's promises.

In examining 150 companies with strong leadership capabilities, the authors found that the organizations follow five strategies. First, make sure managers master the basics of leadership – for example, setting strategy and grooming talent. Second, ensure that leaders internalize customers' high expectations. Third, incorporate customer feedback into evaluations of executives. Fourth, invest in programs that help managers hone the right skills, by tapping customers to participate in such programs. Finally, track the success of efforts to build leadership bench strength over the long term.

The result is outstanding management that persists even when individual executives leave. In fact, companies with the strongest leadership brands often become "leader feeders" – firms that regularly graduate leaders who go on to head other companies.

Reprint R0707G; HBR Article Collection "Building Your Leadership Bench" 2281

MARKETING

104 If Brands Are Built over Years, Why Are They Managed over Quarters?

Leonard M. Lodish and Carl F. Mela

Brands are on the wane. Many consumer-goods companies blame the big-box discount retailers, but the Wharton School's Leonard Lodish and the Fuqua School's Carl Mela have a different explanation. Their research suggests that companies have damaged their brands by investing too much in short-term price promotions and too little in long-term brand building. To rescue their brands and increase profitability, corporate managers must arm themselves with long-term measures of brand performance and use them to make smarter marketing decisions.

Several factors explain the shortsightedness of brand management: the increased availability of weekly, or even hourly, scanner data, which show a clear link between discounts and immediate boosts in sales; the relative difficulty of measuring the effects of advertising, new-product development, and distribution – all of which can contribute to a brand's long-term health; the short tenure of most brand managers; and the near-term orientation of Wall Street analysts.

Although discounts do increase sales in the short term, they ultimately lower profit margins. If a product is often discounted, consumers learn to buy it only when it's on sale. Moreover, when one firm increases its discounts, others usually follow suit, lowering everyone's margins.

Executives can monitor a brand's long-term performance by watching a dashboard of measures. Only after examining such measures, for example, did managers at Clorox discover that the company's heavy discounting and decreased advertising had caused a steady decline in overall bleach sales and profit margins. In response, Clorox reduced discounting and increased television advertising, moves that ultimately strengthened the brand and reversed the firm's downward trends.

Reprint R0707H; HBR Article Collection "Building A+ Brands" 2282

SELF-MANAGEMENT

114 | The Making of an Expert

K. Anders Ericsson, Michael J. Prietula, and Edward T. Cokely

Popular lore tells us that genius is born, not made. Scientific research, on the other hand, reveals that true expertise is mainly the product of years of intense practice and dedicated coaching. Ordinary practice is not enough: To reach elite levels of performance, you need to constantly push yourself beyond your abilities and comfort level. Such discipline is the key to becoming an expert in all domains, including management and leadership.

Those are the conclusions reached by Ericsson, a professor of psychology at Florida State University; Prietula, a professor at the Goizueta Business School; and Cokely, a research fellow at the Max Planck Institute for Human Development, who together studied data on the behavior of experts, gathered by more than 100 scientists. What consistently distinguished elite surgeons, chess players, writers, athletes, pianists, and other experts was the habit of engaging in "deliberate" practice – a sustained focus on tasks that they *couldn't* do before. Experts continually analyzed what they did wrong, adjusted their techniques, and worked arduously to correct their errors.

Even such traits as charisma can be developed using this technique. Working with a drama school, the authors created a set of acting exercises for managers that remarkably enhanced executives' powers of charm and persuasion. Through deliberate practice, leaders can improve their ability to win over their employees, their peers, or their board of directors.

The journey to elite performance is not for the impatient or the faint of heart. It takes at least a decade and requires the guidance of an expert teacher to provide tough, often painful feedback. It also demands would-be experts to develop their "inner coach" and eventually drive their own progress.

Reprint R0707J

STRATEGY & COMPETITION

122 | Six Rules for Effective Forecasting

Paul Saffo

The primary goal of forecasting is to identify the full range of possibilities facing a company, society, or the world at large. In this article, Saffo demythologizes the forecasting process to help executives become sophisticated and participative consumers of forecasts, rather than passive absorbers. He illustrates how to use forecasts to at once broaden understanding of possibilities and narrow the decision space within which one must exercise intuition.

The events of 9/11, for example, were a much bigger surprise than they should have been. After all, airliners flown into monuments were the stuff of Tom Clancy novels in the 1990s, and everyone knew that terrorists had a very personal antipathy toward the World Trade Center. So why was 9/11 such a surprise? What can executives do to avoid being blindsided by other such wild cards, be they radical shifts in markets or the seemingly sudden emergence of disruptive technologies?

In describing what forecasters are trying to achieve, Saffo outlines six simple, commonsense rules that smart managers should observe as they embark on a voyage of discovery with professional forecasters. Map a cone of uncertainty, he advises, look for the S curve, embrace the things that don't fit, hold strong opinions weakly, look back twice as far as you look forward, and know when *not* to make a forecast.

Reprint R0707K

STRATEGY & COMPETITION

138 | Managing Our Way to Economic Decline

Robert H. Hayes and William J. Abernathy

This article was controversial when first published in 1980. At the time, American business was suffering from marked deterioration in competitive vigor and economic well-being, which most economists and business leaders attributed to factors such as the virus of inflation, the limitations imposed by government regulation and tax policy, and the feverish price escalation by OPEC. Not quite right, say the authors.

In their judgment, responsibility rests not with general economic forces alone but also with the failure of American managers to keep their companies technologically competitive over the long run. Drawing on their extensive work in the manufacturing sector, as well as their association with Harvard's International Senior Managers Program in Vevey, Switzerland, the authors prescribe some strong medicine for American business. They compare the U.S. system of management with those of Europe and Japan and call for fundamental shifts in management attitudes and practices. In advocating change, they also reaffirm the importance of following business basics: to invest, innovate, lead, and create value where none existed previously.

The original article now includes a sidebar by Hayes, who summarizes what has – and what has not – changed in American management over the past 27 years. He encourages managers to go beyond the traditional fundamentals to implement a new set of essentials for today's networked, virtual world.

Reprint R0707L

PERFORMANCE MEASUREMENT

150 | Using the Balanced Scorecard as a Strategic Management System

Robert S. Kaplan and David P. Norton

The *balanced scorecard* revolutionized conventional thinking about performance metrics. When Kaplan and Norton first introduced the concept, in 1992, companies were busy transforming themselves to compete in the world of information; their ability to exploit intangible assets was becoming more decisive than their ability to manage physical assets. The scorecard allowed companies to track financial results while monitoring progress in building the capabilities needed for growth. The tool was not intended to be a replacement for financial measures but rather a complement – and that's just how most companies treated it.

Some companies went a step further, however, and discovered the scorecard's value as the cornerstone of a new strategic management system. In this article from 1996, the authors describe how the balanced scorecard can address a serious deficiency in traditional management systems: the inability to link a company's long-term strategy with its short-term financial goals. The scorecard lets managers introduce four new processes that help companies make that important link.

The first process – *translating the vision* – helps managers build a consensus concerning a company's strategy and express it in terms that can guide action at the local level. The second – *communicating and linking* – calls for communicating a strategy at all levels of the organization and linking it with unit and individual goals. The third – *business planning* – enables companies to integrate their business plans with their financial plans. The fourth – *feedback and learning* – gives companies the capacity for strategic learning, which consists of gathering feedback, testing the hypotheses on which a strategy is based, and making necessary adjustments.

Reprint R0707M

KNOWLEDGE MANAGEMENT

162 | The Knowledge-Creating Company

Ikujiro Nonaka

In an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge. Yet, few managers understand the true nature of the knowledge-creating company – let alone know how to manage it.

According to this 1991 article by Japanese organizational theorist Ikujiro Nonaka, the problem is that most Western managers define knowledge – and what companies must do to exploit it – too narrowly. They believe that the only useful knowledge is "hard" (read "quantifiable") data. And they see the company as a kind of machine for information processing.

Nonaka shows us another way to think about knowledge and its role in business organizations. He uses vivid examples from highly successful Japanese companies such as Honda, Canon, NEC, and Sharp. Managers at these companies recognize that creating new knowledge is not simply a matter of mechanistically processing objective information. Rather, it depends on tapping the tacit and often highly subjective insights, intuitions, and ideals of employees. The tools for making use of such knowledge are often "soft" – such as slogans, metaphors, and symbols – but they are indispensable for continuous innovation.

The reasons Japanese companies are especially adept at this holistic kind of knowledge creation are complex. But the key lesson for managers is quite simple: Much as manufacturers worldwide have learned from Japanese manufacturing techniques, companies that want to compete on the knowledge playing field must also learn from Japanese techniques of knowledge creation.

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STRATEGY & COMPETITION

172 | A Road Map for Natural Capitalism

Amory B. Lovins, L. Hunter Lovins, and Paul Hawken

No one would run a business without accounting for its capital outlays. Yet in 1999, when this article was originally published, most companies overlooked one major capital component – the value of the earth's ecosystem services. It was a staggering omission: Calculations at that time placed the value of those services – water storage, atmosphere regulation, climate control, and others – at $33 trillion per year.

Not accounting for that cost has led to waste on a grand scale, the authors maintain. This article shows how a few farsighted companies, like DuPont and Xerox, were able to find powerful business opportunities in conserving resources on a similarly grand scale. Their early embrace of *natural capitalism* is even more important to emulate today.

Natural capitalism comprises four major shifts in business practices. The first involves dramatically increasing the productivity of natural resources – by as much as 100-fold. In the second stage, companies adopt closed-loop production systems that yield no waste or toxicity. The third stage requires a fundamental change of business model – from selling products to delivering services. For example, instead of selling lightbulbs, a manufacturer sells lighting services, with both the seller and the customer benefiting from the development of extremely efficient, durable bulbs. The last stage involves reinvesting in natural capital to restore, sustain, and expand the planet's ecosystem.

Because natural capitalism is both necessary and profitable, it will subsume traditional industrialism, the authors argue, just as industrialism subsumed agrarianism. And the companies that are furthest down the road will have the competitive edge.

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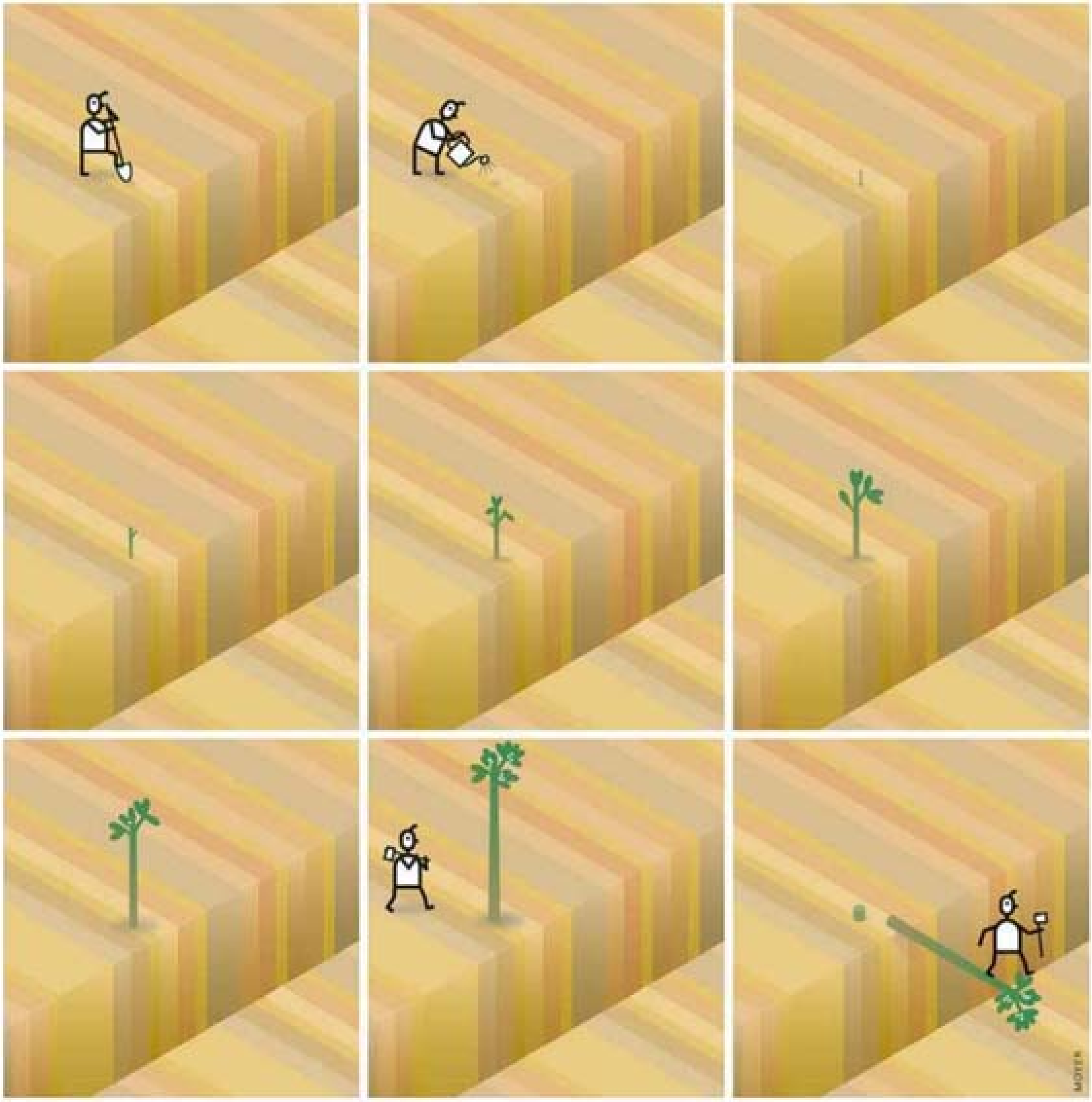

Active Waiting

NOT ALL PROBLEMS are open to a quick fix. Sometimes waiting is your best action.

Waiting doesn't have to be passive, though. In "Strategy as Active Waiting" (HBR September 2005), Donald Sull describes ways to think about waiting as strategy, especially in volatile markets. He puts particular importance on keeping one's options open. Sull tells leaders to "avoid marching headlong toward a well-defined future and instead articulate a fuzzy vision....A fuzzy vision works because it provides a general direction and sets aspirations without prematurely locking the company into a specific course of action." A crystal-clear vision can tempt managers to bet too much, too early.

While you're waiting for the next big opportunity, use the time to look for glimpses of what the future might hold, build up a war chest, and streamline all routine operations so they don't slow you down when it's time to move.

Deciding to end the wait and take action is a special challenge because you seldom have all the facts you need. As Sull points out, if you always wait for complete certainty, you'll probably always be too late.

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