SPECIAL: BREAKTHROUGH IDEAS FOR 2008

Harvard Business Review

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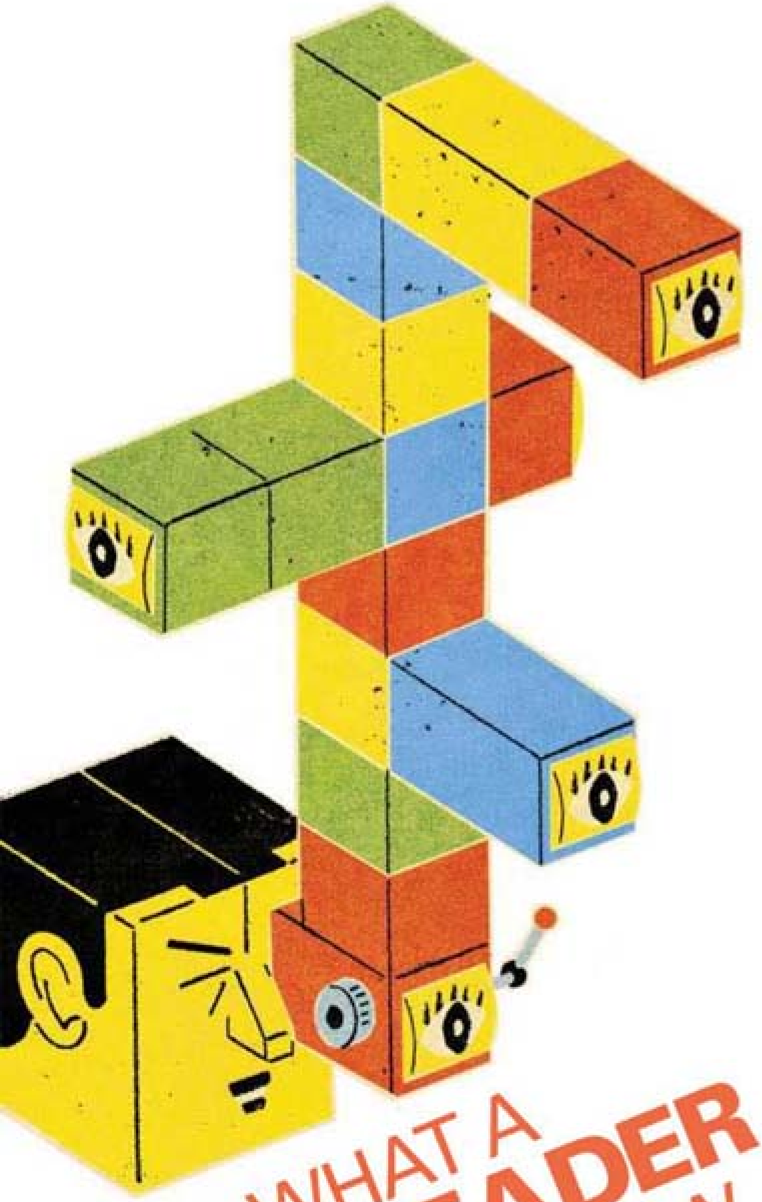

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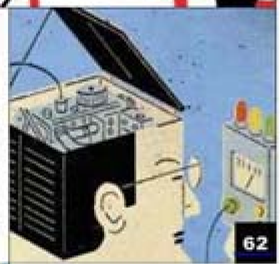
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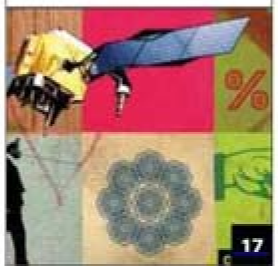

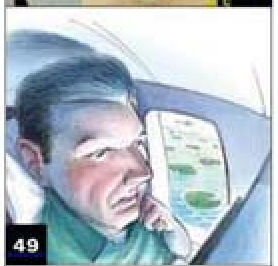

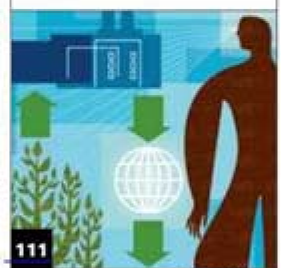

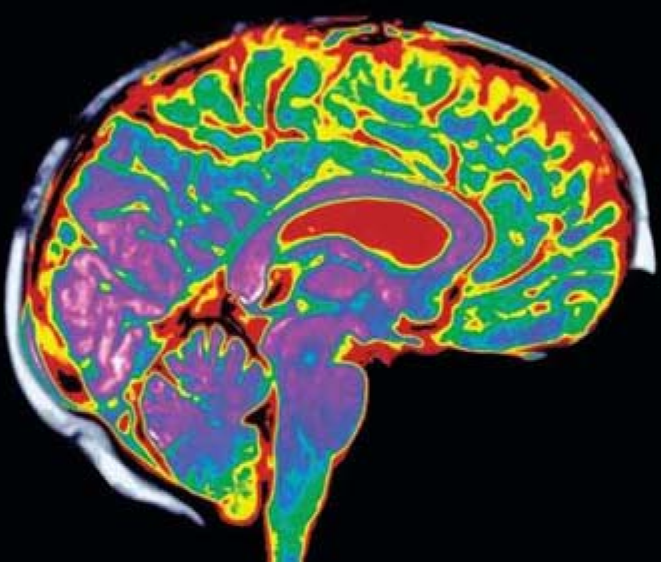

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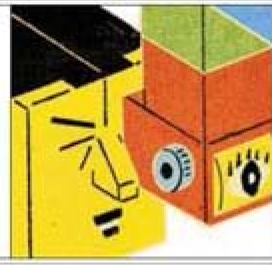

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The editors of HBR have posted questions that managers ask about their biggest challenges, along with select articles that address each one. Readers can suggest questions or topics by clicking on "E-mail Us" on the HBR Answers page.

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.

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"Please hold…we're going for a record on how long customers will wait."

Roy Delgado

Seeing Things

"I GET THE willies when I see closed doors." That is the first line of Joseph Heller's *Something Happened*, one of the handful of superb novels about business. Heller's hero and narrator, Bob Slocum, a middling executive at an unnamed company, is driven nearly mad thinking that decisions might be made behind his back that could ruin his career and his life, or might merely change things that are, while odious to him, at least bearable. Without transparency, Slocum is a quivering wreck.

He's not alone. As the second chapter begins, Slocum says, "In the office in which I work there are five people of whom I am afraid. Each of these five people is afraid of four people (excluding overlaps), for a total of twenty, and each of these twenty people is afraid of six people, making a total of one hundred and twenty people who are feared by at least one person." The company, in other words, is a pyramid of potential panic, ready to topple when someone whispers, "Jig's up."

Certainly last autumn stock markets had the willies, in part because what we can't see spooks us. Investors – and even executives of some of the world's great financial services companies – were unable to see what was happening to tens of billions of dollars' worth of collateralized mortgage obligations and other exotic securities, and whispers felled stocks and in some cases CEOs. When asked to trust what happens behind closed doors, one is well advised to remember Ralph Waldo Emerson's apothegm: "The louder he talked of his honor, the faster we counted our spoons."

HBR is not in the business of giving investment advice, but we do know something about management, and the two are, or should be, kissing cousins. For managers, two closed doors are particularly important. Behind door number one: How well are we *really* doing? If you could put your company through the equivalent of an exacting physical exam, would you discover that its ruddy complexion is high blood pressure or rude good health? Especially if you're a new leader who doesn't yet know the business intimately, how can you set out to rate the strength of the organization in your charge? Mark Gottfredson, Steve Schaubert, and Hernan Saenz, partners at Bain & Company, present a template for such an exam in "The New Leader's Guide to Diagnosing the Business." The template is based on four principles: Costs and prices always decline; your competitive position determines your options; customers and profit pools don't stand still; and simplicity gets results. Each of these offers a key that can unlock some of the mystery about how well a company is doing.

Door number two is the door to the future: What lies ahead, not just for the business but for technology, for management thinking, for the spirit of the times? Amid the cacophony of business life, what's noise and what's a harbinger of the future? Part of our mission of improving the practice of management involves helping you see the future first. One way we do that is with the annual HBR List, our survey of breakthrough ideas that will define the business agenda for the coming decades. The 2008 HBR List, which we present in this issue, is the product of months of work, involving the entire editorial staff but superbly choreographed by senior editors Lew McCreary and David Champion. Last spring David and I met in Hamburg with the editors of HBR's 11 licensed editions and sought their contributions to the list. In June, senior editor Anand Raman and I went to northern California where, with a team from the World Economic Forum, we held the fourth HBR-WEF brainstorming, to discover ideas to be developed for the HBR List and topics for discussion at the WEF's annual meeting at Davos.

Another way we help you navigate the future is with HBRgreen.org, where we'll hold a special 12-week discussion on the most important environmental issues facing business leaders. By participating in these expert-led conversations, our readers – experts themselves – will be better positioned to embrace the opportunities and manage the risks associated with a carbon-constrained world.

Thomas A. Stewart

Robert Meganck

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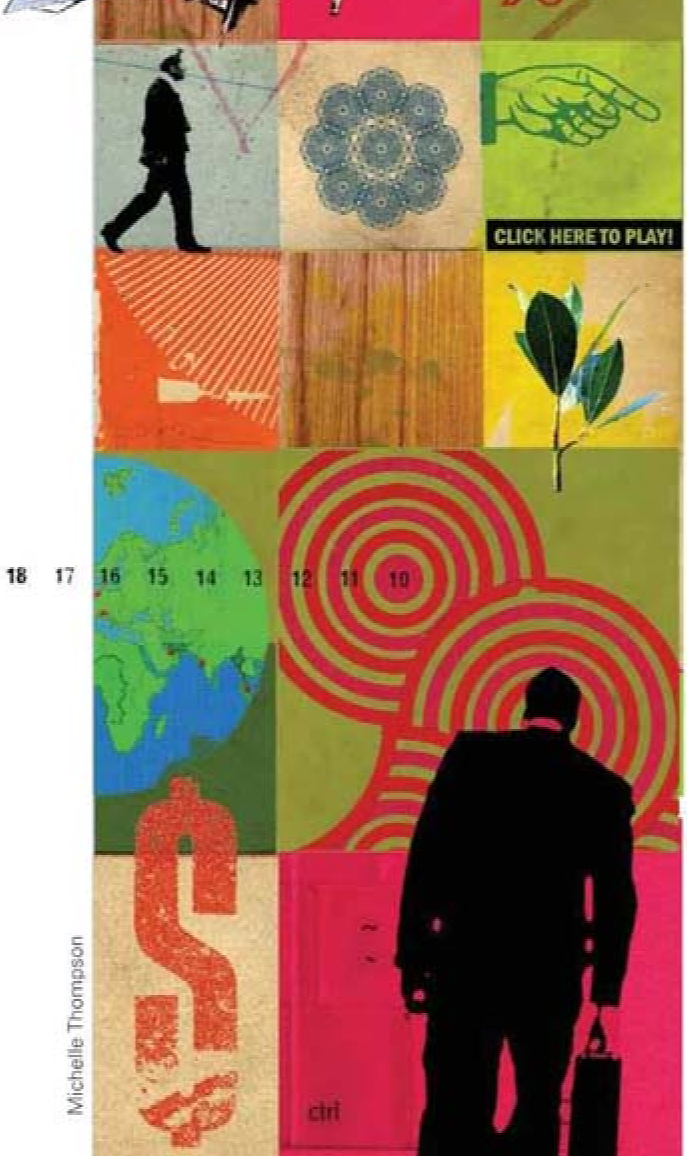


Michelle Thompson

Breakthrough Ideas for 2008

Our annual snapshot of the emerging shape of business

Changes that appear to be sudden have usually been taking shape for years. The HBR List captures 20 transformations at single points in their development. Some are nascent and a little blurry, others sharper-edged and approaching maturity. Quite a few are surprising, while others elaborate on familiar forms.

As a whole, this year's roster signals a gathering upheaval in the way businesses function and how leaders guide them. Among the change agents are young "natives" of social-networking websites, multiplayer online games, virtual worlds, and related domains. The outgrowths include novel operational models, alternate realities for accomplishing work and interacting with customers, the exaltation of collaborative technologies, and updated metrics for evaluating performance. Abrupt as these transformations may seem, we have watched them all sprout from uncertain seedlings. We will continue to look on with curiosity as they grow and multiply.

HBR LIST 2008

To assemble our list, our editorial team canvassed its cadres of expert authors; sought ideas from editors at HBR's international editions and from visitors to our website; and held a brainstorming meeting in partnership with the World Economic Forum in Napa, California, last June. In January 2008, we cohosted a workshop on sustainable and unsustainable trends with the WEF at its meeting in Davos. (The WEF|HBR icon identifies the pieces we developed with the WEF.)

Please enjoy the 2008 HBR List, and share your reactions at **thelist.hbr.org**.

Brett Ryder

Here Comes the P2P Economy

BY STAN STALNAKER

Peer-to-peer, or P2P, networks have thrown the media industry into turmoil, changing the flow of information from a one-to-many model (with newspaper publishers, Hollywood studios, and big music companies as the sources) to a many-to-many model (with blogs, YouTube, and file-sharing forums as the venues). The ability of individuals to both consume and *create* content – news, movies, and music – greatly threatens traditional players. Witness the struggles of established U.S. newspaper publishers – the share prices of the four largest have fallen between 10% and 50% during the generally rising market of the past three years – because of challenges from new media and advertising models, including P2P schemes.

A shock like the one that jolted the media is poised to strike other industries, perhaps more disruptively. It is already being felt in financial services. Start with the phenomenon of microcredit: the lending of small sums to, and then within, social groups at the village level in poor economies, with members collectively guaranteeing the bank's loan. Combine that with the power of a global digital network, and a new model for banking begins to take shape.

Indeed, P2P financial systems are set to reprise in the banking industry what has happened in media. Already, websites like Kiva.org, Prosper.com, and LendingClub.com have extended microbanking to consumers in developed economies. In such systems, everyone is a tiny bank, making it easier to raise small amounts of capital among people who know – or at least, because of their social network, trust – one another.

It is only a matter of time before these digital systems close the arbitrage enjoyed by large banks, which lend at up to 15% interest but pay only about 5% on capital. Why do business with a bank when your network's lending and savings interest rates are both 7%? To grasp the power of such a system, imagine your local credit union with the membership and social networking capabilities of MySpace.

Furthermore, people will soon use *personal* currencies to make payments for "knowledge services" provided by other individuals, such as social introductions and shopping tips. These currencies will be traded on exchanges at floating rates determined by the market in real time. Like national currencies, personal currencies derive their value from the reputation and size of the network – status as an expert and number of friends, in this case, rather than market expectations and size of the economy.

An even greater shock could hit the energy industry, transforming it into a network that would make the current electricity grid seem rudimentary. Again, the consumer-producer would be the driving force. Some people are already installing home-based solar or other energy sources that allow them to sell electricity to the grid. Companies are using the roofs of their buildings for installations that turn the facilities into net power producers. Energy production and distribution could ultimately shift from a few key players to many participants.

The real breakthrough will come when cars generate more electricity than they consume – not as outlandish as it sounds. Hybrid vehicles currently take the kinetic electricity generated by braking and use it to help fuel motion and prolong battery life. Kinetic and battery technologies could improve to the point where cars generate excess kinetic power from their motion to be stored and sold back to the grid for micropayments.

These successive and ever more disruptive P2P shock waves foreshadow a distributed economy in which consumption is transformed into production that provides micro-income streams for individuals. The greater efficiency of such a system would help us all to live closer to sustainable economic equilibrium – which would be, on the whole, quite a pleasant shock. WEF|HBR

Task, Not Time: Profile of a Gen Y Job

BY TAMARA J. ERICKSON

Jobs have long been structured primarily around units of time – a 40-hour workweek, an eight-hour day. The time you spend – or are supposed to spend – determines whether you are working full or part time, with implications for compensation and other benefits. Face time can serve as a proxy for commitment and ambition. But that comes as a bit of a surprise to many of today's newest employees. Generation Y workers (born since 1980) clearly prefer jobs defined by task, not time. They want to be compensated for what they produce.

That's not a new concept. Workers in agricultural and craft-based economies were rewarded for output – bushels of wheat, the number of cups or bowls. Even in the early days of the Industrial Revolution, workers were paid by the piece. With the advent of the industrial economy, however, piecemeal pay preserved too many irregularities in an increasingly scientific and mechanized approach to management. Production shifted from the discrete output of individual workers to a complex, integrated process in which it was difficult to isolate tasks. Logging time made more sense. Post-Depression regulations and the rise of unionization soon led to standardized hours.

The economy has shifted again, though, and the drumbeat for another change is intensifying, sounded largely by Generation Y – a vital resource for talent-hungry corporations. Many younger employees find they can complete tasks faster than older workers, perhaps partly because of technological proficiency but even more, in my view, because they work differently. They spend less time scheduling and are comfortable coordinating electronically. They resent being asked to log hours and stay in the office after their tasks are done, and the idea of face time really annoys them. Ys love to work asynchronously – anytime, anywhere. One said during our research, "What is it with you people and 8:30 AM?"

Practical realities are also moving us toward a task-based definition of jobs. Who can say how long it takes to write a piece of software? Many salaried knowledge workers are already effectively paid for tasks rather than time. Allowing telecommuting and flexible hours is essentially trusting that the task will be accomplished, even when people working from home are expected to put in a specified number of hours. And institutionalizing task-based job definitions is arguably fairer than arbitrarily approving flex work and telecommuting – an approach as ripe for favoritism as the piecemeal systems of the preindustrial age. As virtual work continues to spread (already 40% of IBM employees have no official offices, for instance), it's time to match the stated expectation to the operational reality.

What would that look like? At Best Buy's headquarters, more than 60% of the 4,000 employees are now judged only on tasks or results. Salaried people put in as much time as it takes to do their work. Hourly employees in the program work a set number of hours to comply with federal labor regulations, but they get to choose when. Those employees report better relationships with family and friends, more company loyalty, and more focus and energy. Productivity has increased by 35%, and voluntary turnover is 320 basis points lower than in teams that have not made the change. Employees say they don't know whether they work fewer hours – they've stopped counting. Perhaps more important, they're finding new ways to become efficient: "Do we really need this meeting?"

Going forward, we can devise a better model of how to define work. Think task, not time:

- Articulate the results you expect – and tie accountability to getting the job done.
- Make physical attendance in the office, including at meetings, optional.
- Gauge performance on the quality of the work performed.
- Help managers and employees learn to measure dedication in ways other than face time.
- Use today's networking capabilities to allow employees to work from anywhere.
- Support the changes by creating drop-in centers, team spaces, and open work areas.

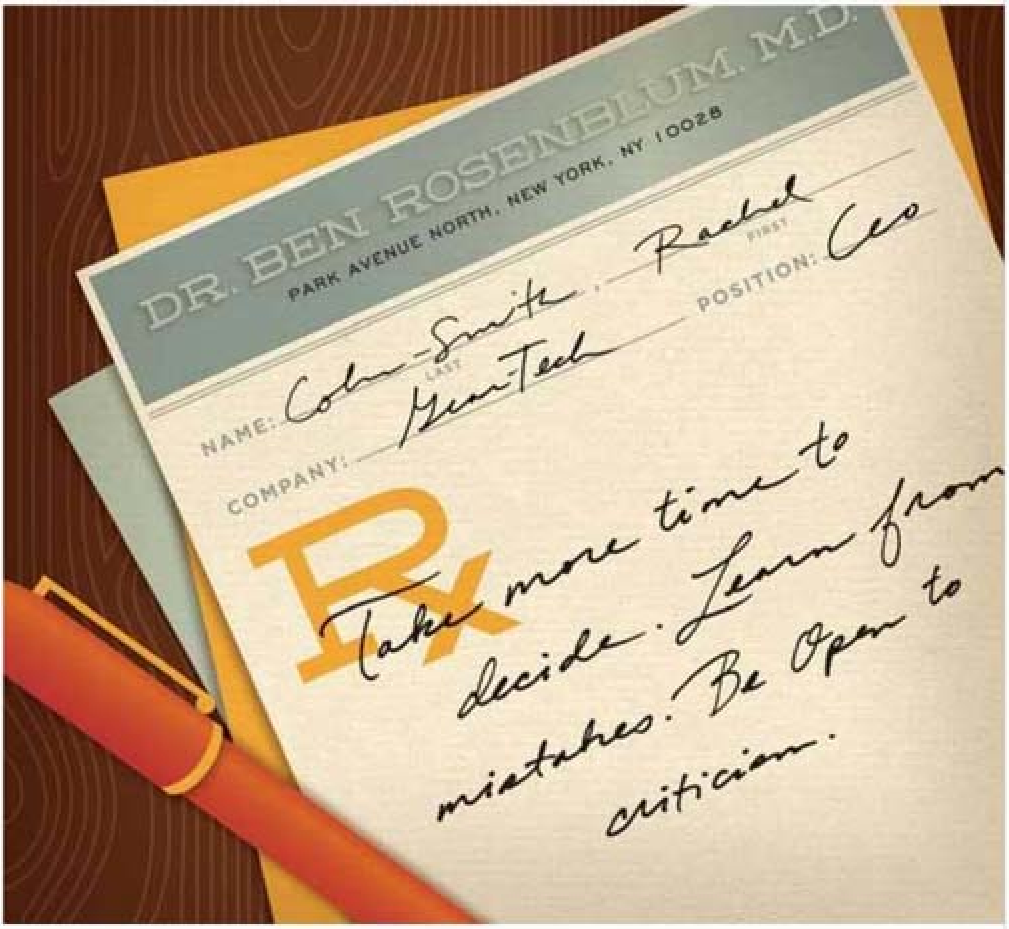
Shift your definition of work from a place your employees go for a specified period to something they do – anytime, anywhere. Task, not time – a model that dominated employment until a century ago – is a powerful way to draw in the newest crop of workers. ■

A Doctor's *Rx* for CEO Decision Makers

BY JEROME GROOPMAN, MD

Doctors, like business leaders, make mistakes. Some errors are purely operational. A pint of blood is mistakenly transfused into Joan Smith rather than Jane Smith, and Joan goes into shock. A young doctor writes an incorrect dose of chemotherapy on an order sheet, and a woman with breast cancer dies from the toxic effects of overtreatment. A neurosurgeon operates on the wrong side of the brain because an X-ray was mislabeled as "right" rather than "left." These kinds of errors make headlines, trigger lawsuits, and terrify patients and their families; in the academic world, such mistakes prompted the Institute of Medicine to publish the landmark article "To Err Is Human" in 1999. Leaders in health care took the IOM recommendations to the business world for solutions. Lessons learned in high-risk industries such as air travel and nuclear energy were applied to hospitals. Anyone who has recently had a medical procedure or treatment has benefited from the checks and double checks that have become routine. To ensure that the right patient receives the intended care, health care professionals, like airline pilots, now follow strict protocols.

However, operational mistakes account for only a small percentage of medical errors. The overwhelming majority reflect poor thinking. In fact, 15% to 20% of all medical conditions are misdiagnosed. A middle-aged man's indigestion, treated with antacids, turns out to be a heart attack; a child's chronic headache is due not to "family stress" but to a brain tumor; a grandmother's fading memory is not early Alzheimer's disease but vitamin B_{12} deficiency. Such diagnostic errors reflect shortcomings in physicians' thinking rather than technical mistakes. In 2007, a national conversation began in the medical field about how best to address these errors of judgment. Business practices were not the solution this time; in fact, CEOs and other senior managers would do well to adopt the strategies that physicians are pursuing.



Senior doctors, like CEOs, traditionally have cast themselves as confident, autonomous decision makers; they take pride in their rapid analyses and sure-footed recommendations. Their judgments filter through the hierarchy in much the same way that decisions in a company are disseminated from the corner office. However, in sharp contrast with most businesses, hospitals convene regular meetings where all faculty and trainees – from the chief to the beginning medical student – revisit cases that had poor outcomes. At these forums, participants are beginning to dissect doctors' misguided thought processes, not just discuss bodily organs. This shift has required that even the most esteemed physicians acknowledge their fallibility in an effort to teach others and to improve themselves.

Medicine is drawing on the work of cognitive scientists – particularly Amos Tversky and Daniel Kahneman, who three decades ago explored the benefits and risks of heuristics, or shortcuts in thinking. Heuristics help to explain the 15% to 20% of cases where we get it wrong. My extensive research on misdiagnoses shows that even the most seasoned physicians are highly susceptible to anchoring error, or seizing on the first bit of clinical information that makes an impression. Similarly, all doctors recall dramatic past cases of theirs and mistakenly apply them to the case at hand, a so-called availability error. Another cognitive trap is attribution error, whereby a physician relies on a stereotype to which he attributes all of his patient's complaints. Menopause, old age, and stress are common categories that physicians glibly invoke as explanations for vague symptoms without digging more deeply for other causes. Contrary to the image of the doctor as authoritarian, dismissive of criticism, and resistant to self-analysis, physician leaders are starting to welcome the insights of cognitive science to help them avoid errors of judgment, in part because they have recently seen the benefits of rectifying operational errors. By making themselves vulnerable, physician leaders have now begun to encourage those lower down in the hierarchy to question decisions more freely and think more broadly.

I recently asked business leaders in manufacturing, real estate, and banking how misdiagnoses in their industries are handled. I learned that formal decision-making reviews are rare. CEOs are seldom challenged by employees. Moreover, executives are still lauded for being rapid decision makers who rely on their own minds; they know little about innate susceptibility to cognitive biases. The format of clinical conferences, where the tools of cognitive science are used to air and dissect errors in physicians' judgment, can become a part of every business enterprise. All managers, including the CEO, should be open to the kind of self-analysis that doctors now employ. Thinking errors in medicine can mean the death of a patient. Similar cognitive errors in a company can have profound implications for the future of the organization, its employees, and the CEO. ■

{ Sustainable Trend }

A MODEST LEVEL OF TERRORISM is something we can and must endure for a long time. It is best combated with the tools of public health: isolating the origins, disrupting the vectors of transmission, and protecting potential victims.

Jessica Hische

Understanding **Opposition**

BY MICHAEL SHEEHAN Top executives are good at competing, but when they come up against opposition rather than competition, they flounder. The problem is getting worse because, for a variety of reasons, businesses face better organized and more vocal opponents than ever before.

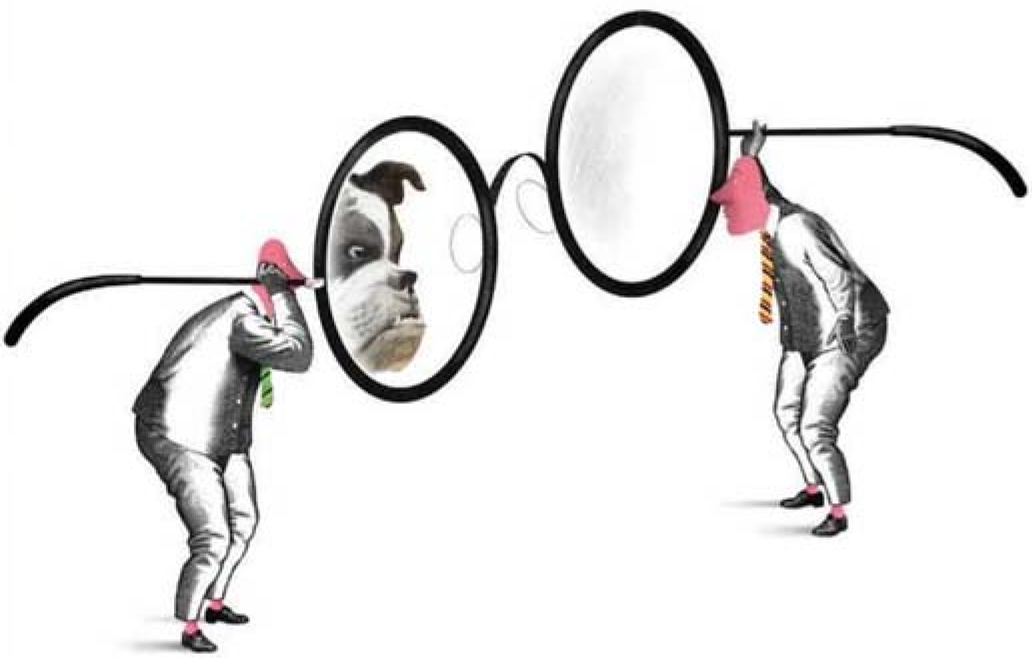
What distinguishes opposition from competition? Consider soft-drink vending machines in schools. What we saw a few years ago was a standard face-off between the world's two most competitive companies, each trying to present the better deal to local school boards. But the people who really needed to be persuaded were parents and public interest groups concerned with childhood obesity. They didn't care whether Coke was better than Pepsi. They didn't want soft drinks in the schools, period.

When companies mistake oppositional situations for competitive ones, they adopt approaches that don't match the terms of engagement. Worse, their missteps can lead to serious setbacks. When a waste disposal business met opposition to a new plant, management made what it considered a reasonable attempt to sweeten the deal: It offered to build a new community recreation center. Instead of being hailed for its generosity, it was accused of making a callous bribe. By falling back on negotiation reflexes developed in competitive situations, the company only dug itself into a deeper hole.

Better approaches are found in politics, where leaders tend to face opposition more routinely. Their experience underscores the importance of stepping back from the fray to assess its dynamics. Who is on the other side of the table, and why? What is that side's ultimate goal? How can it be met with your help?

One way is by co-opting your antagonist's issue. If, for example, you disagree with Michael Moore's demand for single-payer universal health care, clashing with him head-on is probably not the best approach. Instead, understand why he's getting traction with middle-class America and small business owners: because he holds out the prospect of lower health care costs. Adopt that as your goal and propose an alternative road for getting there. Rather than be negative, give Moore's campaign a nod and treat it with a trace of indulgence – his heart is in the right place.

In other situations, the key is to redefine the issue. In California, voters have been asked to decide whether parental notification should be required for minors seeking abortions. Research I've been involved in there shows that voters who see this as a challenge to parental rights are inclined to say yes; those who see it as a threat to girls' safety say no. This kind of situation is always a tug-of-war. To prevail, you have to get people to view the issue on your terms.



Brett Ryder

Somewhere between co-option and tug-of-war lies what I call a deflection strategy. The most famous example comes from the tobacco industry. When, in the 1980s, indoor smoking bans came on the scene, the industry embraced the campaign for clean air in buildings. But it fingered a non-tobacco culprit: It claimed that overzealous property managers, in pursuit of energy efficiency, had made buildings airtight. Cigarette smoke was a minor annoyance compared with the chemical discharges from copy machines, carpet adhesives, and other contributors to "sick building syndrome." The solution was to engineer efficient ways of bringing more fresh air into facilities. Although the strategy wasn't ultimately successful, it stymied the inevitable bans for several years.

Once management learns to distinguish opposition from competition, it can use its newfound skills proactively. A community hospital in the Midwest did this when threatened by a potential new entrant in its market. The competitor, a large national chain, proposed to build a state-of-the-art orthopedic hospital. Next to the aging incumbent, its value proposition came through loud and clear: "Why shouldn't this community have as good as they have in Boston?" The competitor required only a "certificate of need" to begin building its new facility. The community hospital mustered opposition using the kind of run-at-their-strengths strategy Karl Rove made famous in politics. Noting the $88 million price tag for the chain's 84-bed facility, it raised this question: "So, we've got a project that is proposing million-dollar beds?" With that reframing, the battle was over before it began. Certificate of need denied. ■

HBR LIST 2008

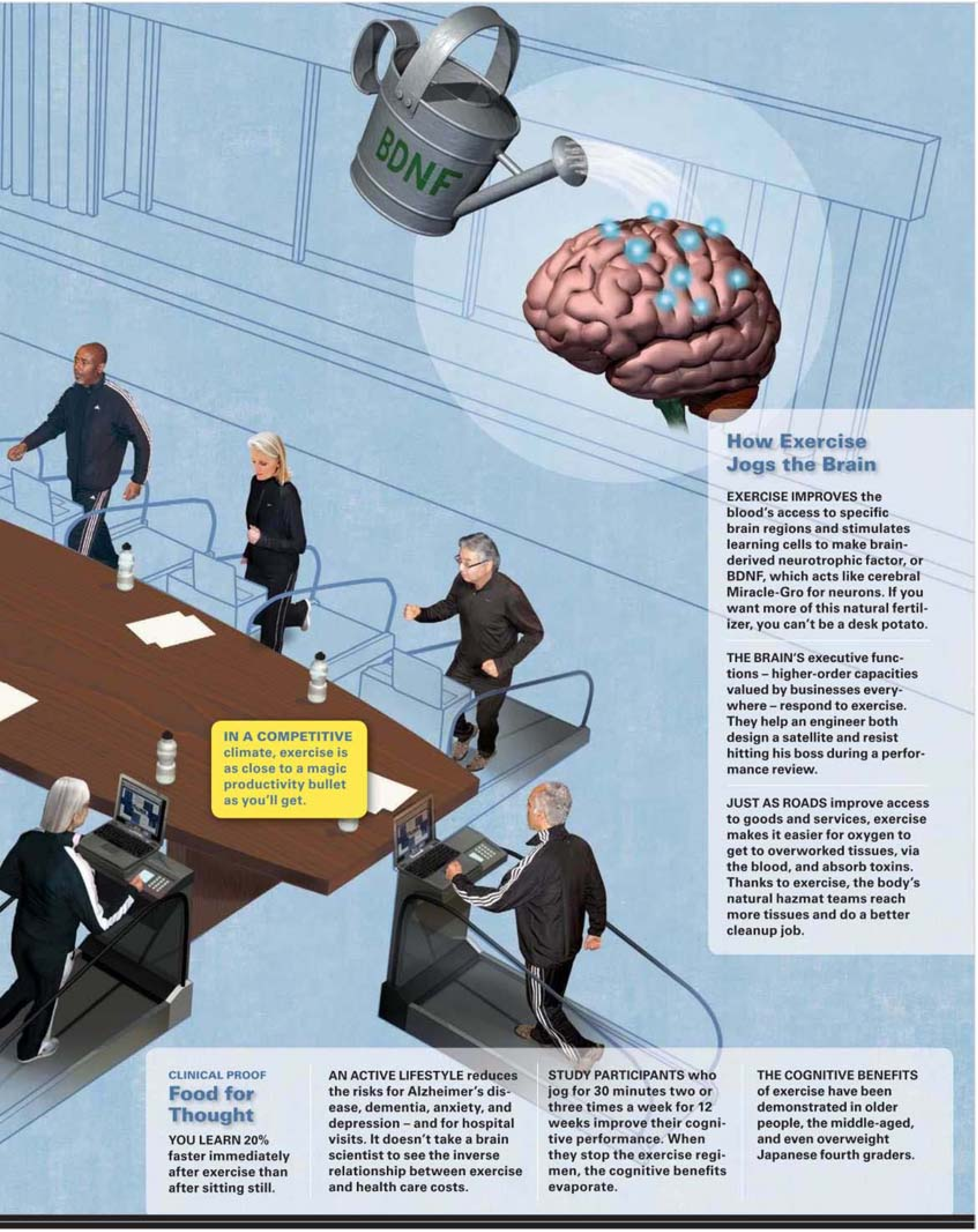
The Board Meeting of the Future

BY JOHN J. MEDINA **If you wanted to create a work environment in direct conflict with what the brain is equipped to do, you'd design the standard cubicle. Instead, imagine a brain-friendly workplace where board meetings are conducted on treadmills, desks are equipped with stationary bicycles, and people wear gym clothes, not suits.**

Stanford Kay

The Brain's Active History

If our ancestors sat still in the savanna for eight hours straight – heck, for eight minutes – they became somebody's lunch. Our brains developed while we walked about 12 miles a day, seven days a week, for several million years.



How Exercise Jogs the Brain

EXERCISE IMPROVES the blood's access to specific brain regions and stimulates learning cells to make brain-derived neurotrophic factor, or BDNF, which acts like cerebral Miracle-Gro for neurons. If you want more of this natural fertilizer, you can't be a desk potato.

THE BRAIN'S executive functions – higher-order capacities valued by businesses everywhere – respond to exercise. They help an engineer both design a satellite and resist hitting his boss during a performance review.

JUST AS ROADS improve access to goods and services, exercise makes it easier for oxygen to get to overworked tissues, via the blood, and absorb toxins. Thanks to exercise, the body's natural hazmat teams reach more tissues and do a better cleanup job.

IN A COMPETITIVE climate, exercise is as close to a magic productivity bullet as you'll get.

CLINICAL PROOF

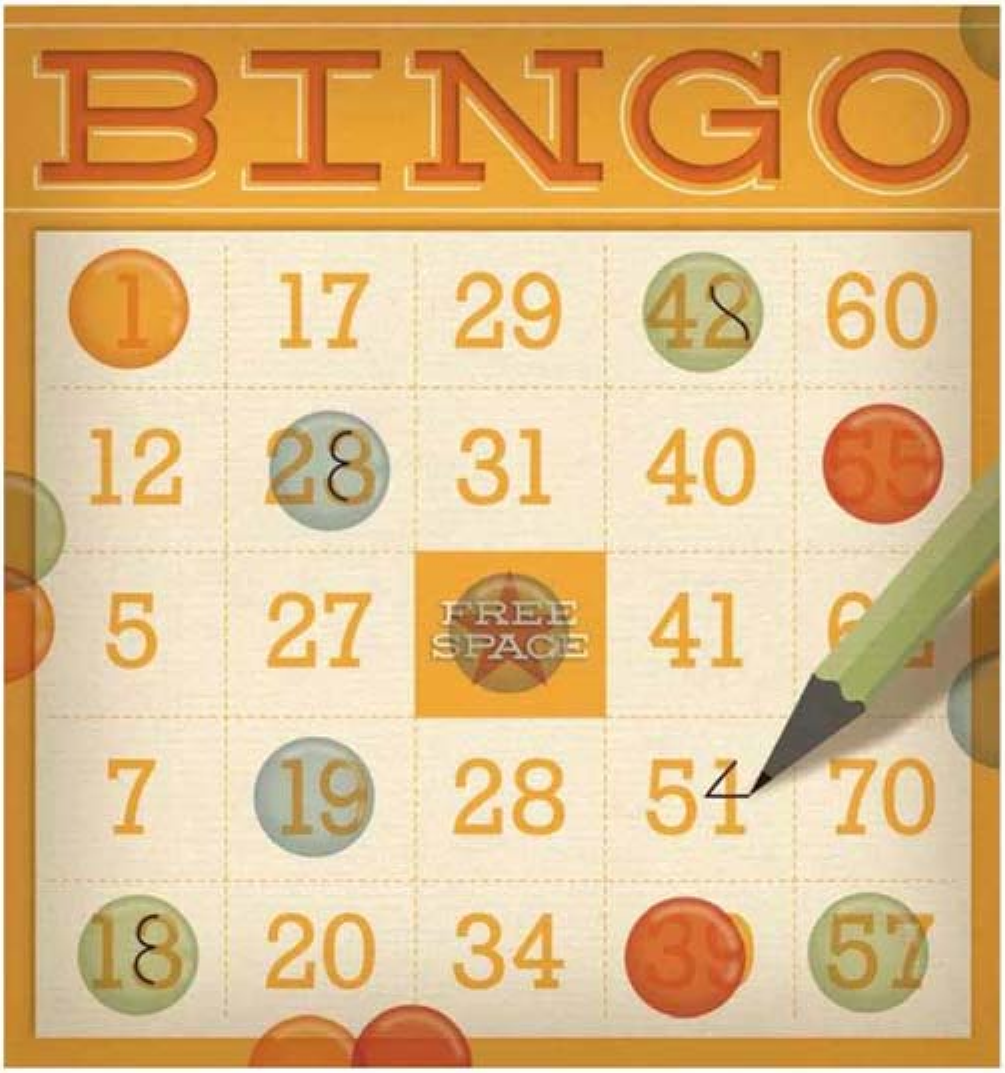
Food for Thought

YOU LEARN 20% faster immediately after exercise than after sitting still.

AN ACTIVE LIFESTYLE reduces the risks for Alzheimer's disease, dementia, anxiety, and depression – and for hospital visits. It doesn't take a brain scientist to see the inverse relationship between exercise and health care costs.

STUDY PARTICIPANTS who jog for 30 minutes two or three times a week for 12 weeks improve their cognitive performance. When they stop the exercise regimen, the cognitive benefits evaporate.

THE COGNITIVE BENEFITS of exercise have been demonstrated in older people, the middle-aged, and even overweight Japanese fourth graders.



How Honest People **Cheat**

BY DAN ARIELY There are two basic conceptions of cheating. One holds that people are fundamentally dishonest and look actively for opportunities to cheat. A person walks by, say, a gas station, considers how much money is in the till, who might be around to stop the theft, and what punishment awaits him if caught (including potential time off for good behavior). On the basis of a cost-benefit calculation, the would-be thief decides whether to rob the place. The second notion is that people are basically honest. They are not out there scoping for chances to cheat, but circumstances tempt them. They "borrow" a pen from a conference, take an extra splash of soda from the soft drink dispenser, exaggerate the value of a television on a property loss statement, or falsely report a meal with Aunt Nava as a business expense (well, she *did* ask how work was going). How prevalent is this kind of dishonesty, and what drives it?

My fellow researchers and I tempted a few thousand "honest" people to cheat in a set of scientifically controlled experiments at Harvard Business School, MIT, Princeton, UCLA, and Yale. Participants were paid about 50 cents for each correct response to a set of 20 simple math problems that they had five minutes to complete. In control groups, the answer sheets were graded – on average, the participants correctly answered four problems. But in experimental groups, answer sheets were blindly shredded so that respondents knew that it was impossible for us to tell whether they had answered the questions correctly. In effect, participants could simply lie and receive more money than they had legitimately earned. On average, they claimed to have correctly solved two problems more than they knew they had (six rather than four). That is, given the chance, the majority of people cheated by about 50%. Viewed from a different angle, however, they lied about only two of the 16 problems they did not solve – 12.5% of their cheating opportunity.

The results grew more interesting when we tried to understand the circumstances that influence the degree to which people cheat. First, we found that the risk of being caught did not change the level of dishonesty. For example, allowing participants to avoid revealing any sign of possible mischief (for example, by having complete anonymity in how much payment they took) did not affect the average level of cheating among them. Second, we found that getting people to contemplate their own standards of honesty (by recalling the Ten Commandments or signing an honor code) eliminated cheating completely. Finally, and perhaps most disturbing, we found that if payment was given in poker chips, which were exchanged for cash a few seconds later, the average level of cheating more than doubled.

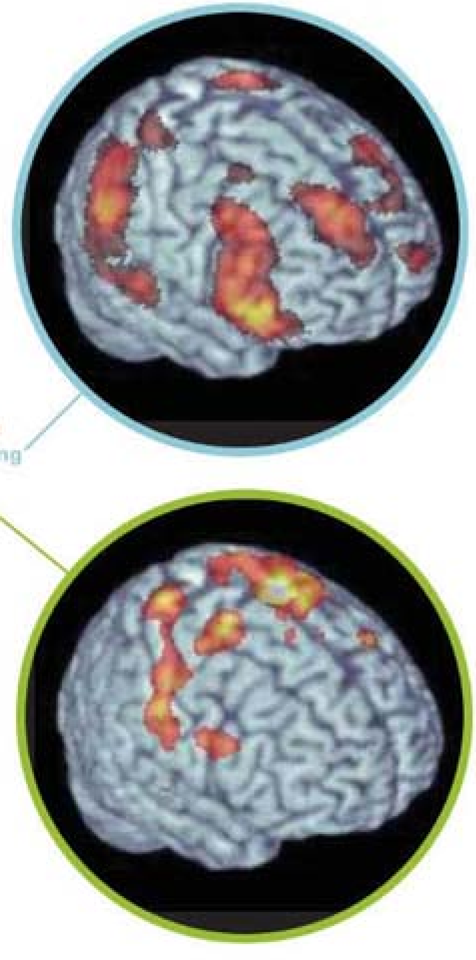
These results point to a few interesting aspects of human nature. One is that most of us, when tempted, are willing to be a little dishonest, regardless of the risks. Another is that even when we have no chance of getting caught, we still don't become wild liars – our conscience imposes some limits. Finally, it's clear that we have an incredible ability to rationalize our dishonesty and that justifying it becomes substantially easier when cheating is one step removed from cash. Nonmonetary exchanges allow people greater psychological latitude to cheat – leading to crimes that go well beyond pilfered pens to backdated stock options, falsified financial reports, and crony deals. Such latitude is the force behind the Enrons of the world. ■

Jessica Hische

Lies, Damn Lies, *and Lie Detectors*

BY PAUL ROOT WOLPE AND DANIEL D. LANGLEBEN Deceit is ubiquitous yet difficult to detect. It's no surprise, then, that throughout recorded history people have tried to devise techniques for detecting lies.

Until recently, we had not improved very much on the methods of the ancient Greeks, who took the pulse of a suspect under questioning – a rudimentary polygraph in concept. But recent research using functional magnetic resonance imaging, or fMRI, has begun to identify the areas of the brain involved in deception. These laboratory experiments (many done by coauthor Daniel D. Langleben) suggest that accurate, reliable lie detection is finally within reach. They have also sparked interest from the law enforcement, defense, and business communities. Two start-ups (No Lie MRI and Cephos) have already been launched to offer commercial fMRI lie-detection services.



THESE IMAGES depict functional MRI maps of brain activity when someone is lying versus telling the truth. Provided courtesy of Daniel D. Langleben, MD

To be sure, more research in real-world situations is needed to prove the effectiveness of the technology. And if other MRI usage is any indication, fMRI lie detection will be expensive to employ routinely and could require subjects to travel to specialized centers for testing. Nonetheless, investigators of various stripes certainly want a reliable tool for getting at the truth, sometimes in life-or-death situations.

Less obvious, perhaps, is what businesses will want from fMRI-based lie detection. Although polygraph use in the private sector has been banned for most purposes since 1988, companies do have investigational needs, whether routine (for pre-employment screenings) or exceptional (to address fraud and embezzlement, IP theft, industrial espionage, claims of infringement, and leaks of confidential information). At the highest levels of organizations that have contentious cultures, loyalty itself – to the CEO and to the policies and principles of the enterprise – may become a target of inquiry. Board members could one day serve with the understanding that they will be subject to an fMRI examination if suspected of misconduct. Disputes between employees over credit for ideas and innovations, among other things, could be adjudicated using fMRI lie detection.

Because fMRI is a powerful, sophisticated medical technology, its use for lie detection raises numerous questions. Who, for example, should be licensed, and based on what criteria and training, to design and administer the testing and interpret its results? Who will be responsible for dealing with incidental medical findings (such as brain tumors) that may turn up on fMRI scans? Who should have access to the technology and the results? What are the ethical limits to its application? Is use on suspected terrorists and criminal defendants appropriate? Are employees also fair game, and, if so, should they be subjected to any inquiry an employer wants to pursue?

Critics and proponents alike have raised concerns about the rush to commercialize fMRI lie detection before it undergoes the kind of scientific scrutiny that would be standard for a drug or a medical device. Indeed, some have argued that MRI should be regulated for use in lie detection just as it is for medical diagnosis.

Although fMRI holds significant potential for cracking the problem of lie detection, businesses may reasonably decide to tread carefully before adopting it. Like other tools used to scrutinize employee behavior (surveillance cameras, software for monitoring e-mail and internet use), fMRI has the potential to influence corporate culture and the level of trust between workers and employers. Courts and legislatures will inevitably become involved as society tries to define reasonable limits. After all, fMRI literally looks inside people's brains – a sensitive endeavor. And that's no lie. WEF|HBR

{ Unsustainable Trend }

CARBON EMISSIONS cannot continue to increase. They must decline in absolute terms, not just per dollar of GDP. Regulations are paving the way by forcing emitters to cover more of the carbon-remediation costs.

The Cybercrime **Service Economy**

BY SCOTT BERINATO

Anyone who doubts that internet commerce faces serious threats from online criminals should consider this: Criminal hacking has spawned a full-blown service economy – one that supports growing legions of relatively lower-skilled but fulsomely larcenous hackers.

In the past year, entrepreneurs, many of them based in Russia, have begun to create criminal hacking enterprises aimed not at stealing but at providing services to help others steal. Business has quickly taken off. Per unit of risk – of apprehension, prosecution, and incarceration – enabling online crime pays better than perpetrating it directly. Criminal services entrepreneurs are netting millions of dollars a month. Some experts estimate that, all told, they earned $1.5 billion in 2007.

Last year, two Russians created a subscription-based identity theft service. Rather than steal personal credentials themselves, the two hacked into PCs and then charged clients $1,000 per compromised machine for 30 days of unfettered access. The clients are betting that during the 30-day period (one billing cycle) victims will bank or otherwise submit personal data online.

To offer their subscription service, the hackers contracted with yet another service provider to obtain a sophisticated distribution system for the illicit code, called a bot, that they would use to infect the PCs. That distributor enticed website owners to hide its bot on their sites by promising weekly payments based on the volume of traffic, much the way newspapers are paid by advertisers according to the number of visitors to their websites. Other service businesses aggregate large networks of compromised computers, called botnets, and rent out portions of their networks for whatever task the client has, perhaps to distribute spam, disable a competitor's website, or infiltrate a firm's network in order to steal intellectual property.

As with any service business, customers willing to pay extra can obtain premium offerings. The two hackers behind the subscription service will "clean up" your data – get rid of low-value information and generate helpful reports itemizing what you've stolen. The botnet rental operations offer ancillary consulting to maximize the effectiveness of your attack; some guarantee specified service levels or your money back.

The biggest factor driving the emergence of this new service economy is the obvious one: an explosion of online banking and shopping, coupled with consumers' increasing willingness to disclose personal information over the internet. For those with the technical skills, opportunities for exploitation are richer than ever before.

But something else is happening, too. Those gifted hackers are now enabling the far larger market of wannabes whose deficient skills would otherwise shut them out of the cybercriminal enterprise system. By creating services for those people, hackers can generate huge profits without actually committing fraud. Gold prospectors may or may not strike it rich, but folks selling pans and pickaxes make a heck of a living either way.

What surprises some experts about this new service economy is just how innovative and vibrant it has become. The hackers code at a PhD level. Their solutions to problems are creative and efficient. They respond to market conditions with agility. Their focus on customer service is intense. If this loose collective of criminal hackers were a company, it would be a celebrated case study of success.

Cybercrime services are so sophisticated and powerful that they make one pine for the days of simple website defacements and e-mail viruses with cute embedded messages. The new breed don't just disrupt business; they threaten it by frightening customers and undermining commercial confidence. As the victims of online crime pile up, more and more of them will look for someone to hold responsible. And it won't be the hackers; it will be the brands that customers trusted to protect them. WEF|HBR

Sick Transit Gloria

BY MARK KUZNICKI, ELI SINGER, AND JAY GOLDMAN The Toronto Transit Commission runs the third-largest public transit system in North America. Its buses, streetcars, and subways serve 2.4 million riders daily. The TTC was once hailed as a model of enlightened, well-run urban transportation, but in the mid-1990s underfunding and rapid population growth started to take a heavy toll. The system began to creak, and rider discontent became rampant.

A public entity, the TTC is obligated to consult regularly with its customers, a process that became increasingly contentious as rider frustration grew. In public meetings, cash-strapped TTC officials cowered as angry riders protested the system's aging infrastructure, from the rolling stock to the stations to the commission's once highly praised website. It was clear that communication was among the most badly broken parts of the system – an impediment to constructive action.

The stalemate might have persisted if not for the serendipitous convergence of social networking technologies, a growing army of technology and transit geeks, and an open-minded new TTC chairman named Adam Giambrone. He accepted a pitch from local bloggers on how to revitalize the TTC website: Use the geeks' lively networks as conduits for ideas.

On February 4, 2007, Giambrone and a number of other TTC officials participated in a unique live event dubbed TransitCamp. Created by members of the Toronto blogging community, the grassroots meeting melded citizen activism with crowd-sourcing. About 120 attendees used real-time Web 2.0 collaboration tools to engage one another

TRANSITCAMP reformed a transportation system by reinventing the way stakeholders collaborate with decision makers. To learn more, visit **hbr.transitcamp.org.**

Sam Javanrouh

live and in person. The happening emulated an innovative open-source problem-solving framework known as BarCamp. A BarCamp event is self-organizing; participants gather to think creatively, across disciplines, about areas of shared concern. Some BarCamp-style meetings last several days, and many attendees bring sleeping bags and extra clothes to "camp out."

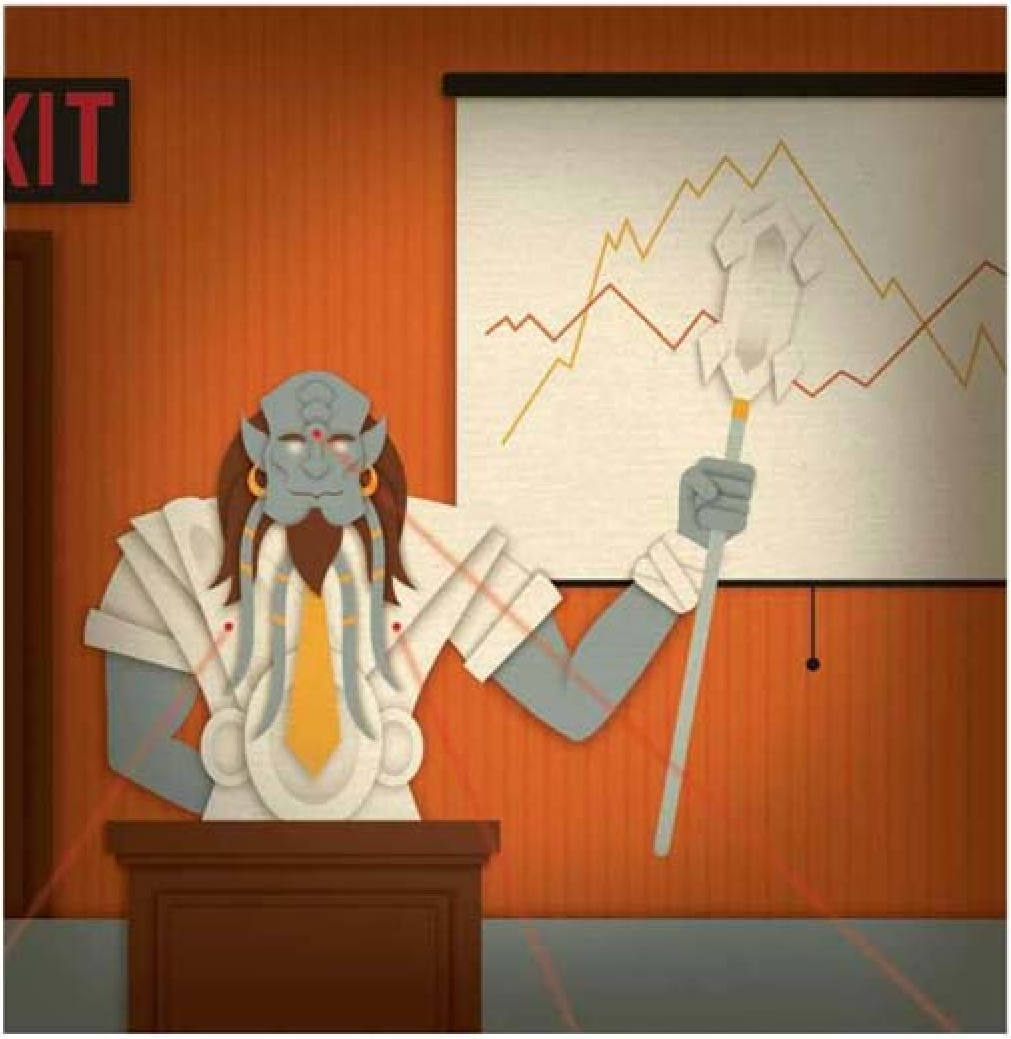
In the case of the one-day TransitCamp, participants set out to collaboratively debug the transit system as if it were a complex piece of software and, ultimately, to reform riders' experience. The organizers (we were among them) set ground rules intended primarily to keep the tone constructive: TransitCamp was styled as a creative "solutions playground" rather than a gripe session. Among the participants were transit activists, ordinary riders, technology geeks, visual artists and designers, and web developers. Some of the TTC representatives in attendance came out of simple curiosity about the new community Giambrone was seeking to engage. Won over by the participants' passion, most of the officials canceled their other plans and stayed for the entire day.

TransitCamp was promising in both its process and its results. The on-site use of social networking tools allowed many ideas to be put forward quickly and iteratively as the day unfolded. The event moved the TTC to entirely rethink its website redesign plans. In impromptu closing remarks, Giambrone called the participants an inspiring voice for change. The icy relations between the TTC and the riding public have since begun to thaw. A previously issued RFP for the new website was canceled and a new one was developed from the principles that were articulated at TransitCamp. The commission is still short of funds and facing possible service cuts and fare increases, but it has begun a frank, constructive online conversation with riders about which trade-offs make the most sense. A similar dialogue will soon take place in San Francisco, where the creators of BarCamp have organized TransitCampBayArea for late February 2008.

The TransitCamp experience demonstrates the power of a new, technology-supported model for social and community change. This model empowers citizens to engage cooperatively with public officials in an otherwise unlikely civic – and civil – dialogue.

{Sustainable Trend}

COMPUTING POWER is still increasing, despite predictions that Moore's law couldn't possibly hold any longer. Advances in technology are plumbing ever smaller units of storage; as Richard Feynman said, "There's plenty of room at the bottom."



The Gamer Disposition

BY JOHN SEELY BROWN AND DOUGLAS THOMAS Today's multiplayer online games are large, complex, constantly evolving social systems. Their perpetual newness is what makes them enticing to players. Each generation of games begets a new generation of participants who develop what we call the *gamer disposition*. It's exactly the disposition you should want in your workforce.

The gamer disposition has five key attributes. More than attitudes or beliefs, these attributes are character traits that players bring into game worlds and that those worlds reinforce. We believe that gamers who embody this disposition are better able than their nongamer counterparts to thrive in the twenty-first-century workplace. Why?

They are bottom-line oriented. Today's online games have embedded systems of measurement or assessment. Gamers like to be evaluated, even compared with one another, through systems of points, rankings, titles, and external measures. Their goal is not to be rewarded but to improve. Game worlds are meritocracies where assessment is symmetrical (leaders are assessed just as players are), and after-action reviews are meaningful only as ways of enhancing individual and group performance.

They understand the power of diversity. Diversity is essential in the world of the online game. One person can't do it all; each player is by definition incomplete. The key to achievement is teamwork, and the strongest teams are a rich mix of diverse talents and abilities. The criterion for advancement is not "How good am I?"; it's "How much have I helped the group?" Entire categories of game characters (such as healers) have little or no advantage in individual play, but they are indispensable members of every team.

They thrive on change. Nothing is constant in a game; it changes in myriad ways, mainly through the actions of the participants themselves. As players, groups, and guilds progress through game content, they literally transform the world they inhabit. Part of the gamer disposition is grounded in an expectation of flux. Gamers do not simply manage change; they create it, thrive on it, seek it out.

They see learning as fun. For most players, the fun of the game lies in learning how to overcome obstacles. The game world provides all the tools to do this. For gamers, play amounts to assembling and combining tools and resources that will help them learn. The reward is converting new knowledge into action and recognizing that current successes are resources for solving future problems.

They marinate on the "edge." Finally, gamers often explore radical alternatives and innovative strategies for completing tasks, quests, and challenges. Even when common solutions are known, the gamer disposition demands a better way, a more original response to the problem. Players often reconstruct their characters in outrageous ways simply to try something new. Part of the gamer disposition, then, is a desire to seek and explore the edges in order to discover some new insight or useful information that deepens one's understanding of the game.

...

Together, these five attributes make for employees who are flexible, resourceful, improvisational, eager for a quest, believers in meritocracy, and foes of bureaucracy. If your organization is receptive to these traits (and it should be), look for gamers and the disposition they will bring you. ■

Jessica Hische

Making Alternate Reality the New Business Reality

BY JANE McGONIGAL In the coming decade, many businesses will achieve their greatest breakthroughs by playing games – specifically, alternate reality games, or ARGs. Custom-designed ARGs will enable companies to build powerful collaboration networks, discover solutions to specific business problems, forecast opportunities, and innovate more reliably and quickly.

ARGs are immersive, massively multiplayer experiences that unfold in the course of people's real lives for days, weeks, or months. ARG designers, known as "puppet masters," distribute thousands of story pieces, puzzles, and missions via websites, e-mail, mobile messaging, online video, and podcasts. The players who receive these building blocks use wikis, social networking sites, chat rooms, and blogs to analyze clues, debate interpretations, devise mission strategies, predict game events, and ultimately build a common narrative.

HBR.ORG Alternate reality games help you to develop these 10 collective-intelligence competencies. Learn more about them at **mcgonigal.resources.hbr.org.**

- mobbability
- cooperation radar
- signal/noise management
- protovation
- emergensight
- open authorship
- influency
- multicapitalism
- longbroading
- high ping quotient

Although commercial ARGs are, in relative terms, a niche entertainment genre involving several million players worldwide, their enterprise counterpart could eventually become a significant platform for real-world business – in essence, the new operating system.

Why? ARGs train people in hard-to-master skills that make collaboration more productive and satisfying. Playing an ARG teaches 10 collective-intelligence competencies. These include *cooperation radar,* a knack for identifying the very best collaborators for a given task, and *protovation,* the ability to rapidly prototype and test experimental solutions. Using these skills, players amplify and augment one another's knowledge, talents, and capabilities. Because ARGs draw on the same collective-intelligence infrastructure that employees use for "official" business, games will map directly to a familiar reality – no translation required.

As these competencies mature within a business, ARGs will provide a truly stimulating framework for doing everyday work. Few meetings are as engaging as an ARG, whose emerging narrative evokes players' shared sense of urgency and whose puzzles and clues deepen their curiosity. The structure for collaboration is clear, with players rallying around explicit goals and continually sharing theories, tactics, and results. Playing also generates compelling momentum: The puppet master monitors and rewards participants' efforts, and times the release of new challenges so that players experience multiple cycles of success.

Imagine using an ARG as a more vivid alternative to traditional scenario planning and business-simulation exercises. Recently, 1,700 players from 12 countries set out to manage a simulated global oil shortage in an ARG called World Without Oil, which I helped develop (visit http://worldwithoutoil.org). Players joined the game as individuals but coalesced over time into a powerful online collaborative network as they investigated the mysterious oil crisis, sharing what they'd learned. They leveraged their collective intellect to forecast fictional shifts in gasoline, diesel, and jet fuel prices and availability. They debated how shortages would transform many industries and disciplines. Finally, they devised interventions to mitigate these effects, producing plausible strategies for managing a realistic future dilemma.

The ARG framework allows players to grapple with risky potential realities yet remain safe from real-world consequences. It's easy to see, then, why businesses would want to bring custom ARGs to bear on particular competitive problems – including innovation. Eventually, games will become the go-to tools for launching internal initiatives, or they will rally global teams of outside "expert players" to engage in business forecasting. Ultimately, ARGs will involve customers in inventing new products and services or in testing companies' market assumptions.

In all these cases, business leaders will become the vital puppet masters, guiding collaboration, introducing complicating variables, and helping focus players' attention in promising new directions – not so very different from their job descriptions today. But their skills will be augmented by an ARG-based operating system that amps up collaboration in the service of strategy. ■

{Unsustainable Trend}

HEALTH CARE SPENDING cannot continue its upward trend. It's currently 16% of GDP in the United States; that figure will decline as drugs with greater efficacy start to account for more of our medical spending.

AT INSEAD'S first MBA class on its Second Life campus, Professor Sarvary lectured on the evolution of modern media to a full room of students who had been invited by e-mail.

Image courtesy of Insead

The Metaverse: **TV of the Future?**

BY MIKLOS SARVARY Here's a familiar story: A new communications technology that allows one to broadcast live to millions of people appears on the scene. At first it's clunky, and the content is largely trivial and of poor quality. But serious players soon latch on, the content improves, and before long everyone tunes in, businesses flock to buy advertising time, and shares in related companies skyrocket.

That was the early history of radio. The parallels with the dot-com frenzy are eerie. (In fact, the broadcaster RCA used WWW, for World Wide Wireless, as its logo.) And the party was just as short: Broadcasting companies struggled to turn a profit, stock prices plummeted, and only a few players survived. Then came the Great Depression and World War II. By the time these traumas had passed, a new technology was on the block: television, which has been the dominant broadcasting medium ever since. Radio is very much the poor cousin.

All the signs are that the life cycle of the internet will continue to parallel that of broadcasting. The technology that produces websites as we know them is limited in its ability to exploit the mass interactivity that the internet can potentially deliver. Sure, people can communicate with one another instantly online and even form communities – but they do it blind, through a keyboard. Once again, there's a new technology that gets around the limitation.

Within five years, the dominant internet interface is likely to be the *metaverse*, a term used to describe interactive multiplayer games such as Second Life. In these new cyberworlds, companies will have not websites but, rather, virtual stores where their customers' avatars can browse and chat with assistants before trying on and eventually buying that dress, T-shirt, or tie. Why bother with a MySpace page when you can have your own room in a virtual clubhouse? Some companies already have these worlds in their sights: IBM, for example, is developing ways for people to move their avatars from one metaverse to another.

If the metaverse is the future of the internet, what should companies do to prepare for it? History once again provides clues. For starters, there's the network effect. Just as early television networks got a leg up by approaching advertisers and building a base audience in the 1960s and 1970s, companies that get their metaverses up and running early will poach a lot of customers from rivals that leave metaverses for another day.

Also remember that it took decades for TV networks to learn how to efficiently address audiences with appropriate content and advertising, which was essential for the broadcasting business model. That suggests that companies had better start to experiment with the technology while it is still a sideshow. How, for example, might a company like L'Oréal use the metaverse community to build a brand? We've asked ourselves just that kind of question at Insead. We know that the metaverse will be an important channel for our educational services, but we still have lots of questions about how best to attract students to it and present material on it. So we've opened a virtual campus on Second Life to find the answers.

Finally, as was the case for broadcasting, metaverses will present a real challenge for governments and regulators. We already see important issues emerging around security, network reliability, property legislation, and taxation. Down the road, questions of infrastructure, software standards, and compatibility between potentially competing metaverses may also dog regulators, who will have the additional difficulty of coping with these matters on a global scale. ■

Giving Avatars *Emote Control*

BY JUDITH DONATH Millions of people have joined virtual worlds such as Second Life and There.com, creating avatars through which to socialize, explore, and conduct business. What makes virtual worlds so compelling, even in their current primitive form, is the presence of other people. We are inherently social creatures, deeply attuned to the nuanced actions and expressions of others, even other avatars.

However, the expressiveness of current avatars is limited. They can be moved next to each other to talk but often stare blankly into space, inert and unengaged. With virtual worlds poised to become major hubs of social and business activity, an important focus of research is how to make avatars more smoothly expressive – able to make appropriate eye contact, smile, show their interest or boredom, and so on.

Giving avatars this kind of expressiveness raises complex questions about how we present ourselves in virtual worlds. We will soon be able to choose avatars who span a spectrum of veracity in their expressiveness. Options will range from avatars with gracious but inauthentic scripted performances to avatars that convey extraordinarily candid, intimate, and potentially invasive views of their operators' interior lives.

It is not too soon to be thinking deeply about the choices for expressiveness we may soon have in virtual worlds.

In face-to-face interactions, our expressions signal our thoughts and feelings. A gaze indicates attention; narrowed lips reveal anger. Our expressions are reliable means of communication, but we can also edit and control them: We feign attentiveness when bored and maintain a poker face during intense negotiations. Expressions that do not match our underlying feelings are essential not only for deception but also for privacy and social graciousness.

In the not-too-distant future, we will choose the veracity of our avatars depending on our needs in each interaction, much as we now choose our communication media – video conference, phone, e-mail, IM – according to our desire for immediacy, accuracy, and control of the message. The choices for avatars' expressiveness will probably take one of three broad forms that fall on what I call the *veracity continuum.*

In the idealized form, personality programs will give avatars gestures and expressions that, though consistent, detailed, and convincing, are generated by the avatar not the user. You will be able to outfit your avatar with a preferred affective style to keep it in character – for instance, "brisk and businesslike," "elegantly European," or "rude and rebellious." This form will be suited for performative situations, such as online parties, sales demos, social games, and professional conventions.

In the representative form, which describes most current avatars, expressiveness is based on user commands, entered via keyboard or selected from a menu. Also in this category are experimental systems that use machine vision or gesture-sensing to match avatars' virtual expressions and movements with users' real-world behavior. When users laugh, or look puzzled or bored, so do their avatars. The representative form, well suited for more personal communication, allows users the same revelatory and inhibitory control over their avatars' expressiveness that they have over their own.

At the most advanced end of the continuum is the interior form, which could enable your avatar to represent your thoughts, through its movements and expressions, with even greater veracity than you do in the real world. Technologies for such control range from simple methods such as galvanic skin response, which gauges your emotional state by essentially measuring how sweaty your palms are, to early-stage technologies that read brain activity to deduce your thoughts and feelings. Interior-form avatars might be desirable for tasks that require a high level of cooperation. Teams could use them to quickly assess when members have doubts or are excited about a new idea. The intensity of such communication might make working together virtually seem more intimate than being together physically. These technologies might also be used in competitive situations. During a business negotiation, one party might demand a move to the more revealing, interior-form avatar. If the other party resisted, would it be perceived as untrustworthy and evasive?

Although such mind reading is far from being commercially available, it is not too soon to be thinking deeply about the choices for expressiveness we may soon have in virtual worlds. When will you want to be in a solipsistic wonderland where everyone is beautiful and poised, where you learn little about your fellow humans yet still enjoy their company? When will you want interactions in which once-private responses become nakedly public? And when will you choose the extraordinarily delicate balance between revelation and control that characterizes your everyday face-to-face interactions? ■

{Sustainable Trend}

HUMAN ENHANCEMENTS to ameliorate disabilities and the effects of aging will keep coming. Stay tuned for many more drugs and devices, some based on nanotechnology, that help average people perform better.

Happy Metadata *Trails*

BY JAN CHIPCHASE The explosion in user-generated content will enable organizations to gain previously unparalleled views of customers. This has important implications for user privacy – and presents excellent opportunities for marketers.

To explain: Both user-generated digital content (an appointment made on a BlackBerry, photos taken on a cell phone) and passively generated data (your Skype profile, your GPS coordinates as revealed by your mobile phone, your Google search history) leave real-time trails or logs. As more and more activities "go digital," these data trails together chart patterns of user behavior. In some cases, a trail is apparent and part of the user experience; in others, people have a vague awareness of such a trail but don't understand how it is used. Some data trails – say, the recording of your car's license plate as you drive through the city – may be completely hidden from view.

In an increasingly connected future, the data trails from all these sources will create a massive universe of metadata. A new generation of devices will provide filters or lenses through which to view this universe. This technology will send constant signals that can be used in the aggregate. Even now in New York City, for example, taxis equipped with global positioning systems allow officials to study the migratory patterns of yellow cabs and come up with better ideas for traffic engineering. Alternatively, increasing amounts of data recorded from people wearing monitors for heart problems or diabetes can quickly reveal patterns of behavior among these populations in a way that long-term studies cannot, yielding a possible boon for the health care industry and insurance companies.

This is just the beginning. Soon it will be possible to view, sort, and mine these aggregations in new ways. For example, tools such as Google Earth, in combination with a cell phone that logs personal health parameters in real time, could allow an organization to, say, map levels of emotion in the population of certain city areas. If the Red Sox won a baseball game, data sent from a variety of tools could be accumulated to register tremendous excitement in the Fenway Park area of Boston. If you're a marketer who can read the emotions of large numbers of people in a geographical area, you will know not only where to put your next electronic billboard, but also what it should display at the moment. Cheers restaurant, for example, might post an ad saying "Come celebrate!" or "Drown your sorrows."

The ability to tap vast amounts of aggregated "people data" will have serious implications for behavior, ranging from the way individuals control their personal interactions and information to possible manipulation – for good or ill – by corporations and governments. All this raises fundamental questions about whom to trust with our data: Are you more comfortable backing up your digital life with your online provider or doing it off-line in your home? Which data set is more likely to be compromised?

Large organizations that have the ability to monitor aggregated data will have to resist the temptation to abuse it. Individuals and companies will need to find and walk a new line between serving customers and exploiting them, either way with pinpoint accuracy. In the brave new world of aggregated data, companies will need to monitor themselves as well. ■

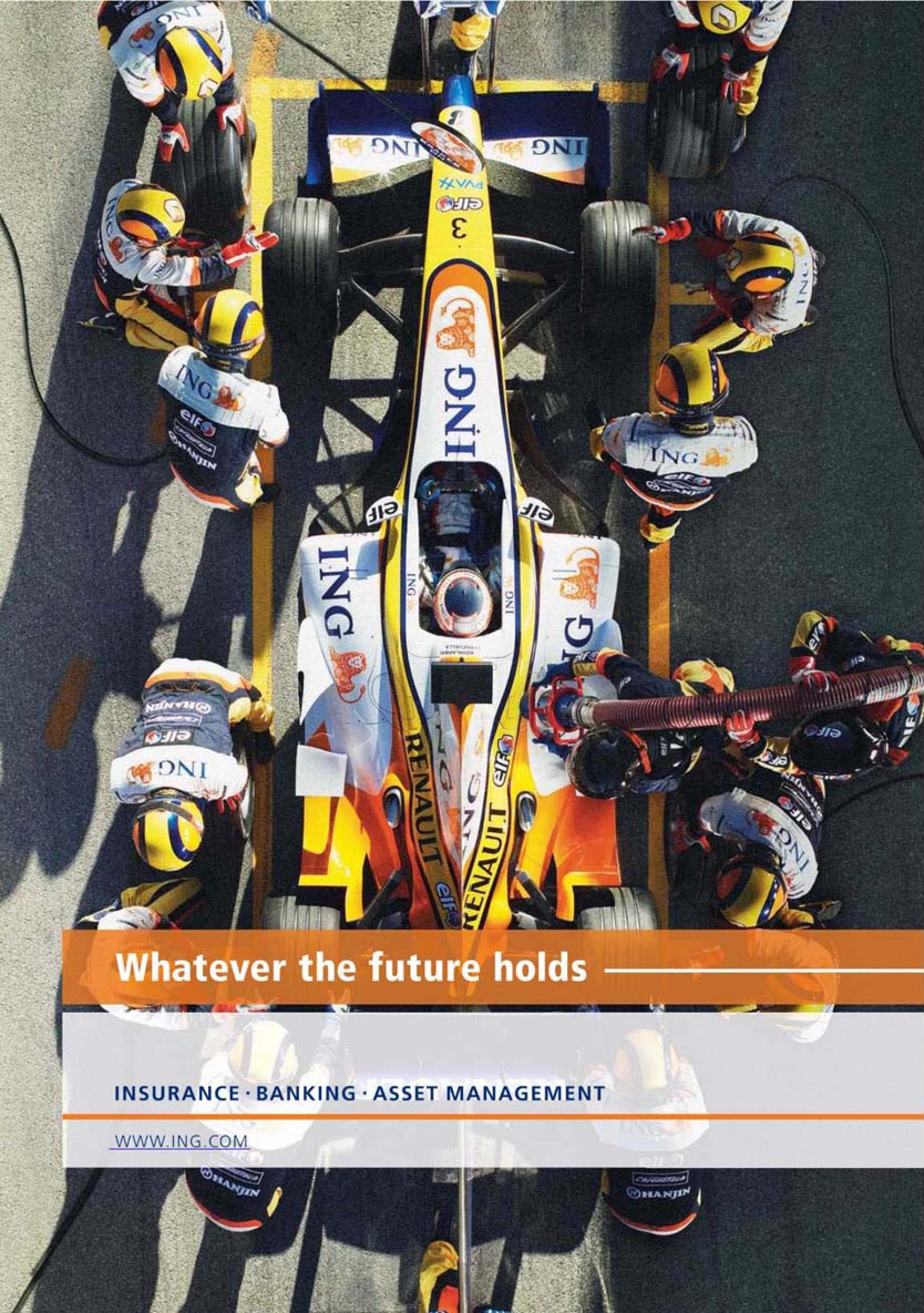
continued on page 38

Jessica Hische

{Unsustainable Trend}

THE DECLINE IN THE MEAN RETIREMENT AGE has come to an end. The average is increasing because of financial needs, boredom, and better health care.

Breakthrough Ideas for 2008 *in Brief*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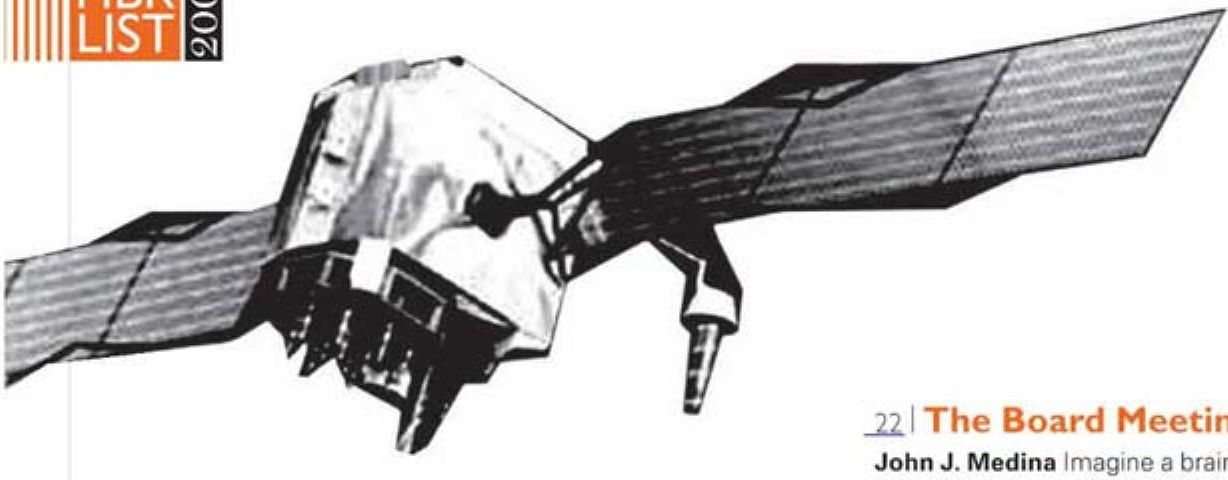

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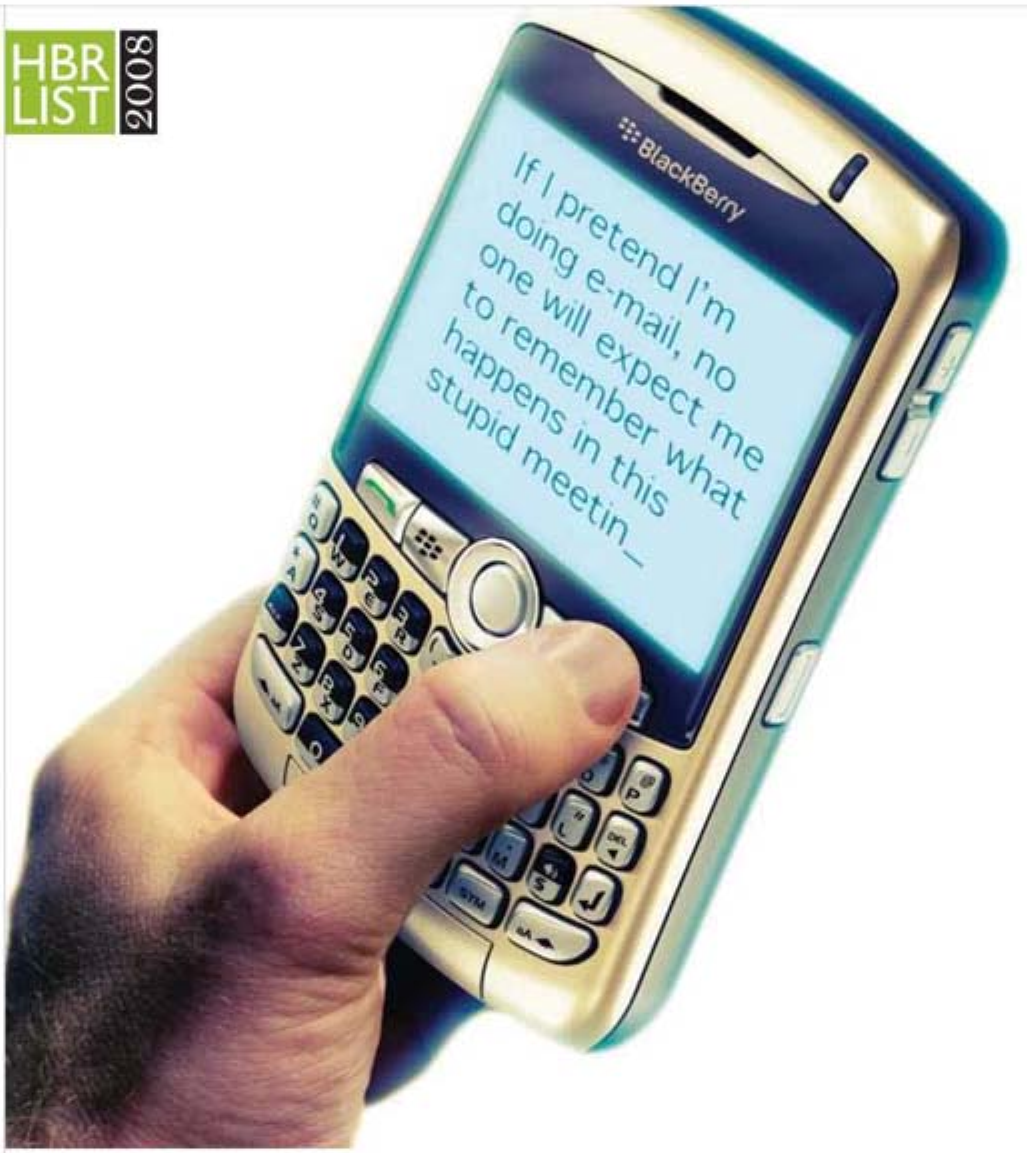


My BlackBerry Ate **My Accountability**

BY LEW McCREARY No sooner is a new tool invented than someone cooks up an off-label use. Sometimes an off-label application improves on the initially conceived one. For example, Thomas Edison originally intended the phonograph to be a dictation machine, not a source of entertainment. Soon enough wiser heads, and market forces, prevailed. Edison abandoned his folly and went into the recording business. Frequently, however, altering the intended use of an invention corrupts rather than elevates it – and its user.

Let's consider personal technologies, which have become means of shifting responsibility, tacitly or explicitly, to a device and away from oneself. Cell phones, for instance, have long been used self-importantly to showcase their users' raw power while the technology takes the heat for the offense. I recently overheard these swaggering words in an airport departure lounge: "You tell him I'm coming in there this afternoon to *fire* his ass!" Then there's mortifying exhibitionism – intimate, embarrassing lovers' quarrels or, worse, smarmy public displays of affection (which, by the way, is what PDA once stood for). Mobile phones have been used slothfully by people pretending to be too busy with a business call to be confronted about some dereliction of theirs. Camera-equipped models have been put to especially heinous misuse as tiny digital Peeping Toms wielded surreptitiously on escalators and beneath conference-room tables.

But my favorite example of off-label use of a PDA – call it "excuse technology" – is one involving Lurita Doan, head of the U.S. General Services Administration. Doan testified at a 2007 congressional subcommittee hearing into the alleged untoward politicization of her agency – namely, brown-bag lunches during which political appointees to the GSA were urged to use their positions to help elect Republicans. When asked under oath what transpired at these lunches, Doan said she had not been paying attention because she was doing e-mail on her BlackBerry.

I cast no aspersions on Doan's memory or motives. She spoke for many when she offered this perfectly plausible excuse for modern inattention. Technology has grown so prosaic as to become the all-purpose, dog-ate-my-homework dodge for busy grown-ups. Anticipate, therefore, epidemic levels of BlackBerry- and Treo-constrained recollection of important decisions made in your presence or of orders you've issued to your teams.

Forewarned is forearmed. You may be tempted to ban the use of these devices during important meetings and discussions. You will, of course, make sure that someone's on hand to take careful notes to then circulate among attendees, so that those present know they're accountable. And if employees are correct in believing that multitasking during boring meetings allows them to accomplish work of a higher value, ban those meetings. ■

{ Sustainable Trend }

AGRICULTURAL PRODUCTIVITY can increase indefinitely. Even the most sophisticated farmers have yet to see the full effect of the biotech revolution.

Stephen Webster

On the Back of a Turtle, I See a City

BY JAIME LERNER

The city of today is too often a campground, an unchecked metastasis. It is either an ever-spreading Atlanta or Los Angeles – an endless suburb unable to contain and sustain itself – or a frightening Gotham of skyscrapers huddled over dark concrete valleys. It is a place without priority, logic, or true consideration of its residents' needs.

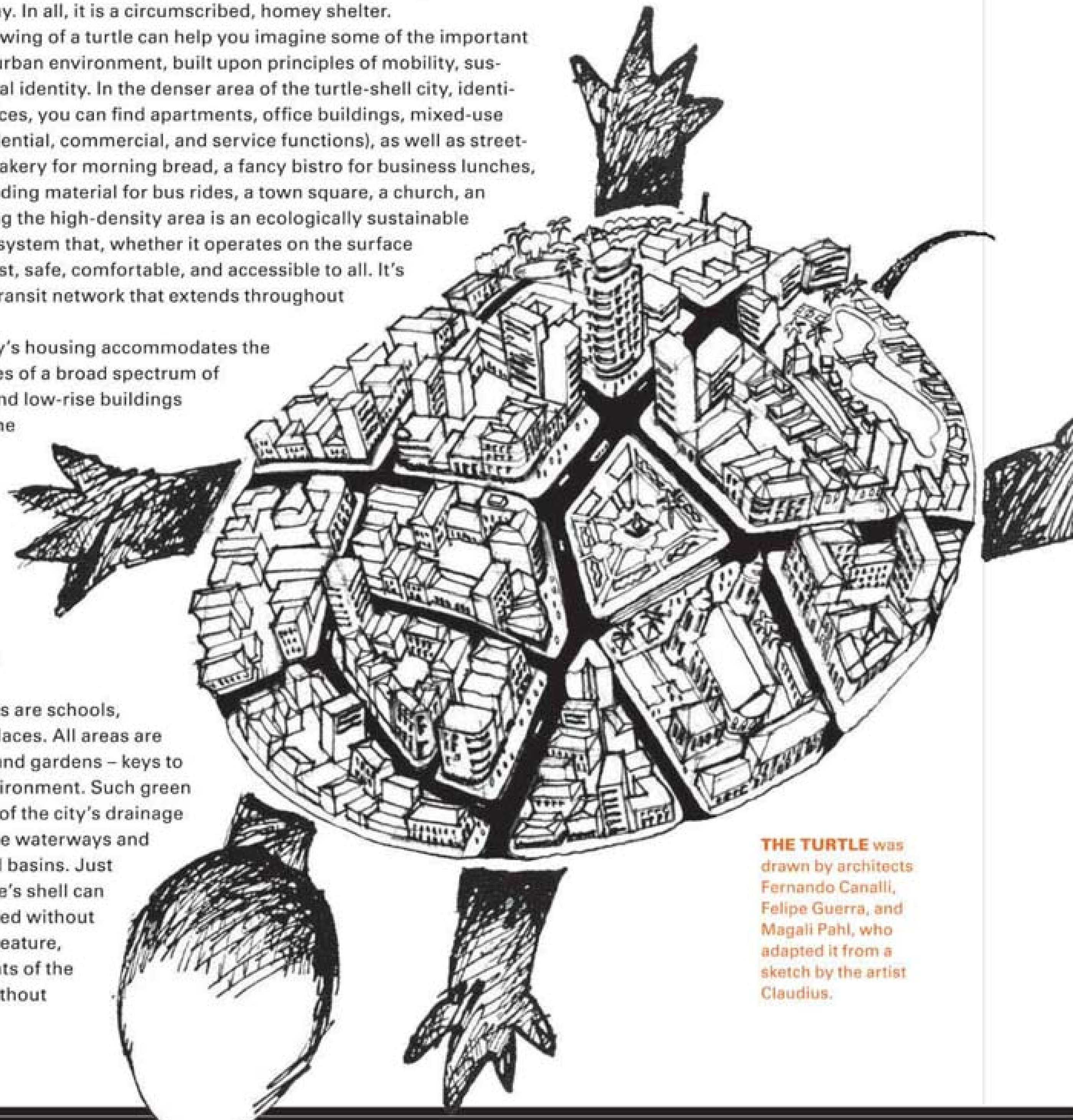
By contrast, consider a turtle's shell: a house upon the back of its self-sufficient occupant. Have you ever noticed that the meticulously organized outer surface resembles an aerial view of a city? The shell's pattern evokes the cells that constitute urban tissue – blocks, streets, and functional centers. A turtle-shell city is a place to live, to work, to relax and play. In all, it is a circumscribed, homey shelter.

This schematic drawing of a turtle can help you imagine some of the important features of the ideal urban environment, built upon principles of mobility, sustainability, and cultural identity. In the denser area of the turtle-shell city, identified by the taller edifices, you can find apartments, office buildings, mixed-use structures (with residential, commercial, and service functions), as well as street-level attractions – a bakery for morning bread, a fancy bistro for business lunches, a newsstand with reading material for bus rides, a town square, a church, an art gallery. Supporting the high-density area is an ecologically sustainable mass transportation system that, whether it operates on the surface or underground, is fast, safe, comfortable, and accessible to all. It's also part of a public transit network that extends throughout the community.

The turtle-shell city's housing accommodates the needs and preferences of a broad spectrum of people. It has high- and low-rise buildings along with stand-alone homes. There are no ghettos, because neighborhoods comprise a mixture of income and age groups performing a variety of functions. The more you mix, the more livable the city becomes.

Near the residences are schools, hospitals, and workplaces. All areas are permeated by parks and gardens – keys to a healthier urban environment. Such green spaces are even part of the city's drainage system, protecting the waterways and creating natural flood basins. Just as no part of the turtle's shell can be changed or removed without harming the whole creature, none of these elements of the city can be altered without affecting its overall sustainability.

The city of the future will not be an accident of mindless growth. Instead, it will be a home as exquisitely and holistically designed as the turtle's. It is where businesses will need to operate and what they must first help to create. ■



THE TURTLE was drawn by architects Fernando Canalli, Felipe Guerra, and Magali Pahl, who adapted it from a sketch by the artist Claudius.

Socially Responsible Lobbying

BY DAVID VOGEL

When companies lobby the government, it's often to avoid regulation. They may spend considerable time and money establishing themselves as good corporate citizens, but rarely do they cross the line to promote good social policy. That leaves their voluntary social commitments vulnerable to competitive pressures from rivals that do not burden themselves with corporate social responsibility (CSR). If companies could make their commercial and social interests become legislative priorities, they might bolster their efforts to help society.

Fortunately, this type of change is not a pipe dream. We can already see it happening with regard to global warming, an area where much of the business community now views regulation as inevitable. Some environmentally conscious firms are actually pushing for strong rules, in some cases to gain competitive advantage over their emissions-heavy rivals or increase demand for their cleaner technologies, and in other cases to support their long-term investment goals. They've learned that they benefit strategically when they promote the public good. The lesson applies to other areas of CSR as well.

Consider the recent furor over hazardous toys imported from China. Industry leader Mattel recalled most of its affected toys after discovering the problem and has promised to improve its own inspection and testing procedures. However, the issue of unsafe consumer products is much broader. As congressional hearings have made clear, the U.S. government has a woefully inadequate testing and inspection infrastructure. The staff of the Consumer Product Safety Commission has shrunk by half since 1980.

To their credit, Mattel and the Toy Industry Association have supported a U.S. federal requirement for toys to be tested by independent laboratories before being sold. But why not also support legislation that would provide the safety commission with the financial and legal resources to do its job thoroughly? Stronger oversight would benefit socially responsible firms like Mattel by making it harder for competitors to undercut their efforts with products made from cheaper, unsafe materials. It would also help reassure consumers about the safety of imported products.

Proactive lobbying of this kind can have an even bigger payoff internationally. Many of the world's poorest citizens live in resource-rich but corrupt and violent states. Even the most economically sophisticated, well-intentioned CSR programs have had little impact in such places. The elites who govern these nations have self-interest goals that undercut the efforts of companies to behave responsibly. Firms that refuse to pay bribes or do business with government-connected companies, for example, risk getting shut out of the country.

To make a real difference, firms should encourage the governments of Western nations to enact policies, possibly including trade sanctions, that pressure the elites of developing countries to behave responsibly. A case in point is the Kimberley Accord, which has helped to reduce international trade in diamonds sold by warring groups to fund their activities. The effectiveness of this global regulatory program has been enhanced by trade sanctions actively enforced by developed countries.

Lobbying needs to become a critical component of a CSR strategy. It is not enough for companies to engage in sophisticated private initiatives, however strategic. They must also be willing to support public policies that make it easier for them and other firms to do the right thing. Without government support, many socially beneficial corporate programs will have limited impact. ■

Brian Stauffer

{Unsustainable Trend}

ECOLOGICAL DIVERSITY must not be allowed to decline unchallenged. Toward that end, the Nature Conservancy has purchased 117 million ecologically important acres and 5,000 miles of rivers.

HBR LIST 2008

Teh Eng Koon/Getty Images

China's Untapped Second Cities

BY GEORGE POHLE

Most companies serving the Chinese market have focused on the top-tier cities in China, where much of the country's economic progress has been concentrated. With annual growth rates of about 10%, cities such as Shanghai, Beijing, Guangzhou, and Tianjin are home to just over 6% of the Chinese urban population but account for 13% of GDP. No surprise, then, that they have been receiving the bulk of attention and investment. However, these first-tier cities are also experiencing intense competition from foreign multinationals, and their markets are showing signs of saturation.

The next horizon is the second tier, a category of cities that my IBM colleagues and I defined as having fewer than six million people and an annual per capita GDP of less than 34,000 yuan. Collectively, the 300 or so cities in this group, such as Fuzhou and Hefei, represent nearly 53% of China's urban population and 64% of its GDP, but they have yet to be tapped by most foreign multinationals. The second tier also houses a rapidly growing consumer mass-market segment, with annual household incomes of US$3,000 to US$6,000. As a group, these cities are growing at a staggering 15% a year.

What's more, nearly 60% of them are conveniently located in the eastern coastal provinces.

The opportunity is easier to envision than to realize. To succeed in the second tier, companies have to price their products lower than in other world markets. This means, at the very least, taking a hard look at their cost structures and seeking out local parts and manufacturing suppliers to provide components. Savvy companies are going a step further. Motorola and Peugeot, for example, are trying to create strategic advantage by localizing their R&D. This approach allows them to invent low-cost, low-price alternatives to the products they sell elsewhere, tailored to the specific needs of the Chinese market. It also permits them to collaborate with local suppliers from the beginning, so that product development reflects local skills and costs.

The next hurdle is distribution. According to some studies, up to 42% of foreign companies' sales in China are still going through three or more layers of distributors, and only 10% have point-of-sale visibility. These realities impose costs, create excess inventory, and limit foreigners' understanding of customer buying behaviors – a far cry from the hyperefficient supply chain of the American and European markets. Improving distribution will require building alternative or supplemental channels, which some companies are indeed doing – for example, Anheuser-Busch via the Web and Amway with its direct sales model.

Notwithstanding these challenges, multinational companies that my colleagues and I have spoken with are currently sourcing 9% of their global revenues from China and plan to raise this significantly to 14% within three years – a 56% relative increase. Clearly, these firms are willing to do what they must in order to establish themselves and their brands early in second-tier Chinese cities. Other companies will surely follow. ■

{ Sustainable Trend }

URBANIZATION is surprisingly sustainable. More than half the people on the planet now live in cities, with huge implications for birth rates (down), poverty (down), and economic growth (up).

Islamic Finance: **The New Global Player**

BY AAMIR A. REHMAN AND S. NAZIM ALI Islamic finance is booming. To be precise, more and more financial services are being provided in accordance with Islamic law, or sharia. Sharia-compliant banking is becoming increasingly prevalent in Muslim markets, accounting for more than half of total banking assets in Saudi Arabia as of 2005 and, soon, about 40% in the surrounding Gulf region. Malaysia has even set a target of 20% sharia compliance by 2010. Standard & Poor's estimates that $750 billion in assets – more than the GDP of Australia – are under sharia-compliant management. The World Bank reports that more than 300 institutions are providing sharia-compliant financial services. About one in four people in the world are Muslims, and some estimate that half of all savings held by Muslims will be sharia-compliant within a decade.

Sharia-compliant finance is not limited to Muslim markets. When Ford sold Aston Martin to an LBO consortium for $848 million, the deal used sharia-compliant structures to meet the needs of Kuwaiti investors. Caribou Coffee, America's second-largest coffee chain, is controlled by a private equity firm that is fully sharia-compliant.

Not surprisingly, global players are joining the trend. Citigroup, HSBC, Deutsche Bank, Standard Chartered, ABN AMRO, and countless others have built Islamic finance units – several of which, including Citi Islamic and HSBC Amanah, are separately branded – and invest in expanding their sharia-compliant capabilities in the Muslim world. These financial institutions engage independent sharia scholars, typically in the form of a "sharia supervisory board," to set guidelines for compliance, approve products and transactions, and conduct regular audits. (For an overview of how the industry is incorporating such guidelines, see the May 2007 document "Islamic Financial Services Industry Development," available from the Islamic Financial Services Board at www.ifsb.org.)

Innovative and rapid product development has been a key enabler of the sector's growth. The product set has expanded to include a wide range of commercial and individual finance products (leases, home financing, personal loans, and so on), hundreds of sharia-compliant equity and real estate investment funds, and other savings products (such as term deposits) with low-risk returns. *Sukuk* – the sharia-compliant equivalents of bonds – are one of the fastest-growing areas of Islamic finance: Japan's central bank has expressed an interest in issuing notes in this market. The German state of Saxony has already done so, as has a Texas oil company.

Islamic finance may even have a thing or two to teach regulators and conventional financial institutions. The sharia requirement that all parties to a contract must disclose both risks and rewards could have prevented companies from engaging in the kind of financial engineering that led to the subprime lending crisis. Similarly, the currency speculation that has historically destabilized some emerging markets would be prevented by sharia rules that effectively outlaw the practice of short selling. Opaque financial contracts laden with penalties and complex clauses would be more difficult to use because sharia requires that the risks of any product or service be clear to both buyer and seller. Perhaps most interesting is the explicit link that Islamic law makes between financial decisions and values – the powerful notion that people should not profit from activities they consider immoral. Given the growing importance placed on values in the corporate world today, formal mechanisms whereby firms ensure compliance with sharia may serve as a model for all companies that take corporate social responsibility seriously. ■

What Good Are *Experts?*

BY MICHAEL J. MAUBOUSSIN

As computing power grows and networks unleash the wisdom of crowds, the unique value of experts in making predictions and solving problems is steadily narrowing. This trend, which I call "the expert squeeze," doesn't necessarily mean that expertise will become dispensable, only that organizations must change how they use experts.

Not long ago, recommendations from experts, even if imperfect, were the best ones available. So people relied on them to address challenges across the entire spectrum of complexity. At one end of that spectrum are the problems with immutable causes and effects that can be confidently solved using rules-based processes. Today, computers increasingly solve such problems – credit scoring, for instance – more cheaply and reliably than experts can. At the other end of the spectrum are probabilistic problems, such as predicting stock market behavior, whose causes and effects are not clear and whose outcomes are significantly governed by chance. The collective wisdom of ordinary people often proves to be better than experts at addressing such problems.

Nonetheless, research across many fields, from complex systems to psychology, suggests there is a sweet spot where experts still have a unique edge (see the exhibit "The Expert Squeeze"). They're well equipped to solve problems

{Unsustainable Trend}

THE DECLINE IN UNION MEMBERSHIP in the United States has probably run its course. Middle-class Americans are even likely to become advocates for unions overseas.

that have rules-based solutions but that allow a high degree of freedom in arriving at them. When avenues for solutions are relatively few, such as in tic-tac-toe, the degree of freedom is limited. When the potential avenues are many, such as in the board game Go, the degree of freedom is high. The greater the degree of freedom in solving a problem, whether rules-based or probabilistic, the more complex the challenge is.

Computers are exceedingly adept at rules-based problems with a limited degree of freedom, like tic-tac-toe. However, they're often clumsy at high-freedom problems like Go because, unlike people, computers cannot quickly eliminate unproductive avenues of inquiry and make creative connections among bits of information. Experts are likely to continue to outperform computers in rules-based areas that require deep, domain-specific knowledge, such as innovation and design. Success in these domains requires the efficient, creative recombination of a vast array of building blocks in novel, productive ways.

Crowds have proved to be skilled at solving certain probabilistic problems, but they often fare poorly if they lack sufficient domain-specific knowledge. Prediction markets, for example, were famously wrong in forecasting that weapons of mass destruction would be found in Iraq, because the individuals in the crowd lacked accurate information. Just as an expert coach will probably create a better game plan than a crowd because he can draw on unique knowledge of his team and the competition, experts within a company can be expected to outperform a nonexpert collective in shaping the company's strategy.

For now, individual experts or small expert teams within companies still have an edge in the realm of rules-based, high-freedom problems such as innovation, strategy development, and troubleshooting. To make the best use of this advantage, managers must carefully categorize the business problems they face. They should explore, for example, whether computers might do a better job than experts at solving the company's rules-based problems. Harrah's, for instance, has crunched data from its casino business to identify better – and counterintuitive – ways to manage customers. Marketing experts had presumed that Harrah's most profitable patrons were high rollers, but computer-based analytics revealed that loyal low rollers actually were.

For probabilistic problems, such as sales forecasting, companies should consider replacing (or, at least, augmenting) expertise with internal prediction markets where employees can buy and sell opinions on business outcomes. Many firms, including Best Buy, Microsoft, Google, and Eli Lilly, have found that a diverse group of employees with appropriate knowledge more accurately forecast crucial business metrics, like product sales and profits, than budgeting experts do.

For problems where experts still prevail, psychologist Philip Tetlock offers an insight about how to nurture desired expertise. Using a metaphor borrowed from the Greek poet Archilochus (via Isaiah Berlin), Tetlock segregated experts into hedgehogs and foxes. Hedgehogs, who deeply know one big thing, extend its explanatory reach to everything they encounter. Foxes, in contrast, tend to know a little about many aspects of their field and are not wedded to a single approach in solving complex problems. Work by Tetlock and others suggests that organizations should find and nurture foxes, who have a "crowdlike" cognitive diversity. Compared with hedgehogs, foxes have a broader set of tools in their cognitive toolboxes, allowing them to effectively match solutions to problems.

Going forward, the most competitive organizations will be those that effectively categorize the problems they face and identify the best ways to solve them. Throwing experts at problems that your competitors are solving more effectively with computers and crowd wisdom will not serve you or your shareholders well. ■

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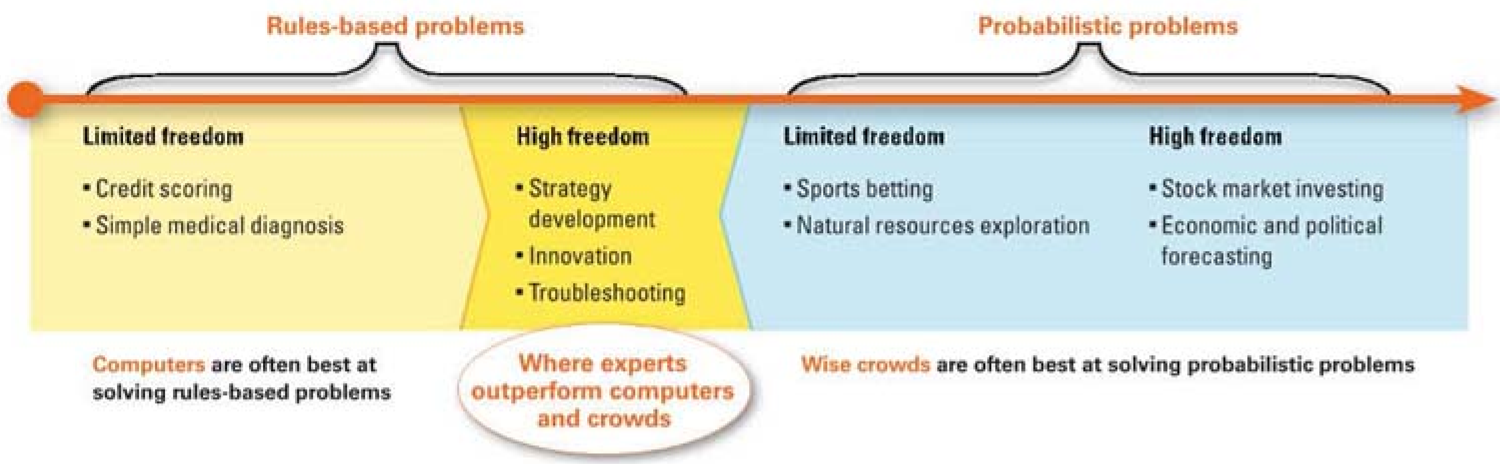
To order, see page 139.

The Expert Squeeze

Experts still have a niche when it comes to solving problems. They are good at cracking the ones that are rules-based and that also allow the solver a high, rather than a limited, degree of freedom for inquiry.



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The Corporate Brand: Help or Hindrance?

Lilypad Hotels and Resorts may rebrand its boutique properties under the corporate name. Will customers and hotel managers buy in – or simply check out?

by Chekitan S. Dev

ANDRE CLEARY ABSENTMINDEDLY fidgeted with the bottle of melatonin tablets in his left hand, lightly jiggling the pills with each twitch of his wrist. He had hoped to catch up on some much-needed sleep during the 20-hour flight to Rio de Janeiro – this being the final leg of a six-week series of meet and greets that had taken the CEO of Lilypad Hotels and Resorts across the continental United States, over to the Middle East, and now to South America. He sat comfortably in the first-class cabin of a 767, loafers under the seat, pillow poised to do its job. Still, Andre remained alert and completely in thrall to the soft blue glow of his laptop and, in particular, an open PowerPoint presentation. Abigail Ross, Lilypad's executive vice president of sales and marketing, had outlined a potential new branding strategy for the San Francisco–based hotel management company.

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

Daniel Vasconcellos

On the face of it, Andre thought, the 20-year-old company's existing brand strategy was working just fine. Lilypad managed 12 boutique hotels and resorts worldwide – iconic properties that were as much destination sites as the locations they were in. All the hotels under contract with Lilypad featured architectural details, furnishings, and culinary choices that reflected local culture and tastes. Each came with its own set of intangibles and its own sense of place. The company's flagship hotel, for instance, the Maritime, had started out as an abandoned counting house near San Francisco's famed Fisherman's Wharf. Company founder and city native Betsey T. Hale took on the development of the Maritime as a pet project, throwing her own dollars behind remaking the building into an eight-story set of suites with tall windows, oversize living spaces, and patios offering spectacular city views. The decor incorporated the knotty-pine look and feel of the old captains' haunt. These weren't just nicely appointed rooms that had fresh-cut flowers and sheets with high thread counts; they were designed to feed the aspirations and desires of the clientele. The company's larger rivals took a different approach to attracting guests, one that Andre liked to call "cookie-cutter luxe" – creating consistent and predictable, but still upscale, customer experiences across all the hotels in a chain. What these hotels lacked in exotica, they made up for in breadth of high-end services.

Since Andre had taken the helm at Lilypad 18 months ago, the company had added two hotels to its stable – undertaking a widely publicized refurbishment of the Bayside Mansion, in Oakland, California, and inking a deal to run Hotel Afzal, a newer property in Riyadh, Saudi Arabia. Now Andre was flying to Brazil for a follow-up meeting with one of the owners of the independent La Plaza, which the CEO and members of his senior team viewed as a potential candidate for a management contract.

Lilypad's board of directors expected such growth. That point had been made abundantly clear to Andre, a former acquisitions and asset manager from a large U.S. hotel investment company, during the interview process and in subsequent conversations with individual board members and other senior leaders. So it had troubled Andre deeply when his VP of sales and marketing told those assembled at an off-site devoted expressly to long-term strategy that, despite recent efforts to pull more properties into the fold, Lilypad was leaving huge opportunities on the table. Surveys conducted by the marketing team suggested that customers loyal to one of Lilypad's individually branded hotels rarely visited other properties in the group; most people didn't even realize their favorite hotels were part of a collection. Even some travel agents polled said they weren't aware the Lilypad properties were affiliated in any way. In the past year, only about 5% of all visitors to a Lilypad hotel or resort had stayed at more than one of the company's other properties. Meanwhile, corporate-branded hotels like the Four Seasons and the Ritz-Carlton enjoyed annual cross-property usage rates of 10% to 15%. "Our current strategy is really limiting our ability to do two things – serve our existing customers better and compete effectively with the rest of the field to attract new visitors," Abby had told the off-site crowd.

Her proposed remedy was relatively straightforward: Invest a significant amount of marketing dollars and other resources to increase cross-property stays, thereby boosting the lifetime value of existing customers and reaching out to new ones. And put the Lilypad name front and center on high-profile amenities and in high-traffic areas at every property within the collection. As it was, the corporate logo appeared discreetly on lower-profile items such as stationery and clothes hangers. Hotel phone greetings never mentioned Lilypad, only the individual property names. The goal, Abby had told Andre and the others, was to create Lilypad junkies – business and leisure travelers who would seek out the company's hotels exclusively and who would pride themselves on collecting experiences (and maybe even some premium-priced souvenirs) from all of Lilypad's luxury properties.

Each Lilypad hotel came with its own set of intangibles and its own sense of place.

There was no denying the obvious scale efficiencies Lilypad could create by putting all its properties under one brand, Andre thought. Items could be bulk ordered for all hotels; advertising campaigns could be piggybacked. On the flip side, there would be contracts to rework and entrepreneurial-minded general managers to appease at each hotel. Getting them to give up even a modicum of control would require an extraordinary amount of legwork and paperwork.

The executive glanced at the clock in the lower right corner of his computer screen and did a quick time conversion – only seven more hours before his layover in São Paulo. The Lilypad board meeting was in two weeks, and Andre felt that might be an appropriate deadline for coming up with a compelling argument for change – or against it. He was slated to go over details of the plan with Abby and Lilypad CFO Sam Boyle after this sojourn came to an end. Andre rattled the bottle of tablets again, this time consciously considering

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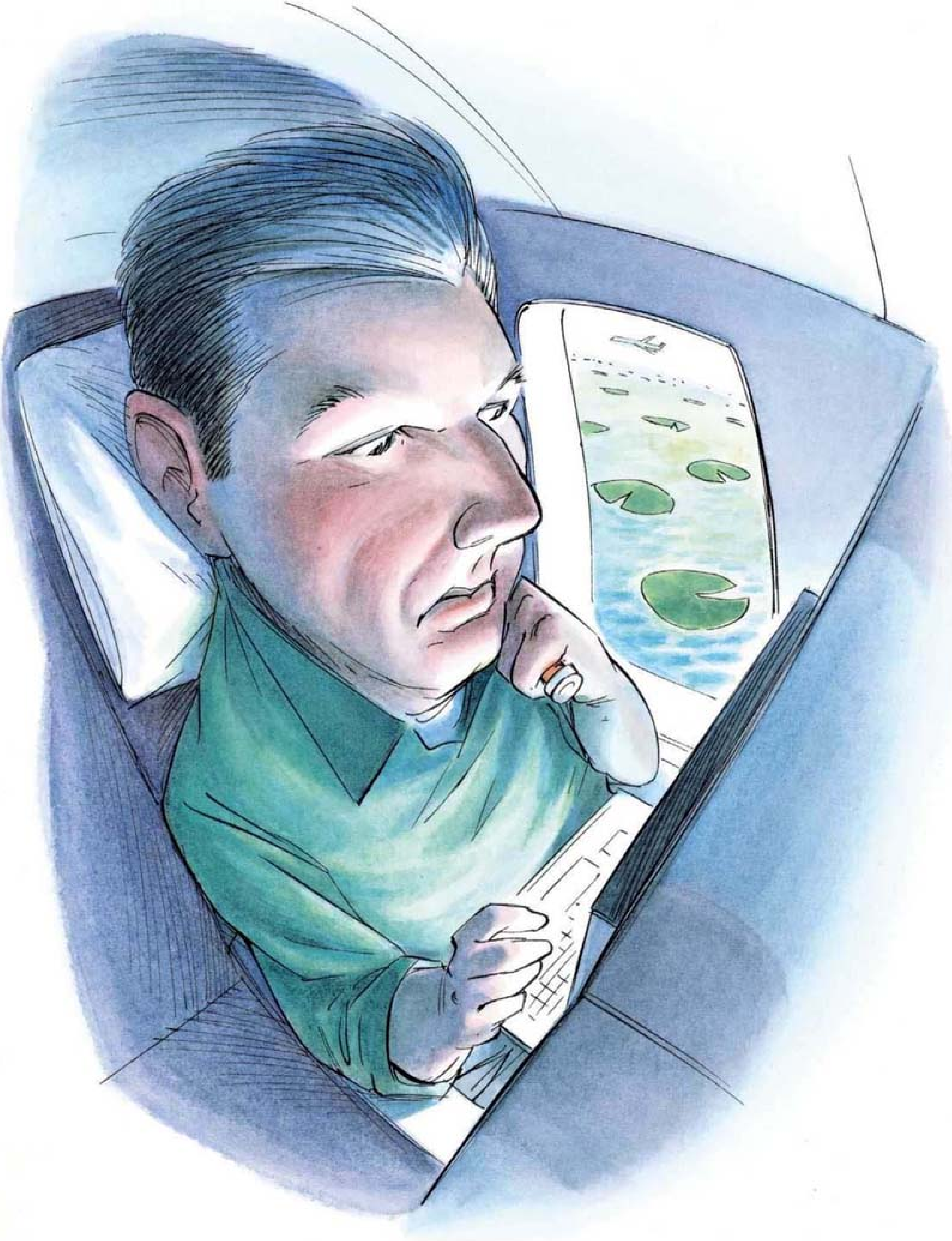

them, but decided it was too late for the melatonin to have the desired effect. There was plenty of work to do anyway, he thought, double-clicking on another document.

Serene Beauty – and Sourdough Bagels?

It was cloudy and unseasonably cool in Rio, and the colorful parades and raucous parties of Carnival were two weeks past, but Curtis Frye, Lilypad's vice president for South America, still felt like celebrating. He and Andre were waiting in the entryway of the boutique hotel La Plaza, listening to the mellow Bebel Gilberto tracks being piped into the front room, checking their messages on their BlackBerrys while keeping an eye out for their driver. They had just finished what Curtis considered some very promising discussions with Monty Ohba, La Plaza's principal owner. "We'll see what his partners say, but I think we're down for a deal," Curtis said far out of earshot of the front-desk staff.

When it opened three years ago, La Plaza had generated a fair amount of fawning in the local press precisely because a stay there was so different from a visit to any one of the mammoth high-rise hotels that lined the Brazilian beaches. Compared with those "chichi towers of glass," as Monty had called the competition, La Plaza was more guest house than hotel. The building wasn't directly on the beach; it was several quiet miles from the white sand and the bass-booming discotheques that never seemed to close. Because of the property's quirky layout, the rooms varied in size. Several had pedestrian showers instead of Jacuzzi baths, and none had minibars or cable TV. The small but dedicated staff (all born and raised in Rio) never wavered in providing guests with personalized care and information – "authentic regional hospitality," Monty had called it.

Despite all the buzz early on, however, La Plaza had recently been unable to gain traction among international travelers. "A couple of years ago, we'd have been considered a gold sponsor for some of the smaller Carnival events. This year, we were lucky just to find out about the planning meetings," the owner had said. In fact, revelers' visits to the hotel were down from previous years, and Monty had even considered lowering the premium rates – anathema in the luxury segment.

"Sure, we can always benefit from operational improvements," Monty had admitted. There'd been some staff turnover in the past few months, and the small hotel was struggling with its online initiatives. "But you both know image is everything, and that's where we feel we need to put our focus. Get the word out again to leisure and business travelers."

Andre and Curtis revisited this point over and over again during their ride from La Plaza's lush hillside setting to Lilypad's outpost downtown. "You know what I was thinking about, right?" Andre asked as the car wound its way toward the many churches, monuments, and museums in Rio's center. Curtis did indeed; he had attended the long-term strategy session via videoconference and generally agreed with Abby's proposal. "La Plaza drafts off our brand, and that becomes a big piece of our value-add," Andre said.

Curtis nodded. "No question La Plaza could attract more leisure travelers with our help. This place is tailor-made for the ecominded and adventurous," he said. Tougher to predict was whether the business crowd would flock to La Plaza even with the extra push from Lilypad. "Not to paint with too broad a brush," Curtis said, "but the typical manager flying here to meet with clients at Petrobras or Telemar is looking for a convenient location, Wi-Fi, a workout area, CNN or some equivalent – and maybe even some good sourdough bagels with cream cheese." Andre chuckled. That morning, he'd told Curtis he was jonesing for a chewy bagel instead of the crumbly rolls and strong Brazilian coffee served at the hotel where he was staying. "Actually, the dark roast wasn't so bad once I added a lot of milk," the CEO retorted, as the cab slowly pulled up to the front of the office building.

My Dinner with Betsey

"The idea seems solid," Sam acknowledged, sipping his sake, "but what's it going to take to make this real?" The CFO of Lilypad had joined Andre and Betsey, Lilypad's founder, for a weekend dinner at Ozumo, a Japanese restaurant just a few blocks from Lilypad's offices in San Francisco's financial district. Andre had been back from Brazil only a few days, and Sam had barely had a chance recently to lift his head out of the quarterly reports. But both had made it a priority to catch up with a much-respected friend and former colleague while indulging in some robatayaki plates. The conversation among the three was easy and freewheeling, ranging from the philanthropic work Betsey was doing to how Andre's daughters were faring in college and the working world, to whether Sam was really going to buy that Harley-Davidson despite his wife's strong admonitions. Eventually they got around to shop talk, as they always did.

To keep Betsey in the loop, Sam recapped Lilypad's latest stats: more than 1,500 rooms and 115,000 unique guest visits annually across its collection of properties. Per room, the company was bringing in an average of $750 a day, and retention numbers had been fairly stable over the past four years. There were two primary sources of growth for Lilypad and companies like it. They could sign up new properties, increasing the total number of units for sale, or they could improve the occupancy and cross-sell rates of existing units, increasing the company's revenue per room. Andre had been having some success with the former approach. And now Abby and her team were pointing out missed opportunities in the latter category – which, by the way, called for much more of a financial outlay, Sam said.

To bolster the corporate brand, the CFO continued, Lilypad would need to revise phone greetings at HQ and at the individual properties, along with the taglines and logos on all marketing copy, signage, websites, linens, towels, and so on. Senior management would have to assess all the properties to determine whether they'd need any renovations or extra staffing to deliver services consistent with the Lilypad brand. Eventually, the company would need to revamp its training programs to teach managers and employees "The Lilypad Way." It might even need further organizational restructuring in order to link each of the sites more closely to HQ, Sam said. "It's a little daunting, but certainly doable."

"Much different from the way we set this thing up," Betsey said with a smirk. The company founder, who had always reveled in playing devil's advocate at executive committee and board meetings (sometimes driving her partners a little batty in the process), posed what she considered a crucial question to the gentlemen passing plates to her left and right. "We all have a general sense of the kinds of properties Lilypad goes after. But how do you describe those intangibles to the individual hotel managers? I mean, they're the ones who are going to have to live with and execute the changes."

"The brand promise is the same as it's always been, Betsey – one-of-a-kind travel experiences in beautiful and unique locations," Andre said. "The hotels shouldn't need to change what they're doing in many significant ways. We'd just be helping our customers connect the dots. You know – 'If you love the Maritime, you should see what we're doing in Dallas and London and the Virgin Islands.'"

"No matter how big or small, you're still talking about enforcing consistency across all the hotels in the collection," Betsey said. "And that's in direct opposition to the brand promise, isn't it?" Privately, the company founder wondered whether a strong corporate brand would be worth all that much if customers balked at what they perceived to be a huge change: Those people who have a deep bond with the Maritime, for instance, and feel as if they're in on the most exclusive secret in the world might resent (and reject) a new sign that says, "Lilypad Maritime."

"Mind you, I'm not necessarily disagreeing with your sales and marketing VP," Betsey went on. She noted that there were opportunities to capture more value from that 20% of the market that generates 80% of the revenues, but she also reminded them of obvious questions of control and quality. "Take the general manager at the Tarryton. Bit of a control freak, that one. I just can't see him wanting his fortunes tied so closely to what the other properties are doing. He's got his own thing going on, and he's been working his own plan for so long now – with much success, I might add."

There was no denying the obvious scale efficiencies Lilypad could create by putting all its properties under one brand.

Under a corporate brand the general managers would still be able to promote their properties' distinctive images as they saw fit, albeit with a few caveats, Sam said. In fact, some standardization across properties might free them up to concentrate on the creative stuff they loved – brainstorming new menu items or guest events. They could worry less about staffing assignments, purchase orders, those kinds of things, the CFO reasoned.

"You tell that to Ivan Hughes," Betsey said with a laugh, imagining such a conversation with the Tarryton manager. "And I'll plan on being out of town that weekend."

...

Wednesday was raw and rainy, and the Lilypad board was slated to meet in about 15 minutes in the Counting Room at the Maritime. Andre rushed into the hotel, glad to trade the wind outside for the warmth of the grand flagstone fireplace in the lobby. As he shook the raindrops from his umbrella and overcoat, the CEO mentally ticked off the loose ends he'd managed to tie up that afternoon: He'd checked in with Curtis in South America – the people from La Plaza had yet to make a decision. He'd sent Betsey the investment article he'd told her about during dinner. And he'd confirmed with his assistant, Becky, that all the information for the board meeting had already been distributed to the independent directors.

After taking a couple of moments to settle in and exchange pleasantries with the Maritime staff, Andre started walking toward the far end of the lobby. That's where several of his colleagues were indulging in the coffee, tea, and sweets the hotel had set up for the board members. He'd taken only a few steps when he noticed the latest *Travel* sitting on a coffee table – the issue featuring the magazine's annual list of the best hotels in the world. Like a hummingbird drawn to sugar, Andre instinctively picked up the magazine to skim the list. He certainly wasn't surprised to see the Bayside, the Maritime, and several others near the top – all of them Lilypad properties but none of them identified as such. By comparison, rivals such as the Peninsula and the Oberoi hotels had fewer properties mentioned, but the association with the parent company was crystal clear. "We're the best little hotel management company no one's ever heard of," he muttered. Instead of putting the magazine back on the table, the CEO tucked it into his briefcase and headed for the pastries.

Should Lilypad's hotels be marketed under the corporate brand or their own brands? Four commentators offer expert advice.

Horst Schulze is the CEO and president of the West Paces Hotel Group in Atlanta (which comprises the Capella and Solís luxury brands). He was formerly the president and COO of Ritz-Carlton.

IF LILYPAD'S objectives are to stay viable and create real value for the long term, it has to pursue the global branding strategy Abigail Ross is proposing and build up the corporate brand. The two biggest assets a hotel management company has are its contracts and its name. With a strong corporate brand, Lilypad will be more than just a collection of luxury experiences. The name can lend greater value to the company's existing and potential peripheral businesses – for instance, Lilypad-branded cruises or condos. And the company can be more efficient about cross-promoting the hotels in its collection, offering personalized services to customers, and buying supplies in bulk. You can't realize all those efficiencies with a no-name company.

CEO Andre Cleary also needs to remember that there are thousands of independent hotels worldwide, which means the market for future contracts – that is, for future growth – is considerable. Many of the property owners may not want to forfeit their well-established names to a management company's brand: If things don't work out, they'll have to start again from scratch. However, being associated with a powerful corporate brand will drive up the value of their properties. It's a win-win for the property owners and the managers.

From under the corporate umbrella, the individual properties would also have more success attracting global travelers. If I'm taking my first trip to China, I'll want to explore a new culture, but I'll also want to be comfortable with my accommodations in such a different environment. When I see a listing online for a place like La Plaza, which I've never heard of, I'm not going to trust it – even if a travel agent goes out of his way to sell me on the distinctive features and location. By contrast, when I see a listing for a Peninsula- or an Oberoi-branded hotel, that's what I'll go for. Reliability is a critical competitive advantage in the hotel industry.

The CEO needs to listen to his customers, though. Market research will give him a better understanding of his guests, their switching costs, and present market conditions. I went through just such an exercise four years ago: Based on the people I knew, my deep understanding of customers, growth in the luxury sector, and the financial and other resources I had, I knew I could build two very strong hotel brands within a relatively short period of time (say, eight to 10 years). Solís and Capella are both focused on high-end travelers, but each makes a different promise. Solís pledges to provide high-quality services to groups. Capella is all about the individual; personal needs (being picked up at the airport, for example, or having special meals prepared) are met early and often. In managing these brands, it has never occurred to me that the individual properties affiliated with Solís and Capella can't have both a sense of place *and* a sense of reliability. In the same way, Lilypad can continue to make location-specific promises, but by adopting the new branding strategy, it can also emphasize consistency across the collection – good water pressure, a hook beside the shower, an outlet near the ironing board.

Andre needs to get the property owners and general managers to buy into any strategy change, but he can take that only so far. The CEO cannot live by the whims of his GMs.

Finally, although Andre does need to get the property owners and general managers to buy into any strategy change, he can take that only so far: Let the GMs have some input. Keep them in the loop. But if Ivan Hughes doesn't like the new strategy, he has to leave. Strong brands have strong processes – ones that can supersede the effects of any one general manager. The CEO cannot live by the whims of his GMs.

Wendy Wray

Ultimately, the financial risks of putting the Lilypad name front and center may outweigh the potential rewards.

Jill Granoff is the executive vice president of direct brands at New York–based Liz Claiborne Incorporated. She oversees the company's Lucky Brand Jeans, Juicy Couture, and Kate Spade brands as well as the corporation's e-commerce and outlet businesses.

THE BEST brands forge an emotional connection, capturing share of heart as well as share of mind. People will seek out and pay a premium price for "name" products or services, whether we're talking about cars, coffee, handbags, or hotel accommodations. That's because top brands impart intangible values that make customers feel good.

Many of Lilypad's properties have successfully created a strong set of enticing, luxurious intangibles that resonate with their customers. Several already rank among the top hotels in the world. So the real question for Andre is whether the Lilypad name has more or less equity than the names of the individual hotels. Based on the rich information given about the Maritime, La Plaza, and other properties – and the limited description of the Lilypad brand – I think a corporate-umbrella strategy could actually stunt rather than increase the company's profit and revenue growth.

Moreover, while elements of the Lilypad brand discreetly appear throughout the properties, the company would need to undertake a large-scale, costly initiative to put its name front and center. Ultimately, the financial risks may outweigh the potential rewards. As Lilypad founder Betsey Hale points out, there will be critical questions of control, consistency, and quality, because the selling points and amenities of the hotels are intentionally quite different.

Similar struggles play themselves out every day in the retail industry. Consider the merger of Macy's (formerly Federated Department Stores) and May Company. In their effort to integrate the two department store groups and develop a national Macy's brand, Macy's executives underestimated the loyalty of May customers. When Macy's cut back on the promotional offers that May shoppers had come to anticipate, love, and rely on, many consumers stopped shopping at the new Macy's stores. Efforts to redirect store-specific promotional dollars to a national corporate marketing campaign alienated former May customers to the point where Macy's experienced four consecutive months of falling sales last spring. The mother brand had a negative halo effect.

Estée Lauder, a former employer of mine, provides another example. It owns a portfolio of cosmetics brands but allows each to stand on its own. The aspirational positioning of the Estée Lauder brand is quite distinct from the irreverent individuality of MAC or the clean simplicity of Clinique. A cobranding effort would confuse and potentially turn off customers.

At Liz Claiborne, we face similar branding issues and decisions. Juicy Couture and Lucky Brand Jeans both hail from Los Angeles, but they have little else in common. One is sexy, girly, L.A. chic. The other is authentic, cool, and rooted in rock and roll. Both benefit from the resources that being owned by a large organization can provide, but neither is marketed under the Liz Claiborne label. There is no advantage; in fact, it would be a mistake, because the association with Liz Claiborne, a classic brand, would hurt these brands' contemporary image.

We recognize the value of maintaining the distinct DNA, customer connections, buzz, and lifestyle positioning of our brands. But we are also able to grow and support them through back-end efficiencies in sourcing, distribution, and shared administrative services. Lilypad would be best served by a similar approach – mining the efficiencies in purchasing, real estate, IT, administration, and so on to improve its financial position while supporting and organically growing the iconic properties it currently owns.

A strong brand tells a story. Adding "Lilypad" to the names of the individual hotels does nothing to enhance their intrinsic attributes. Instead, the company should market its exclusive hotels more aggressively to travel agents and selectively acquire new properties to propel further growth.

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LILYPAD HOTELS and Resorts could certainly create some connections among its brands; the business rationale for doing so is evident. However, Andre needs to proceed with caution: It's critical that any linkages don't compromise the value of the individual offerings. A plan to emphasize the corporate brand over the property brands might very well backfire.

The implicit promise from each property is that no other hotel in the area will offer guests the same sort of culturally grounded travel experience. But how credible can that one-of-a-kind claim be if La Plaza's "handwoven" bathrobes are made in China and stamped with the Lilypad logo? Once you start making branding choices that don't ring true or that otherwise detract from the customer experience, you've gone too far.

Lilypad's brands are quite distinct in customers' minds – that's their greatest strength. So instead of making significant and observable changes in the rooms themselves, Lilypad's management team should emphasize changes behind the scenes to help boost the company's cross-sell numbers. The soft endorsements Lilypad is already doing (putting its name on coat hangers, for instance) may still influence customers' behavior over time. But the company should also make better use of other resources – specifically, the internet and various players in the travel industry. By linking the individual properties' websites to the corporate one, for instance, Lilypad would be able to give customers more information about the hotels. It might even engender a community of "brand fans." And by forging stronger relationships with travel agents and the trade press, Lilypad would be able to tell the corporate story more comprehensively than it has in the past.

What's clear, though, is that Andre and his team haven't found the right balance between the company's two approaches to brand management. Lilypad has been espousing a strong bottom-up approach: Managers at individual properties have used their own marketing methods. This seems to be working – Lilypad properties are on a best-of list in a travel magazine, so someone is doing something right. Now Lilypad's VP of sales and marketing is nudging the CEO toward a top-down approach in which all brand promises flow from corporate. But this is likely to fail without a clear corporate brand strategy, which the company sorely lacks.

Andre will need to position the Lilypad name broadly enough to encompass all the company's diverse properties. Obviously, he should start with the current brand promise and key in on the fact that Lilypad is not trying to "out-luxe" its rivals. Rather, it is offering distinctive cultural experiences with decidedly local points of view. True, each property will do this differently – but each must meet overall expectations that customers will get something that's one of a kind.

Lilypad must also understand its target market better. Only certain types of business travelers will want and need the same things as typical leisure travelers. Andre could take a closer look at competitors' branding strategies – although in many cases it would be an apples-to-oranges comparison. A company like Abercrombie & Kent emphasizes unique, high-end travel experiences, too, but also touts "expertise" as part of its brand, offering its hotel guests expert-led tours of the Egyptian pyramids or the chance to play a game of polo with a professional.

Andre should start with the current brand promise and key in on the fact that Lilypad is not trying to "out-luxe" its rivals.

If Andre and his colleagues want to emphasize the corporate brand, they need to be clear about what it represents. They also need to remember that being part of a large corporate structure shouldn't require Lilypad's already successful properties to make any sacrifices.

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A FORMER CEO of British Airways once told me that when he first joined the airline, he thought about the brand once a year. By the time his tenure was over, five years later, he thought about it once a day. That's twenty-first-century brand management in a nutshell. At most companies, the brand is an immensely valuable asset, but often CEOs have had little formal training in this area. So when someone from sales and marketing drops by and says, "I think we need to do things differently," the chief executive is put in a difficult position.

At Lilypad, Andre is becoming embroiled in the subjective and emotional topic of company names and identities. He and his colleagues aren't objectively considering the brand as a powerful asset, there to leverage long-term business strategy. They are looking at brand management in a surface way, which frankly makes them not that different from a lot of organizations – particularly midsize businesses seeking McDonald's or Disney levels of name, service, and quality recognition. Instead of approaching this branding matter as a name-change question, Andre and his colleagues need to systematically examine the corporate brand through a couple of important lenses: customers and culture.

Andre and his colleagues aren't objectively considering the brand as a powerful asset, there to leverage long-term business strategy.

Customers. It's evident from the unfocused way Andre and others talk about the Lilypad brand that they don't have a clear sense of the customer. At one point, the individual properties are characterized as feeding people's desires and aspirations, which casts the individual brands in sentimental, emotional terms. But by the end of the case study, Andre is thinking about Lilypad as the best little secret in hotel management, which frames the corporate brand in terms of execution and operations. Great brands are single-minded about what makes them different from others. To get more clarity about whether the company should be, say, niche and focused, it's critical to ask, "Who are Lilypad's current customers, and what will future customers look like?"

Market research can help. Interbrand created a value-based modeling tool for a global hotel company that was trying to answer brand questions similar to Lilypad's. The tool uncovered how value was generated at different properties by determining the optimal relationship between customer-satisfaction scores and customer-experience attributes. The top team was then able to make a strong business case for new branding investments – which have resulted in significant increases in sales and cross-property usage.

Ultimately, how Lilypad positions itself vis-à-vis its customers will have a huge bearing on its future as a brand. Take the Virgin brand: It's not exclusively about airlines or beverages or broadband connections. The brand attribute shared by these disparate business lines is Virgin's commitment to serving customers.

Culture. At Lilypad, each property manager is a warlord in charge of his own fiefdom. That's one of the first things Andre's going to have to change if he wants to build a global brand – and I think he recognizes how difficult that will be. It will require the orchestration of everyone who in some way touches the Lilypad customer – people in billing, design, sales and acquisitions, and so on. Andre will also need to get buy-in from the senior leaguers across these different constituencies. Otherwise he won't just have a not-invented-here problem; he'll have a not-executed-here problem.

If Lilypad's senior managers increase the role of the corporate brand, they will also create certain expectations among customers. And if the business isn't aligned to deliver on those expectations, the result will be, at best, a wasted name-change investment – and at worst, deeply unhappy customers.

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Delivering High Performance

Focusing on Emerging Markets

While the shortest route between two points is usually a straight line, sometimes it's faster to follow the contours of the land. When it comes to selling products and services in new markets, that means learning the terrain to determine the unique characteristics of the market. Unfortunately, many companies overlook this basic marketing tenet, assuming that what is popular in one country will automatically be popular in another or that a new country can be seen as a monolithic market.

FOREIGN BRANDS WELCOME

Chinese consumers are open to products, especially automobiles, from other countries. (% of respondents willing to buy foreign products)

Source: Accenture

High-performance businesses, on the other hand, know how to achieve and maintain competitive positions in attractive markets. In today's multi-polar world, increasingly that means emerging markets. With a population of 1.3 billion and a GDP of more than $2 trillion in 2006, China is the most attractive–and most challenging–emerging market.

"China is more complicated than many other places where companies may have marketed successfully," says Susan Piotroski, the senior executive leading the branding practice at Accenture. "The diversity and speed with which the Chinese market is changing means that companies must consistently do substantial research to understand the market, its various segments and how they are going to shape their value proposition to compete effectively."

To gain that familiarity and to develop the insights and experience needed to help its clients become high-performance businesses, Accenture recently conducted a worldwide study of brand building and marketing effectiveness, with special emphasis on China. The researchers identified six Chinese consumer segments, each with different incomes and attitudes about foreign brands. Here is a sampling:

Young Royals are professional men and women in their thirties who have the highest disposable incomes of all Chinese. They are brand-conscious and typically the most open to international brands.

Aspirationals are a mix of young male and female consumers who are highly brand-conscious, but favor brand names that are affordably priced and a good value. They are generally open to international brands.

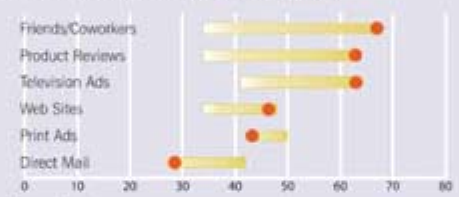
Established Money are typically older men and women with above-average incomes who want the latest in technology and high-end, exclusive products. However, they also value well-established brands. They are least likely to say they prefer to buy brands manufactured in China over those that are imported.

Patriots are more likely to buy Chinese products out of what appears to be loyalty to their country and native companies. They are middle-income consumers who eschew the latest-generation products for long-established local brands in some product categories.

As these market segments show, the majority of Chinese consumers are open to brands from other countries (see chart, "Foreign Brands Welcome"). The way to convert this open-mindedness into purchases is by ensuring that the product has been created with the consumer's needs in mind. And that requires knowing the consumer better than many companies do today.

CHANNELS OF AWARENESS

Chinese shoppers rely most on trusted friends, relatives or coworkers to learn about products. The bars indicate each information source's range of use among six countries—United States, Germany, France, Japan, Korea and China—while the dot highlights Chinese use of the same source. (% of respondents indicating they use a particular communications channel)



Source: Accenture

Accenture's research also shows that China's consumers customarily get information about products from a wider range of sources than consumers in other countries (see chart, "Channels of Awareness").

"For many product categories, Chinese consumers believe their domestic brands are equal to or better than foreign brands," Piotroski says. "At a minimum, success in any Chinese market sector calls for the absolute mastery of marketing fundamentals."

FOR MORE INFORMATION

The Research Report To read the brand building and marketing effectiveness report, go to: http://accenture.com/brandreport

More on High Performance Business To see insights from Accenture's research and experience, including its study of over 500 high performers, go to: http://accenture.com/research

Branding in China To learn more about branding in China, go to: http://accenture.com/chinamarket

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what you did 10%
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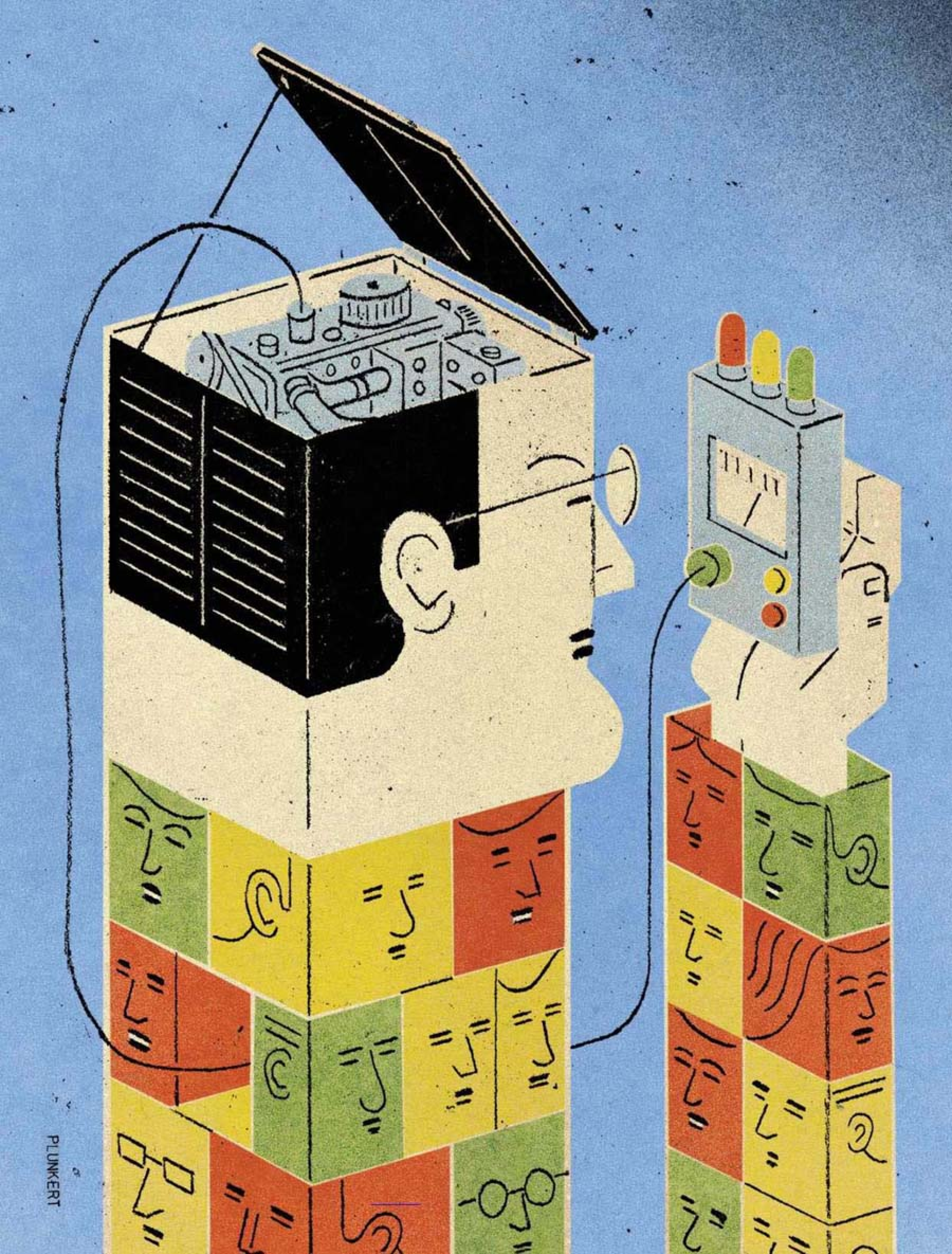

PLUNKERT

How can an incoming leader lay the groundwork for dramatic performance improvement?

THE NEW LEADER'S GUIDE TO DIAGNOSING THE BUSINESS

by Mark Gottfredson, Steve Schaubert, and Hernan Saenz

From 1999 to 2006, the average tenure of departing chief executive officers in the United States declined from about 10 years to slightly more than eight. Although some CEOs stay a long time, a lot of them find that their stint in the corner office is remarkably brief. In 2006, for instance, about 40% of CEOs who left their jobs had lasted an average of just 1.8 years, according to the outplacement firm Challenger, Gray & Christmas. Tenure for the lower half of this group was only eight months. Some of these short-timers were simply a poor fit and left of their own accord, but many others were

David Plunkert

ushered out the door because they appeared unable to improve the business's performance. Nobody these days gets much time to show what he or she can do.

So within a few months at most, incoming CEOs and general managers must identify ways to boost profitability, increase market share, overtake competitors – whatever the key tasks may be. But they can't map out specific objectives and initiatives until they know where they are starting from. Every organization, after all, has its distinctive strengths and weaknesses and faces a unique combination of threats and opportunities. Accurately assessing all these is the only way to determine what goals are reasonable and where a management team should focus its performance-improvement efforts.

Embarking on this kind of diagnosis, however, can be daunting because there are countless possible points of entry. Your company's operations may span the globe and involve many thousands of employees and customers. Should you start by talking to those employees and customers or by examining your processes? Should you focus on the effectiveness of your procurement or analyze your product lines? Managers often begin with whatever they know best – customer segments, for example, or the supply chain. But that approach is not likely to produce either the thoroughness or the accuracy that the management team and the business situation require.

What's needed instead is a systematic diagnostic template that can be tailored as necessary to an individual business's situation. Such a template has to meet at least three criteria: It must reflect an understanding of the fundamentals of business performance – the basic constraints under which any company must operate. The template must be both comprehensive and focused – covering all the critical bases of the business, but only those bases, without requiring any waste of time or resources on less important matters. And it should lend itself to easy communication and action.

This article presents a template that we think meets these criteria. It is built on four widely accepted principles that define any successful performance-improvement program. First, costs and prices almost always decline; second, your competitive position determines your options; third, customers and profit pools don't stand still; and fourth, simplicity gets results. Along with each principle, we offer question sets and analytic tools to help you determine your position and future actions.

We developed and refined this template over our combined 50-plus years of working with clients, nearly all of whom have needed to perform an accurate diagnosis quickly. We have recently used it both with large corporations and with private equity firms evaluating the potential of their portfolio companies. We tested it through a series of research studies and interviews that we conducted in preparation for writing the book from which this article is adapted. Our experience and research convinced us that the template is a powerful tool. Its four principles cover the critical bases of virtually every business, providing managers with the minimum information required for a comprehensive diagnosis. Of course each manager will have to decide which elements of the template to emphasize (or de-emphasize) based on his or her business situation.

A word of caution: As the article makes clear, you will need to gather a lot of data quickly, ideally within the first three or four months of your tenure. Ask your senior leaders to head up teams that take on as many questions relevant to their areas of responsibility as they can handle. Ask for short, focused presentations to facilitate discussions about the main threats and opportunities. That should enable you and your teams to make quick, accurate decisions about the few areas on which to concentrate your efforts.

This process not only will show you where you are starting from (your point of departure, so to speak) but also will help you map out your performance objectives (or desired point of arrival) along with three to five critical change initiatives that will take you where you want to go. Indeed, many companies have used the template to create a set of charts showing exactly where and how the business can improve. Incoming leaders find that reaching a diagnosis within their first three to four months helps them lay a foundation for breakthrough performance – and avoid the pitfalls that other new leaders encounter all too frequently.

Analyze Costs and Prices

The first principle in our template is that costs and prices almost always decline. This may seem counterintuitive: Inflation often clouds the view, and special circumstances can sometimes drive costs and prices upward. But it is a well-established fact that inflation-adjusted costs – and therefore inflation-adjusted prices – decline over time in nearly every competitive industry. The analytic tool that best charts this principle is the *experience curve,* a graph showing the decline in a company's or an industry's costs or prices as a function of accumulated experience. For example, you might find that for every doubling of total units produced in your company, your per-unit cost in constant dollars drops by 20%. (In this case your experience curve is said to have a "slope" of 80%.) Because the same principle holds true for

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Understanding Experience Curves

Experience curves show how much industry prices and your costs have fallen each time the industry's cumulative experience (total units produced or services delivered) has doubled. They also allow you to predict how much inflation-adjusted prices and costs are likely to decline in the future.

The "slope" is the percentage of original price or cost remaining after each doubling of experience: A 70% slope, for example, means that prices have dropped by 30%.

Mapping your industry's price curve against your own cost curve can help pinpoint cost-reduction objectives. If you can reduce your costs faster than the previous CEO or general manager did, as in the graph below, you may be able to drive industry prices down faster as well, thereby putting pressure on your competitors' margins.

Source: Bain

This chart shows the rate of price declines for every doubling of accumulated experience for a sample of both manufacturing and service industries. (The time periods here reflect a wide variety of studies conducted at different times.)

Industry	Dates	Price slope	Price decline
Microprocessors	1980–2005	60%	40%
LCDs	1997–2003	60%	40%
Brokerages	1990–2003	64%	36%
Wireless services	1991–1995	66%	34%
Butter	1970–2005	68%	32%
VCRs	1993–2004	71%	29%
Airlines	1988–2003	75%	25%
Crushed stone	1940–2004	75%	25%
Mobile phone services	1994–2000	76%	24%
Personal computers	1988–2004	77%	23%
DVD players/recorders	1997–2005	78%	22%
Cable set-top boxes	1998–2003	80%	20%
Cars*	1968–2004	81%	19%
Milk bottles	1990–2004	81%	19%
Plastics	1987–2004	81%	19%
Color TVs	1955–2005	83%	17%
DVDs	1997–2002	85%	15%

* Adjusted for changes in features and regulatory requirements

your competitors – and thus for your entire industry – the curve allows you to estimate where costs or prices are likely to be in the future. By comparing your company's cost curve with your industry's price curve, you can determine whether your costs are declining at the rate necessary for your company to remain competitive.

Construct cost and price experience curves. The first diagnostic questions to ask regarding this principle are "What is the slope of price change in our industry right now for the products or services we offer?" and "How does our cost curve compare with the industry's price curve and with our competitors' cost curves?" (See the exhibit "Understanding Experience Curves.")

The relationship between prices and costs in any given business area will determine some of your top priorities. If industry prices are going down while your costs are going up or holding steady, for instance, cost improvement is likely to be your single most urgent challenge. Your costs need to be decreasing over the long term regardless of what prices are doing. An upward movement in prices is frequently only temporary.

Understanding your overall cost trends, of course, is just a preliminary step. You then need to examine every segment of costs to determine where the central challenges and opportunities lie. Dig into the cost areas that are most important for your organization: manufacturing, supply chain, service operations, overhead – whatever they may be. Identify the key cost components and the trends in each one. Look specifically for instances of failure to manage to the experience curve, such as rising unit costs for labor or rising procurement costs. This kind of detailed analysis will identify opportunities for improvement at the most granular level and will provide the basis for a plan of action.

One CEO we spoke with reflected on what he called his biggest mistake in his first few months on the job. One of his company's business units was the leader in an industrial market. It had been raising prices, so it was quite profitable, and the new CEO decided to leave it alone for the time being. Then new, low-cost competitors from Asia entered the market and found that this unit had established both a price umbrella and a cost umbrella. The competitors soon undermined the unit's pricing power. The situation required urgent action to reduce costs by at least 15%, an initiative that is well under way. The lesson that CEO drew from the experience was stark: Be sure to diagnose *every* business position carefully, particularly in units that seem to be doing well.

Determine costs relative to competitors'. After comparing your overall costs with industry prices and your competitors' costs, you need to take a more detailed look at your cost position in your industry. How do you compare with your key competitors in each cost area? Which company is most efficient and effective in priority areas? Where can

You can construct a hypothetical competitor representing the best of the best

you improve most relative to others? An analysis of cost position quantifies cost differences between your business and your competitors'; it also shows which cost elements and specific practices are different. Drill down until you understand where and how you differ, and why. That, in turn, will help you figure out where you can close cost gaps and gain or regain competitive advantage. It will also help you formulate detailed plans to do so.

Not long after he took on the top job, David Weidman, CEO of the $6.7 billion chemical company Celanese, headquartered in Dallas, asked his management team to conduct such a competitive assessment. "They came back and said, 'Holy cow, our average EBITDA to sales is seven or eight percentage points lower than the competition's,'" he told us. "And this was not in one business – this was across every organization." Weidman asked the team to identify specific areas where the company could improve relative to the competition. He wanted to find out, for instance, what one key competitor was doing in maintenance, because that company's maintenance spending was far better than Celanese's.

Understanding your cost position as well as your experience curve enables you to set proper targets. You will know, for example, that your lower-cost competitors are on their own experience curves and will have improved their own positions by the time you reach their current cost levels.

This kind of analysis presents a unique opportunity. Rather than simply comparing yourself with your top competitor, figure out which firm (including yours) is the best in each area. Maybe one is world-class in supply-chain logistics practices, another in a particular manufacturing step, and so on. You can then construct a hypothetical competitor representing the best of the best, or what we call best demonstrated practices. That hypothetical company will have lower costs and better performance than any real-world company; you can use it as a benchmark for improvement, striving to leapfrog your competitors instead of just trying to catch up.

Assess the profitability of your product lines. Your next job is to determine which of your products or services are making money (or not), and why. The goal is to calculate the true margins of your products or services. First, you need to figure out direct costs for each product based on actual activities performed, rather than using standard costing. Then you must accurately allocate indirect costs – logistics, selling expenses, general and administrative expenses – to each product line and customer segment. Activity-based costing will give you a more accurate picture than you or your predecessor may have had in the past. The analysis should reveal the key cost and revenue drivers you need to address: areas where the cost of goods sold, for instance, is out of line, or where your revenue performance is below benchmark levels.

When Warren Knowlton, until recently the CEO of the venerable British company Morgan Crucible, agreed to take

and then use it as a benchmark for improvement, striving to leapfrog your competitors.

the top job there, he learned that Morgan had hundreds of products, ranging from crucibles and advanced piezoceramics to body armor and state-of-the-art superconductor magnetic systems. He needed to determine which were making money and which were dragging the company down, so he drew up a list of critical questions for the heads of his business units. For example, he asked them to delineate their expectations for operating profit during the coming year and to explain expected changes from the preceding year. Then he asked for details. One question was "What percentage of your revenues represents sales to customers you would consider to have significant leverage over you?" Another was "How much of your revenue do you believe represents price-sensitive, commodity-type products?" Other questions focused on the cost side, including matters such as purchasing procedures and performance compared with that of rivals. The answers gave Knowlton a jump-start on his analysis of product-line profitability. He subsequently made major

Questions That Will Lead You to Breakthrough Performance

1 FIRST PRINCIPLE **Costs and prices almost always decline.**	▪ How does your cost slope compare with your competitors'? ▪ What is the slope of price change in your industry right now, and how does your cost curve compare? ▪ What are your costs compared with competitors'? ▪ Who is most efficient and effective in priority areas? ▪ Where can you improve most, relative to others? ▪ Which of your products or services are making money (or not) and why?
2 SECOND PRINCIPLE **Your competitive position determines your options.**	▪ How do you and your competitors compare in terms of returns on assets and relative market share? ▪ How are the leaders making money, and what is their approach? ▪ What is the full potential of your business position? ▪ How big is your market? ▪ Which parts are growing fastest? ▪ Where are you gaining or losing share? ▪ What capabilities are creating a competitive advantage for you? ▪ Which ones need to be strengthened or acquired?
3 THIRD PRINCIPLE **Customers and profit pools don't stand still.**	▪ Which are the biggest, fastest-growing, and most profitable customer segments? ▪ How well do you meet customer needs relative to competitors and substitutes? ▪ What proportion of customers are you retaining? ▪ How does your Net Promoter Score track against competitors'? ▪ How much of the profit pool do you have today? ▪ How is the pool likely to change in the future? ▪ What are the opportunities and threats?
4 FOURTH PRINCIPLE **Simplicity gets results.**	▪ How complex are your product or service offerings, and what is that degree of complexity costing you? ▪ Where is your innovation fulcrum? ▪ What are the few critical ways your products stand out in customers' minds? ▪ How complex is your decision making and organization relative to competitors'? ▪ What is the impact of this complexity? ▪ Where does complexity reside in your processes? ▪ What is that costing you?

shifts in product lines to de-emphasize commodity products and unprofitable customers. Along with significant cost reductions, these moves enabled him to engineer a remarkable performance breakthrough, increasing the company's share price 10-fold in just three and a half years.

Evaluate Your Competitive Position

The second principle in our template is that your competitive position determines your options. Depending on your industry, there can be different drivers of profit leadership, including customer loyalty and "premiumness" of the product. But in most industries, one of the strongest predictors of a company's performance is its relative market share (RMS).

RMS is easy to calculate. If your company is a market leader, simply divide your share by the share held by your closest competitor (30% divided by 20%, say, equals an RMS of 1.5). If you're a follower, divide your share by that of the market leader (20% divided by 30% equals 0.67 RMS). Now plot the companies in your industry according to their RMS and their returns on assets (ROA). (See the exhibit "A Map of the Marketplace.")

You are likely to find that for many firms, higher RMS corresponds to higher ROA, and vice versa. This reflects the fact that market leaders typically outperform market followers on ROA; they have greater accumulated experience, leading to lower costs and superior customer insights, which in turn lead to higher profits. They thus have a greater ability to outinvest the competition in innovation, customer service, branding, and product support.

Compare your returns and market share with those of your rivals. The ROA/RMS chart is an extraordinarily useful diagnostic tool because it helps you narrow down your options for performance improvement. There are five generic positions on the ROA/RMS chart: in-band leaders, in-band followers, distant or below-band followers, below-band leaders, and overperformers. Each has its own imperatives. Typically, for instance, in-band leaders find that they can raise the bar for competitors by investing in still-greater market share and in product or service improvements. In-band followers usually need to work hard just to keep up; only occasionally can they jump into a leadership role through heavy investment in innovation, the way Sony Computer Entertainment's PlayStation leapfrogged Nintendo in the video game industry in the 1990s. Overperformers, which earn returns well beyond what their relative market share would suggest, typically need to maintain high levels of investment in whatever has enabled them to escape the pull of the band (assuming they aren't simply capitalizing on a temporary price umbrella). That might be a trusted or prestigious brand, an innovative or patented technology, exceptionally loyal customers, or some other asset. Below-band companies, of course, have probably not been managing their costs down the experience curve, which would be a primary reason for their underperformance.

Whatever your company's position, the band helps you understand its full potential by showing both opportunities and constraints. An in-band follower, for example, can't expect to earn the returns of a leader unless it moves up the band or escapes into the overperformer category through one of the strategies mentioned.

Band analysis can be used for two other diagnostic tasks: anticipating competitors' improvement strategies and assessing businesses in a multiunit organization.

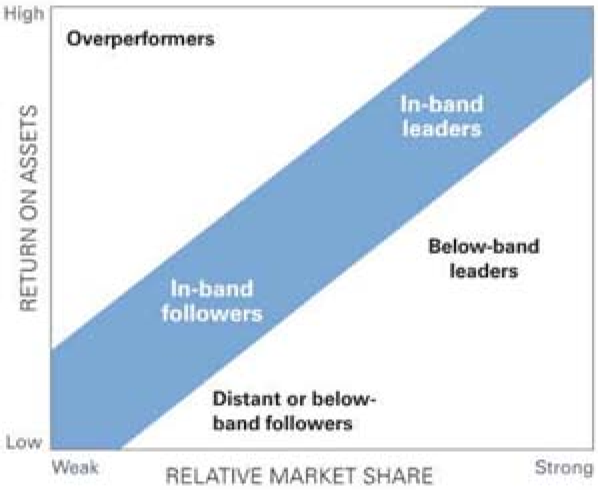
Mapping your company against competitors is the first step toward seeing how each firm is making money or where it is failing to do so. It allows you to spot potential threats to and opportunities for your business, and to assess the strategic options available to others. For example, when we and our colleagues began compiling a band chart for credit card companies, we could find no relationship between market share and returns – a highly unusual situation. So we asked what was driving the returns of the most successful players. The analysis showed us that in this business, customer loyalty was the single most important factor in determining profitability. If every company were equally skilled at retaining customers, then market share *would* be the principal driver – but that wasn't the case. Because of the high cost of customer acquisition and the tendency of customers to increase their credit card use over time, sophisticated techniques for retaining customers could overcome advantages of pure scale and allow successful companies to become more profitable than their competitors. That would increase their RMS as well. Companies that had not developed such techniques were operating at a serious disadvantage.

When sizing up your company's decision making, turn to suppliers, distributors, and customers for feedback.

Band analysis can also help the leader of a multiunit organization determine whether each business is achieving close to its full-potential performance. This objective was at the heart of Knowlton's decision-making process regarding Morgan Crucible's many businesses. Placing Morgan's business units on a band chart that compared their economic performance with their region-weighted relative market share, Knowlton could see at a glance that some units, such as the company's industrial rail and traction division, were

A Map of the Marketplace

One method of assessing your position in the marketplace is to plot the company's relative market share against its return on assets, and to do the same for your competitors. Companies in a well-defined industry typically line up in a fairly narrow band, reflecting the fact that market leaders usually outperform market followers on ROA. But a handful of companies ("overperformers") earn above-band returns while having a midrange or low market share, and others languish below the band with low ROA – often because they have not managed their costs down the experience curve.



in the band: They were performing as expected. Others, such as thermal ceramics, were below the band and needed to be moved upward, typically through aggressive cost control and measures designed to grow revenue. Still others were laggards in the lower left of the band and were candidates for divestiture.

Measure your market size and trends. How big is your market, exactly? Which parts are growing fastest? Where are you gaining or losing share? A simple way to map your market's size and dynamics is to draw a rectangle and then divide it into vertical segments representing your most important submarkets or products. The width of the segments should be set in proportion to the share of revenues they account for in the market. Next, divide each of these vertical segments into boxes representing the share held by each principal competitor. Create one chart for three to five years ago and one for the present. The two charts will show you the sectors and the competitors experiencing market growth. Depending on your situation, of course, you may need to customize the basic chart. A company selling telecommunications equipment in Asia might first map the Asian telecom market by country and by sector (wireline, wireless, and so on) and then break it down into competitors' market shares. Again, comparing two or more points in time will show you where, and how fast, the market is growing. Faster-growing markets attract more competitive interest, so you will need an aggressive plan to win your share.

Other tools may be useful as well. A so-called S-curve chart, for instance, which plots industry growth against time, can show the inflection points where growth accelerates and then tapers off.

Assess your firm's capabilities. Your company's chances to achieve its full potential – to improve its position on the band chart – depend significantly on its capabilities. Which critical capabilities are giving you a competitive advantage? Which do you lack? Which need to be strengthened or acquired? The global technology and engineering company Emerson, for example, knows how to manage its costs so aggressively that it can acquire other businesses and then add substantial amounts of value. Companies can also succeed if they can develop capabilities they don't currently have. The iPod didn't really take off until Apple developed the capabilities to manage and sell digitized music through its iTunes store.

Every company, of course, must make decisions about which capabilities it wants to develop or maintain in house and which it wants to obtain from suppliers. The context for these decisions has changed dramatically in recent years. In many industries the primary basis of competition has shifted from ownership of assets (stores, factories, and so on) to ownership of intangibles (expertise in supply chain or brand management, for example). At the same time, a handful of vanguard companies have transformed what used to be purely internal corporate functions into entirely new industries. Thus FedEx and UPS offer world-class logistics-management services, while Wipro and IBM offer numerous business and IT services.

The result of all this is that companies can no longer afford to make sourcing decisions on a piecemeal basis – nor can they be satisfied with a "good enough" approach to selecting and working with suppliers. Today, you must assess every capability that you need in order to create or develop a product or service. You should analyze every step of your value chain, from design and engineering to product or service delivery. You should compare yourself not only with competitors in your industry at every step of the chain but also with whatever companies are the best in the world at performing each particular step. Are you the best? Or do you have some capability that creates a sustainable competitive advantage in a given step? If the answer to both questions is no, you should ask whether you can improve or acquire the relevant capability, or whether you might be better off sourcing that part of your value chain to the best supplier.

Understand Your Industry's Profit Pool

The third principle in our template is that customers and profit pools don't stand still. Markets undergo massive changes all the time, mostly because customers' desires and needs evolve. Companies repeatedly discover that the landscape they operate in has altered significantly and that the plans and strategies that worked so well yesterday no longer work today. They find that the *profit pool* from which they were drawing their earnings has dried up or attracted new competitors, and that deep new pools of profit have appeared elsewhere. (For more on profit pools, see Orit Gadiesh and James L. Gilbert, "Profit Pools: A Fresh Look at Strategy," HBR May–June 1998.) For these reasons, you'll need to examine the profit pools you currently draw on and those that might hold potential for the future.

Study customer needs and behavior by segment. Correctly segmenting customers and developing proprietary insights into their purchasing behavior is one of the most powerful methods of building loyalty, increasing growth, gaining market share, and thus expanding your share of the profit pool. Which are the biggest, fastest-growing, and most profitable segments? How well do you meet customers' needs, compared with competitors and substitutes? As you raise these questions, you will want more-specific answers, such as how customers are segmented. On the basis of needs? Behavior? Occasion of use? Demographics? What are each segment's characteristics and spending habits? What share of wallet is each one currently giving you, and is there reason to think that you can increase that share?

You can use many tools to delve deeply into customer needs and behavior. These range from cluster analysis to sophisticated ethnographic research. It's often worthwhile to look at customers through many different lenses because you may spot something that customers themselves aren't even aware of. While we don't have space to discuss all such tools in this article, we'll mention a simple one that has been remarkably effective even in highly sophisticated industries. We call it a SNAP (segment needs and performance) chart. It can help you assess how well you are meeting the needs of the segments you are targeting.

To develop a SNAP chart, start by defining the attributes of the products or services you offer that may be important to the customer segments you want to target. Then conduct research to determine how important each of these actually is to these customers. A bank, for instance, might study everything from its hours of business to its loan rates to the quality of the advice it offers and the ease of access to its ATMs. Finally, assess where you stand on each scale and where your competitors stand.

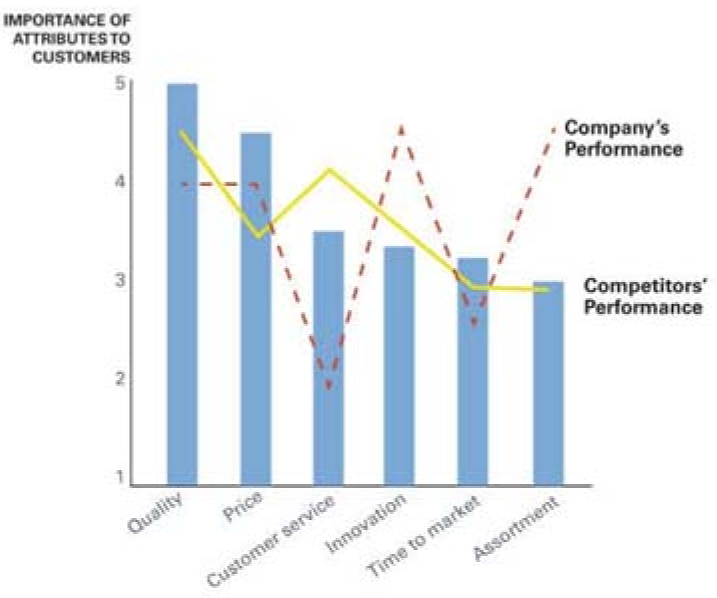
This process will show how you measure up to the competition in the eyes of your key customer segments. You can use the SNAP chart to identify which gaps are most important to close (if you're behind) or widen (if you're ahead). You can also see where you might be overshooting the mark. (See the exhibit "Segment Needs and Performance.")

Track customer retention and loyalty. What proportion of customers are you retaining? Loyalty can be a critical factor in the economics of a business, particularly when the cost of acquiring a customer is high, switching costs are relatively low, or both. Accordingly, you need to know your retention rates for each segment. Doing so not only will help you determine the profitability of the segment but also will help you make plans to boost retention rates where necessary.

A good indicator of loyalty and probable retention is the Net Promoter Score (NPS), developed by our colleague Fred Reichheld. This measures customers' responses to the question "How likely is it that you would recommend this company (or product or service) to a friend or colleague?" Respondents answer on a zero-to-10 scale, where a 10 means "Extremely likely" and a zero means "Not at all likely." Those who give you a nine or a 10 are your *promoters*. Research shows they spend more with you, are likely to increase their

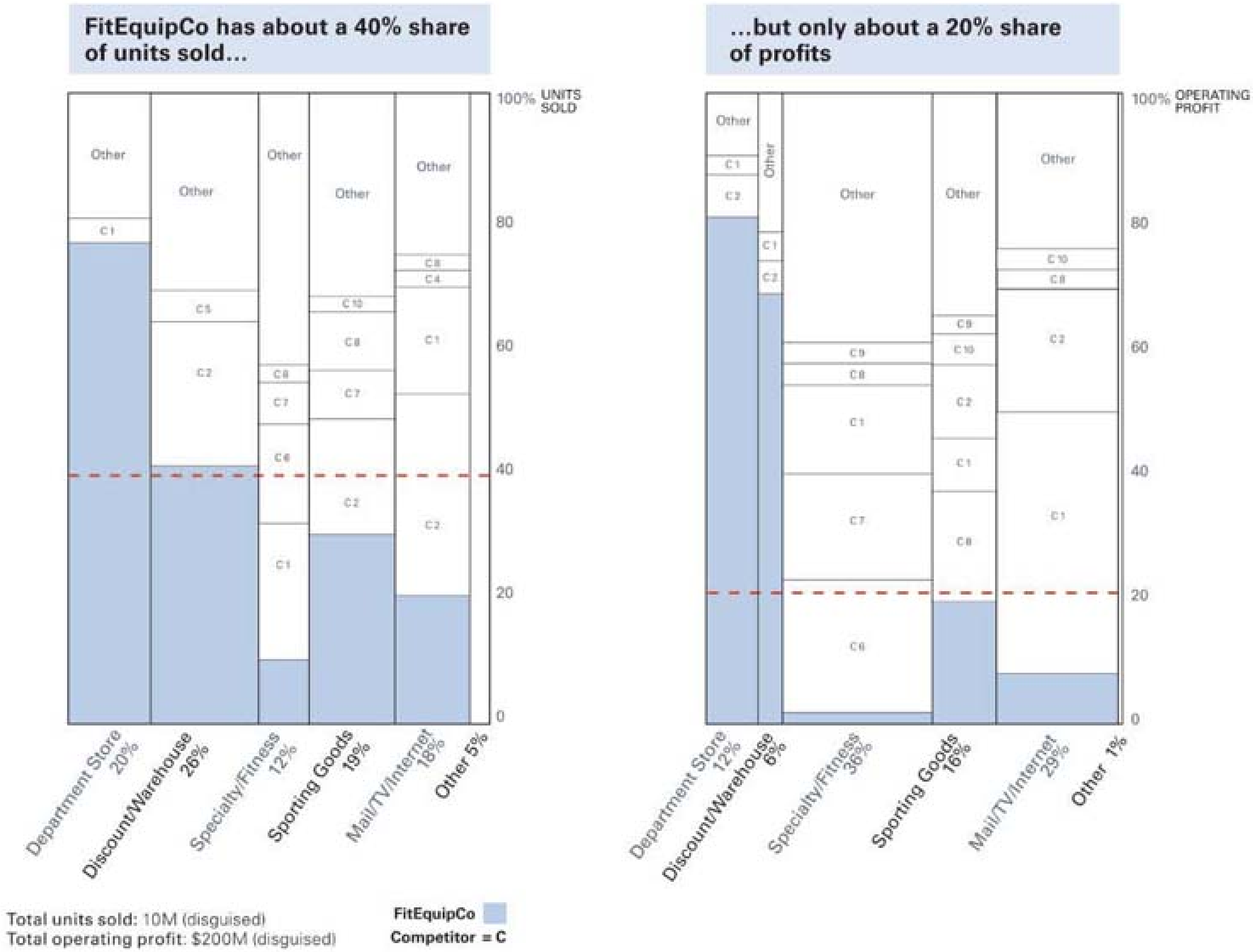
Segment Needs and Performance

This SNAP (segment needs and performance) chart displays data for a fitness machine company we're calling FitEquipCo. The company exceeds customers' requirements on innovation and assortment, the attributes that rank fourth and sixth, respectively, in importance to customers. It is thus incurring costs that may not earn a return in the marketplace. Meanwhile, it is slightly underperforming competitors on quality, which is first in importance, and significantly underperforming on customer service, which is third. FitEquipCo needs to take action to close those gaps.



A Map of the Profit Pool

A profit-pool map for FitEquipCo revealed some telling market developments. Although the company was shipping almost 40% of all units in the marketplace, it had only about 20% of the profits. The column widths reflect the proportion of units sold (left) and operating profits earned (right) in each channel.



spending in the future, and sing your praises to their friends and colleagues. Those who give you a seven or an eight are *passives,* and those who rank you zero to six are *detractors.* Promoters are an engine of growth, but detractors often cost your company more than they are worth, and they badmouth you to anybody who will listen.

Your Net Promoter Score is simply the percentage of promoters minus the percentage of detractors. Measured relative to competitors, NPS has been shown to correlate with growth rates and with other measures of customer satisfaction. Properly implemented, NPS creates a closed learning loop among customers, the front line, and management, and thus can be used as a basis for managerial decisions, just as financial reports are. American Express and many other companies use NPS-like metrics throughout their organizations to give them quick, regular reads on customers' attitudes and potential behavior.

Segmentation and retention efforts are at the opposite ends of a six-step chain of activity that enables a company to earn more profits per customer than its competitors and then to outinvest the competitors to generate faster growth. The first steps are (1) identifying the most attractive target segments and (2) designing the best value propositions to meet their needs. The next ones are (3) acquiring more customers in the target segment and (4) delivering a superior customer experience. That enables the company (5) to grow its share of wallet and (6) to increase loyalty and retention, with more promoters and fewer detractors.

Anticipate profit-pool shifts. CEOs and general managers naturally need to assess how much of their industry's profit pools their firms own today. But they must also gauge how profit pools are likely to change in the future and what opportunities or threats these shifts may create. One useful tool is a profit-pool map, which shows the channels, products, or sequential value-chain activities in the market and indicates the total profits available from them. You can then locate your business and its competitors on the map, showing how much each company takes from each part of the profit pool. It's wise to do this for all customer segments and all sets of products.

A company we'll call FitEquipCo mapped the growth (historical and projected) of its industry. Then it gathered extensive data about customers' intent to purchase or repurchase and developed profit-pool projections by product (treadmills, elliptical machines, and so on), by sales channel (mass merchants, specialty stores, and so on), and by price point (entry-level, value, and premium). The map showed, for instance, that FitEquipCo needed to build up its distribution through sports specialty stores, which delivered higher margins. Through such measures, the company projected, it could increase earnings by $86 million over a three-year period, more than doubling operating profits. (See "A Map of the Profit Pool.")

As with the market map, it's wise to compare at least two points in time so that you can see how the pool is evolving. Often a significant threat to the profit pool comes from companies that don't yet compete in your industry or are still too small to be noticed. Yet these competitors can turn an industry upside down. Think, for example, of the effects minimill companies such as Nucor had on the U.S. steel industry.

Simplify, Simplify

The fourth principle in our template is that simplicity gets results. A couple of years ago, researchers from Bain & Company surveyed executives in 960 companies around the world, asking them about complexity in their organizations. Nearly 70% of the respondents told us that complexity was raising their companies' costs and hindering growth. Another team of researchers studied the impact of complexity on the growth rates of 110 companies in 17 different industries. The researchers found that the least complex companies grew 30% to 50% faster than companies with average levels of complexity, and 80% to 100% faster than the most complex companies. In one particularly dramatic example, a telecommunications company that offered consumers only about one-fifth the number of options offered by a competitor was growing almost 10 times as fast.

Gauge the complexity of your products or services. To diagnose your company's level of complexity, begin by asking how complex your product or service offerings are and what that degree of complexity may be costing you. Benchmark your line of products or services against the competition's; try to identify your "innovation fulcrum," the point at which the variety of products or services you offer maximizes your sales and profits. It will be helpful to construct what we call a Model T chart, showing the costs when you add features to the basic product or service. It's valuable to do this exercise not only with your own company's data but also with your competitors'. (For more on complexity and the Model T chart, see Mark Gottfredson and Keith Aspinall, "Innovation Versus Complexity: What Is Too Much of a Good Thing?" HBR November 2005.) Ask yourself which of your competitors has the advantage as variety and complexity in the industry increase – and why. You can apply what you learned from your customer segmentation research to this assessment. If you know what customers want now and what they are likely to want in the future, you can better judge what level of variety is appropriate for your marketplace.

The complexity test is a necessary counterbalance to tools such as customer segmentation. The temptation, after all, is to divide your customer base into finer and finer subcategories and tailor your offerings to each segment, all in the name of giving customers exactly what they want. That was one way Charles Schwab, the financial-services firm, got itself into a difficult situation in the early 2000s. Schwab added a plethora of new offerings and divisions, including a firm specializing in institutional investments and an East Coast wealth-management company. In 2004, founder Charles Schwab returned to the firm as CEO and promptly took steps to reduce the complexity. He sold off most of the recent acquisitions, reduced the number of service offerings, and streamlined internal roles and processes. These and other moves allowed him to take out some $600 million in costs, reduce commissions, gain market share, and increase the firm's operating income by 3%.

Assess the complexity of your organization. Decision-making procedures and organizations grow complex over time as well. You need to know how your company stacks up against competitors on these dimensions and what the effects of undue complexity may be. Our colleagues Paul Rogers and Marcia Blenko have developed what they call a RAPID analysis, which allows managers to assess decision-making bottlenecks, assign clear decision roles to individuals in the organization, and hold them accountable. (RAPID is a loose acronym for the different roles people can take on: *recommend; agree;* give *input; decide;* and *perform,* or implement the decision.) Another useful tool is a spans-and-layers analysis, which shows the number of levels in an organization from the CEO to the frontline worker, and the number of people reporting up to each level. Spans that are too narrow – meaning too few people report to individual bosses – are likely to lead to excess overhead costs, slow decision making, and unnecessary managerial oversight.

When sizing up your company's decision making, turn to suppliers, distributors, and customers for feedback. They are often good judges of how quickly and effectively you can make a decision compared with others in the industry. Employees will be quick to tell you whether they feel supported and empowered by the organization's management structure or whether it just gets in their way.

Determine where you can simplify processes. Where does complexity reside in your processes? What is that costing you? St. George Bank, like others in Australia, experienced a slowdown in residential lending at one point and so was developing a growth strategy for commercial banking. But the complexity of the bank's commercial credit processes was a major constraint on growth. All loan applications, large or small, were treated in a similar way. A sizable number of applications had to be sent up the ladder to a central credit group. Then-CEO Gail Kelly and her management team determined that this level of complexity was not inevitable – for example, they could create a fast-track system for applications from existing customers that fell within certain risk boundaries. That alone led to a 30% reduction in time spent by the lending officers. The bank also increased the amounts that a local lending officer could approve, resulting in a reduction of 50% or more in deals sent to the central credit group.

Figure out where complexity is unavoidable – and where, by contrast, you can put processes in place to reduce it.

How can you identify such opportunities for process improvement? As at St. George Bank, process complexity can show up in any number of areas: on the production floor, in distribution networks, in interactions with customers, in back-office procedures. The key is to figure out where complexity is unavoidable – and where, by contrast, you can put practices in place to reduce complexity while still delivering the products and services that customers want. Process mapping is a good way to get started. In a process map, diagrams show the interactions among different steps in a process and the people or departments responsible for the steps. This enables the management team to visualize and understand the whole process, spot problems and opportunities for improvement, and address them through root-cause analysis. You want to map activities, inputs, and outputs associated with each step, and the wait times between steps.

Successful streamlining of the processes produces several mutually reinforcing benefits. It increases efficiency, allowing a company to reduce head count and its costs. Streamlining also cuts down on errors and rework. It reduces cycle time, enabling the company to deliver the product or service to the customer significantly faster and enhancing customer loyalty. More-loyal customers are likely to order more, generating growth and increasing the possibilities for still greater economies in production or service delivery.

Many companies try to simplify their processes without simplifying any other aspect of the organization. This is a mistake. Process simplification tends to be undermined by unnecessary complexity in the company's product lines, organization, and decision-making procedures. So gather the data to address complexity on all three fronts and then determine the most fruitful points of attack.

...

A diagnostic template such as the one we've described here is powerful not because it contains any single new insight but because it covers the ground a management team needs to cover. By answering the questions we've provided, you can pull together a comprehensive set of data enabling you to understand the gap between your current performance and your full potential. You can then set specific goals and launch initiatives that will drive the company to achieve that potential during your tenure and develop the performance profile that you are shooting for. A company that has worked through such a diagnostic template might aim for objectives such as these:

- Reduce costs by $200 million to move relative cost position from 110% of best competitor to 90%.
- Increase relative market share from 0.9 to 1.2; move share of high-profit segment A from 40% to 60%, with a retention increase of six percentage points.
- Increase share of profit pool from 40% of $2 billion to 70% of $2.8 billion by expanding into a downstream service business in the most profitable product segments.
- Cut SKUs from 100,000 to 2,000; reduce organizational layers in SG&A from five to three; outsource 20% of all G&A costs.

Objectives like these can translate into marching orders for an entire organization. Because they stem from a comprehensive diagnosis, everyone can understand them and see why they are important. Both managers and employees are more likely to buy in and put their shoulders to the wheel.

Diagnosis, of course, is only one part of a performance-improvement program. You still must decide on where you want the company to go, along with the three to five critical initiatives that will get you there. But a thorough, accurate diagnosis is what makes the rest possible. It's an indispensable first step toward breakthrough performance.

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Research has shown that star performers often falter when they move to new companies. Further analysis reveals that's true primarily of men.

How STAR WOMEN Build Portable Skills

by Boris Groysberg

ABOUT FOUR YEARS AGO, with the war for talent in high gear, my colleagues and I wrote an article in these pages warning managers of the risks in hiring star performers away from competitors. After studying the fortunes of more than 1,000 star stock analysts, we found that when a star switches companies, not only does his performance plunge, but so does the market value of his new company. What's more, these players don't tend to stay with their new organizations for very long, despite the generous pay packages that lured them in. Everybody loses out.

Neil Webb

But further analysis of the data, which I've done over the past three years, reveals that it's not that simple. One group of analysts reliably maintained their stardom after changing employers: women. Unlike their male counterparts, female stars (189 star women, 18% of the star analysts in the original study) who switched firms performed just as well, in the aggregate, as those who stayed put. And while investors appear to believe that companies are overpaying for male stars or anticipate a drop in performance for men, this is not so for female stars. Firms acquiring male stars experienced a significant share-price loss of 0.93%, whereas the acquisitions of female stars generated a nonsignificant share-price increase of 0.07%.

Why the discrepancy? I found two overarching explanations. First, the best female analysts appear to have built their franchises on portable, external relationships with clients and the companies they covered, rather than on relationships within their firms. By contrast, male analysts built up greater firm- and team-specific human capital, investing more in the internal networks and unique capabilities and resources of the firms where they worked.

Second, women took greater care when assessing a prospective employer. They evaluated their options more cautiously and analyzed a wider range of factors than men did before deciding to uproot themselves from a company where they were already successful. Female star analysts, it would seem, take their work environment more seriously yet rely on it less than male stars do. They look for a firm that will allow them to keep building their successful franchises their own way.

Women took greater care and analyzed a wider range of factors than men before deciding to uproot themselves.

This is not to attribute the fortunes of female stars to innate gender characteristics. The portability of their performance seems to be the result of strategic choices they made in response to situations they faced at work. These strategies made them stars – and also made their skills highly effective in other companies. Former Morgan Stanley star Carol Muratore told us, "For a woman in any business, it's easier to focus outward, where you can define and deliver the services required to succeed, than to navigate the internal affiliations and power structure within a male-dominant firm."

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Though female stars adopt these career strategies as a way to overcome institutionalized norms that put them at a disadvantage, their strategies are not a second-best alternative. Rather, they constitute a powerful skill set from which any manager would do well to learn. The star performer study focused on one labor market – Wall Street analysts – but the challenges these women face are similar to those in other knowledge-based industries, such as management consulting, health care, public relations, advertising, and the law. Some of the female stars' actions were designed to help them advance within their firms, and only incidentally increased their portability; others were deliberately adopted to ensure that they would be able to succeed elsewhere. Either way, the strategies of star women can help both men and women enhance their ability to shine in any setting.

Building an External Network

Most salespeople, traders, and investment bankers are men, and men tend to spend time with other men. The star women in the study, thwarted in their efforts to integrate themselves into the existing power structure, went to great lengths to cultivate relationships with clients and contacts at the companies they covered. Their decision to maintain an external focus rested on four main factors: uneasy in-house relationships; poor mentorship; neglect by colleagues (notably the sales force and traders); and a vulnerable position in the labor market.

Uneasy in-house relationships. As a conspicuous minority entering an entrenched culture, women in the study lacked natural alliances when they arrived on Wall Street. Outright malice and deliberate exclusion were rare, but less-than-wholehearted acceptance was not. Firms made few adjustments – either as a result of overt sexism or simply because it never occurred to the men running the business that the corporate culture ought to change. Sara Karlen, a former human resources manager in Merrill Lynch's equity research

mentors received less support from them than male stars did.

Moreover, the female analysts in the study reported that even when they were mentored, they tended to be treated as more probationary than their male counterparts. Consequently, they missed out on one of the most valuable services a mentor provides: access to a network of relationships. Karlen related a story about when she joined another firm after leaving Merrill Lynch: "This guy was just brought on board to be the chief risk officer. He has been here for all of three days, and the CEO has started taking him around to the different offices introducing him to people. Whereas I had to figure out for myself: Who do I need to get in front of? I asked the CEO.... He gave me three names. And he goes, 'You don't need to meet more than three people.'" One male star acknowledged that he was reluctant to mentor women because of the risk that he would be wasting his time: "Many female analysts leave because it is just so hard to succeed in this business; many leave for personal reasons....[Men] tend to stay around longer, so the fruit of your mentoring is around."

What's more, men who do mentor women can't offer much in the way of psychosocial support – how to deal with sexism, for instance, or how to balance a career and family – whereas female mentors, when available, may not be in a position to facilitate their protégés' integration into the firm culture. "Women many times don't want to be mentored by a woman, because...it doesn't necessarily help," Karlen said.

department, noted that people are most comfortable forging relationships with those most like themselves; in the world of investment banking this meant other men.

Some women also pointed to the risks of cultivating internal relationships – risks that didn't apply to men. "You never want to have someone say, 'She got the top vote from that salesman because she's sleeping with him,'" said former star analyst Bonita Austin. "I think you're better served as a woman analyst maintaining a cordial but very professional relationship with all the men in your firm, especially sales force and trading – anybody who can have an impact on your compensation." Female analysts thus faced a double bind. In an industry based largely on relationships and networks, they could not afford to get close to male colleagues for fear of having their relationships misconstrued.

Poor mentorship. Most female analysts who become stars have had mentors; in fact, the most conspicuous difference between star and nonstar women in equity research is access to a supportive mentor. But star women reported difficulty forging such relationships. They were less likely than their male counterparts to have mentors, and those who did have

Neglectful colleagues. Analysts' reports and investment ideas are customarily disseminated to buy-side clients by the investment bank's sales force, traditionally men. Their locker-room and sports-bar cultures make it difficult for female analysts to forge strong bonds. A salesman will tell you that he's selling both the product and the person, and when he travels with an analyst, having drinks at the bar is an important part of getting to know and trust each other. Women are less likely to travel, especially if they have families, and they're less likely than men to turn up at the bar. It's not about a lack of information exchange – the salesman could glance at an analyst's résumé or pick up the necessary details in a 10-minute cab ride on the way to visit a client. But the easygoing fellowship isn't there. Former star retail analyst Josie Esquivel put it realistically: "[I can't] go drinking with the sales force....This is the way the world is. You get around it by providing services to the client directly."

Salesmen acknowledge the dilemma. One put it in stark terms: "Say there are two analysts, John and Joanne – equally smart, equally good analysts, both in their late twenties/early thirties, both spend 14 hours a day at work. The day is only 24 hours long, so I have to allocate my time intelligently….Who is most likely to stay at the firm? Based on my experience, I have to say John. Joanne is going to get married…she might decide to have children….Is this not rational? It's just the way the business is."

Vulnerable position in the labor market. Certain aspects of the choices the women in the study made represented a knowing effort to protect their portability in the event of a layoff. Even female-friendly firms tend to lay off more women than men during economic contractions. Although women accounted for just 21% of Wall Street analysts in 1986, for instance, they represented fully 64% of those who were let go following the 1987 crash.

Women focused on building external relationships with clients to counterbalance these internal disadvantages. This is a highly adaptive and strategically shrewd strategy. Not only does it protect their portability, but it has the added benefit of boosting their reputations with colleagues. Women who proved themselves by achieving *Institutional Investor,* or *II,* ranking on the strength of client relationships found that they were taken more seriously in-house. One female star, after being ranked for the first time, began to get calls from colleagues who had previously ignored her. One salesman unapologetically confirmed the reality of this phenomenon from the other side. When clients start to ask about a newly anointed female star, "they force me to learn [about her]," he said.

Scrutinizing Prospective Employers

Women and men overwhelmingly agree that women are more deliberate in changing employers, probably because experience has taught them the importance of environment and culture in both their performance and job satisfaction. While men tend to concentrate on compensation, women

Balancing Internal and External Relationships

When it comes to gender differences, the major takeaway from my recent research is that female stars build skills that are more portable than those of their male counterparts, in no small part because they are more focused on external relationships. But employees who focus on external relationships in order to protect their portability should be aware that this choice can sometimes hamper in-house career progression. Whereas star women who moved to new firms but did the same job continued to perform well, some of those who switched from individual contributor roles to management roles within their firms experienced difficult transitions.

A star analyst progresses from being an individual contributor to a manager, spending a significant amount of time working with in-house colleagues, superiors, and direct reports to get the job done. This transition is difficult for women who have focused primarily on building external relationships. A successful manager needs a deep and broad understanding of the in-house culture and a solid set of relationships within the firm. In the words of one female former star analyst, currently a manager, "Your life changes when you become a manager….You really have to start developing peer relationships at the firm. That's how things get done: through relationships. If you are an analyst who built your franchise on your clients and on your companies, you have to refocus and start building in-house relationships. If you don't have relationships, you have no trust, and you will soon not have a job." Thus, it is important that women parlay their success, built on external relationships, into strong internal relationships.

Another side effect of external focus is that it may limit women's opportunities for team moves (known as lift outs). Changing firms as part of a team has a protective effect on performance – stars who move with their team do better than stars who change companies on their own. Female stars, whose internal relationships are not strong enough to lead to a lift out, lack this opportunity. Only 20% of women change employers as members of lift-out teams whereas 29% of male stars do. Furthermore, most teams led by female analysts in the research study consisted of only one or two employees, typically junior analysts or unranked senior analysts. Teams led by star male analysts tended to be larger and often cross-functional; they also included salespeople or traders. So the tendency of women to focus outward may get in the way of their chances to be part of a team move and thus may hinder attempts to increase their portability.

Women look for organizations that welcome them as individuals, with distinctive styles and methods of distinguishing their franchises.

are more likely to weigh multiple considerations in making a move, such as the apparent attitudes of the research director and the existence of female colleagues and role models. Recruiter Debra Brown stated that "compensation is not as significant a factor for women as it is for men when making decisions on job moves." Josie Esquivel summed up her male counterparts' focus on compensation versus the overall package like this: "I was a star here, I can be a star there, I just want to make more money." Bonita Austin, who moved from Wertheim Schroeder to Lehman Brothers, acknowledged that while her new boss doubled her compensation, she wouldn't have made the move if she hadn't sensed an overall fit. Women look at the culture of a department, in terms of how women fit in, along with its values, atmosphere, and tone.

Receptivity to women. When a man makes a move, he doesn't have to wonder whether there will be male role models. Sanford C. Bernstein's Lisa Shalett noted that "for a lot of guys, it just never comes up." The general observations that might be made about a firm's culture – that it is collegial, white-shoe, competitive, open-minded – don't necessarily reflect the experience that women will have at that firm.

Indeed, many of the female stars in the study moved precisely because they believed they would get more internal support in their new companies than they had in their old ones. Strategist Abby Joseph Cohen pointed out that the hiring firm signals interest from the start. "Obviously, if you're being recruited someplace, your new manager has a commitment to you."

Latitude and flexibility. In addition to receptivity to women generally, women look for organizations that will welcome them as individuals, with distinctive styles, personalities, and methods of distinguishing their franchises. Historically, employees in many firms had to contend with very narrow definitions of acceptable style. Women (and men) were expected to behave and dress in very narrowly defined terms. Such clubbiness has diminished somewhat, but female analysts still find themselves walking a tightrope. They are discouraged from mentioning their personal lives, but refraining from doing so can make them seem standoffish. Their mentors and research directors urge them to stand up for and promote themselves, but aggressiveness among women is still frowned upon. "Strong, aggressive women are still seen as bitchy and irrational and emotional," said Sara Karlen.

Managerial support. Female stars readily admit that they scrutinize the research director, who sets the tone for the department. Cohen, in explaining her move to Drexel Burnham Lambert, said, "I noticed in Burt Siegel's office a prominently displayed picture of his three daughters in basketball uniforms with Burt, who was the coach of the girls' team. I thought, just as he had provided opportunities for his daughters, he would create opportunities for me....I was further reassured when I looked around the department and saw that he had hired some high-quality women who seemed to be doing well at the firm." Helane Becker arrived at the same conclusion regarding Siegel, reasoning that his evident support for his daughters' achievements might reflect his assumptions about women's potential in the office.

Women know that management can also influence how women analysts are treated by the sales force and by investment bankers. One analyst recalled a meeting at Merrill Lynch with Jack Rivkin and some senior sales executives that she attended with another female analyst. At one point in the discussion, one of the salesmen suggested that "the girls" offer comments. Rivkin objected to the characterization and immediately interceded, telling the women they did not need to respond.

Objectivity in measurement. Finally, several women spoke of the value of an impartial departmental measurement system as a bulwark against politics and favoritism.

"The expectation of an impartial performance measurement system is quite simply necessary for survival," said Carol Muratore. "Women may naturally select firms where there has already been management effort to enhance analyst efficacy and objective performance standards." Recruiter Debra Brown spelled out the protective function of objective measures: "Women like positions that are transparent...so that their abilities can be validated by objective measures."

Retaining Women, Developing Men

For employees, my findings indicate the value in thinking creatively and strategically about different paths to success. Although the study focused on just one industry, considerable research has shown that women face similar challenges in many male-dominated professions. The fact that unacknowledged sexism persists even in a profession as externally benchmarked as equity research suggests that women may face a steeper uphill climb in more subjective knowledge professions, like consulting. Just as the female Wall Street stars I studied employed creative strategies to succeed, so too can employees in other professions, male or female, who may not precisely fit their company's mold. There is more than one route to stardom.

Another lesson for employees is that the decision to change jobs should be made strategically, not only with an eye toward promotions and raises, but also from an informed awareness of the new firm's resources and culture. The men in the study were far more likely than their female counterparts to be lured away by higher compensation, and they paid the price in diminished performance. The strategies women employ to succeed at their jobs may be born of necessity, but there is no reason that some male analysts could not also benefit from adopting a slightly more external focus. (Skewing too far in this direction can cause problems, as the sidebar "Balancing Internal and External Relationships" shows.)

For organizations, the high-level implication of these findings is that companies should focus on building talent from within and take measures to retain the stars they create, male and female alike. A diversity of perspectives on how to become a star is a valuable resource for any organization, not least because it provides a source of learning and best practices. In fact, by paying closer attention to the careers of star women, firms could do a better job not only of attracting and retaining women, but also of developing men. They might, for instance, encourage men to break from the traditional mold and help women develop the internal ties that contribute to men's accomplishments.

In the late 1980s and early 1990s, Lehman Brothers' research department cultivated success by letting a thousand flowers bloom – supporting the different strategies and talents of a diverse group of analysts, male and female. They recognized women as an undervalued resource on Wall Street, brought them in and created an environment where women could succeed – and then incorporated women's strategies into their training so that everyone might benefit. Under Jack Rivkin and Fred Fraenkel, Lehman Brothers' research department encouraged female analysts to participate in the recruiting process and rigorously pursued gender-blind policies in every facet of the department's operation. Meanwhile the department jumped from fifteenth in the *II* rankings in 1987 to seventh in 1988, fourth in 1989, and first in 1990, 1991, and 1992. In the years that the firm was ranked number one, a higher percentage of female analysts were ranked at Lehman than at any other firm. In fact, many of the best and brightest women left research departments at other investment banks to join the Lehman Brothers research department.

Most of the recruiting committees of Lehman's competitors were composed almost exclusively of men, inadvertently signaling to candidates that there was little room for multiple approaches to career success. To communicate that the firm would evaluate talent in a more open way, Lehman's recruiting process exposed candidates to a broad range of employees. "After meeting with ten very different people, the candidate was bound to find someone with whom he or she could associate," said Rivkin. "Several candidates, even those who didn't receive an offer from us, commended us for showing them that there was more than one path to success." What's more, some male analysts opted out during the

Research Methodology

The research behind this article is part of a larger study I did with Harvard Business School's Ashish Nanda and Nitin Nohria, documented in "The Risky Business of Hiring Stars" (HBR May 2004), in which we examined Wall Street's jet-setters and the degree to which their star performance followed them from one firm to another. We zoomed in on star stock analysts for several reasons. First, there are reliable data on both the performance of star stock analysts and their movements between companies. (We defined a star analyst as one who was ranked by *Institutional Investor* magazine as one of the best in the industry. The rankings are accepted both by Wall Street and academics as a reliable proxy for performance.) Second, analysts suffer relatively few distractions when they change jobs: They stay in New York, they stick with the same sectors, and they retain the same customers. And third, their performance is widely believed to be dependent on their talent. Over a nine-year period, my colleagues and I examined 1,052 star analysts who worked for 78 investment banks (4,200 analyst-year combinations). To round off the research, we conducted 167 hours of interviews with 86 stock analysts and their supervisors at 24 investment banks. Over the past three years, I have continued to analyze the data and have conducted additional interviews as part of the star analyst project. By further comparing the rankings of star male and female analysts who stayed in their jobs with those of star female and male analysts who switched companies, controlling for many individual and firm characteristics, I was able to figure out how their performance shifted when they changed companies. This article draws on the frank and detailed interviews my colleagues and I conducted, as well as the hard data we've gathered, to shed light on the complex dimensions of mobility and performance of male and female analysts.

recruiting process because they were uncomfortable being interviewed and evaluated by women – women who could possibly become their team leaders, no less. In other words, the process screened out men uncomfortable in a culture in which women could thrive and men could learn from them.

That's important because Lehman sought analysts, male and female, who could not only learn but teach. Fraenkel looked for analysts who had something new to bring to the table, complementary skills that could rub off on other employees. This approach reflected Lehman's refusal to prescribe a best or right way to be an analyst. Fraenkel and Rivkin invited a variety of styles, allowing people to incorporate aspects of their personal identity, including gender, as they saw fit. The teaching and mentoring culture that evolved from this open approach to hiring offers an advantage to all employees, male and female alike.

Another implication for companies is that they would do well to understand – and communicate explicitly – the value they add to their employees' performance. Employees' perceptions of whether or not their skills are portable vary from firm to firm and don't always accord with reality. Perceptions differed strikingly, for example, at Goldman Sachs and Merrill Lynch, two firms that contribute similarly to stars' success. Merrill employees believed in their own portability: "We are free agents" was a typical comment there. Goldman Sachs employees, by contrast, tended to believe in their dependence on the firm: As one analyst said, "We are stars because of the firm we work for." From their first day at the firm, employees are told how much Goldman Sachs invests in their success.

The research shows us the value for employees and firms alike, of diverse and resourceful approaches to career management and development. Employees may want to enhance and protect their portability; employers may want to build and retain firm-specific human capital. Either way, the goal is developing stars who shine brighter, and longer, wherever they are.

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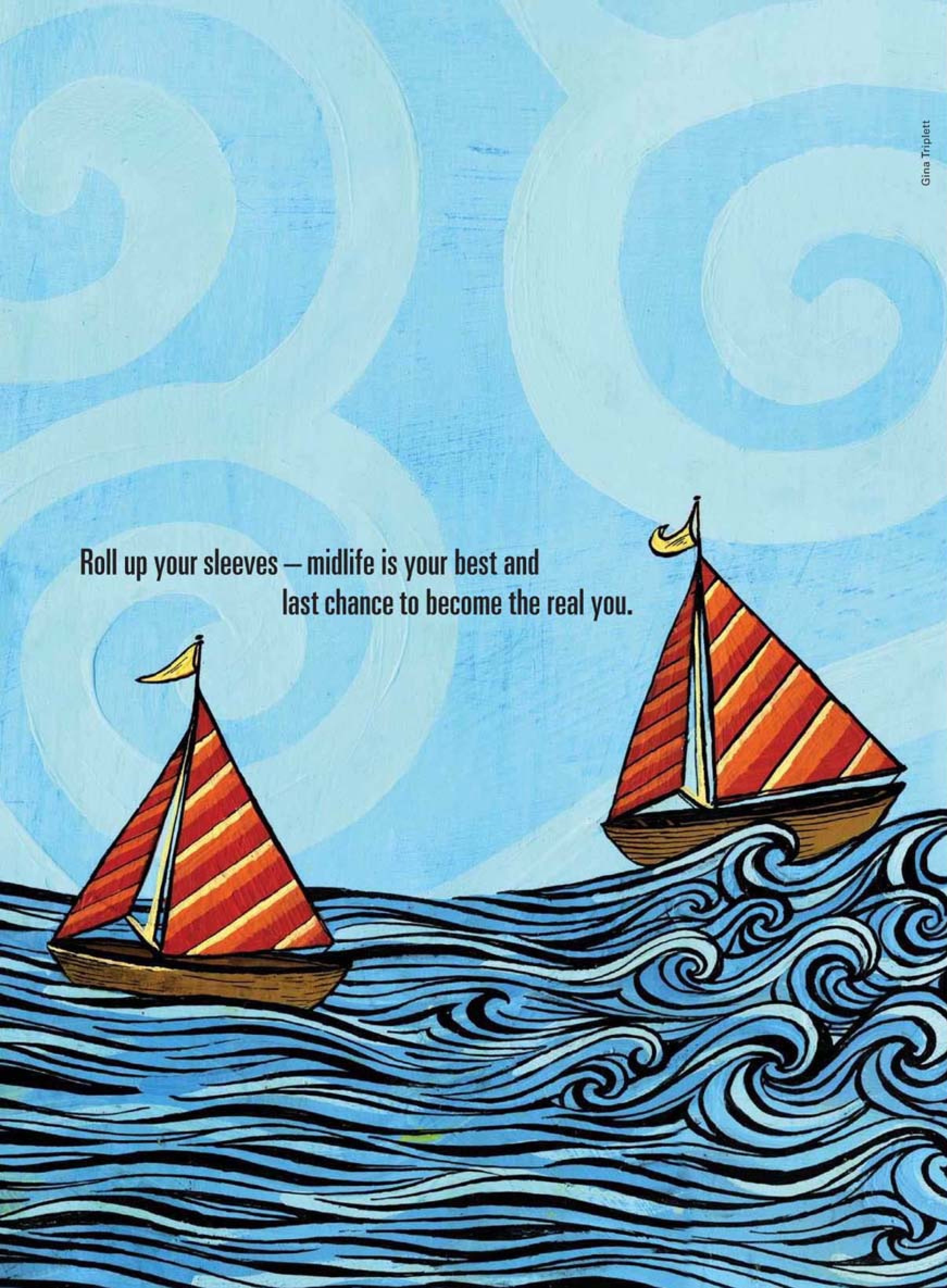
"I admire how you don't take no for an answer,
but I'm afraid I'm calling Security."

Roy Delgado



Gina Triplett

The Existential Necessity of Midlife Change

by Carlo Strenger and Arie Ruttenberg

In a paper published in 1965, Elliott Jaques, then 48 and a relatively unknown Canadian psychoanalyst and organizational consultant, coined the term "midlife crisis." Jaques wrote that during this period, we come face-to-face with our limitations, our restricted possibilities, and our mortality.

In his own midlife and beyond, however, Jaques did not seem to live with a sense of limitations. In the 38 years between the publication of that paper and his death in 2003, at age 86, he wrote 12 books; he consulted to the U.S. Army, the Church of England, and a wide variety of companies; he married Kathryn Cason, who was his wife and collaborator for more than 30 years; and, with Cason, he founded a consulting company devoted to the dissemination of their ideas.

Elliott Jaques, you might say, lived twice. By the end of his first life, in his mid-forties, he had earned two doctorates, one in medicine and another in psychology. He had gone through psychoanalytic training and had gained a lot of experience as both an organizational consultant and a psychoanalyst. In his second life, Jaques became a truly independent thinker. He greatly expanded the range of organizations with which he worked, and he created the concepts and theories for which he is most famous. He formulated some of his most original ideas in the late 1990s, when he was in his late seventies and early eighties.

People tend to react to Jaques's life with amazement: "How can a person stay productive for so long?" In these pages, however, we argue that a life such as Elliott Jaques lived should not be considered unusual. People's conceptions of age are hopelessly out of touch with reality. Life expectancy today in the West is around 80 and continues to rise. This means that at 53 – the median age of people in the baby boom generation (those born from 1946 to 1964) – the average baby boomer will live another 30 years. Stop and think about that for a moment: Since few people enter the workforce until they have completed their education – usually when they are in their twenties – the average baby boomer has as many years of productivity ahead of her as she has behind her.

As life expectancy increases, changes in middle age will become an existential necessity for many businesspeople.

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Some of these changes will be internally driven. Executives may feel that their work is no longer satisfying and that they want new challenges, for instance, or they may decide that it's time to branch out. Other midlife changes will be triggered by external events: A CEO may face an irresolvable conflict with the board of directors; an executive may fear being fired; a manager may have been passed over for promotion and think that his chances of ever reaching the next level are slim.

Whether a person goes willingly – or is pushed out – some midlife change is inevitable. But despite the necessity and frequency of such change, midlife (roughly the ages from 43 to 62) remains a very difficult period and one for which people are, on the whole, lamentably ill prepared.

Two opposing myths underlie many people's fears about midlife, inhibiting successful midlife change. The first, the myth of midlife as the onset of decline, is rooted in historically outdated conceptions. According to this myth, people end their productive lives and retire at age 65. Sixty-five is not a magical number, however. It was introduced as the retirement age in Germany in 1916. Twenty-seven years earlier, Chancellor Otto von Bismarck had established 70 as the age to begin receiving a pension. When asked how the state could afford such largesse, Bismarck replied that almost nobody would reach this age anyway. He was right. According to one source, life expectancy in Germany at the time was 49.

The second myth is the notion of midlife as magical transformation. This myth, the fruit of the past few decades, has been fed by countless self-help books and magazine articles, and by a general cultural atmosphere. The myth tries to sell the illusion that if people have enough vision and willpower, they can be anything or anybody they want to be. Paradoxically, this doesn't make midlife career changes easier – it makes them more frightening. Faced with stories of doctors who get up one morning knowing that they want to become chefs, housewives who have a sudden vision of the business empires they are about to build, and lawyers who one day have crystal clear plans for high-tech businesses, real-life human beings are bound to feel inadequate. They have fears, doubts, and vague ideas at best, so they'd better stick to their knitting.

Our theory that a belief in either of those myths inhibits successful midlife change is based on our decades of work with entrepreneurs and executives in many fields, our qualitative and quantitative studies of the over-50 age-group, and the most important theories of personality in the humanistic and psychoanalytic traditions. In the following pages, we will explore the myths in more detail and demonstrate how they lead to a dysfunctional approach to midlife. What we have learned is that executives who can see past these myths can make very successful life and career changes. The key is that they stay open to the range of possibilities their experience has actually qualified them for – but remain realistic about what they can achieve. Finally, we'll examine ways that cutting-edge companies are starting to help executives make the transition into their second lives.

Debunking the Myth of Midlife Decline

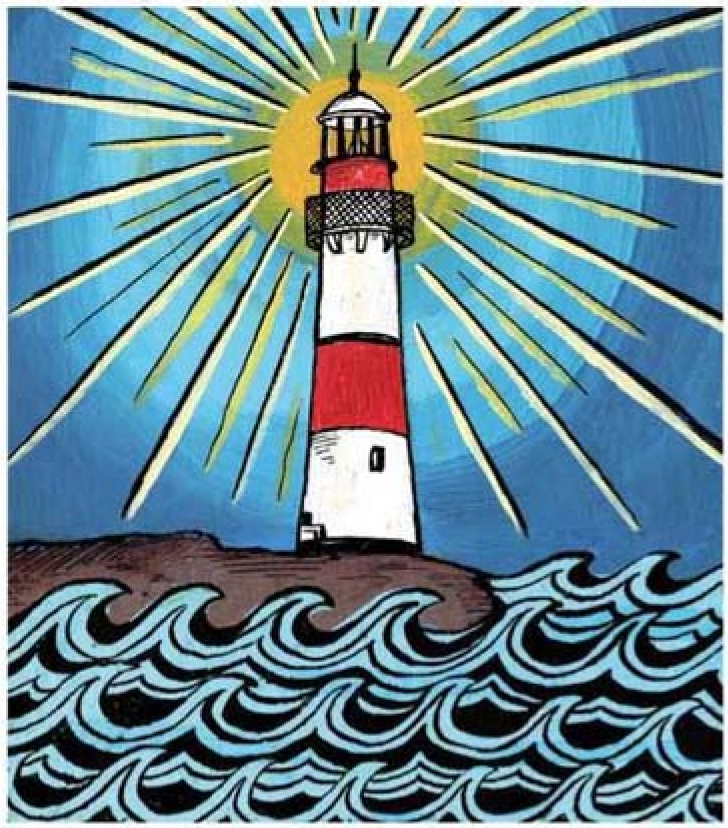
The ideas that midlife marks the onset of decline, and that acceptance of growing limitations is the only mature way to deal with aging, are still generally accepted as good common sense. Common sense, however, may be overrated. Midlife is exciting because it is a time when people have the opportunity to reexamine even their most basic assumptions.

Don't get us wrong: We are in no way trying to play down the objective problems that arise with midlife. There is the inevitable question of how aging citizens will maintain the standard of living most of them are used to without full-time corporate employment. Furthermore, people at midlife face more physical limitations. Health becomes a pervasive concern. As a physician once told us, "If you're 50 and nothing hurts, you're most likely dead!" Particularly in the U.S., which does not offer universal health insurance, a major illness can lead to a financial catastrophe. (See the sidebar "The Risk of Not Managing Midlife.") Add to this the fact that the cultural atmosphere makes it increasingly difficult for people in their fifties to find jobs, and it's not surprising that many middle-aged people experience enormous anxiety.

Our point is that while those problems have become the focus of endless discussion, the advantages that many people gain in midlife have hardly been mentioned. By middle age, most executives have gone through protracted crises that seemed insurmountable at the time; through these crises, they have discovered their strengths. One strength that tends to increase with age is the ability to put emerging problems into perspective, which helps executives deal with the issues at hand much more calmly and with much greater self-assurance. By midlife, most executives have also had at least two decades of professional experience. They have been in many situations that taught them a lot, not only about the business but about themselves. Most executives have learned that they really enjoy motivating people, for instance, or that the opposite is true: They enjoy working on their own and find working with others a drain of energy.

We argue that for a growing number of people, the midlife years can be a period of unprecedented opportunity for inner growth. At best midlife can be a time when people move from what psychologist Abraham Maslow called deficiency motivations to growth motivations. Deficiency motivations are fed by lack. People who have no food, for example, will be consumed by the need to find nourishment. Those who lack self-esteem will be driven to prove their worth. By contrast, growth motivations are fed not by a deficiency but by the human need to realize our full potential. Motivated in this way, we may try listening to ourselves in order to discover who we are and what we want.

For all those reasons, we believe that individuals have more freedom at midlife than they do at any other time. We don't expect this idea to be accepted without resistance.



The midlife years can be a period of unprecedented opportunity for inner growth.

The most deeply seated source of such resistance is the widespread belief that freedom is the absence of limitations and the presence of almost unlimited possibilities. According to this definition, midlife looks less than appealing.

The notion, however, that possibilities slip away with age is based on a false premise. The young do not have endless possibilities – that is an illusion, created by our limited knowledge of ourselves and the world when we are young. Early on, we make decisions on the basis of scant evidence of our true abilities; after all, in our late teens and early twenties, we know little about what we are good at and what we enjoy. Many careers evolve through a process of trial and error governed partially by external circumstances (company A rather than company B gave me a job) and by our images of success ("I *must* become a Wall Street executive!"). The illusion of the freedom of youth is also based on a retroactive idealization. We forget the pressures we faced: We had to get into a good school, get high grades, land a great first job, arrive at such-and-such a position by age 30, and so on. And in the middle of those demands, we had to shape our identities, develop our abilities, and establish our self-esteem.

By midlife, for many people, the pressures have lost much of their urgency. No longer riddled by the anxiety that they may not be good at anything, or by the need to prove that they are good at everything, they have the freedom that only self-knowledge can impart. They are also generally in less of a hurry. Most executives considering career changes do not need to act immediately. They have the time to listen to themselves, map their possibilities in the world, and create their new lives with care. The journey can take odd twists and turns before they end up in a satisfying place.

Consider Judith, an Israeli woman in her mid-fifties. She had done well for herself by most measures: She was a partner in one of the largest international accounting firms; she had a nice house; the youngest of her three children was about to graduate from a prestigious college. But there was one big problem: For the past year, Judith had found it increasingly difficult to go to work in the morning. She dreaded getting through her list of things to do; every time the phone rang, she was overcome by the temptation to tell her assistant to inform the caller that she was in a meeting. There was nothing at work that she was looking forward to: neither meetings with clients nor strategy interactions with her peers nor videoconferences with the firm's overseas bureaus.

Judith was going through a midlife crisis. Although she felt that she needed a career change, she simply didn't know where to start. Judith had lived her life along well-defined lines. She had married early; by becoming an accountant she had made a choice her family could accept easily; and she had suffered no major disruptions in the execution of her life plan. Her family had instilled in her a strong work ethic – time not accounted for was time wasted. "No wonder I became an accountant," she joked.

The first step in Judith's midlife transition was surprising, and it had little to do with career change. For Judith, an observant Jew, religion had always been important. But at some point she began to feel that her practice of Judaism had become a deadening routine. "For a long time I felt that there was no use rocking the boat," she said. "There were children to educate, and I didn't have an alternative to the set ways of our congregation. A secular lifestyle never appealed to me."

With prompting from a personal consultant, Judith started to read up on various strands of Judaism. Though highly intelligent, she had never truly considered the option of actively thinking about religion. After a few months of reading a variety of works by religious thinkers, she began to have a gleam in her eye. "These people are opening my mind! I can't believe I missed out on this!" Judith soon started to

The Risk of Not Managing Midlife

Some readers will no doubt feel that despite the potential advantages, making drastic changes in midlife is simply too risky. First, it may seem dangerous to forgo pension benefits. Second, particularly in the U.S. (where there is no universal health coverage), it may be foolish to walk away from the company health plan. Given the high cost of private health insurance, it might seem preferable to stick to the protective environment of the corporate world.

Those fears are certainly understandable. The generation currently in midlife was born into a world in which corporations inspired trust and made workers feel secure. Most people's instincts told them that to stay within a large organization was to play it safe.

But increasing life expectancy, the rising costs of health care, and global competition have made it much harder for companies to meet their health care and pension obligations. Remember when GM was the largest company in the world and seemed unassailable? Now the union of automotive workers, generally intransigent in standing up for their members' rights, has renegotiated the terms of GM's health insurance benefits because the company has no way of meeting its actuarial debt of $55 billion. The company could collapse under this weight.

The facts no longer support the strategy of sitting tight within a large organization. In fact, that's bad risk management. Psychologically, we all prefer the status quo when it feels secure. But staking the future on corporate safety is a bet, not a no-risk strategy. People need to take their destinies into their own hands by thinking in terms not of safety nets but of active risk management.

Such a shift in mind-set has serious implications. Many people know quite early in midlife that there may be good reasons for a career change. Some may be in danger of losing their jobs; others may realize that their hearts are no longer in what they do. Hanging on for dear life is usually the wrong strategy. In terms of long-term risk management, it might be much better to start a new career at a relatively young age. Many people need to start thinking about alternatives that suit their abilities and personalities when they still have two or three productive decades ahead of them. In this way, they can discover the possibilities that will allow them to work much longer and thus ensure their financial well-being.

organize reading groups of like-minded people, and her husband became an enthusiastic partner in the search for new ways of experiencing Judaism.

It wasn't that Judith's religious expansion turned into a new career for her. Instead, it served as a catalyst for further change. She talked more to people. She realized that her view of herself as a creature of habit who couldn't do anything new was very limiting.

One of her responsibilities at work was advising companies in mergers and acquisitions. She had acquired a lot of expertise in this field but was finding the work repetitive and tiresome. However, the thought of crossing over to the investors' side – "to enemy territory," as she put it – was immensely threatening to her. Indeed, she was apprehensive when an acquaintance suggested that Judith talk to a venture capital fund. "I'm too old," she said. "None of the venture capital funds would be interested in me."

In fact, the first fund she talked to didn't have a suitable opening, but people there reacted very favorably to the idea of her moving into the field and even offered to help her find a position. It took about half a year before Judith got an offer and started to work for a venture capital fund. The condition was that she'd come in as a senior analyst. If there was a fit between her and the partners by the end of her first year, she would be offered a partnership. The fit was excellent, and within two years, Judith had made a successful midlife transition.

Judith's story exemplifies a ubiquitous pattern. She made use of a midlife transition not just for a career change but also to connect to her desires and become a more independent, self-directed woman. For people like Judith, midlife can be a particularly valuable period. Their lives can become enriched beyond recognition as they take steps toward what Carl Jung called individuation: the process of becoming your true self. Like Judith, many executives who successfully negotiate midlife changes finally have the freedom to ask themselves what they want and believe.

Debunking the Myth of Magical Transformations

What Judith did particularly well was to aspire to a realistic change. But that's not always the path that people take in midlife. An opposing myth about midlife transitions has flooded our culture in recent years, partly, we suspect, in reaction to the long-held view that midlife inevitably brings a loss of freedom. This new myth says that where there's a will, there's a way. Nike's immortal "Just do it!" sums up well the message disseminated by innumerable self-help books, inspirational workshops, and business talks that bill themselves as "electrifying," "uplifting," and "motivating." Take a closer look, and you'll find ideas from Eastern philosophies mixed up with slogans that are completely incoherent. Nevertheless, we have seen serious, experienced, and intelligent businesspeople poring over texts to find some unfathomable truths that are just not there.

One problem is that this myth of magical transformation conflicts with science. Our brains are composed of billions of neurons connected to one another through myriad pathways. Changing basic patterns of thought, feeling, and action requires that billions of new connections be formed. Such a process must be fed by constant experiential input and is therefore inevitably gradual. Our brains are organic structures, not computers onto which new programs can simply be downloaded. We accept that fact when it comes to sensorimotor skills like playing squash but tend to forget it when it comes to engrained psychological patterns, which are no less complex.

The myth of magical transformation through vision and willpower also fails the test of everyday experience. Magical transformations do not happen. We have never met anybody who got up in the morning with a full-fledged vision in his mind and then followed a straight path to realize it. The flesh-and-blood human beings we work with go through a lot of fear, confusion, and trial and error on the road to transformation, and the serious coaches we have spoken with over the years confirm this.

At some point, most people come to recognize that radical transformation is unrealistic. But the disappointment of that realization can be debilitating. We have seen hundreds of people come back from uplifting talks and intensive workshops believing that their lives were about to change forever. But the pattern is always the same: The magic lasts for several days, and within a couple of weeks the overwhelming majority of participants no longer understand why they thought the pep talks they heard would transform them. Subsequently, they feel confused – they don't quite know in which direction they would like to evolve, so they abandon their efforts to change. Paradoxically, therefore, the very doctrine that aims to encourage change in people serves to stifle it.

The myth of magical transformation has become pervasive because it feeds the all-too-human tendency toward wishful thinking. We all have fantasies about what we could have been in a different life: actors, singers, writers, tycoons, political leaders. Although most of us don't talk about these fantasies, they can have a strong hold on our psychology, as Freud convincingly showed. We often feel like butterflies confined by the cocoon of our real lives, waiting to be released. This fantasy is expressed in fairy tales and movies, and as long as it remains clearly understood as a fairy tale it presents no problems. But when people buy into the message that fantasy is a potential reality, they get into trouble.

To understand this problem, one has to acknowledge the difference between dream and fantasy. The British psychoanalyst Donald W. Winnicott characterized dreaming as the use of the imagination to create possible scenarios in which our potential can come to fruition. But to be productive, dreams must be connected to our potential. Otherwise, they are idle fantasies. Hence the ability to differentiate between dreams and fantasies is crucial: Without dreams, we are unlikely to make any changes, but getting lost in fantasies is not only a waste of energy but can also become an impediment to actual change.

Consider Albert. He was a senior vice president of marketing at a large bank and had recently found a tremendously successful new way to promote the bank's latest financial instrument. The grapevine was buzzing with rumors that Albert would become the bank's next CEO. Suddenly, he began to have chest pains. After numerous checkups, his physician suspected that Albert's pains were psychosomatic in origin and referred him to one of the authors, Carlo Strenger, for counseling.

Albert accepted that his symptoms might be partly psychological and related to his age (he was approaching 50), but he kept wondering why he should be in trouble now when his career was going so well. If his body was telling him that the corporate game was no longer for him, what should he do? Just thinking about leaving the bank made Albert shiver and sweat. "I've been a banker all my life! It would be nuts to throw it all away now," he said.

Albert's fears were natural. It is never easy for people to leave a home base that has given them status, income, and security. After a period of intense anxiety about the future, there followed a couple of months in which Albert talked incessantly about becoming a screenwriter and film director. Prompted by self-help books promising he could be anything he wanted, Albert planned to enter the highly competitive world of filmmaking. He even sat down one weekend and tried to write a script. But after thinking things through in counseling, Albert realized that this was not a realistic field for him. He had always loved movies, and his knowledge of film history was remarkable, but when pushed he admitted that the closest he had ever come to directing had been taking videos of his kids: "When I wanted to turn the videos of a vacation into something more, I gave it to a film student to edit; it didn't even cross my mind to do it myself," he said. Albert was realizing that becoming a director or screenwriter was more a fantasy than a dream.

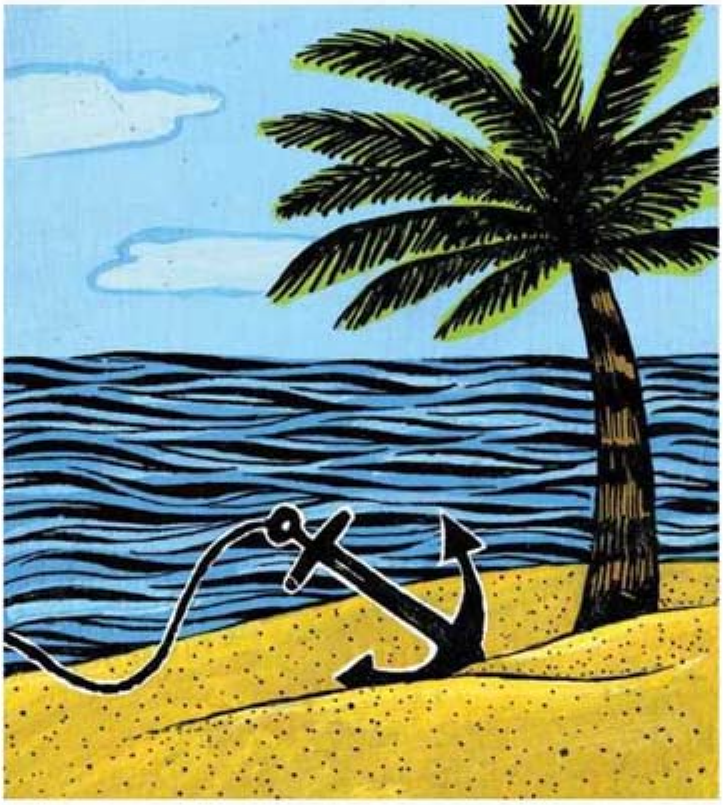
At this point, Albert became visibly depressed. Not surprisingly, the myth of magical transformation had a paralyzing effect on him. He felt he lacked the gusto and traction of the people described in the inspirational, self-help literature. "They must be really special, and I'm not. I'd better hang on at the bank until retirement age," he said.

This was the stage at which Albert needed input from the external world in order to crystallize a new vision. The personal consultant pushed Albert to wonder what attracted him

To be productive, dreams must be connected to our potential. Otherwise, they are idle fantasies.

to movies. First, he loved the medium. Second, he thought that being in film would give him an opportunity to work with different types of people. "I'm not sure I can stand the idea of seeing pinstriped suits around me for much longer!" he complained. But he had a deeper motivation as well. Albert had felt at crucial junctures in his adult life that certain movies helped him understand what he was going through. His intense interest in this art form was driven in part by the desire to make movies that could help others in the same way.

After some hard-hitting reality testing, Albert realized that although he couldn't do everything he fantasized about, by putting his mind to it he could still do quite a lot. He loved motivating people; he loved generating ideas, and he was good at it; he liked devising strategies and had a proven



record for that. Eventually, after a lot of networking and some counseling, Albert met a group of people who had decided to break off from a large corporation in the media industry. They wanted a smaller operation and more direct contact with the creative people. But they needed funding, and none of them was up to heading a company.

Albert had what they needed. He was good at strategy and had connections to funding sources. Most of all, he enjoyed the process of sifting through scripts, generating ideas, and bringing them to fruition. It took Albert some time to accept that there was financial risk involved in teaming up with this group. He feared that he would feel humiliated if he drove a less luxurious car than his peers did or skied at less exclusive vacation places. But because his self-esteem was sufficiently stable, Albert, with his wife's support, was able to work out a detailed cost-cutting plan. To his surprise, when he gave up his big corner office overlooking the city and the company car, he felt far less loss than he had thought he would. Several years later, he reported, not only was his new life more creative than his life at the bank had been, but his chest pains had disappeared as well.

Albert's transition was possible because ultimately he could distinguish between dreams and fantasies. Nobody would think that at age 50 it is realistic to start playing the piano with the goal of becoming an international concert pianist. It's also very rare for midlife career changes to entail a move from banking to writing scripts in Hollywood. People can rid themselves of the illusion of omnipotence by concentrating on the connection between their skills and aspirations. You might not become a professional pianist, but you could become an orchestra manager.

Managing the Career Change

The good news for executives approaching midlife is that changes in the work market in the past few decades have increased the opportunities for midlife career moves. For example, many professions and functions have emerged that didn't even exist 30 years ago. Moreover, large companies tend to outsource more and more tasks and functions, creating opportunities for professionals from various fields to market their services. The more executives are aware of the skills they have developed in the course of their work lives, the more they can take advantage of these opportunities.

Of course, as the examples we have described show, coming to a realization of possibilities is a challenging task, one that often requires the help of a personal consultant, coach, or therapist with some understanding of career development. Achieving self-awareness can also be a lengthy process. It took Albert more than a year even to admit that he should contemplate a career change, and he had the impetus of growing health concerns to signal the problem. Frequently the process will, as Judith found, require embarking on some nonprofessional project that serves as a catalyst. Executives can, perhaps, find such projects in their home communities or in the CSR projects their firms sponsor. Many executives may respond that the demands of their jobs at this stage of their lives preclude an investment of time in activities unrelated to their jobs. We strongly believe, however, that such activities can help executives discern the need for a transition; they can also highlight the direction that transition might take.

Midlife transitions are not just an exercise in self-management, however. Companies and their investors need to prepare themselves for the possibility that senior executives seemingly on track to become CEO (like Albert) may in fact be contemplating a very different path. Conversely, midlife transitions offer corporations an opportunity to import perspectives and skills from people looking to move into new areas of business, as Judith did. Because midlife transition is a problem (and an opportunity) facing companies for the first time on such a large scale, there are as yet no best practices. Nonetheless, some companies are trying to address the situation. Most limit themselves to sending managers to short seminars and programs that sell some simple message, such as "keep moving," "find the untapped potential inside yourself," or "think outside the box."

Those events can be useful, but companies that want to be serious about managing executives' midlife changes need to realize that it will require time. A three-day workshop can at best spur executives to initiate change, but it can never complete the job for them. Organizations need to take radical steps to help their executives understand that given current life expectancy, everybody in the company will leave at some point and begin a second life. The only question is at what age.

Organizations need to take radical steps to help their executives understand that everybody in the company will leave at some point and begin a second life.

To create this mind-set, companies must help executives prepare for a second life as a matter of policy. We believe that everyone above middle management and over the age of 45 should have periodic meetings with coaches or consultants to help plan their second careers. Companies should also establish a continuing-education fund that executives can draw on to develop knowledge, skills, and interests that serve their personal development, not just their performance in their current jobs. As Rosabeth Moss Kanter, Rakesh Khurana, and Nitin Nohria have suggested, the business world must collaborate with institutions of higher education to develop programs and courses geared toward that end.

Companies may also find it helpful to establish links with business and nonbusiness organizations that offer opportunities for executives to collaborate on specific projects. Of course, such investments cost money, but the return is invaluable for as long as the executives stay at the company. Through various developmental activities, executives will become well-rounded professionals, which is a competitive asset in itself. More important, perhaps, encouraging people to think about their lives after they leave the organization may help them stop equating the end of employment with death – a belief that can cause panic to seep into the organization's culture. If people have developed other interests, knowledge bases, and skills, they will have greater self-confidence and feel less paranoia, and the organization will be more productive.

Companies also need to learn how to deal with an influx of talent from the baby boom generation. While many executives at midlife will discover that they need to find venues outside the corporate world, others will want to get in. Organizations that are willing to be creative in finding ways to use the skills and experience of the midlife executive can gain a competitive edge in the marketplace. One large financial company, for example, understood that baby boomers constituted a highly lucrative segment of its market. Many people in this generation have accumulated substantial assets and seek good management for their money. To attract this cohort, the company built a new midlife-oriented venture around a group of executives who were themselves in their fifties. These executives understood the specific needs of the target customers, knew what services they wanted, and were able to earn their trust in marketing efforts.

Because it is still so early in the game, few of the corporate responsibilities and opportunities for midlife transitions have been fully thought out. But this much is certain: Solutions such as therapy and coaching are at best stopgap measures. Realistic programs will have to be developed to help the growing numbers of midlife senior executives go through the long process of finding a vocation for the second half of their adult lives.

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The baby boom generation is getting older, but its work is far from finished. Many people can anticipate and enjoy a second life, if not a second career. The task at hand is not as easy as the "just do it" culture of self-help promises, however. True transformation at midlife does not reside in us, waiting to emerge like the butterfly from the cocoon. Self-actualization is a work of art. It must be achieved through effort and stamina and skill. Fortunately, the life force does not just extinguish itself at age 65. Indeed, there is no period better suited to inner growth and development than midlife, when many people learn to listen to their inner selves – the necessary first step on the journey of self-realization.

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To order, see page 139.

Are You Being Served?

"Encouraging employees to solve customer problems and eliminate the source of complaints allows them to be 'nice,' and customers treat them better in return."

Frederick F. Reichheld and W. Earl Sasser, Jr.
"Zero Defections: Quality Comes to Services"
Harvard Business Review
September–October 1990

"You're unlikely to receive this level of service from our competitors, Mr. Weaver."

"Please listen carefully, as our menu makes no sense."

George Abbott, John Caldwell, Scott Arthur Masear, Rod Rossi, and P.C. Vey

"Not to alarm you, sir, but this Tokyo businessman didn't think he needed the extensive coverage either."

"I don't mean to undermine your accusatory tone – but really, you have the wrong extension."

"I'm afraid our new advertising budget will allow only for fooling some of the people some of the time."

As projects get more complicated, managers stop learning from their experience. It is important to understand how that happens and how to change it.

The Experience Trap

by Kishore Sengupta,
Tarek K. Abdel-Hamid, and
Luk N. Van Wassenhove

If YOU WERE LOOKING FOR AN EXPERIENCED MANAGER to head up a software development team, Alex would be at the top of your short list. A senior manager, Alex has spent most of his career running software projects. His first responsibility was developing scientific software for NASA, and since then, he has overseen ever more complex projects for commercial enterprises and government agencies.

Alex was typical of the several hundred project managers who participated in our research initiative on experience-based learning in complex environments. We invited him to test his skills by playing a computer-based game that

Dave Wheeler

entails managing a simulated software project from start to finish – making the plans, monitoring and guiding progress, and observing the consequences. We set goals for him: finish on time and within budget, and obtain the highest possible quality (as measured by the number of defects remaining).

Alex's decisions and outcomes were representative of the group as a whole. He started with a small team of four engineers and focused mostly on development work. That tactic paid off in the short run. The team's productivity was high and development progressed quickly. However, when the size of the project grew beyond initial estimates, problems cropped up. Because Alex still chose to keep the team small, the engineers had to work harder to stay on track. Consequently, they made many mistakes and experienced burnout and attrition. Alex then tried to hire more people, but this took time, as did assimilating the new hires. The project soon fell behind schedule, and at that point Alex's lack of attention to quality assurance in the early phases started to show up in snowballing numbers of software errors. Fixing them required more time and attention. When the project was finally completed, it was late, over budget, and riddled with defects.

After the game, we asked Alex to reflect on the simulation. Did the project's growth take him by surprise? Was he shocked that the number of defects was so high or that hiring became difficult to manage? Alex – like most of his fellow participants – replied that such surprises and shocks have, unfortunately, become regular occurrences in most of the projects in which he's been involved.

Quality and personnel headaches are not what most companies expect when they put seasoned veterans like Alex in charge of important projects. At this stage of their careers, they should know how to efficiently address problems – if not prevent them altogether. What we discovered in our experiments, however, was that managers with experience did not produce high-caliber outcomes. In our research, we used the simulation game to examine the decision processes of managers in a variety of contexts. Our results strongly suggest that there was something wrong with the way Alex and the other project managers *learned* from their experiences during the game. They did not appear to take into account the consequences of their previous decisions as they made new decisions, and they didn't change their approach when their actions produced poor results.

Our debriefings indicated that the challenges presented in the game were familiar to the participants. We asked them to rate the extent to which the game replicated their experiences on real-life projects on a scale of 1 to 5, where 5 meant "completely." The average score was 4.32, suggesting that our experiments did accurately reflect the realities of software projects. So, though the managers had encountered similar situations on their jobs in the past, they still struggled with them in the simulations. We came to the conclusion that they had not really learned from their real-life project work, either.

In the following pages we'll identify three likely causes for this apparent breakdown in learning, and we'll propose a number of steps that organizations can take to enable learning to kick in again.

Why Learning Breaks Down

When anyone makes a decision, he or she draws on a preexisting stock of knowledge called a mental model. It consists largely of assumptions about cause-and-effect relationships in the environment. As people observe what happens as a result of their decisions, they learn new facts and make new discoveries about environmental relationships. Discoveries that people feel can be generalized to other situations are fed back, or "appropriated," into their mental models. On the face of it, the process seems quite scientific – people form a hypothesis about a relationship between a cause and an effect, act accordingly, and then interpret the results from their actions to confirm or revise the hypothesis. The problem is that the approach seems to be effective only in relatively simple environments, where cause-and-effect relationships are straightforward and easily discovered. In more complex environments, such as software projects, the learning cycle frequently breaks down. In the experiments we carried out with our study participants, we identified three types of real-world complications that were associated with the cycle's breakdown.

Quality and personnel headaches are not what most companies expect when they put seasoned veterans in charge of important projects.

Time lags between causes and effects. In the real world, there are delays between causes and effects, and it may become difficult to link them, let alone specify the relationship between

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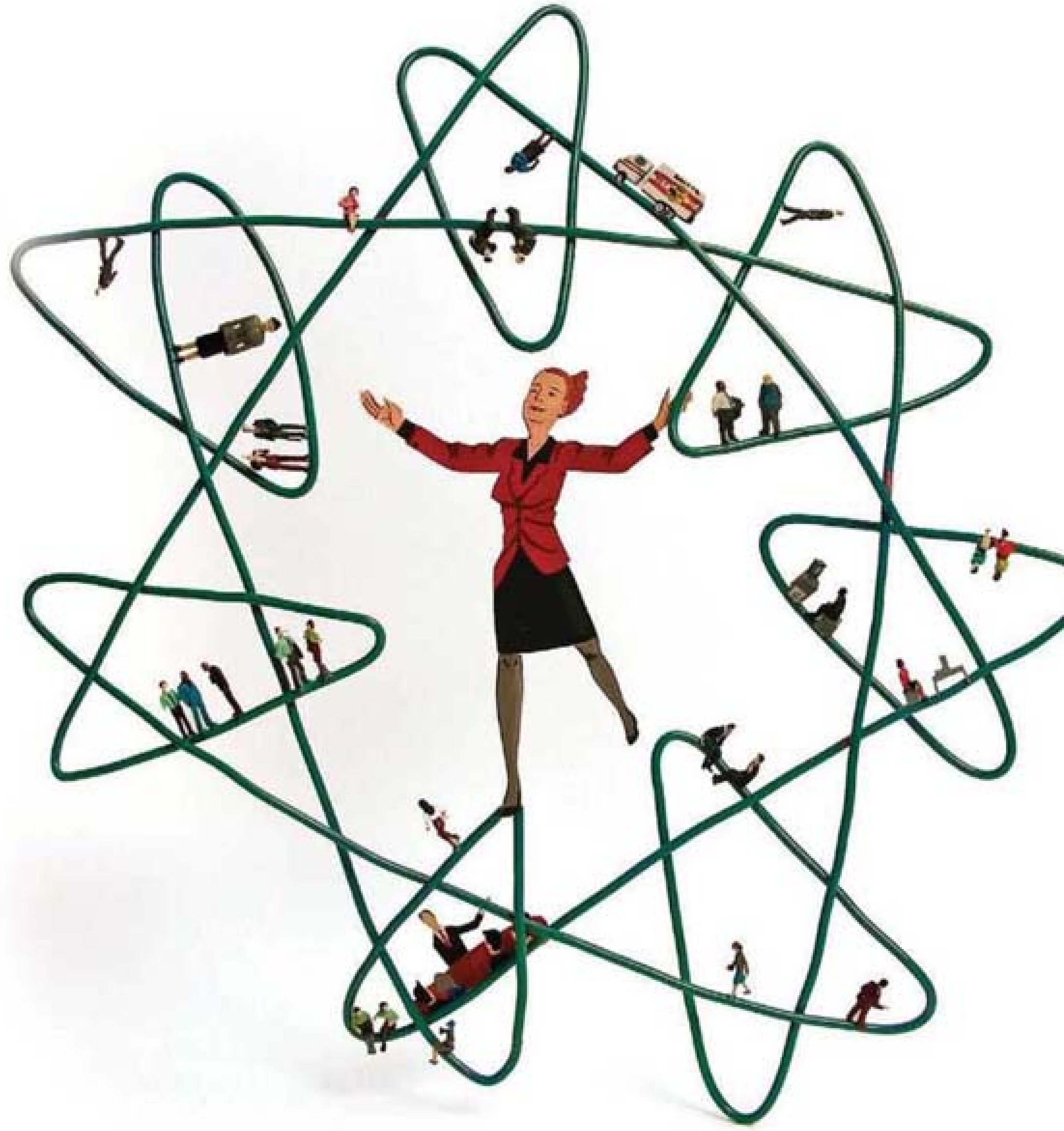
them. To see how project managers cope with this issue, we asked participants in our research to play a simulated game in which they managed a medium-size satellite-software development project that grew significantly in size as more product requirements were added. Each participant had to oversee the project in one of four operating environments we'd created, which varied in terms of the time that lagged between a decision to hire and the arrival of new team members, and between the team members' arrival and their assimilation. Participants had to make a decision on the staffing level of the team every two months in a project that took around 18 months to complete. We then assessed managers' ability to handle time lags, by comparing their hiring decisions both with the decisions made by a theoretical naive manager who never accounted for time lags and with the decisions made by a theoretical perfect manager who always did.



Regardless of the hiring and assimilation delays in their respective project environments, all participants made more or less the same decisions as our naive benchmark. That shows they were unable to incorporate the effects of time lags into their planning decisions and suggests their mental models were based on a simple environment in which there was little or no delay between a decision and its result. The length of the lag mattered: Participants in environments with longer hiring and assimilation delays had more difficulty coping than participants who experienced shorter delays. The type of lag was also material: Subjects had greater difficulty handling assimilation delays, which are much less visible than hiring delays. The ability to manage lags deteriorated sharply – and disproportionately – when subjects were required to manage long hiring lags followed by long assimilation delays. Subjects working under those conditions incurred 83% more effort (in personnel time) and took 40% longer to complete the project than those making decisions in the low hiring- and assimilation-delay environments.

Interestingly, in many cases the participants decided to hire more staff late in the project, which ran counter to what they later said managers ought to do. In postgame debriefings we asked subjects to describe appropriate hiring policies to adopt when projects ran late. Most of the experienced managers stated that they would refrain from hiring and look to other options such as reframing the project, zeroing in on a few key priorities, or extending the deadline for completion. However, that was clearly not what they actually did. In a follow-up experiment where participants managed a second project after the debriefing, the same behavior persisted: Those managing projects with long time lags still hired more staff late in the project. This suggests that even when people had or acquired knowledge, they did not necessarily learn how to act on it.

Fallible estimates. In software development, initial estimates for a project shape the trajectory of decisions that a manager makes over its life. For example, estimates of the productivity of the team members influence decisions about the size of the team, which in turn affect the team's actual output. The trouble is that initial estimates usually turn out to be wrong.

To see how managers handle fallible estimates, we conducted another experiment. In it, we examined a cycle of decisions wherein managers received initial estimates of the project team's productivity and were then asked periodically to provide their assessment of the team's actual productivity, based on progress made. Each manager got one of three initial estimates of how many tasks the team would accomplish per person per day. One estimate was low, one medium, and one high – reflecting the wide range of values that different estimation tools can produce for the same project. The managers had to provide updated estimates of the team's productivity at three points during the game: the end of the design phase (fifth month), the middle of the coding phase (10th month), and the end of the coding phase (15th month). At each point, the managers received progress reports on the project's status with new estimates of productivity and were advised to review them before providing their own estimates of the team's productivity.

The participants were told that their productivity estimates would be used for making the adjustments to the project's staffing levels and schedules. In reality, however, the game disregarded the estimates. The idea was to give all subjects identical status reports, so we could compare how people's productivity estimates evolved over time. Our hypothesis was that people's productivity estimates would converge (people starting with low estimates would raise them over time and those with high estimates would lower them).

So what happened? The managers' productivity estimates did not converge over time. What's more, there was a clear bias toward conservativeness: All their estimates drifted downward. That was true not only for managers given high initial productivity estimates but also for those whose initial estimates were low. And when faced with two estimates of productivity (their previous estimate and the new number provided by the status reports), they accorded greater weight to the *lower* of the two figures in revising their estimates. We suspect that this conservatism can be explained by managers' attempts to game the system to get more resources.

Initial goal bias. Project managers usually begin with a set of goals related to cost, time, and other factors. But most projects change in scope or encounter the unexpected, which frequently renders early targets obsolete. When that happens, managers need to revise their targets accordingly.

To see if managers did amend their targets in response to changes in scope, we asked two different groups of subjects to manage a project that increased substantially in requirements. Each group received an initial set of two targets. The "cost group" subjects were asked to stay within budget (944 person-days of effort) and deliver the product on schedule (within 272 working days). The "quality group" subjects were asked to deliver the product on schedule and with the fewest number of defects. It was clearly stated that these were initial targets only, based on information available at the time, and that participants' success would be evaluated on the overall outcome. The increase in scope happened a quarter of the way into the game. At that point, managers could have opted to revise their initial targets by projecting budget or time overruns while sticking to initial quality goals. Although we did not ask players to explicitly reevaluate their targets, we were careful to leave the possibility open to them.

Neither group readjusted targets in light of the new information. Instead, players in both groups stuck to their original targets, and as a result they all failed to achieve an optimal outcome. In an effort to keep costs down to the initial target, the cost team made far fewer hires than was ideal and sacrificed completion time. Although these players kept the cost overrun down to 59%, they took 17% more time to complete the project and their number of defects rocketed to 1,950. The quality team, on the other hand, employed too many people. The players in this group hit their defect target, but they still finished 9% over schedule time and came in a whopping 107% over budget. In some cases sticking to initial targets actually created counterproductive outcomes. In trying to meet budgets, the "cost group" subjects often paid little or no attention to quality assurance. In the process, they created so many errors that the effort it took to fix them substantially drove up the cost of the project.

These results suggest that if not explicitly required to reevaluate objectives, managers will continue to pursue the targets set at the outset of a project, even when events render the targets inappropriate. It's not hard to see where that bias comes from. Very early in their careers, people incorporate into their mental models the notion that it's important to meet externally set targets. This bias is often reinforced in managerial life. Revising targets is seen as an admission of failure in many companies, and managers quickly realize that their careers will fare better if they stick to and achieve initial goals – even if that leads to a worse overall outcome. With the bias so firmly embedded in the mental model, it's hardly surprising that it affected decision making in our simulation, even though the participants understood that success would be measured by the project's results.

Despite their experiences with complex projects, the veteran managers do not meaningfully improve the mental models they have formed in simpler contexts.

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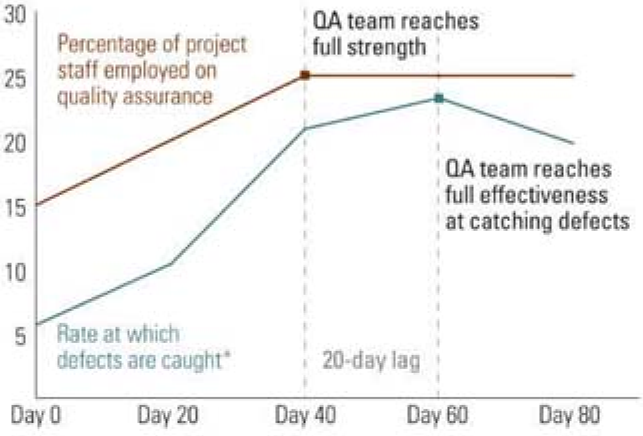
We conclude that managers find it difficult to move beyond the mental models that they have developed from their experiences in relatively simple environments or that have been passed on to them by others. When complications are introduced, they either ignore them or try to apply simple rules of thumb that work only in noncomplex situations. What they don't do is materially improve the quality of their mental models to take into account the realities of complex

Cognitive Feedback in Complex Projects

This chart shows managers that there's a long lag between an effect, the number defects caught in a software development project, and its cause, hiring additional quality assurance staff. The two lines indicate a 20-day lag between the time the QA team reaches full strength and its full effectiveness at catching defects. The chart also suggests that the team may be able to reduce the QA staff after day 60, when the rate at which defects are found drops, which most likely indicates that the team has become experienced and is making fewer mistakes. Armed with such data, managers can make better staffing decisions. The connection between cause and effect is clearer when you have the feedback in this form: visual, immediate, and with the benefits of hindsight to guide you.



*number of defects found per thousand delivered source instructions

projects. This conclusion has two important implications for companies that continue to emphasize learning on the job:

First, the impressive backgrounds of people like Alex will have little bearing on their ability to manage complex projects. Many companies routinely find that replacing one veteran project manager with another has no impact. Despite their experience with complex projects, both managers do not meaningfully change the mental models they've already formed in simpler and usually similar contexts. In some cases, in fact, companies might even be better off hiring someone who didn't have experience. That's not to say that different managers don't make different decisions or that circumstances may not conspire to make a particular project turn out well, or even that a few managers aren't consistently successful over time. The point is that most managers, even those with impeccable résumés, fail to turn in consistently good, let alone improving, performance on the projects they run. Even when managers do consistently better their performance, the improvement is probably the result of some subtly different past experience rather than systematic and incremental learning from complex projects.

The second implication is a corollary of the first. If it makes little difference whom you put in charge, then managers will end up ascribing responsibility for failures not to their own decisions but to some other factor: overambitious planning or the demands of the finance department (or – as is often the case – a salesperson promising too much to the client and then setting unrealistic goals for the project). When that kind of belief takes hold, managers start to look in the wrong places for solutions to their performance problems. That can be a recipe for disaster.

Fixing the Experience Learning Cycle

Although our research indicates the experience learning cycle has broken down for most managers of complex projects, it can be mended. There are a number of practical steps organizations can take to get managers to start learning in complex situations. Some of our recommendations *accept* the deficiencies of the experience learning cycle and involve helping managers work around them by supplying other types of learning. Other approaches aspire to *reduce* the deficiencies of the cycle through improved discovery and appropriation. Companies that adopt these recommendations will quickly find that their ability to improve project-management performance continually increases.

Provide more cognitive feedback. Project environments are rich in information, particularly feedback on outcome, which is delivered through status reports. But in environments where cause-and-effect relationships are ambiguous, outcome feedback is not an effective mechanism for discovery or for identifying reasons underlying a specific problem. What managers need is feedback that provides insights into the relationships among important variables in the project environment, particularly as the project evolves. This is called *cognitive feedback*. For an example, see the exhibit "Cognitive Feedback in Complex Projects," which depicts the relationship between the level of quality assurance and the rate at which defects are caught in the first 80 days of a project. In this case, the manager has chosen to start the project with a relatively low level of quality assurance and has increased it over time. The rate at which defects are caught increases correspondingly, but with a lag, and disproportionately because more effort is now devoted to detection. The rate then decreases, signaling that most of the defects are being detected, and the manager can now maintain quality assurance at this level or even reduce it. While such feedback is not error free, it enables managers to learn about complex dynamic relationships. Our research has demonstrated clear benefits from it: Managers who were provided with cognitive feedback in our simulations showed a deeper understanding of their environments and made decisions that resulted in better outcomes. We recommend that companies invest in making cognitive feedback a part of regular project status reports. What's more, we've found such feedback to be even more effective when data from different projects are combined, so that the impact of actions across multiple projects can be examined.

One leading provider of corporate software that we know employs cognitive feedback in its development projects. The consensus among executives there is that this has helped project managers develop better insights. Their decisions also appear to have improved: The proportion of problem projects has fallen by 56% in three years, the company calculates.

Apply model-based decision tools and guidelines. Our research consistently demonstrates that managers can't do adequate mental bookkeeping in the dynamic aspects of software project management. Bare intuition is not enough: Managers facing decisions need the assistance of tools that combine formal models and heuristics. Consider staffing decisions. When a manager makes several hires, there is a hiring delay and an assimilation delay with each. Over time it becomes difficult for the manager to assess current and predict future team productivity, especially if the staff suffers attrition. But if the manager is provided with tools that can calculate the effects of additions and turnover for several periods, he will obtain a clearer picture of the expected cumulative impact on team productivity over the medium term. In addition to formal models, such tools can contain mechanisms such as trip wires for projects in trouble (flagging when a manager should consider reducing scope, for example) or rules about the appropriate balance of development work and quality assurance at various stages. Our research shows that such tools improve decision making and help new managers get up to speed faster.

A leading provider of software we worked with has an extensive portfolio of decision support systems for this very purpose. The firm's managers can use the systems to gauge likely attrition, analyze the effects of new hires on team productivity, and get guidance on such questions as whether it is useful to hire at all at late stages in the project. The managers that use the decision support tools report feeling significantly more in control of their projects and demonstrate much better project performance. The company also has one of the best reputations for quality in the industry.

Calibrate your forecasting tools to the project. The tools that organizations rely on to generate project estimates should be calibrated to the project's specific context – to the industry, the local environment, and the skills of the available staff. Many organizations, however, simply import project-management forecasting tools from other contexts and other companies. One software company we studied had just adopted a tool from an aerospace company. Organizations compound estimation problems by basing their model assumptions on data from past projects without scrubbing the data first (that is, without accounting for any unusual circumstances encountered by those projects). Not surprisingly, the resulting estimates tend to be unreliable and have little credibility with project managers. When they lack faith in the estimates, project managers will rely on their own perceptions and revert to applying rules they've developed for simple situations. To avoid this, companies must do everything they can to instill managers' faith in the projections, and that means customizing forecasting models to project needs and cleaning up the data used to drive assumptions and infer relationships. Also, the more managers invest in gathering and processing their own data, the better their forecasting will become. This is one area in which simplistic "best practice" benchmarking from successful project managers can be very dangerous.

The research and development center of one leading producer of semiconductors has developed a way to reduce estimation fallibility. For every completed project, the center "normalizes" outcomes in a three-step process that identifies unusual events, roughly calculates their impact, and then deducts the impact from the results. The scrubbed values then go into the estimation models.

The more managers invest in gathering and processing data, the better their forecasting will become.

Set goals for behavior, not targets for performance. Another weakness of estimation tools is that their projections are usually based on product size (for example, how many lines of code or function points), which is extremely difficult to predict in the planning stages. Moreover, product deliverables can change over time in ways that are difficult to anticipate. Thus, initial estimates don't make good goals. Indeed, when so used, they promote inappropriate responses such as ad hoc trade-offs between cost and quality, and lead to poor outcomes.

Yet software projects universally employ cost and schedule targets based on early predictions. And when managers know they will be measured against targets based on unreliable estimates, they seek additional slack by opting for "safe" estimates and then proceed to squander the slack through make-work and by embellishing the project with unnecessary features. There is thus a strong case to be made for rethinking the way goals are set.

In particular, companies need to understand that estimates function best as devices for planning and control, and goals as mechanisms for promoting desired behavior. We recommend that when they're establishing goals, organizations follow a two-step process: First they should decide on the behavior they wish to foster, and then they should set goals that encourage such behavior. In a single project, an organization might decide it wants its managers to minimize turnover on the project team (doing so can increase productivity and learning, and reduce errors). This can then be an explicit part of the goal set. To meet that goal, managers would have to formulate ways to cushion their teams from schedule pressures and from the impact of normal attrition.

We've found that when managers have responsibility for multiple projects, their goals should promote behavior that maximizes the success of the portfolio (rather than individual projects). In setting such goals, the organization must give managers a certain degree of freedom, allowing them, for instance, to negotiate trade-offs between scope and schedules to preserve team stability or prevent problems from infecting other projects. Additionally, to ensure greater commitment, organizations must give managers a say in composing the goals.

Develop project "flight simulators." It's clear that live projects don't provide a good learning environment. It is, however, possible to construct artificial environments that can be managed so that complexity does not overwhelm learning. For an analogy, consider the use of flight simulators in aviation. Skills for flying planes are highly model-specific: Pilots need to undergo extensive training every time they switch models (or even move from, say, a freight version of a Boeing 747 to a passenger version). Flight simulators are an essential part of that process. Appropriately constructed "flight simulators" can play a similar role in project management, as virtual worlds for training and immersion. The need for them is especially pronounced because project managers now move across organizations more often than they did in the past. Since knowledge has a situation-specific (or company-specific) aspect, each time managers change companies or work contexts they need to learn about the relationships in the new environment, such as which factors drive productivity or quality. We suggest a graduated training program, where managers can start with lenient environments, in which the relationships to be discovered are simple. The trainees would then move through progressively more demanding environments, where the relationships become more complex and the feedback is less reliable. (That can be engineered by continually increasing time lags between causes and effects.) As the trainees progress, we suggest, programs should increase their focus on dynamic relationships – such as the connection between hiring decisions and quality assurance outcomes – because these are the ones that are hardest for managers to understand.

Companies would be better advised to leave their junior hires to fend for themselves and to focus their training budgets on people higher up the corporate hierarchy.

This flight simulator approach worked well for one maker of satellite software we worked with. The company has developed a project-management game that incorporates the realities of its own environment – such as the factors that have the most impact on quality and productivity in its business – and successfully mimics the processes and outcomes of actual projects done by the company. New managers use the game to learn the essentials of project management before taking on project responsibilities. Initial results are promising: The managers have shown considerably better insights about the dynamic relationships at work in their projects, and the projects' performance has also improved.

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The problems with the learning cycle we've described are certainly not the only breakdowns that occur in learning. Nor do we pretend that our recommendations will fix all the problems. But the studies we've conducted provide compelling evidence that learning on the job simply won't work in any but the most basic environments and that managers can continue learning only if they're given some formal training and decision support specifically tailored to the challenges they will face. As it happens, companies typically spend training dollars most heavily on entry-level hires and usually import project-planning tools wholesale from other companies. Senior recruits are expected to hit the ground running and best practices are supposed to be just that. These expectations are precisely why so many experienced managers fail when they take on new responsibilities. Companies would be better advised to leave their junior hires to fend for themselves, to focus their training budgets on people higher up the corporate hierarchy, and to stop looking for quick fixes from other places.

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To order, see page 139.

Most entrepreneurs want to make a lot of money and to run the show. New research shows that it's tough to do both.

If you don't figure out which matters more to you, you could end up being ***neither rich nor king.***

The founder's DILEMMA

BY NOAM WASSERMAN

Marcos Chin

EVERY WOULD-BE ENTREPRENEUR wants to be a Bill Gates, a Phil Knight, or an Anita Roddick, each of whom founded a large company and led it for many years. However, successful CEO-cum-founders are a very rare breed. When I analyzed 212 American start-ups that sprang up in the late 1990s and early 2000s, I discovered that most founders surrendered management control long before their companies went public. By the time the ventures were three years old, 50% of founders were no longer the CEO; in year four, only 40% were still in the corner office; and fewer than 25% led their companies' initial public offerings. Other researchers have subsequently found similar trends in various industries and in other time periods. We remember the handful of founder-CEOs in corporate America, but they're the exceptions to the rule.

Founders don't let go easily, though. Four out of five entrepreneurs, my research shows, are forced to step down from the CEO's post. Most are shocked when investors insist that they relinquish control, and they're pushed out of office in ways they don't like and well before they want to abdicate. The change in leadership can be particularly damaging when employees loyal to the founder oppose it. In fact, the manner in which founders tackle their first leadership transition often makes or breaks young enterprises.

The transitions take place relatively smoothly if, at the outset, founders are honest about their motives for getting into business. Isn't that obvious, you may ask. Don't people start a business to make pots of money? They do. However, a 2000 paper in the *Journal of Political Economy* and another two years later in the *American Economic Review* showed that entrepreneurs as a class make only as much money as they could have if they had been employees. In fact, entrepreneurs make less, if you account for the higher risk. What's more, in my experience, founders often make decisions that conflict with the wealth-maximization principle. As I studied the choices before entrepreneurs, I noticed that some options had the potential for generating higher financial gains but others, which founders often chose, conflicted with the desire for money.

The Trade-Off Entrepreneurs Make

Founders' choices are straightforward: Do they want to be rich or king? Few have been both.

CONTROL OVER COMPANY	FINANCIAL GAINS: WELL BELOW POTENTIAL	FINANCIAL GAINS: CLOSE TO POTENTIAL
LITTLE	Failure	Rich
COMPLETE	King	Exception

The reason isn't hard to fathom: There is, of course, another factor motivating entrepreneurs along with the desire to become wealthy: the drive to create and lead an organization. The surprising thing is that trying to maximize one imperils achievement of the other. Entrepreneurs face a choice, at every step, between making money and managing their ventures. Those who don't figure out which is more important to them often end up neither wealthy nor powerful.

Inside the Founder's Mind

Founders are usually convinced that only they can lead their start-ups to success. "I'm the one with the vision and the desire to build a great company. I have to be the one running it," several entrepreneurs have told me. There's a great deal of truth to that view. At the start, the enterprise is only an idea in the mind of its founder, who possesses all the insights about the opportunity; about the innovative product, service, or business model that will capitalize on that opportunity; and about who the potential customers are. The founder hires people to build the business according to that vision and develops close relationships with those first employees. The founder creates the organizational culture, which is an extension of his or her style, personality, and preferences.

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From the get-go, employees, customers, and business partners identify start-ups with their founders, who take great pride in their founder-cum-CEO status.

New ventures are usually labors of love for entrepreneurs, and they become emotionally attached to them, referring to the business as "my baby" and using similar parenting language without even noticing. Their attachment is evident in the relatively low salaries they pay themselves. My study of compensation in 528 new ventures set up between 1996 and 2002 showed that 51% of entrepreneurs made the same money as – or made less than – at least one person who reported to them. Even though they had comparable backgrounds, they received 20% less in cash compensation than nonfounders who performed similar roles. That was so even after taking into account the value of the equity each person held.

Many entrepreneurs are overconfident about their prospects and naive about the problems they will face. For instance, in 1988, Purdue University strategy scholar Arnold Cooper and two colleagues asked 3,000 entrepreneurs two simple questions: "What are the odds of your business succeeding?" and "What are the odds of any business like yours succeeding?" Founders claimed that there was an 81% chance, on average, that they would succeed but only a 59% probability of success for other ventures like their own. In fact, 80% of the respondents pegged their chances of success at at least 70% – and one in three claimed their likelihood of success was 100%. Founders' attachment, overconfidence, and naïveté may be necessary to get new ventures up and running, but these emotions later create problems.

Growing Pains

Founders eventually realize that their financial resources, ability to inspire people, and passion aren't enough to enable their ventures to capitalize fully on the opportunities before them. They invite family members and friends, angel investors, or venture capital firms to invest in their companies. In doing so, they pay a heavy price: They often have to give up total control over the enterprise. Angel investors may allow entrepreneurs to retain control to a greater degree than venture capital firms do, but in both cases, outside directors will join the company's board.

Once the founder is no longer in control of the board, his or her job as CEO is at risk. The board's task is straightforward if the founder underperforms as CEO, although even when founders are floundering, boards can have a hard time persuading them to put their "babies" up for adoption. But, paradoxically, the need for a change at the top becomes even greater when a founder has delivered results. Let me explain why.

CHOOSING money

A founder who gives up more equity to attract investors builds a more valuable company than one who parts with less – and ends up with a more valuable slice, too.

The first major task in any new venture is the development of its product or service. Many founders believe that if they've successfully led the development of the organization's first new offering, that's ample proof of their management prowess. They think investors should have no cause for complaint and should continue to back their leadership. "Since I've gotten us to the stage where the product is ready, that should tell them that I can lead this company" is a common refrain.

Their success makes it harder for founders to realize that when they celebrate the shipping of the first products, they're marking the end of an era. At that point, leaders face a different set of business challenges. The founder has to build a company capable of marketing and selling large volumes of the product and of providing customers with after-sales service. The venture's finances become more complex, and the CEO needs to depend on finance executives and accountants. The organization has to become more structured, and the CEO has to create formal processes, develop specialized roles, and, yes, institute a managerial hierarchy. The dramatic broadening of the skills that the CEO needs at this stage stretches most founders' abilities beyond their limits.

A technology-oriented founder-CEO, for instance, may be the best person to lead a start-up during its early days, but as the company grows, it will need someone with different skills. Indeed, in analyzing the boards of 450 privately held ventures, I found that outside investors control the board more often where the CEO is a founder, where the CEO has a background in science or technology rather than in marketing or sales, and where the CEO has on average 13 years of experience.

Thus, the faster that founder-CEOs lead their companies to the point where they need outside funds and new management skills, the quicker they will lose management control. Success makes founders less qualified to lead the company and changes the power structure so they are more vulnerable. "Congrats, you're a success! Sorry, you're fired," is the implicit message that many investors have to send founder-CEOs.

Investors wield the most influence over entrepreneurs just before they invest in their companies, often using that moment to force founders to step down. A recent report in *Private Equity Week* pithily captures this dynamic: "Seven Networks Inc., a Redwood City, Calif.-based mobile email company, has raised $42 million in new venture capital funding....In other Seven news, the company named former Onebox.com CEO Russ Bott as its new CEO."

The founder's moment of truth sometimes comes quickly. One Silicon Valley–based venture capital firm, for instance, insists on owning at least 50% of any start-up after the first round of financing. Other investors, to reduce their risk, dole money out in stages, and each round alters the board's composition, gradually threatening the entrepreneur's control over the company. Then it usually takes two or three rounds of financing before outsiders acquire more than 50% of a venture's equity. In such cases, investors allow founder-CEOs to lead their enterprises longer, since the founder will have to come back for more capital, but at some point outsiders will gain control of the board.

Whether gradual or sudden, the transition is often stormy. In 2001, for instance, when a California-based internet telephony company finished developing the first generation of its system, an outside investor pushed for the appointment of a new CEO. He felt the company needed an executive experienced at managing the other executives who oversaw the firm's existing functions, had deeper knowledge of the

CHOOSING power

Founders motivated by control will make decisions that enable them to lead the business at the expense of increasing its value.

functions the venture would have to create, and had experience in instituting new processes to knit together the company's activities. The founder refused to accept the need for a change, and it took five pressure-filled months of persuasion before he would step down.

He's not the only one to have fought the inevitable; four out of five founder-CEOs I studied resisted the idea, too. If the need for change is clear to the board, why isn't it clear to the founder? Because the founder's emotional strengths become liabilities at this stage. Used to being the heart and soul of their ventures, founders find it hard to accept lesser roles, and their resistance triggers traumatic leadership transitions within young companies.

Time to Choose

As start-ups grow, entrepreneurs face a dilemma – one that many aren't aware of, initially. On the one hand, they have to raise resources in order to capitalize on the opportunities before them. If they choose the right investors, their financial gains will soar. My research shows that a founder who gives up more equity to attract cofounders, nonfounding hires, and investors builds a more valuable company than one who parts with less equity. The founder ends up with a more valuable slice, too. On the other hand, in order to attract investors and executives, entrepreneurs have to give up control over most decision making.

This fundamental tension yields "rich" versus "king" trade-offs. The "rich" options enable the company to become more valuable but sideline the founder by taking away the CEO position and control over major decisions. The "king" choices allow the founder to retain control of decision making by staying CEO and maintaining control over the board – but often only by building a less valuable company. For founders, a "rich" choice isn't necessarily better than a "king" choice, or vice versa; what matters is how well each decision fits with their reason for starting the company.

Consider, for example, Ockham Technologies' cofounder and CEO Jim Triandiflou, who realized in 2000 that he would have to attract investors to stay in business. Soon, he had several suitors wooing him, including an inexperienced angel investor and a well-known venture capital firm. The angel investor's offer would have left Triandiflou in control of the board: Joining him on it would be only his cofounder and the angel investor himself. If he accepted the other offer, though, he would control just two of five seats on the board. Triandiflou felt that Ockham would grow bigger if he roped in the venture capital firm rather than the angel investor. After much soul-searching, he decided to take a risk, and he sold an equity stake to the venture firm. He gave up board control, but in return he gained resources and expertise that helped increase Ockham's value manifold.

Similarly, at Wily Technology, a Silicon Valley enterprise software company, founder Lew Cirne gave up control of the board and the company in exchange for financial backing from Greylock Partners and other venture capital firms. As a result, CA bought Wily two years later for far more money than it would have if Cirne had tried to go it alone.

On the other side of the coin are founders who bootstrap their ventures in order to remain in control. For instance, John Gabbert, the founder of Room & Board, is a successful Minneapolis-based furniture retailer. Having set up nine stores, he has repeatedly rejected offers of funding that would enable the company to grow faster, fearing that would lead him to lose control. As he told *BusinessWeek* in October 2007, "The trade-offs are just too great." Gabbert is clearly willing to live with the choices he has made as long as he can run the company himself.

Most founder-CEOs start out by wanting both wealth and power. However, once they grasp that they'll probably have to maximize one or the other, they will be in a position to figure out which is more important to them. Their past decisions regarding cofounders, hires, and investors will usually tell them which they truly favor. Once they know, they will find it easier to tackle transitions.

Founders who understand that they are motivated more by wealth than by control will themselves bring in new CEOs. For example, at one health care–focused internet venture based in California, the founder-CEO held a series of discussions with potential investors, which helped him uncover his own motivations. He eventually told the investors that he wanted to "do as well as I can from an equity perspective…[and do] what will be required for the company to be successful in the long run." Once he had articulated that goal, he started playing an active role in the search for a new CEO. Such founders are also likely to work with their boards to develop post-succession roles for themselves.

By contrast, founders who understand that they are motivated by control are more prone to making decisions that enable them to lead the business at the expense of increasing its value. They are more likely to remain sole founders, to use their own capital instead of taking money from investors, to resist deals that affect their management control, and to attract executives who will not threaten their desire to run the company. For instance, in 2002, the founder-CEO of a Boston-based information technology venture wanted to raise $5 million in a first round of financing. During negotiations with potential investors, he realized that all of them would insist on bringing in a professional CEO. Saying that he "was not going to hand the company over to someone else," the entrepreneur decided to raise only $2 million, and he remained CEO for the next two years.

One factor affecting the founder's choices is the perception of a venture's potential. Founders often make different decisions when they believe their start-ups have the potential to grow into extremely valuable companies than when they believe their ventures won't be that valuable. For instance, serial entrepreneur Evan Williams built Pyra Labs, the company that coined the term "blogger" and started the Blogger.com site, without the help of outside investors and eventually sold it to Google in 2003. By contrast, two years later, for his next venture, the podcasting company Odeo, Williams quickly brought in Charles River Ventures to invest $4 million. Asked why, Williams told the *Wall Street Journal* in October 2005: "We thought we had the opportunity to do something more substantial [with Odeo]." Having ceded control quickly in an effort to realize the substantial potential of the company, Williams has had a change of heart, buying back the company in 2006 and regaining his kingship.

Some venture capitalists implicitly use the trade-off between money and control to judge whether they should invest in founder-led companies. A few take it to the extreme by refusing to back founders who aren't motivated by money. Others invest in a start-up only when they're confident the founder has the skills to lead it in the long term. Even these firms, though, have to replace as many as a quarter of the founder-CEOs in the companies they fund.

Rich-or-king choices can also crop up in established companies. One of my favorite examples comes from history. In 1917, Henry Royce was pushed to merge Rolls-Royce with Vickers, a large armaments manufacturer, in order to form a stronger British company. In a chapter in *Creating*

Keeping Founders on Board

What do boards do with founders after asking them to step down as CEO? Ideally, a board should keep the founder involved in some way, often as a board member, and use his or her relationships and knowledge to help the new CEO succeed. As one investor stated, "You can replace an executive, but you can't replace a founder."

Many times, keeping the founder on board is easier said than done. Founders can act, sometimes unconsciously, as negative forces. They can resist the changes suggested by new CEOs and encourage their loyalists to leave. Some boards and CEOs try to manage those risks by taking half-measures, relegating the founder to a cosmetic role, but that can backfire. For instance, at Wily Technology, Lew Cirne agreed to become chief technology officer after giving up the CEO's post; later he saw that not a single person reported to him. His successor also wanted Cirne to give up his position as board chairman. These moves increased Cirne's unhappiness.

In my study of succession in technology start-ups, I found that 37% of founder-CEOs left their companies when a professional CEO came in, 23% took a position below the CEO, and 40% moved into the chairman's role. Another study of high-growth firms reported that, of the founder-CEOs who were replaced, around 25% left their companies while 50% remained on the board of directors for the next five years.

Boards can sometimes help founders find new roles. When a founder has an affinity for a particular functional area, such as engineering, the board can offer him or her the luxury of focusing on that area and letting the new CEO "take on all the things you don't like to do." That approach helps founders gain an appreciation for the new CEO's abilities. The more concrete value the new CEO adds, the easier it will be for the founder to accept the transition. What's more, the less similar the new CEO is to the founder – if the new CEO is 10 years older, for instance – the easier it is for the founder to accept the change.

Founders who want to be CEO for a longer time in their next venture need to learn new skills. Accordingly, boards can encourage founders to take on new roles in their companies that will enable them to do so. If they do, founders may even become accomplished enough to regain control. For example, in 1998, when E Ink's board appointed a new CEO, cofounder Russ Wilcox identified skills he needed to strengthen. He therefore rotated through roles in finance, product marketing, sales, and even R&D to fill the gaps in his skill set. In 2004, when the board launched a search for the company's next CEO, it couldn't find anyone more qualified for the job than Wilcox himself and made him CEO – a position he has held ever since.

Modern Capitalism, Peter Botticelli records Royce's reaction: "From a personal point of view, I prefer to be absolute boss over my own department (even if it was extremely small) rather than to be associated with a much larger technical department over which I had only joint control." Royce wanted control – not money.

Heads of not-for-profit organizations must make similar choices. I recently consulted with a successful Virginia-based nonprofit whose founder-CEO had faced two coup attempts. Early on, a hospital executive who felt he was himself more qualified to lead the organization mounted one takeover bid, and some years later, a board member made the other bid when the venture was beginning to attract notice. The founder realized that if he continued to accept money from outside organizations, he would face more attempts to oust him. Now the question he and his family have to think through is whether to take less money from outside funders even though that means the venture will grow less quickly.

Would-be entrepreneurs can also apply the framework to judge the kind of ideas they should pursue. Those desiring control should restrict themselves to businesses where they already have the skills and contacts they need or where large amounts of capital aren't required. They may also want to wait until late in their careers before setting up shop, after they have developed broader skills and accumulated some savings. Founders who want to become wealthy should be open to pursuing ideas that require resources. They can make the leap sooner because they won't mind taking money from investors or depending on executives to manage their ventures.

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Choosing between money and power allows entrepreneurs to come to grips with what success means to them. Founders who want to manage empires will not believe they are successes if they lose control, even if they end up rich. Conversely, founders who understand that their goal is to amass wealth will not view themselves as failures when they step down from the top job. Once they realize why they are turning entrepreneur, founders must, as the old Chinese proverb says, "decide on three things at the start: the rules of the game, the stakes, and the quitting time."

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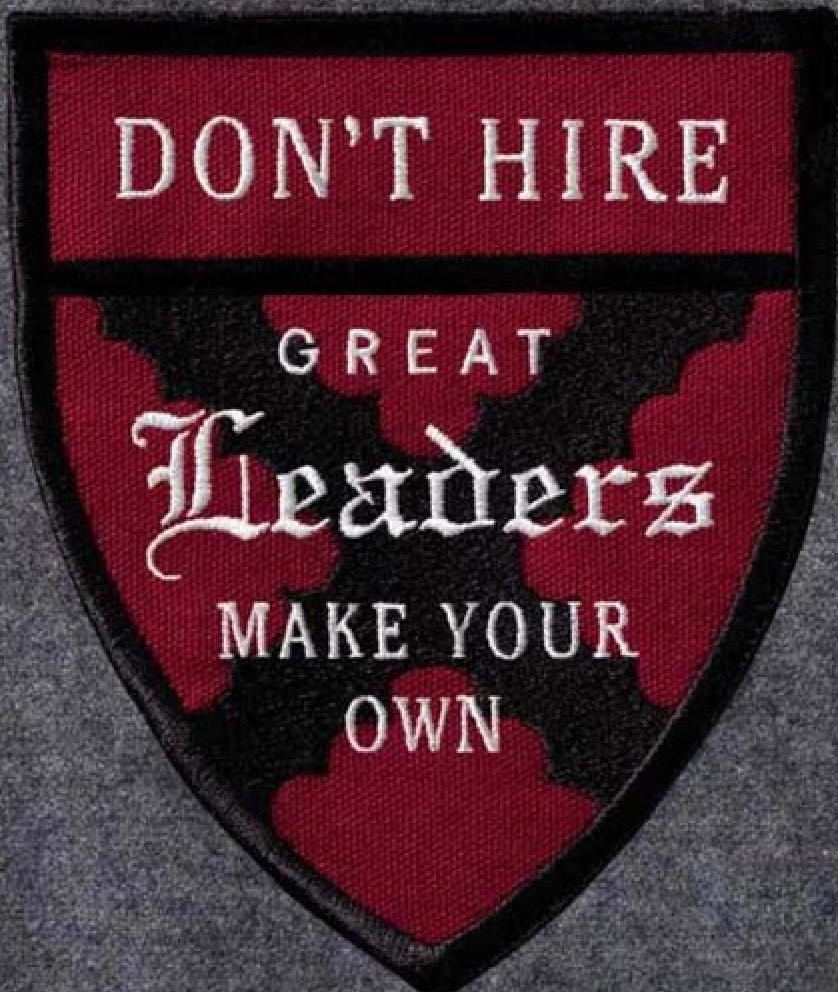
Harley Schwadron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The Biosphere Rules

Nature employs production processes that are surprisingly efficient, environmentally sound – and widely imitable.

by Gregory C. Unruh

SUSTAINABILITY – WHICH NATURAL SCIENTISTS define as the capacity of healthy ecosystems to continue functioning indefinitely – has become a clarion call for business. Consider General Electric's ambitious Ecomagination project, Coca-Cola's efforts to protect water quality, Wal-Mart's attempt to reduce packaging waste, and Nike's removal of toxic chemicals from its shoes. These and other laudable efforts are steps on a road described by the aluminum giant Alcan in its 2002 corporate sustainability report: "Sustainability is not a destination. It is a continuing journey of learning and change."

Unfortunately, Alcan had it wrong. At best, the view of sustainability as an endless journey of incremental steps does a disservice to managers seeking to square economy with ecology sooner rather than later. At worst, it serves as an excuse for inaction when it comes to building a truly sustainable business.

I believe that sustainability should be not a distant, foggy goal but, rather, a real destination. This view has emerged from a search begun in the 1980s, when I was an environmental consultant hired to help clean up the toxic messes of *Fortune* 500 companies. That work inspired me to launch a long effort to discover the true basis for sustainability. After conducting hundreds of interviews with managers, scientists, engineers, academics, designers, and architects, I came to the simple conclusion that we already know exactly what sustainability on planet Earth looks like.

A perfect model, refined through billions of years of trial and error, is our planet's biosphere – defined in 1875 by the geologist Eduard Suess as "the place on earth's surface where life dwells." Researchers have only recently begun to explore how nature's technology can be emulated in the service of sustainable manufacturing and commerce. Earth's complex, self-regulating biosphere is, in essence, a brilliant operating system that has fashioned prolific life without interruption for more than 3.5 billion years. By studying the interdependent principles that collectively account for Earth's sustainability, managers can learn how to build ecologically friendly products that reduce manufacturing costs and prove highly attractive to consumers. Moreover, companies do not need to wait for a green technological revolution to implement manufacturing practices that are both sustainable and profitable. They can apply the biosphere's lessons to industrial technology today.

In this article I will describe three important biosphere rules and show how enterprising companies are adapting them for both environmental and economic gain. I mean to be descriptive rather than prescriptive; readers will need to interpret and translate nature's architecture for their own business models, and companies will obviously have to resolve numerous challenges before these rules can be fully implemented. Following the rules flies in the face of standard practice, as readers will discover, and change is always difficult. Nevertheless, companies will eventually have no choice but to adapt in a world in which the material and energy burdens of the developing economies are already straining our planet and creating volatile market conditions. As China, India, Brazil, and Russia rapidly industrialize, their added demands will force companies to develop more-sustainable manufacturing platforms. In this world, first movers that can bring their manufacturing strategies into line with the laws of nature will be the winners.

The rules for the biosphere's operating system are built upon *bio-logic*, which nature uses to assemble life and structure ecosystems. In contrast to the *industrio-logic* of human manufacturing, which assumes that largely synthetic materials should be assembled or molded into desired shapes, bio-logic builds things from the bottom up, relying on sophisticated nanotechnology to assemble organisms molecule by molecule. Powered by nothing more than rays of sunshine, nature can miraculously produce a tree or a cactus. This life-friendly process occurs silently and uses a simple palette of materials, drawn from air and water, as its manufacturing media.

Article at a Glance

Companies that want to implement sustainable manufacturing practices have a perfect model in Earth's biosphere – the place on our planet's surface where life dwells. Earth's biosphere is, in essence, a brilliant operating system that has fashioned prolific life without interruption for billions of years.

Specifically, companies can emulate three of the rules governing this natural operating system. First, instead of relying on industry's infinite supply of synthetic materials, they can make recycling easy by striving to use as few raw materials as possible. Second, they can practice up-cycling – planning beyond the end of the product's life cycle for its incarnation as a new product. Finally, they can leverage general-purpose platforms, much as Microsoft leverages Windows.

In following these three rules, companies can free themselves from the vagaries of raw-materials markets, shrink their vendor count, lower costs, foster profitable returns on products that appeal to ecology-oriented customers, and ensure the environmental sustainability of their products.

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RULE #1

Use a Parsimonious Palette

The elements in the periodic table, from actinium to zirconium, are the building blocks of everything we see. Astonishingly, however, out of the more than 100 elements, nature chose to use just four – carbon, hydrogen, oxygen, and nitrogen – to produce all living things. Add a little sulfur and phosphorus, and you can account for 99% of the weight of every living thing on the planet. The fourteenth-century scholastic William of Occam derived his law of parsimony from Aristotle's assertion "The more perfect a nature is, the fewer means it requires for its operation." Today we say simply "Less is more."

The biosphere's elegant simplicity is the exact opposite of the approach taken by manufacturers that readily adopt every new synthetic material, from Teflon to Kevlar, that science pumps out. The impulse is understandable. Different materials add different performance characteristics. Take a potato chip bag. Although it appears simple, the bag is actually a highly engineered sandwich of thinly sliced materials, each performing a different function. The innermost layer is a special plastic that won't react with the chips. Next to it is a layer of material that keeps out moisture. Then comes a thin layer of metal foil to keep out sunlight. After that is a layer that accepts print for marketing messages. Clear layers on the outside keep the print from rubbing off.

A designer accustomed to using industry's nearly infinite palette of specialty materials would think it silly not to take full advantage of them. However, there is one overriding reason to emulate nature's parsimony: It makes recycling easy. (In contrast, the thin layer of metal foil in a chip bag cannot be recovered economically.) Furthermore, nature's simple palette results in products far more advanced than those produced by human industrial science. Abalones produce mother-of-pearl that is twice as tough as science's best ceramics. Spiders can spin silk that is stronger than steel yet light enough to float on the wind. Nature suggests that the potential for inventive uses of easily recycled materials is huge.

RULE #2

Cycle Up – Virtuously

Standardization ensures that raw materials are always available to organisms; they don't have to be shipped or sorted. When an organism dies, the biosphere recovers its materials and reinserts them into its production processes. Nature repeatedly reuses these materials in evolutionary growth and development, continuously cycling them up. Up-cycling maintains the value of materials between generations of recycled product without loss of quality or performance. Down-cycling, in contrast, destroys the original value, as when a plastic computer casing is melted into a speed bump. The biosphere doesn't down-cycle materials. A dead beaver can be reincarnated as a tree, a mollusk, an eagle, or even another beaver – all high-value applications of nature's recycled materials. From the first cyanobacteria to human beings, nature has used the same materials in a virtuous cycle of increasing complexity and value, allowing the biosphere to evolve toward ever more integrated and sustainable communities of organisms.

Virtuous recycling is counterintuitive, because it relies on planned obsolescence – the bane of environmentalists. Conscientious manufacturers understandably see planned obsolescence as a vice. Designing an early demise into new products became an infamous part of Detroit's strategy to sell more cars in the 1960s and was widely condemned as wasteful. But biological obsolescence – otherwise known as death – plays a vital role in the biosphere. The unceremonious process of ushering out the old and ushering in the new allows change; without it the biosphere could not evolve. In the context of the biosphere rules, planned obsolescence can become sustainability, leading a company toward environmentally superior designs.

RULE #3

Exploit the Power of Platforms

Earth is populated by a mind-boggling 30 million to 100 million species, all of which miraculously share an underlying design. The basic architecture of life was set by the earliest multicelled organisms, more than 3 billion years ago. Since then, even though the process of evolution has made life more complex, every creature, from trilobite to human, has been a riff on nature's original design. The design is a general-purpose platform that has been leveraged over and over again to create the planet's astounding biodiversity. This strategy is so successful that life can adapt to exist anywhere on the planet, from the abyssal plains of the oceans to the peaks of Mount Everest.

Luckily for managers, industriologic concurs with this biosphere rule. Businesses across sectors have long exploited the power of platforms.

Rethink "Reduce, Reuse, Recycle"

The traditional mantra for environmentally responsible materials management has been "Reduce, reuse, recycle," but its misapplication can lead companies to a dead end on the road to sustainability.

REDUCE Eco-efficiency seeks to produce more widgets with less input material. But if at the end of its useful life a product contains too little valuable material to make recovery economical, it is doomed to entombment in a municipal landfill.

REUSE This makes sense for simple products such as cups and forks, but it can hinder sustainability efforts for more complex ones such as cars and microwave ovens. Because new products today are more efficient and have a reduced environmental impact, shorter product life cycles can bring faster advances. For the greatest sustainability gains, reuse should occur at the material rather than the product level.

RECYCLE Recycling is crucial to sustainability, but it may actually encourage the use of harmful materials that companies should avoid completely. The efforts now under way to recycle polyvinyl chloride, for example, could create a perpetual demand for the material. However, companies like Nike, Honda, and Mattel are phasing out PVC because of health concerns.

Microsoft's Windows, for example, is a general-purpose computing platform that the company has leveraged across any number of applications, from Word to Media Player.

Manufacturing, too, appreciates platform strategies. In the automobile sector, for example, different models can use the same parts or drivetrains. But platform design in industry tends to occur at the component level, allowing parts to be swapped among product offerings. Industry needs to go below this level and scrutinize the makeup of the components themselves: The materials are a more fundamental platform on which both components and final products are built.

The Biosphere Rules in Action

The biosphere rules demonstrate their real value when they are integrated into an overall strategy to exploit the muscle of sustainable product platforms. If a company extends this strategy across a product line, relative costs decline as the scale of production grows, fostering profitable returns on investments in sustainability. Economic sustainability ensures environmental sustainability.

To date, few companies have built sustainable manufacturing systems that conform to all three of the rules. Shaw Industries, a Berkshire Hathaway company, has come close.

Shaw produces carpet tile, an industrial flooring that is installed in office buildings around the world. In 1999, when confronted by growing environmental concern over carpet waste (more than 95% of old carpet is ripped up and dumped in landfills) and the specter of higher raw-materials costs, Shaw embarked on a major initiative to rethink its business and create what it calls "the carpet of the twenty-first century."

Carpet tile like Shaw's is composed of the backing, which holds the carpet flat, and the face fiber, which creates the soft walking surface. Until 1995 Shaw produced a branded backing made from PVC plastic. But PVC is potentially toxic and difficult to recycle. So, at substantial expense, the company went in search of a more sustainable solution.

Acting on an intuitive understanding of sustainability, Shaw recognized the need for a simple palette of nontoxic materials for its product. It also made virtuous recycling a goal. Its choice of Nylon 6 face fiber, branded Eco Solution Q, and polyolefin backing, called EcoWorx, gave Shaw materials that could be cycled from high-value application to high-value application without ever losing performance or functionality. The company developed an integrated production system that could take carpet at the end of its useful life, separate the backing, grind it up, and put it right back into the manufacturing process. Coming out at the other end was brand-new carpet tile. The Environmental Protection Agency recognized EcoWorx with its Presidential Green Chemistry Challenge Award in 2003.

Shaw's sustainable product platform has also helped free the company from the vagaries of the raw-materials markets that plague the industry. The primary input for both the backing and the fiber of most carpets is petroleum. When Shaw began its efforts, oil was at $19 a barrel. With oil prices at this writing nearly five times that, the company seems like a savvy visionary. Shaw can look to a future when the skyscrapers of the world's cities, rather than the wellheads of Saudi Arabia, will supply its raw materials.

Phasing In the Biosphere Rules

Shaw's accomplishments were by no means easy, though they won accolades and produced long-run benefits. Senior executives made a $2 million bet on an unproven technology that threatened to render their state-of-the-art production facilities obsolete. They did so without concrete evidence that customers would value sustainability in carpeting. Ultimately, Shaw's leaders mustered the conviction and faith required to build a sustainable product platform that would create future competitive advantage. Not all companies are willing to make such a bet. Because a shift to sustainable manufacturing is dramatic, managers are likely to confront organizational rigidities as they try to implement the biosphere rules.

Those rules can, however, be phased in over time in a way that limits disruption. Again, there is a biospheric analog for this process. In nature, new ecosystems – pine forests, alpine meadows – don't spring up fully formed. They develop through a gradual process known as succession, in which colonizing species alter the local environment and make it hospitable to a larger, more diverse community of organisms. The biosphere rules can create an organizational environment hospitable to subsequent steps. Phasing them in minimizes costs and permits an orderly transition. More important, it can create near-term wins that provide motivation for continued efforts.

Step 1: Think fewer materials. The first step for managers wishing to implement the biosphere rules is to rethink their sourcing strategies and dramatically simplify the number and types of materials used in their company's production. This step is fundamental if the company hopes to recycle cost-effectively.

When the furniture manufacturer Herman Miller examined the makeup of its leading Aeron desk chair, it found more than 200 components. McDonough Braungart Design Chemistry (MBDC) – a company founded by the sustainability advocates William McDonough and Michael Braungart – reviewed the chair's chemistry and discovered that the 200 components were made from more than 800 chemical compounds. Although the use of diverse materials is standard industry practice, inputs on this scale confound moves toward sustainability. Herman Miller parlayed this knowledge into the subsequent design of its award-winning Mirra desk chair, released in

2003, whose dramatically simplified materials palette is 96% recyclable.

How should an organization start to rethink its materials choices? A number of companies use toxic-materials screens to weed environmentally suspect components out of their supply chains. These screens range from a simple list of prohibited chemicals sent to a company's suppliers to sophisticated protocols calling for laboratory analysis of a product's inputs. The screening process requires companies to collect detailed information from their suppliers about the chemicals in their products and then to evaluate the impact of those chemicals on environmental and human health. Suspect materials are tagged for elimination. The screens can be quite restrictive, as the Swiss chemical giant Ciba-Geigy learned in 1995. When Ciba's 1,600 chemical dyes were run through an MBDC screen, only 16 passed the test.

Though toxic-materials screens make sense, they work backward, negatively eliminating risky materials rather than positively selecting the best ones. Trying to incrementally weed out waste and toxins, whether through eco-efficiency or screening, is too slow a road; managers may find themselves substituting analysis for action. Instead companies can move straight toward a parsimonious palette by going beyond traditional sourcing criteria such as performance and aesthetics. Biosphere rule #2 provides two additional criteria, one physical and one economic.

Shaw Industries can look to a future when the skyscrapers of the world's cities, rather than the wellheads of Saudi Arabia, will supply its raw materials.

Materials must be physically capable of being up-cycled. Not all materials are. The Nylon 6 in Shaw's carpet, for example, can be up-cycled, but its closest relative, Nylon 6,6, can't. Both are used in the carpet industry, but only the former is turned back into high-value carpet fiber. If it is recycled at all, Nylon 6,6 is melted down for use in much-lower-value products such as plastic lumber and automobile glove boxes – just a stop on its eventual way to the dump.

Materials recycling must be cost-effective. Is it cheaper to buy new inputs on the open market or to use reprocessed materials? If reclaimed materials prove to be cheaper, you have found a virtuous winner. Up to 75% of steel and more than 50% of aluminum are recycled, mostly because doing so uses a fraction of the energy needed to produce virgin metal.

Step 2: Rethink design. When engineers are faced with a new design challenge, they usually ask, What is the best specialty material for this application? But with a limited materials palette the question becomes, What design will meet our product specifications using our existing materials? Or, How can we engineer a cool new product made from our limited materials? Integrating this kind of thinking into product design means beginning at the end.

To make virtuous recycling work, managers should plan at the beginning of design for the end of their product's useful life. In nature, bacteria will recycle the carcass of a rabbit because it has lots of energy and food value left in it. Environmentally conscious managers, in contrast, have tried to minimize the materials in their products in the name of eco-efficiency. This makes sense if the products are to be thrown away when customers are finished with them, but it can be insidious if you're trying to recover the materials economically.

Consider the story of Polyamid 2000. With nearly 5 billion tons of carpet waste going to landfills each year, and less than 5% of waste carpet being recycled in the 1990s, carpet manufacturers found themselves under fire from NGOs and government officials. In response to the criticism, the industry turned to Polyamid 2000's monstrous facility, housed in a Communist-era manufacturing plant in the former East Germany, which was designed to recycle nylon face fiber from old carpet. The face fiber was attractive because it was the most valuable part of a carpet and could be chemically broken down and turned into fresh material that was as good as new. Because the process used less energy than making nylon from raw-materials stocks, it was also expected to be profitable.

The Polyamid facility was an industrial marvel, relying on a highly efficient assembly-line approach. Waste carpet was trucked in, cleaned, scanned, and then transported on overhead conveyors to the chemical equipment that broke the fiber down into raw materials. The facility was expected to extract 20 million pounds of new Nylon 6 from more than 250 million pounds of waste carpet each year. But within three years it had been shuttered.

How could such a promising green solution fail so spectacularly? According to a Polyamid technical manager, "The content of nylon in European waste carpets is less than expected and decreases every year." Whereas American carpets are made with 45% nylon fiber, European carpet manufacturers had reduced nylon content to 25%. This saved raw materials but made it uneconomical to collect and recycle carpet waste. Well-meaning environmental strategy starved Polyamid to death.

Manufacturers can avoid the same fate by cycling up. They should design recovery value in at the outset.

Step 3: Think scale economies. A parsimonious palette and a virtuous recycling process can in effect establish sustainable platforms for entire product lines. In 2005 the outdoor gear retailer Patagonia announced just such a platform strategy – the Common Threads Garment Recycling program – in partnership with Teijin, a Japanese fabric manufacturer. Teijin virtuously recycles Patagonia's Capilene brand performance underwear into second-generation polyester fibers that Patagonia reuses in the following season's clothing. Patagonia has extended the platform beyond underwear to include fleece garments. As other companies follow suit, leveraging standard materials and cyclic production systems for new and existing products, they foster the economies of scope and scale that drive lasting operational profitability.

Following the biosphere rules can compound cost savings. First, simplifying a materials palette for sustainability reasons reduces supply-chain complexity, shrinks the vendor count, generates volume discounts, and improves the service of suppliers as more business is sent their way. Interface Fabric, for instance, has found savings of $300,000 a year from palette simplification alone.

Second, companies may discover that cost savings emerge from the virtuous recycling of materials. For example, Patagonia's energy costs to recycle the materials in its underwear are 76% below those for virgin sourcing. Shaw Industries found that the virtuous recycling of Nylon 6 requires 20% less energy and 50% less water than virgin input requires. As Shaw expands its vertically integrated production process to new products, it can spread its investments and processing advantage over increasing output. In 2006 the company announced an extension of its carpet-tile platform to broadloom carpet, which accounts for 70% of the entire carpeting market. Such leveraging of a sustainable-product platform can create long-term competitive advantages.

Clearly, savings are not automatic or uniform across companies. They require disruptive changes and investment based on a vision of a greener future. Ultimate profitability depends on how effectively companies execute the biosphere rules – a likely source of competitive differentiation in the future.

Step 4: Rethink the buyer-supplier relationship. Companies will have to manage the transition period as a product goes from 100% virgin materials to nearly 100% virtuously recycled materials. That will require finding ways to profitably recover products installed in customers' homes, garages, and office buildings and put them back into the production process. Following the biosphere rules will radically change the traditional buyer-supplier relationship: Customers will come to play a dual role as buyers of the company's products and suppliers of its input materials, adding a new twist to the adage "Stay close to your customers." It will require managers to rethink sourcing, marketing, sales, and service.

For example, how will you forecast future supplies of input materials when the return rate is tied to your customers' next decision to buy? That depends in part on the life cycle of your product. Patagonia can expect the raw materials in its underwear to cycle back to the company in about 18 months. Shaw, however, has to wait three to seven years for the life cycle of carpeting to run its course. Companies will thus need to anticipate return rates and may even find themselves managing product life cycles – perhaps providing incentives for customers to prematurely upgrade to the newest model. As in the biosphere, virtuous planned obsolescence will become a sustainability requirement.

Managers will also face the complex issue of reverse logistics – getting the used product back to the factory for re-processing. Some companies are coming up with clever solutions. In Patagonia's world, for example, garbage cans morph into mailboxes: The company urges customers to mail back their used (and, it is hoped, clean) underwear or drop it off at retail outlets. This is not an option for Shaw's carpets, so it becomes important to align the pickup of used product with the delivery of new, to be sure that trucks are full both leaving and returning to the factory.

Managers might see the effort required to manage planned obsolescence and reverse logistics as a disincentive for adopting the biosphere rules, but that would be shortsighted. Companies spend large amounts of money on advertising and marketing to persuade customers to contact them – so there is value in a customer's calling you to say she'd like to have you pick up her old product. Indeed, an astute salesperson would see this as a blazing-hot sales lead. If through planned obsolescence a company could convert a percentage of its customers into repeat buyers, it could make important financial gains. And, its critics notwithstanding, planned obsolescence can also conceivably produce environmental gains. Faster product cycles will bring next-generation products that usually perform better and are environmentally superior to their predecessors. A refrigerator today, for example, is bigger and 75% more energy-efficient than it was two decades ago, but it costs 50% less. Applying the biosphere rules can rapidly reincarnate materials into more-efficient products, further increasing sustainability gains.

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Sustainability is, in the end, nature's best secret. By reusing the same materials in an ever compounding cycle of evolutionary growth, the biosphere has sustained itself on planet Earth for billions of years. With luck, following the biosphere rules may help sustain business for a billion or so.

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Arthur Giron

Managing Demographic Risk

An aging workforce will compel businesses to change how they operate and could even threaten some companies' viability. How vulnerable is your business?

by Rainer Strack, Jens Baier, and Anders Fahlander

MOST EXECUTIVES in developed nations are vaguely aware that a major demographic shift is about to transform their societies and their companies – and assume there is little they can do about such a monumental change. They're right in the first instance, wrong in the second.

The statistics are compelling. In most developed economies, the workforce is steadily aging, a reflection of declining birth rates and the graying of the baby boom generation. The percentage of the U.S. workforce between the ages of 55 and 64, for example, is growing faster than any other age group.

The situation is particularly acute in certain industries. In the U.S. energy sector, more than a third of the workforce already is over 50 years old, and that age group is expected to grow by more than 25% by 2020. The number of workers over the age of 50 in the Japanese financial services sector is projected to rise by 61% between now and then. Indeed, even in an emerging economy like China's, the number of manufacturing workers aged 50 or older will more than double in the next 15 years.

But national and even industry statistics like these serve mainly to put managers on notice of a general problem. The important issue is the demographic risk your own firm faces. As employees get older and retire, businesses can face significant losses of critical knowledge and skills, as well as decreased productivity. The demographic trend has been exacerbated by the relentless focus on cost reduction that's become the business norm. In their zeal to become lean, organizations continue to have round after round of layoffs – without realizing that in just a few years they may confront severe labor shortages or, if they've shed mostly younger workers, be left with a relatively old workforce. In some cases, a company's ability to conduct business may even be hindered: When people begin retiring in droves, there may be no one left who knows how to operate crucial equipment or manage important customer relationships.

We offer here a systematic approach to analyzing future workforce supply and demand under different growth scenarios and on a job-by-job basis. It enables companies to determine how many employees they are likely to need, which qualifications they should have, and when they will need them. With that information, they can set up a tailored retention, recruitment, and talent management strategy for the job functions at greatest risk of a labor shortage. Such an initiative must be launched long before things reach a crisis stage, because the remedies may need years to take effect. Companies that act early not only will minimize the risk but also will gain an important advantage over their rivals.

Article at a Glance

As baby boomers age and retire, developed economies face a serious risk of labor shortages and potentially declining productivity in certain jobs.

Managers need to assess how this demographic trend will affect their individual companies, analyzing its potential impact on each business unit, location, and job function.

Part of that analysis involves creating a job taxonomy that will highlight the opportunities to train and transfer workers in order to fill gaps and improve productivity in particular job functions.

Once managers have identified the areas at greatest risk, they need to employ a coordinated array of measures that will mitigate shortages of workers and keep older employees productive.

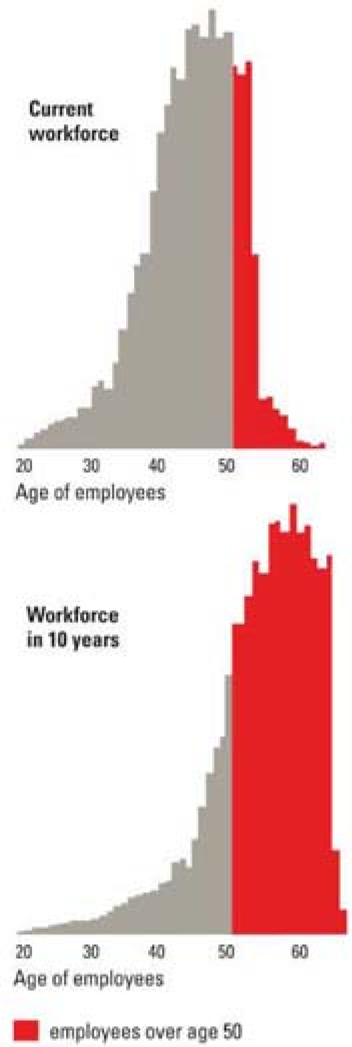
The Nature of the Risk

In coming years, corporations will face two categories of demographic risk: risks having to do with retiring employees and risks having to do with aging employees. Both require creative forethought and active management.

Retiring employees. When a worker retires, you lose someone to do a job and the accumulated knowledge and expertise that this person takes out the door with him. If many people are retiring and they're difficult to replace, your organization faces what we call *capacity risk* – a potentially diminished ability to carry out the company's business of making a product or offering a service.

A Looming Challenge

An aging workforce will have implications for most developed economies, but managers need to examine the particular effect it will have on their own companies by looking at the age distribution of their employee base. When RWE Power, the power generation and mining division of a European utility, examined the demographics of its workforce, it saw that if current trends continued, in 10 years a large percentage of its workers would be at or near retirement.



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Take RWE, Europe's third-largest energy utility, a company we've worked with on assessing and managing demographic risk. The publicly traded German utility, which in 2006 had annual sales of €44 billion and more than 70,000 employees, restructured several times over the past decade. The power generation and mining division, RWE Power, for example, basically cut its workforce in half between 1992 and today. Until recently, the company was encouraging older workers to leave under large-scale early retirement schemes.

But an analysis of retirement trends and future labor demand at the company – over time horizons of five, 10, and 15 years – revealed that today's workforce surplus would in several years turn into a shortfall in many parts of the business. And the loss of talent due to retirement would occur just as the recruitment of new employees for critical positions at the company became more difficult.

In many developed economies, there already is a mismatch between labor supply and demand. Germany today faces an immediate shortage of qualified engineering graduates. In 2006 the country had a deficit of approximately 48,000 engineers, and that figure is expected to grow significantly in coming years. At the same time, the country has too many unskilled workers: The unemployment rate of unskilled labor is more than six times higher than that of university graduates. Most industrialized countries face similar situations. (Some developing economies also face a skill shortage, at least in certain industries, a problem discussed in the sidebar "When the Problem Is Growth.")

Aging employees. Even before older workers start retiring in large numbers, they can pose distinct management challenges. Of course, age brings experience and wisdom that make employees extremely valuable in all kinds of ways. However, in certain settings, productivity may suffer. For example, older workers may not have the robustness needed in physically demanding manufacturing jobs. They may lack up-to-date skills owing to technological changes. In certain situations, they may become less motivated because they see fewer career opportunities ahead of them. They may also be susceptible to health problems that increase absenteeism or force them into reduced work roles. Thus, although age and experience can make workers more effective in many positions, in certain jobs an aging workforce can create a *productivity risk.*

Workers over age 50 will make up more than half the workforce of the business by 2011 – and close to 80% by 2018.

The importance of effectively addressing demographic changes can be seen at a business like RWE Power. Today, some 20% of the division's workforce is over the age of 50. Projections indicate that this age group will make up more than half the workforce by 2011 – and close to 80% by 2018. (See the exhibit "A Looming Challenge.")

Some of the issues raised by an aging workforce may not be immediately evident. For example, several thousand employees work in a three-shift environment at RWE Power, but many won't have the stamina – or their doctors' permission – to work in rotating shifts as they grow older. So RWE Power will have to find not only new positions for the three-shift workers who can't function in their jobs any longer but also replacements for them. Although the problem of finding a new job for an employee no longer able to work in a three-shift environment is less likely to arise in the United States, which lacks the job protection laws common in Europe, political or other considerations may create similar constraints.

When calculating both kinds of demographic risk – capacity risk and productivity risk – it's important to use the right metrics. For example, a relatively high average age among employees doesn't necessarily signify a serious risk

When the Problem Is Growth

As veterans of "talent wars" know, rapid growth can create labor shortages. In India, for example, where labor is thought to be plentiful and the workforce is relatively young, we're already seeing early signs of severe scarcities of workers in certain specialized jobs. Our approach to demographic risk – systematically assessing and managing the risk by job function – can also be used in industries or countries where economic growth threatens to outstrip growth in the workforce.

Take the example of an Eastern European bank that was losing workers not to retirement but to attrition, as competitors fought to attract talent in an industry that was burgeoning while capitalism took hold in the formerly Communist market. By analyzing future workforce supply and demand under different growth scenarios and on a job-by-job basis, the bank determined how many employees it was likely to need, what qualifications they should have, and when it would need them. With that information, the bank set up a tailored retention, recruitment, and talent management strategy for the job functions at greatest risk of a labor shortage.

of losing crucial talent to retirement. The distribution of ages – that is, whether a large percentage of your employees are clustered within a relatively narrow age band – is the real sign that you'll encounter this problem. If a skewed distribution in the age structure does exist, however, the average age of employees will let you know *when* you'll face it.

Assessing the Risk

Capacity risk and productivity risk are assessed differently. In the case of capacity risk, you determine the gap between your organization's future demand for workers and anticipated workforce levels, and then figure out how difficult it will be to close that gap by hiring from outside the company. In the case of productivity risk, you determine how many workers will fall into older age cohorts in coming years and what implications that will have.

Calculating the risks at a companywide level doesn't provide an accurate picture of the problem. Drilling down to the level of individual locations or business units is more useful. But in the end you need to figure out how age trends will affect three different categories of jobs: relatively broad *job groups,* narrower *job families* within each of those groups, and more specific *job functions* within each of the families.

Bringing the analysis down to these levels will almost certainly reveal an anticipated surplus of people in certain job groups, families, and functions and a shortfall in others. Managing the risk will require addressing the problem at these levels as well. Indeed, using uniform remedies across an entire company would be ineffective and probably counterproductive, especially for productivity risk, which varies significantly by job category.

Let's look at what's involved in this progressively granular analysis, focusing in detail on the problem of retiring workers and capacity risk.

Run a quick check to identify where potential challenges lie. The first step

Creating a Job Taxonomy for Your Company

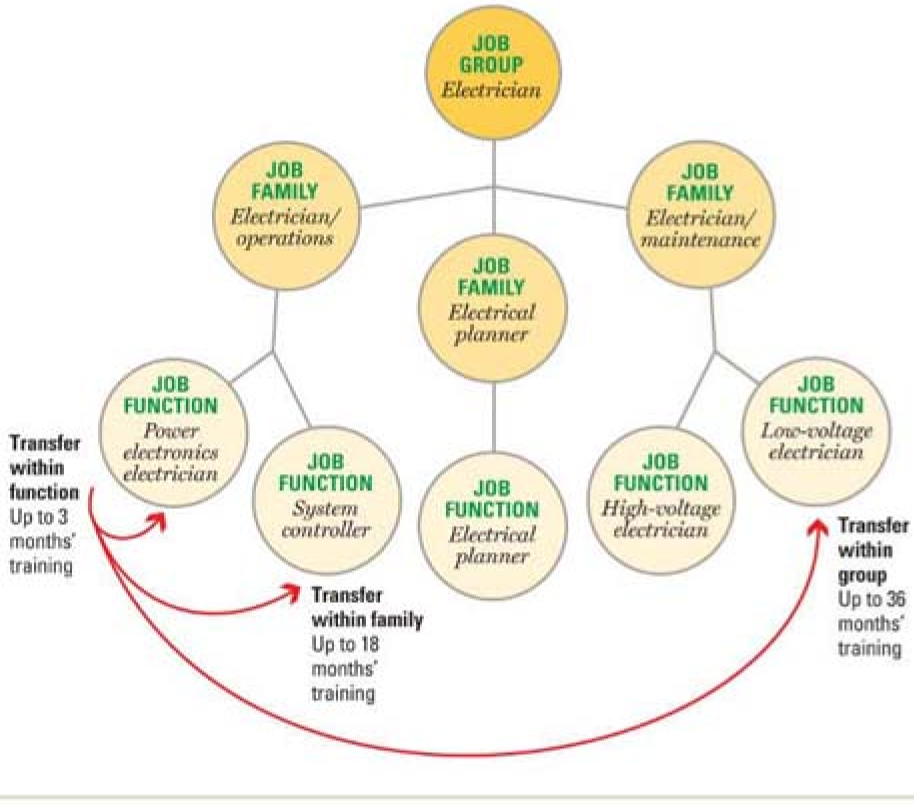
Companies can mitigate critical worker shortages by transferring employees into open jobs. So the first step in assessing demographic risk is to evaluate how easily you can shift employees among positions. You can do this by categorizing jobs in the company on three levels: functions, families, and groups.

Job functions comprise jobs that are essentially the same, but in different locations, or similar enough to require the same sets of skills. In the hypothetical example below, all system controllers are in the same job function because they all have detailed knowledge about the operation of power-plant control systems. Workers transferring within a function can get up to speed in less than three months, with relatively little training.

Job functions that require closely related but somewhat different knowledge and skills belong to the same *job family.* Here, system controllers and power electronics electricians are in the same family because both are skilled electricians who have deep knowledge about operational processes but who work on different electronic systems. Employees can successfully transition to new roles within a family in less than 18 months, with the right training.

Similar job families are part of the same *job group.* This illustrative chart shows that system controllers and electrical planners belong to the electrician job group. Shifting from system controller to electrical planner, however, would require an employee to learn new planning processes, planning standards, and planning software. Workers transferring to new positions outside their job family but within their job group require up to 36 months of training.

If you enter each employee's job function, family, and group in your employee database, you can easily identify transfers that could eliminate future labor shortfalls in particular jobs—and determine how long it would take to provide the training needed for employees to make the switch.



is to do a relatively simple analysis of your company's situation, one that draws on easily available company data. The aim is to determine, by location and business unit, future workforce levels and age distribution, based on anticipated retirement and attrition rates. Much of the information – for example, the number of employees and their respective ages – can be pulled from existing HR data systems and fed into a simple simulation tool that forecasts what will happen under a number of scenarios over the next five to 15 years. Historical data on such things as attrition and recruiting can be used to generate projections, but these need to be enriched with management discussions of future trends. RWE Power's historic annual attrition rate of less than 1%, for instance, could rise as demand for specialized workers grows in the labor market.

This first analytical cut quickly provides a good idea of which locations and business units are likely to have the steepest age distribution and most dramatic capacity losses. In units or locations with the highest problems, companies can then do a more detailed analysis.

Create a job taxonomy to refine your assessment. You'll need to continue the analysis at the level of the three job categories: groups, families, and functions. Employees within each category share similar skills and can transfer within them, but the amount of time it takes to successfully transition to a new job varies with each category.

Within a job function, employees can get up to speed in new positions in less than three months, with relatively little training. Within a job family, it takes employees changing roles less than 18 months to acquire the necessary skills. Within a job group, a transfer may require up to 36 months and significant training.

RWE Power held workshops at which operational managers categorized jobs based on this notion of exchangeability. Then the job function, family, and group that each employee belonged to were entered in the company's employee data system. (The exhibit "Creating a Job Taxonomy for Your Company" shows how certain jobs might be classified.)

Categorizing employees based on their skills and the exchangeability of those skills is crucial to the systematic evaluation and management of demographic risk. That's because the more time it takes to train someone to do another job, the more it will cost to prevent a shortage of workers as people retire.

Pinpoint potential capacity problems. Having developed this taxonomy of job categories, you can begin identifying what your organization's greatest capacity challenges will be as workers retire. (The exhibit "Where Will You Face Talent Gaps?" lays out a multistep approach to assessing your capacity risk.)

Start by estimating future workforce supply – that is, how many available workers you will have for each particular job function over the next five to 15 years. You can calculate these anticipated workforce levels by extending to individual jobs the analysis of retirement and historical attrition rates you did in the demographic quick check at the division and location level.

Safeguarding Knowledge

Retirement represents the loss of a worker with the skills needed to perform a specific job. It may also represent the loss of crucial knowledge whose value to the organization extends far beyond the worker's individual position.

Freightliner, a large truck manufacturer based in Portland, Oregon, has anticipated this dual risk. The company (a division of Daimler that recently changed its name to Daimler Trucks North America) saw that the imminent retirement of a large cohort of its aging workforce threatened the specialized technical skills and deep knowledge of customer needs required to produce the highly customized trucks it was known for. Previously, significant layoffs, voluntary severance programs, and limited external recruiting had resulted in a relatively old workforce. In certain functions 30% to 50% of Freightliner's workforce would be eligible for retirement by 2010. The cyclical nature of its business made the staffing equation even more difficult.

Once Freightliner recognized it faced a serious potential problem, it set about assessing the extent and severity of the risk, focusing on employees who were key knowledge holders. The challenge was to identify these workers as a subset of the workforce; to segment them based on whether their knowledge was held by them alone, by a few employees, or by many employees; and to transfer their knowledge so that it wouldn't be lost to the organization when they retired.

Using an in-depth survey of 5,000 employees, Freightliner classified employees by the type of knowledge they had. Across the company, about 20% of the population emerged as "key knowledge holders," 9% as "unique key knowledge holders," and 3% as "at-risk, unique key knowledge holders" (those who were eligible to retire within five years). The risk posed by the departure of this latter group varied significantly among different functions. Segmenting this crucial human resource by function helped the company set up targeted knowledge management systems, tandem staffing arrangements, job rotations, and other means to capture what these people knew before they left the company.

Then calculate future workforce demand for each job function by identifying what within your strategy will drive personnel requirements, again taking into account various scenarios. At RWE Power, the demand for staff is tied both to anticipated growth – for example, when planned power plants will come on line – and to productivity gains. In more volatile industries, like auto manufacturing or banking, forecasting future staff needs by job function is more challenging, requiring the development of an array of scenarios. But an assessment of even worst-case growth scenarios in these industries will inevitably reveal the need for immediate action in certain job functions.

Combining these estimates of future workforce supply and demand allows you to determine your internal capacity risk. For each job function, you should be able to tell both the extent of the risk (the size of a potential shortfall – or, in some cases, a surplus) and its immediacy (if a shortfall will happen, when it is likely to occur.)

Using your categorization of jobs by functions, families, and groups, you'll be able to see how difficult it will be to replace retiring workers with someone else from within the company. A serious internal capacity risk exists when there will be a significant shortfall in the workers required for key job functions in the short to medium term.

The analysis should also take into account that specialized jobs may require a lengthy training and certification period. In Germany, for example, it takes a three-year apprenticeship to become an electrician. Then it can require another two years to specialize as a maintenance expert, and two more to become an electrical master technician. So a company needs to identify a shortfall in electrical master technicians seven years before it occurs, especially if it will be difficult to fill those jobs with outside hires. In addition, depending on the degree of off-the-job training required, it might be necessary to have a *surplus* of workers for the jobs at each of these stages so that some can receive the training needed to advance to the next level before the actual gap occurs. A traditional three-year planning cycle won't identify those risks in time to respond to them.

Keep in mind that companies may face a shortfall not just of workers with needed skills but of employees with crucial experience and knowledge – particularly specialized knowledge about the company and its practices. (To learn how U.S. truck maker Freightliner addressed this risk, see the sidebar "Safeguarding Knowledge.")

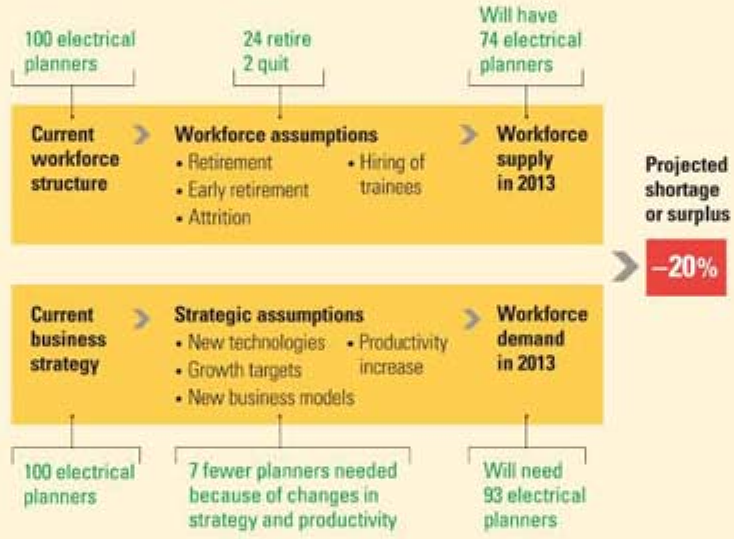
The difficulty of closing a gap depends on the availability of workers with the skills you need in the labor market. Consequently, after determining your internal capacity risk, you should assess the external labor market risk, again by job family and function. The extent of the risk will be determined by the avail-

Where Will You Face Talent Gaps?

To identify where your greatest challenges will lie as workers retire or leave, you need to forecast what your workforce needs will be in each job function – or, as a first cut, in each job family – at different points in the future. This forecast requires two inputs: internal workforce supply (that is, your company's anticipated workforce levels, given assumptions about retirement age, early retirement programs, and attrition rates) and workforce demand (based on strategic assumptions about such things as growth targets, emerging business models, productivity increases, and new technologies).

These forecasts – which can range in sophistication from back-of-the-envelope approximations to numbers produced by computer simulation of different scenarios – will yield estimates of anticipated internal shortfalls (or surpluses) in each job function over time.

The chart below shows a relatively simple five-year forecast for one job function, electrical planner.



ability of qualified workers and by the competition from other companies to hire them.

The final step in determining capacity risk involves combining the assessments of your internal situation and of the external labor market, to highlight which job functions will pose the greatest threat. When it analyzed its workforce trends, RWE Power found that it would face a shortage within the company of certain kinds of highly specialized engineers, that relatively few of these engineers would be entering the job market in coming years, and that competition to hire them would be fierce among the few large utility companies – creating a capacity challenge for this job function.

Pinpoint potential productivity losses. A similar approach, if a somewhat more straightforward process, is used to gauge the risk of lower productivity and other costs – such as absenteeism and retraining costs – that can be related to an aging workforce in certain job categories. Again, the risk must be assessed at the level of job group, family, and function, a process that begins with looking at the age distribution of employees in each category and how it will change over time.

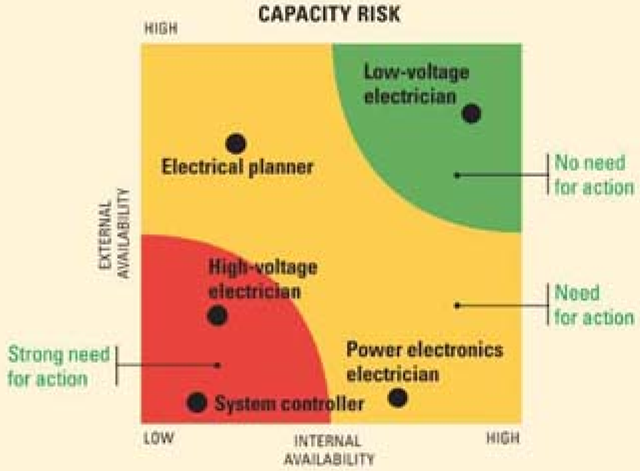
Then you'll need to determine which job functions are at risk – because of employees' ages *and* because of the nature of the work – for age-related

To get a read on your overall internal capacity risk, determine for each function the extent of the risk (that is, the size of a potential shortfall over time) and the immediacy of the risk (how soon you are likely to face a serious problem). Note that here internal capacity risk will be particularly acute in the case of the system controllers, high-voltage electricians, and electrical planners, who will be in seriously short supply in a few years.

Job functions	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Power electronics electrician	–4%	–2%	0%	4%	9%	15%	13%	–1%	–3%	8%	20%	17%	18%
System controller	–5%	–8%	–12%	–18%	–22%	–30%	–35%	–45%	–45%	–47%	–51%	–58%	–62%
Electrical planner	–6%	–13%	–14%	–25%	–23%	**–20%**	–19%	–18%	–20%	–22%	–25%	–28%	–32%
High-voltage electrician	–1%	–10%	14%	13%	–7%	–29%	–29%	–43%	–45%	–75%	–81%	–85%	–92%
Low-voltage electrician	–1%	–3%	1%	2%	–1%	9%	21%	24%	27%	29%	32%	35%	38%

Next, assess the external marketplace risk, to see how difficult it will be to alleviate shortfalls by hiring people from outside the company when your need for people is greatest. You should take into account both the availability of workers with the requisite skills and the intensity of competition to hire those workers.

Combining your analyses of your internal situation and the labor market will highlight the job functions facing the greatest threat (here, system controller and high-voltage electrician) and those that give little cause for concern (low-voltage electrician). While there will be an internal shortage of electrical planners, those workers are expected to be in plentiful supply in the labor market.



productivity losses. At the least, you'll want to differentiate between physically demanding jobs, in which aging can lead to reduced productivity, and experience-based jobs, in which aging can lead to higher productivity. Keep in mind that the implications of employee aging will vary widely from job to job. Companies need to understand those differences and develop specific strategies for each job group.

The process of assessing your company's capacity and productivity risks by location, business unit, and job category can reveal some daunting challenges – say, a serious shortage of talent in an area targeted for growth. The key is to identify such a problem far enough in advance to be able to address it and, in doing so, gain an advantage over your competitors.

Managing the Risk

With detailed information about the demographic risk you face, you're in a position to systematically employ an array of measures to manage both capacity risk and productivity risk.

Take steps now to prevent talent shortages. Future shortfalls in a critical job family or function, when spotted early enough, can be mitigated in two basic ways: by reducing the demand for workers in those jobs and by increasing the supply of people able to perform them. We'll look at six methods for closing the gap between workforce supply and demand, beginning with two aimed at reducing workforce requirements. (See the sidebar "Six Ways to Close the Talent Gap.")

An obvious but potentially overlooked method is *productivity improvement,* achieved through process enhancements, for instance, or technical innovations. Most companies constantly seek to improve productivity. But the potential for a serious labor shortage in a particular job family or function can focus those efforts.

Companies can also prioritize *outsourcing* in job categories in which a labor shortage is looming – particularly if the shortage looks temporary or if it involves work that is of limited strategic importance. Bear in mind, however, that if you have problems recruiting in certain job categories, your outsourcer probably faces the same constraints, so outsourcing may provide only a partial solution.

Maintaining an adequate supply of talent is another key to managing potential gaps. Companies that have categorized their jobs by functions, families, and groups will have a good read on the feasibility of *job transfers.* They can tap a surplus in a job function or family at one location or business unit to fill a gap in the same function or family at another location or business unit – provided they've laid the necessary groundwork for transfers. RWE Power is considering how it can help workers prepare for a potential transfer to a similar but different job or to the same job at a different power plant as the organization's production strategy changes.

Training programs play a key role in such preparations. The capacity risk analysis enabled RWE Power to spot, for instance, cross-training opportunities between its different operations: After a short learning period, a high-voltage electrician working on large mining equipment can undertake high-voltage tasks at a power plant, and vice versa. The ability to map the potential for transfers and training across job categories, business units, and locations gives RWE Power a capability most large companies lack. (See the exhibit "Sizing Up Your Transfer and Training Options" for a simple illustration of how training and transfers can be combined to address gaps.)

To ensure that attrition doesn't exacerbate a capacity shortfall, it is important to create sophisticated *retention* programs targeted at people in job functions at greatest risk of a talent shortage. Initiatives include training, career planning programs, and job rotation programs, as well as more conventional long-term incentives. At the minimum, you need to monitor employee satisfaction and strive to increase it in job categories facing a serious capacity risk. RWE Power, for example, has carefully analyzed its remuneration structure for certain types of engineers.

Finally, having taken steps to minimize workforce demand in crucial job categories and to strengthen the supply of workers from within the company, you must look outside the organization for workers to fill any remaining gap. For many companies, this fundamental business activity – *recruitment* – has been a low priority during the relentless downsizing of recent years. But because of the major demographic shift now occurring, developing sophisticated recruiting programs – that focus not just on hiring more people but on such things as the careful positioning of the company brand with prospective employees – are a top priority.

Six Ways to Close the Talent Gap

Having identified where you are likely to face the greatest capacity risk, you need to take steps to minimize it, particularly in positions critical to the organization's future success. This can be done by job category, using a combination of measures. They fall into two general categories:

Reduce your future demand for labor

- increase productivity
- outsource work

Increase your future supply of qualified workers

- transfer employees
- train employees
- increase employee retention
- recruit more workers

Companies must learn to target their recruiting efforts by, for example, identifying specialized schools that will turn out workers with the skills required for jobs in at-risk categories. They need to think ahead, beginning to recruit employees whose skills may not be in demand today but will be tomorrow, when shortages emerge. Companies that anticipate their future needs and act now will gain a clear competitive advantage over rivals that are still focused on reducing head count.

This will require a radical change in mind-set for companies that have been in a prolonged downsizing mode. For RWE Power, it became clear that, while it had the financial capital to construct new power plants, human capital, in the form of specialized engineers, was the scarce resource. Consequently, the company launched an intense effort to close the gap in the short term – with, for example, focused recruiting drives at certain universities – and developed a long-term recruitment strategy for these positions. Other possible responses to such a gap include reactivating retirees or acquiring small companies that have the sought-after talent.

Ensure that aging workers remain assets. Initiatives focused on the needs of older workers can help address the implications an aging workforce has for productivity. A systematic review of current HR policies and processes will reveal adjustments you can make in a variety of areas to turn age-related risks into competitive opportunities. The key is to tailor these measures to each job function or family, keeping in mind that the experience that comes with age may increase productivity in certain jobs, such as engineering or sales positions.

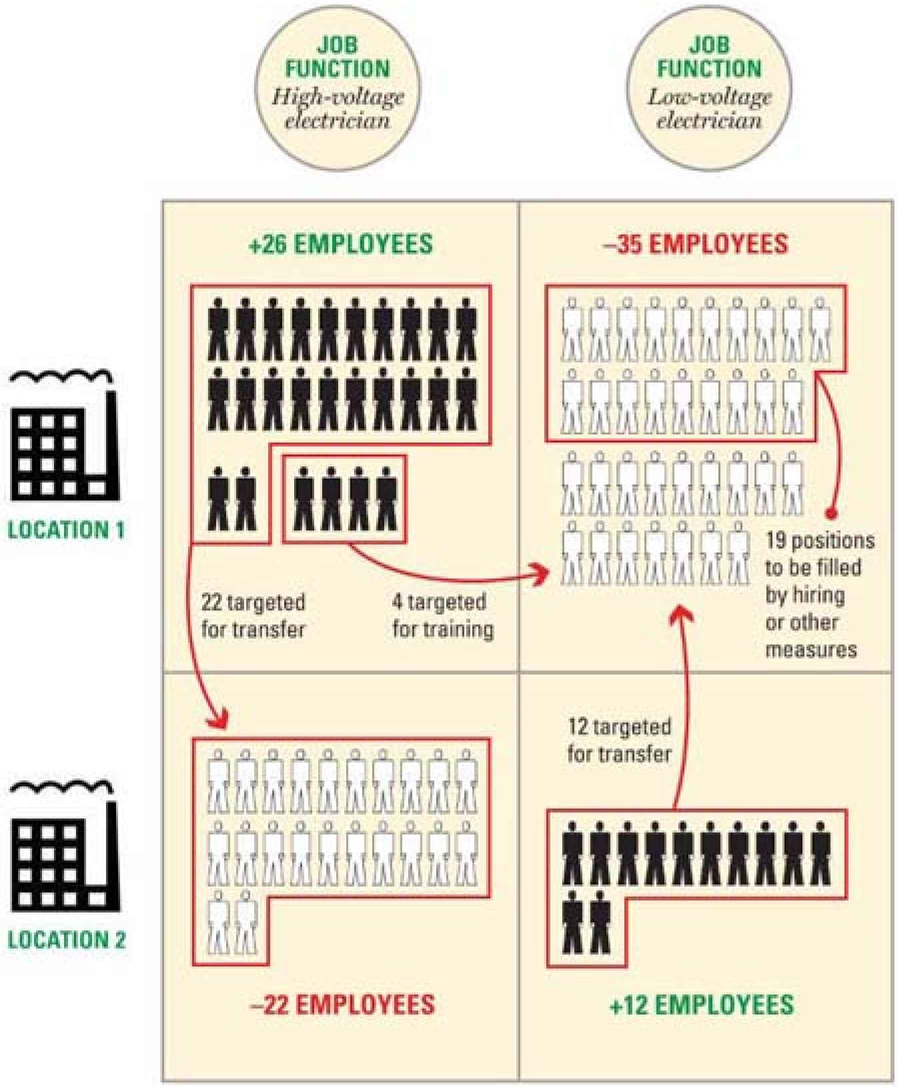
The most obvious moves involve *training programs* that help older workers update their skills and leverage their experience. At RWE Power, the operational technology at power plants has changed significantly since older workers began at the company, and continu-

Sizing Up Your Transfer and Training Options

If you anticipate a shortfall in one job function at one location in a given year (in this simplified example, the deficit of 35 low-voltage electricians at Location 1), you might be able to alleviate that problem by training people from another job function, in the same job family and at the same location, in which there will be an oversupply (the surplus of 26 high-voltage electricians in Location 1). Although their training might take up to 18 months, you could begin it before the shortfall materializes, because you have spotted the problem early.

Alternatively, if you have identified a surplus of workers in the same job function at another location (the surplus of 12 low-voltage technicians at Location 2), you could transfer some of them to fill the shortage.

As we see here, the shortfall of low-voltage electricians at Location 1 and the shortfall of high-voltage electricians at Location 2 would be eased through a combination of training and transfers – though there would still be a deficit of 19 workers. That would have to be addressed through other measures, including hiring from outside the company.



ing professional development programs are crucial in maintaining these workers' production knowledge. A danger is that older workers will be placed in one-age-fits-all courses that aren't geared to their particular needs, knowledge, and strengths. For example, older manufacturing employees' lack of familiarity with the internet may make typical web-based training programs unappealing to them. Training older employees in mixed-age groups can also reduce the value of such programs: They may be embarrassed to ask questions that younger employees might scoff at. (It should be noted that the reverse may also be true.)

Another obvious area for productivity enhancement is *health care management*. On average, older employees don't become ill more often than younger employees, they just are ill for longer periods. Proactive measures, designed to prevent sickness and injury, can reduce the problem significantly. Such measures should be targeted at employees with a high risk of health problems and tailored to the jobs they do. They also need to include incentives to encourage participation – say, the offer of additional vacation days to employees who regularly engage in exercise, which has been shown to reduce illness-related absences among older workers.

In many cases, *workplace accommodations* designed to help older workers on the job can increase productivity. With manual work, companies may focus on enhancing workplace design or revising employees' duties – say, by rotating them during the course of a day among tasks that are more and less physically demanding. RWE Power, which has found that aging could reduce productivity in production-related job families, is exploring the possibility of personalized work schedules, with shift lengths tailored to employees' abilities, and of "lifetime working programs," in which employees can accumulate early in their careers credit for overtime hours that can be used to reduce work hours when they are older.

In a twist on the outsourcing that accompanies most downsizing initiatives, companies might also consider the strategic "insourcing" of certain jobs as a way to accommodate the abilities of older workers. That is, less physically demanding tasks currently performed by outside contractors could be brought back into the company and assigned to older workers who are guaranteed employment by their contract or by job protection laws but may no longer perform well in their current positions.

Initiatives may also involve developing new *compensation structures*. The traditional link between pay and length of service (and hence age) may need to be loosened, and compensation – for certain activities, at least – more closely linked to performance. Although under such a system, some older workers may be compensated less than they would have been under the existing system, note again that, in many job categories, knowledge and experience may in fact lead to superior performance and higher pay.

While some older workers become more engaged with their jobs (say, after their children have left home and their domestic responsibilities lessen), others become less motivated because they perceive they have fewer career opportunities. To counter a potential loss of motivation as workers approach retirement, companies can try creative age-related *performance incentives*. For example, older workers might serve as mentors to new workers, which can increase motivation and performance. Employees with critical knowledge might be offered the chance to return to the company and work on special projects on a freelance basis after they've retired. This latter approach has multiple benefits: reducing capacity shortfalls in a crucial job category and keeping valuable knowledge in the company, as well as motivating employees near retirement to perform well so that they will be considered for this post-retirement opportunity.

Retirees with critical knowledge might be offered the chance to return to the company and work on special projects.

Addressing Tomorrow's Problem Today

The demographic shift looming on the horizon will radically reshape our workforces. As its impact becomes more obvious, many companies will realize that they must undertake a monumental, multiyear change-management program – one that represents an opportunity as well as a response to a significant challenge.

As we've noted, actively addressing demographic risk to retain the skills and know-how needed to ensure future viability can give companies a competitive advantage over rivals. That means demographic risk management must be an integral part of yearly strategy setting. Furthermore, because demographic risk management is not a one-time initiative but an ongoing part of strategy and risk discussions, the HR department will need to become a true strategic partner of top management – a role that HR should have assumed long ago, in any case.

There is no time to waste: Recall the seven-year lead required to train the German master electrical technician. Companies must adopt a demographic risk management approach now – before their competitors do and before it is too late to effectively respond to the changes that lie ahead.

Reprint R0802J
To order, see page 139.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Letters to the Editor

Women and the Labyrinth of Leadership

In their article "Women and the Labyrinth of Leadership" (September 2007), Alice H. Eagly and Linda L. Carli offer the labyrinth as a metaphor for the obstacle-filled journey that women undertake to achieve top leadership roles. But metaphor alone is not enough to guide them through the maze. Metaphors exist within a context of myths and stories, whose heroes vividly demonstrate how to triumph over challenges. Since most legendary tales are male oriented, however, women and their mentors need to find or create, and then use, success stories that feature the feminine archetype. Without that guidance, women either will fail to rise to leadership roles at all or will ascend at the expense of the feminine, the essence of their strength.


Women and the Labyrinth of Leadership

Consider the heroine of *The Wizard of Oz*, for example. Dorothy is an emotionally connected transformational leader: She discovers the hidden talents of the scarecrow, the tin man, and the lion, and then encourages and challenges them to draw on their own potential. As a result, the characters become better versions of themselves; the team overcomes the obstacles along the way; and, ultimately, they all realize their destinies. Under Dorothy's leadership, they create a vision together in which each member benefits from and contributes to the overall journey.

Dorothy, for her own part, spends most of the time looking for a wizard who she believes has the power to send her home. But when she finds him, he can offer nothing extraordinary. It is Glinda, a feminine presence, who shows Dorothy that she can find everything she needs within herself. Glinda helps Dorothy the same way Dorothy helped the scarecrow, the tin man, and the lion – by identifying and revealing their internal strengths. Like Dorothy, women on the leadership journey already have what they need to succeed. And, like Glinda, mentors should help them access and integrate the feminine into leadership practices.

Anne Perschel
President
Germane Consulting
Worcester, Massachusetts

Perhaps the traditional trade-offs that women face, addressed by Eagly and Carli, are not forced but voluntary. The top performers in U.S. industry more often than not lead very unbalanced lives because their work demands an almost inhuman level of commitment: The CEO of a major corporation is on

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call 24 hours a day, seven days a week. And executives are encouraged to minimize cost relentlessly, even in areas such as payroll and customer service. Does any amount of money justify throwing humane concerns overboard to reach a goal? And if so, will ethics and environmental issues be next? With CEO compensation up to 500 times greater than that of workers, achieving team spirit between the boss and the people – perhaps one of the greatest rewards of leadership – is out of the question. This amounts to a lower quality of life and is sustainable neither for the individual nor for the corporation.

Would the world be better off with leaders who have a more balanced view of life? One wonders whether a female president would have embarked upon a costly war in Iraq or if Enron would have met the same scandalous demise with female top management. I believe that female characteristics and qualities are greatly needed in the corporate world. Stereotypical male aggression should not be held up as desirable.

Frank Olsson
Director
Wallace Corporation
Auckland, New Zealand

Eagly and Carli respond: We welcome these thoughtful responses to our article. Anne Perschel is right in recognizing the importance of female role models – from myths, stories, and real life. Feminine archetypes of success can inspire women and help them navigate the labyrinth. In our book, *Through the Labyrinth,* we report research showing that merely being reminded of high-achieving women, such as Meg Whitman, increases women's interest in leading. Furthermore, exposure to women in powerful roles weakens people's stereotypes about women's lack of agency. This is good news because, as these stereotypes erode, perceptions about what constitutes a good leader become more inclusive.

Frank Olsson notes an important factor that creates twists and turns in the labyrinth: the very long work hours and devotion that many organizations require. "Extreme jobs" diminish the quality of life for both men and women, but women suffer disproportionately. To fulfill their career and family obligations, women sacrifice leisure time more than men do. In fact, the average married man has the equivalent of over five 40-hour weeks more leisure time each year than the average married woman. But cultural changes have made family life increasingly important, and now women *and* men say that they value family over career. And no wonder – research shows that having both an involved family life and a meaningful career enhances physical and mental health.

This cultural shift toward greater appreciation of family life pressures organizations to reduce excessive hours and reward high-quality work over extensive face time. These policies benefit employers as well as employees by increasing the numbers of women in leadership positions, which fosters equal opportunity and is associated with corporate financial success.

The Chief Strategy Officer

Though I very much enjoyed R. Timothy S. Breene, Paul F. Nunes, and Walter E. Shill's article "The Chief Strategy Officer" (October 2007), I was disappointed to see that knowledge of strategy was not one of the necessary traits listed in the sidebar "Help Wanted: Finding a Qualified CSO." In my work with more than a hundred senior executive teams, I have noticed a tremendous dearth of strategy experience at the top levels of organizations. This is because almost no one comes up through a strategy function. How, then, can executives learn the science of strategy?

Senior executives are, in general, brilliant strategic thinkers – that is, they can think strategically about their customers, products, competition, and markets. However, they often lack the ability to translate their thinking into a process that galvanizes the entire organization and clarifies employees' roles in execution. The result, as research shows, is that only 5% of corporate employees understand their company's strategy.

Furthermore, senior executives often confuse a goal (a result arrived at through long-term effort) with a strategy (the means for achieving the goal). When executives think they have articulated a goal but have actually described a strategy instead, performance inevitably suffers. It's like reaching an intermediate point in your travels and thinking that you have arrived at your final destination.

To help clients learn the difference between goals and strategies, I ask them, "Why would you do that"? If an answer to that question exists – and if it is not self-evident – then they have a strategy, not a goal. Successive questions continue to refine the issue until the real goal becomes clear. Suppose, for example, that an organization says its goal is "to collaborate with external partners." If you asked its executives why they would do this, the answer might be "to develop innovative ideas." If you then pressed further and asked them why they would develop innovative ideas, the answer might be "to become more competitive" or "to be more profitable." But asking why they would want to become more competitive or profitable would probably elicit an incredulous stare – and that's when you'd know you had reached an actual result, a goal, that the organization is seeking. In this instance, collaboration and innovation were only strategies for achieving the goal of becoming more competitive or realizing more profit.

I would be delighted to see a CSO in every major corporation performing the functions that the authors describe so well. To prepare for this role, however, executives first need some serious education about strategy.

Peter S. DeLisi
President
Organizational Synergies
Fremont, California

Breene, Nunes, and Shill respond: We certainly do not disagree with Peter S. DeLisi on the fundamentals. The failure to understand strategy is a major problem at many companies, at all organizational levels. That's precisely why many CEOs are recognizing the value of having a CSO on their team, to ensure that strategy is not only planned but actually carried out.

In our article, we highlighted what we felt was the most interesting finding from our research: that CSOs bring to the job a mentality focused on strategic execution and high-level experiences that allow them to solve real, pressing business problems. We wanted to emphasize that although most CSOs have spent several years at a strategy consultancy or in a strategic function at some point in their careers, they are not solely strategists.

In the end, like DeLisi, we see great scope for strategic education in organizations, and we share his view that the CSO can be a catalyst for that change.

The CEO's Private Investigation

The commentators for Joseph Finder's case study "The CEO's Private Investigation" (October 2007) offer useful advice for the incoming CEO of a major American corporation facing a compliance crisis. In my opinion, however, they fail to identify several critical managerial issues.

Cheryl's focus on her first day as CEO is wrong. While she should be applauded for not shying away from hard questions, she is not doing a good job of building the trust she will need to succeed in her position. Before trying to figure out whether there is truth to the industry scuttlebutt of corruption, she needs to set about implementing a 100-day plan: to get on top of the management structure, probe the company's numbers, meet key clients and stakeholders, get a feel for the people and the culture, and learn their strengths and weaknesses.

Without this information, Cheryl's amateurish investigation will inevitably be random and unstructured. And without context, Cheryl will be incapable of assessing the information she finds. Maybe her managers' reactions do signal a fire that's causing the smoke – but maybe they're nothing more than an understandably defensive, wary approach to an outsider. The Cayman Islands account that Cheryl's new assistant discovers may have nothing to do with slush funds and everything to do with ex-CEO James Rawlings's private life – perhaps he was hiding assets from his spouse.

The point is, Cheryl doesn't have any concrete evidence. She has only rumor and innuendo. Though her duties require her to investigate possible illegalities, such as the alleged bribery, starting her tenure at the company by quizzing everyone isn't the way to go about it. Maybe all that's needed is a quiet word with the chairman. If a fuller investigation does become necessary, then a solid base of knowledge about the company and well-developed relationships with the people Cheryl needs to question will yield much more useful information than an impromptu inquisition on day one.

My advice to Cheryl would be to hold her fire for a little while – say a month, maybe just a week, depending on how her entrée into the company unfolds. (Of course, if at any stage she comes across direct evidence of wrongdoing, then that changes things.)

The way Hammond Aerospace deals with the crisis, the investigation, and the aftermath may be transformational for the company, as evidenced by Boeing's experience. Cheryl can play a meaningful role in the process only if she maintains a focus on her core responsibilities as an incoming CEO.

Jonathan Wenig
Partner
Arnold Bloch Leibler
Melbourne, Australia

Executive Summaries

FEBRUARY 2008

> Be sure to diagnose *every* business position carefully, particularly in units that seem to be doing well.
> –page 62

COVER STORY

62 | The New Leader's Guide to Diagnosing the Business

Mark Gottfredson, Steve Schaubert, and Hernan Saenz

Incoming CEOs and general managers don't have much time to show what they can do to improve a business's performance. (In 2006, for instance, about 40% of CEOs who left their jobs had lasted an average of just 1.8 years – and many of them were ushered out the door.) Within a few months at most, leaders must find ways to boost profitability, increase market share, overtake a competitor – whatever the key tasks may be. But they can't map out specific objectives and initiatives until they have accurately assessed their companies' distinctive strengths and weaknesses and the particular threats and opportunities they face. In this article, Bain consultants Gottfredson, Schaubert, and Saenz provide a diagnostic template to help organizations figure all that out so they can decide which goals are reasonable and where to focus performance-improvement efforts.

The template is built on four widely accepted principles. First, costs and prices almost always decline; second, your competitive position determines your options; third, customers and profit pools don't stand still; and fourth, simplicity gets results. Along with each principle, the authors offer diagnostic questions and analytic tools. Of course, each manager will emphasize certain elements of the template and de-emphasize others, based on his or her business situation.

This process will show incoming CEOs and general managers where they are starting from (their point of departure) and help them establish their performance objectives (their point of arrival) as well as the change initiatives that will take them where they want to go.

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GENERAL MANAGEMENT

THE HBR LIST

17 | Breakthrough Ideas for 2008

Our annual survey of ideas and trends that will make an impact on business:

Stan Stalnaker heralds a peer-to-peer economy in which consumers become consumer-producers. **Tamara J. Erickson** dissects the expectations of Gen Y workers. **Dr. Jerome Groopman** writes a prescription for avoiding misdiagnoses in decision making. **Michael Sheehan** warns not to resort to the tools of competition when it's really opposition that threatens your company. **John J. Medina** conceives of a brain-friendly workplace that applies modern science to daily performance. **Dan Ariely** studies the minds of "honest" people when they cheat. **Paul Root Wolpe** and **Daniel D. Langleben** share truths about technologically sophisticated lie detection. **Scott Berinato** shines a light on the cybercrime service economy. **Mark Kuznicki, Eli Singer,** and **Jay Goldman** showcase Toronto, where a technology-driven event led to real social change. **John Seely Brown** and **Douglas Thomas** argue that online games are preparing the twenty-first-century workforce. **Jane McGonigal** calls alternate reality games the promising new operating systems for real-world business. **Miklos Sarvary** mines the history of broadcasting for wisdom about competing in the *metaverses* of the internet. **Judith Donath** asks how true to yourself you'll be in the virtual world. **Jan Chipchase** surveys the soon-to-be-charted territory of metadata trails. **Lew McCreary** points a finger at people who blame technology for their bad behavior. **Jaime Lerner** sees the city of the future in a turtle's shell. **David Vogel** catalogs the advantages of socially responsible lobbying. **George Pohle** lets the numbers prove the mass-market promise of China's second-tier cities. **Aamir A. Rehman** and **S. Nazim Ali** discuss the boom in sharia-compliant finance. **Michael J. Mauboussin** identifies the shrinking domain in which experts are the best problem solvers. **Garrett Gruener** reveals his list of sustainable and unsustainable trends.

Reprint R0802A

MARKETING

HBR CASE STUDY

49 | The Corporate Brand: Help or Hindrance?

Chekitan S. Dev

Each of Lilypad's boutique hotels has its own sense of place and definition of customer experience. Though loyal to their favorites, guests don't visit other luxury properties in the collection or even realize they're affiliated. To boost the lifetime value of existing customers and reach new ones, CEO Andre Cleary is thinking about positioning the hotels more directly under the corporate umbrella. The company could gain scale efficiencies and possibly increase visits – but does one brand really fit all? Four experts comment on this fictional case study.

Horst Schulze, the CEO and president of the West Paces Hotel Group, says that Lilypad must build up its corporate brand to create long-term value. This would also help the company become more efficient at cross-promoting properties, offering services, and buying supplies in bulk.

Jill Granoff, the executive vice president of direct brands at Liz Claiborne, says that the financial risks of putting the Lilypad name front and center may outweigh the potential rewards. The company should instead market its hotels more aggressively to travel agents and selectively acquire new properties to propel further growth.

Kevin Lane Keller of Dartmouth argues that Lilypad must clarify what its brand represents before giving it any more emphasis. Rather than making significant changes in the rooms themselves, which could weaken the individual brands, management should coordinate behind the scenes to improve cross-sell numbers.

Jez Frampton, the global CEO of the consultancy Interbrand, thinks Andre should systematically examine the brand in terms of Lilypad's customers and culture. That means conducting market research and moving away from the current "warlord" approach of managing each property as a separate fiefdom.

Reprint R0802B
Reprint Case only R0802X
Reprint Commentary only R0802Z

HUMAN RESOURCES

74 | How Star Women Build Portable Skills

Boris Groysberg

In May 2004, with the war for talent in high gear, Groysberg and colleagues from Harvard Business School wrote in these pages about the risks of hiring star performers away from competitors. After studying the fortunes of more than 1,000 star stock analysts, they found that when a star switched companies, not only did his performance plunge, so did the effectiveness of the group he joined and the market value of his new company. But further analysis of the data reveals that it's not that simple. In fact, one group of analysts reliably maintained star rankings even after changing employers: women. Unlike their male counterparts, female stars who switched firms performed just as well, in the aggregate, as those who stayed put. The 189 star women in the sample (18% of the star analysts studied) achieved a higher rank after switching firms than the men did.

Why the discrepancy? First, says the author, the best female analysts appear to have built their franchises on portable, external relationships with clients and the companies they covered, rather than on relationships rooted within their firms. By contrast, male analysts built up greater firm- and team-specific human capital by investing more in the internal networks and unique capabilities and resources of their own companies. Second, women took greater care when assessing a prospective new employer. In this article, Groysberg explores the reasons behind the star women's portable performance.

Reprint R0802D

MANAGING PEOPLE

82 | The Existential Necessity of Midlife Change

Carlo Strenger and Arie Ruttenberg

As life expectancy in the West increases and companies can no longer promise lifelong security, many businesspeople will need to make major changes during middle age, embarking on a second life and a second career. They must start by getting beyond two pervasive and opposing myths.

The first is that midlife marks the onset of decline. Problems do arise during middle age – concerns about health and finances, for instance – but one's life force does not expire at 65, nor do possibilities vanish. In fact, by middle age, most executives have gained a freedom that only self-knowledge can impart, and they relish unprecedented opportunities for personal growth.

Midlife transitions, however, must be rooted in realism, not driven by the second myth, which paints middle age as a time of magical transformation. Contrary to what self-help books and inspirational speakers proclaim, such transformations do not happen. A 50-year-old with little musical training, for instance, will not suddenly become a concert pianist. People who buy into this myth find that their inevitable disappointment can be debilitating. Paradoxically, the doctrine that aims to encourage change actually stifles it. To make successful transitions, executives must stay open to the possibilities their experience qualifies them for but remain realistic about what they can achieve.

For companies, employees' midlife transitions represent both a challenge (senior managers seemingly on track to become CEO may instead leave) and an opportunity (other midlife executives, with different perspectives and experiences, may knock on the door). Organizations must help middle-aged executives through this difficult period, not just by offering a workshop or two but by providing ongoing coaching and opportunities for personal and professional development.

Reprint R0802E

OPERATIONS

94 | The Experience Trap

Kishore Sengupta, Tarek K. Abdel-Hamid, and Luk N. Van Wassenhove

When companies put seasoned managers in charge of important projects, they don't expect missed deadlines, budget overruns, and rampant defects. However, that's what researchers found when they tested hundreds of experienced project managers with computer games that simulated software development projects. The study, conducted by two professors from Insead and one from Naval Postgraduate School, strongly suggests that veterans in complex environments suffer a breakdown in the learning process.

The research reveals three reasons for the breakdowns: Time lags between causes and effects make it difficult to see how they're connected; fallible estimates color the chain of decisions that determine a project's outcome; and a bias toward the initial goals prevents managers from setting revised, more appropriate, targets when project circumstances change. Sticking to an initial low budget goal after a project grew in scope, for instance, led subjects to ignore quality assurance, which led to soaring defect rates – and costs.

Companies can take practical steps to fix the learning cycle. They can provide feedback that shows the relationships between important variables in the environment. Such feedback might reveal, say, the 20-day ramp-up that a new quality assurance team needs before becoming fully effective. Tools that apply formal models to calculate such things as the effect of turnover on team productivity also help. Setting goals for behavior, instead of targets for performance, is critical as well. Finally, firms can create project "flight simulators" that mimic actual learning environments but don't let complexity overwhelm trainees.

Managers can continue learning only if they get decision support tailored to the challenges they face. Firms would do well to focus more on training people higher up in the organization and stop leaving them to fend for themselves.

Reprint R0802F

LEADERSHIP

102 | The Founder's Dilemma

Noam Wasserman

Why do people start businesses? For the money and the chance to control their own companies, certainly. But new research from Harvard Business School professor Wasserman shows that those goals are largely incompatible.

The author's studies indicate that a founder who gives up more equity to attract cofounders, new hires, and investors builds a more valuable company than one who parts with less equity. More often than not, however, those superior returns come from replacing the founder with a professional CEO more experienced with the needs of a growing company. This fundamental tension requires founders to make "rich" versus "king" trade-offs to maximize either their wealth or their control over the company.

Founders seeking to remain in control (as John Gabbert of the furniture retailer Room & Board has done) would do well to restrict themselves to businesses where large amounts of capital aren't required and where they already have the skills and contacts they need. They may also want to wait until late in their careers, after they have developed broader management skills, before setting up shop. Entrepreneurs who focus on wealth, such as Jim Triandiflou, who founded Ockham Technologies, can make the leap sooner because they won't mind taking money from investors or depending on executives to manage their ventures. Such founders will often bring in new CEOs themselves and be more likely to work with their boards to develop new, post-succession roles for themselves.

Choosing between money and power allows entrepreneurs to come to grips with what success means to them. Founders who want to manage empires will not believe they are successes if they lose control, even if they end up rich. Conversely, founders who understand that their goal is to amass wealth will not view themselves as failures when they step down from the top job.

Reprint R0802G

OPERATIONS

111 | The Biosphere Rules

Gregory C. Unruh

Sustainability, defined by natural scientists as the capacity of healthy ecosystems to function indefinitely, has become a clarion call for business. Leading companies have taken high-profile steps toward achieving it: Wal-Mart, for example, with its efforts to reduce packaging waste, and Nike, which has removed toxic chemicals from its shoes. But, says Unruh, the director of Thunderbird's Lincoln Center for Ethics in Global Management, sustainability is more than an endless journey of incremental steps. It is a destination, for which the biosphere of planet Earth – refined through billions of years of trial and error – is a perfect model. Unruh distills some lessons from the biosphere into three rules:

Use a parsimonious palette. Managers can rethink their sourcing strategies and dramatically simplify the number and types of materials their companies use in production, making recycling cost-effective. After the furniture manufacturer Herman Miller discovered that its leading desk chair had 200 components made from more than 800 chemical compounds, it designed an award-winning successor whose far more limited materials palette is 96% recyclable.

Cycle up, virtuously. Manufacturers should design recovery value into their products at the outset. Shaw Industries, for example, recycles the nylon fiber from its worn-out carpet into brand-new carpet tile.

Exploit the power of platforms. Platform design in industry tends to occur at the component level – but the materials in those components constitute a more fundamental platform. Patagonia, by recycling Capilene brand performance underwear, has achieved energy costs 76% below those for virgin sourcing.

Biosphere rules can teach companies how to build ecologically friendly products that both reduce manufacturing costs and prove highly attractive to consumers. And managers need not wait for a green technological revolution to implement them.

Reprint R0802H

RISK MANAGEMENT

119 | Managing Demographic Risk

Rainer Strack, Jens Baier, and Anders Fahlander

In developed nations, the workforce is aging rapidly. That trend has serious implications. Companies could face severe labor shortages in a few years as workers retire, taking critical knowledge with them. Businesses may also see productivity decline among older employees, especially in physically demanding jobs.

The authors, partners at Boston Consulting Group, offer managers a systematic way to assess these dual threats – *capacity risk* and *productivity risk* – at their companies. It involves studying the age distribution of their employees to see if large percentages fall within high age brackets and then projecting – by location, unit, and job category – how the distribution will change over the next 15 years. Managers must also factor in both the impact of strategic moves on personnel needs and the future supply of workers in the market.

When RWE Power analyzed its trends, the company learned that in 2018 almost 80% of its workers would be over 50. What's more, in certain critical areas its labor surplus was about to become a sizable shortfall. For instance, a shortage of specialized engineers would develop in the company just as their ranks in the job market thinned and competition to hire them intensified. Reversing its downsizing course, RWE Power took steps to increase its supply of workers in those key positions.

The authors show how companies that face talent gaps, as RWE Power did, can close them through training, transfers, recruitment, retention, productivity improvements, and outsourcing. They also describe measures that companies can take to keep older workers productive, including workplace accommodations, revised compensation structures, performance incentives, and targeted health care management. The key is to identify and address potential problems early. Firms that do so will gain an edge on rivals that are still relentlessly focused on reducing head count.

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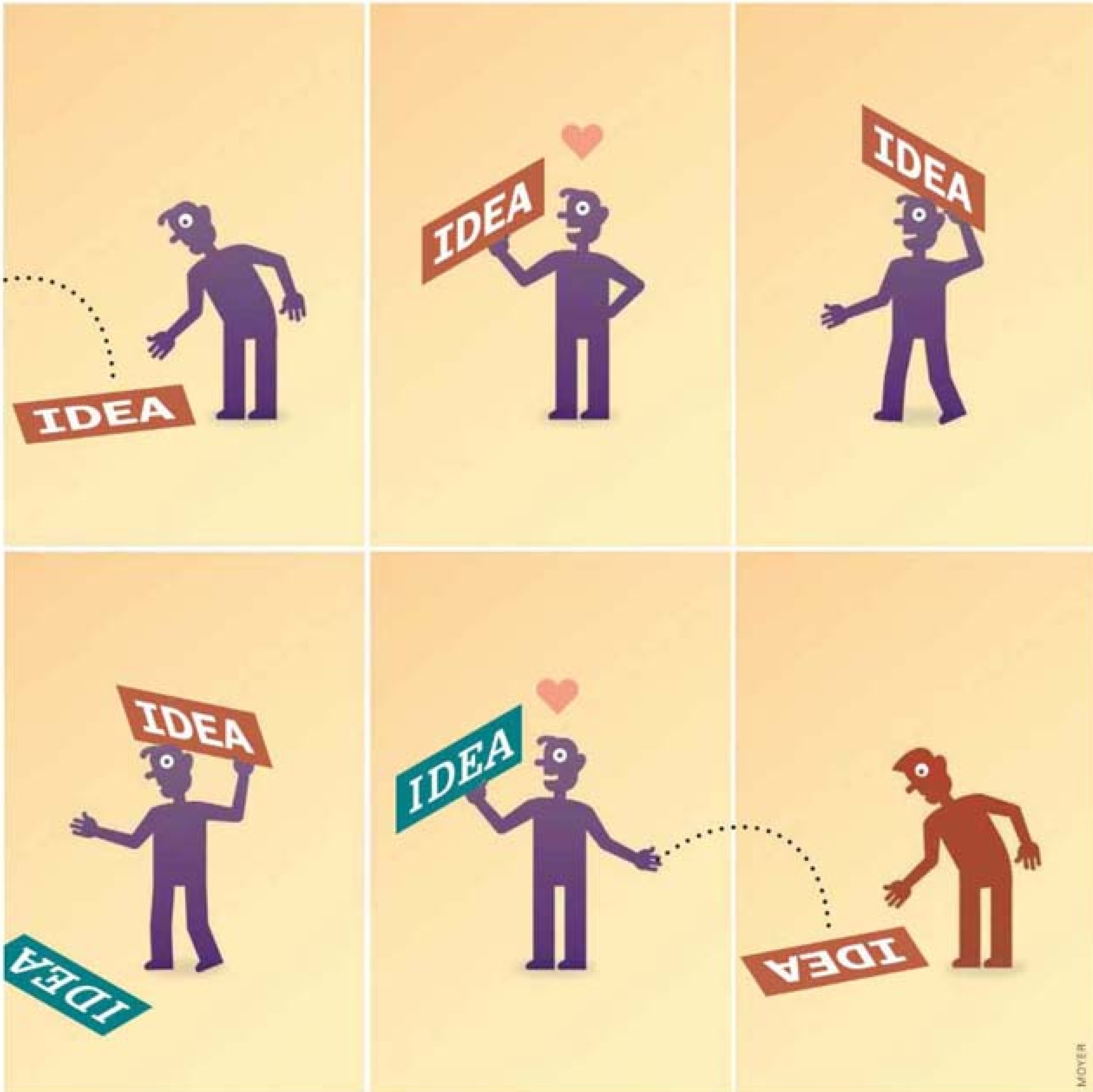

Theory-Go-Round

MANAGEMENT THEORIES come and go, but that doesn't mean the old ones end up in the dustbin. In fact, they lie around, ready to be brushed off and used again. As David K. Hurst writes in a review of recent books about management (*Strategy + Business*, Winter 2006), different management theories "appear, are adopted enthusiastically, and then disappear, only to be reincarnated later under new names."

Of course, recycling can be effective if the idea is a good one. But what's good for one company or business context may be wrong for another. Among the books Hurst discusses is *Hard Facts, Dangerous Half-Truths, and Total Nonsense*, by Jeffrey Pfeffer and Robert I. Sutton, which warns against the dangers of embracing an idea simply because it represents the latest management trend. Picking up an idea without understanding the particular circumstances that gave it power for another business can be a giant mistake. Then again, an idea that flopped elsewhere might be perfect for your situation.

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