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THE HBR LIST

Breakthrough Ideas for 2005

Our annual survey of emerging management ideas considers the downside of reliability and the upside of flip-flops; new directions for evolving technologies; and the persistent questions of who we are and what we fear.

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Breakthrough Ideas for 2005

As the breadth of this year's HBR List demonstrates, innovation comes in myriad forms. It can be, for instance, a new idea that resonates with familiar truth, such as anthropologist Mary Catherine Bateson's suggestion that midlife sabbaticals would reinvigorate employees and ward off stagnation. Or it can be an old inspiration given fresh life, such as Professor Roderick Kramer's reminder that great leaders aren't afraid to flip-flop when change is the wisest course.

Great ideas need time to develop. Rarely do they spring from deities' heads fully formed and suited up for battle. The brainstorming for these 20 began with a klatch hosted last summer by HBR and the World Economic Forum, and it continued through the fall, as several insights took on greater definition and others emerged.

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1. Flipping Without Flopping

Roderick M. Kramer

The 2004 U.S. presidential campaign made "flip-flop" a dirty word. Great leaders, though, understand that changing course is sometimes the smartest thing to do. The trick to pulling off a reversal? Prepare the ground well in advance, and cast correction as courage.

2. Everybody into the Gene Pool*

Julia Kirby

Many managers eager to pursue ambitious growth strategies suspect that their organizations lack the right stuff to deliver. These leaders want desperately to crack the code of high-performance DNA. But performance anatomies are highly individual and delicately balanced. New research initiatives are making the je ne sais quoi of success more decodable, teachable, and learnable.

3. The Velcro Organization

Joseph L. Bower

When your customers are located around the world, it's not enough to have effective, efficient functions. You also need to know the people and relationships that make business work in particular locales. The rigid organizational structure of most multinationals gets in the way. "Velcro organizations" do better, with managers who can quickly and easily rearrange their roles to meet the challenges of specific tasks.

4. Demand-Side Innovation*

Jeffrey F. Rayport

Each new generation of products and services has half the shelf life of the previous one. To secure a lasting competitive advantage, try shifting your innovation efforts to the demand side. Ultimately, it's how companies orchestrate customer interactions, not just what firms bring to market, that determines whether they live or die.

5. You Heard It Here First

Eric Bonabeau

Although visual technology has about a 20-year jump on audio, the ears are coming into their own. Industries stand to benefit from a host of breakthroughs in sound. Music that influences which wines we buy? Billboards that talk to one person at a time? Believe the buzz.

6. Seek Validity, Not Reliability*

Roger L. Martin

Six Sigma, customer relationship management, and most other corporate systems crank out consistent results, often through analysis of objective data. The outcomes are reliable, but they don't necessarily mean much. Companies that aim for validity instead—by embracing fuzzy data, variability, and inconsistency—open the door to innovation and growth.

7. "When" Is the New "What"

Kirthi Kalyanam and Monte Zweben

Marketers spend so much time fretting over which people to target with what message that they largely ignore the question of *when*. Identifying when needs or desires change and determining when customers want help are the best ways to get through. "Dialogue" marketing helps companies spot the hot irons—and strike.

8. Swapping Your Country's Risks

Robert C. Merton

How can investors in developing countries diversify their risks if capital controls prohibit them from exporting capital overseas? And how can their countries' governments diversify their economies without sinking billions into new industries? By creating an equity swap, which enables domestic and foreign investors to manage risks separately from investments.

9. Wanted: A Continuity Champion*

Thomas A. Stewart

Change is sexy, challenging, a job for heroes. It also has a way of swallowing a company's attention and resources. Continuity needs and deserves champions, too. The core business, after all, is what got you where you are.

10. Blog-Trolling in the Bitstream

Mohanbir Sawhney

Blogs have the grassroots credibility to influence what people think, do, and buy. Because the blogosphere doesn't rely on marketers as other media branches do, companies that want to tap

11. No Risk Is an Island*

Denise Caruso

Big man-made risks without owners—think of an agricultural disaster sparked by genetically modified food—render traditional risk management all but worthless. When assessing risks of this type, companies must involve a broad community that includes experts and all those who might feel the repercussions.

12. Let Them All Be Power Users

Thomas H. Davenport

Companies load up employees with laptops, PDAs, cell phones, and other gadgets for managing personal information but give little guidance on how best to use them. The result? Knowledge workers, the drivers of the global economy, are far less effective than they could be.

13. A Taboo on Taboos*

Leigh Buchanan

Organizations tiptoe around politically or socially risqué subjects—especially perennial cringe inducers like sex, death, and God. But if a subject makes you uncomfortable, chances are it's exactly what you should be discussing.

14. Toward a New Science of Services

Henry W. Chesbrough

Services contribute even more to the global economy than products do. So shouldn't the science of services be an academic field in its own right? Whether it becomes one may depend on the same criteria—including the extent of corporate support—that set computer science apart from engineering, math, and physics.

15. The Coming Crisis over Intellectual Property Rights*

Kenneth Lieberthal

Although many executives recognize a deteriorating respect for intellectual property rights globally, few see the particular threat posed by recent developments in China. Companies there have started flooding the world's markets with pirated versions of everything from DVDs to airplane parts—and a national emphasis on fostering economic growth at any cost makes it hard to weed out corruption. To keep IPR protections intact, global firms must wake up and take action.

16. Biometrics Meets Services

Jochen Wirtz and Loizos Heracleous

Biometric devices that scan fingerprints, palms, retinas, and faces are already revolutionizing security. The killer app, however, may be locking in business, not locking out bad guys. Singapore Airlines has begun using biometrics to enhance customer service. Other companies could do the same, customizing and streamlining the way people buy clothing, health care, financial services—even a cup of coffee.

17. Getting Time on Your Side*

Mary Catherine Bateson

People are living longer, so we picture them spending more time in retirement. That's the wrong way to look at longevity. Instead, we should capitalize on it, giving employees in midlife a year or two to renew their energy and pursue new passions. Many would return to their jobs motivated to embark on a second stage of high performance.

18. Inversion of Privacy

Jeffrey Rosen

Europeans worry about corporate data surveillance. Americans worry more about government prying. And the young have fewer qualms than their elders about sharing consumer information. Companies wrestling with privacy issues take note: A single policy may never suit all.

19. In Praise of Feedership

Tihamér von Ghyczy and Janis Antonovics

It's easy to understand how corporate Darwinism works: Eat before you're eaten. A closer look at biology, though, shows parasitism to be a far more subtle and cunning strategic model. Businesses would do well to take a lesson from the fig wasp.

20. Don't Believe Everything You Read (Except for This)

Jeffrey Pfeffer

Publishers churn out around 3,500 business titles a year, and—wonder of wonders—not all of them offer good advice. Managers who can't afford to waste time on dreck need help navigating the ideas marketplace. Some rules of thumb: Be skeptical of anything touted as "new," keep an eye out for half-truths, and if someone calls himself a guru, run the other way.

Breakthrough Ideas for 2005

There exists a fleeting and deliriously exciting moment in the life of an idea when it teeters between what one person suspects and what everyone accepts. In that moment, months or years before it exerts any practical influence, the idea holds the greatest potential to inspire and incite. Opportunities, implications, and related discoveries open up from it in all directions like a hall of mirrors.

The HBR List is our annual attempt to capture ideas in just that state of becoming: things felt but not yet spoken, innovations that will change—something? everything?—and promising or unnerving developments. This year's offerings are intriguingly varied, yet two timely themes recur. First is a rising preoccupation with identity, embodied in entreaties to make business meaningful as well as reliable, to anoint continuity champions, and to analyze one's organizational DNA. Second is anxiety over unclear or not-yet-present dangers, illustrated by warnings about risks without owners, the potential failure of the global intellectual-property-rights system, and the fear of fear itself.

Our impressive roster of contributors includes Nobel Prize winner Robert C. Merton, renowned anthropologist Mary Catherine Bateson, and Stanford business professor Roderick M. Kramer, the second-place winner of last year's McKinsey Award. In addition, a number of pieces emerged from a two-day brainstorming session hosted by HBR and the World Economic Forum last August; some two dozen of the best and brightest minds from around the world identified nascent ideas with the greatest potential for impact. In January, the WEF further developed some of those themes at its annual meeting in Davos, Switzerland.

1. Flipping Without Flopping

Few attributes are as closely associated with effective leadership as decisiveness. Particularly in moments of crisis or opportunity, we expect our leaders to take swift, sure action and then to remain steadfast.

Given those powerful associations, the demonization of flip-flopping will likely be an enduring relic of the 2004 U.S. presidential campaign. A year ago the worst thing leaders could do was lie. Today, it seems, the worst thing they can do is change their minds. Indeed, no idea has gained greater currency recently than that flip-flopping is the ultimate failure of leadership.

That is worrisome, because leaders must be able to flip-flop without fear. Flip-flopping is not the same thing as indecision—roughly, the inability to arrive at a choice. Rather, it means altering a stance after a choice has been made. Changing course is simply the right move in some circumstances.

Obviously, leaders should flip when they make the wrong decision. Last October, executives at Universal Studios reversed course and pulled the plug on a major, star-studded film, *American Gangster*, as its budget crept toward $100 million. If United Artists' leaders had shown the same decisiveness a quarter century ago, they might have saved the studio and their jobs. Instead, they refused to flip—resulting in what was then the largest flop in Hollywood history: *Heaven's Gate*.

On occasion, an unexpected flip can set the stage for great achievement by dramatically recasting an issue. Ronald Reagan rode into the White House denouncing the Soviet Union as an evil empire ruled by ruthless leaders; he then worked closely with Mikhail Gorbachev to help bring an end to the Cold War. Flipping can also be used strategically to catch opponents off guard. Richard Nixon brilliantly reversed a lifetime of public commitments when he suddenly opened the door to China, diverting the nation's attention from problems at home. Unpredictability, to Nixon, was a potent weapon. "I just get up every morning to confound my enemies," he once said.

An unexpected flip-flop can set the stage for great achievement by dramatically recasting an issue.

Still, leaders face formidable psychological and social pressures to stand by their decisions. In anxious times, especially, people who feel physically and economically threatened yearn for what psychologists call closure. Predictability, too, is important. (For more on the seductive charms of predictability, see the HBR List article "Seek Validity, Not Reliability.") Individuals respond to leaders' words by taking their own actions: A corporate client invests in new software; an employee buys a home. If that leader then does an about-face, the basis for the individual's decision collapses.

Leaders, in turn, desire to appear strong, resolute, and unwavering. The fact that their decisions are often public events—the formal announcement, the justification, the answer to a challenge—makes reversing course even more difficult. Last fall, several commentators labeled Scott McNealy a flip-flopper for proclaiming Sun's support for Linux in a keynote address

and then saying at a press conference two days later that the operating system was better suited for hobbyists than for corporate use.

Because a leader will always need the option to re-decide, he should prepare the ground for reversals well in advance. That means building up a store of credibility. And it means sending a powerful message to employees, shareholders, and customers that this leader isn't afraid to take a second look at any decision and to change his mind—if it is in stakeholders' interests.

Leaders—and the public—must recognize that changing one's mind does not signal an inability to lead. Rather, it signals an ability to learn. Senator George McGovern once praised George H.W. Bush for flip-flopping on the value of Medicare. (As a young congressman, Bush had initially opposed it.) "Changing one's mind is not a sin," McGovern said of that change of heart. "It is a way of saying that I'm wiser today than I was yesterday."

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2. Everybody into the Gene Pool*

Businesses big and small are emerging from the U.S. economy's long winter eager to pursue aggressive new growth strategies, but many of their managers are dealing with a nagging suspicion that their organizations aren't up to the challenge. They have a vague sense that the capability they've assembled just isn't firing on all cylinders.

Most of us would agree that life feels different when we're part of a high-performing team, whether it's a "hot group" or some bigger, well-oiled machine. People in those situations spot and capitalize on opportunities swiftly—and seem to draw energy from their work. To an extent, we can sense when another organization has the right stuff. But if that kind of thing isn't going on in yours now, how can you make it happen? What levers should you pull?

According to Gary Neilson, a senior vice president at Booz Allen Hamilton, an organization works the way it does thanks mainly to the interaction of four key elements: structure, decision rights, motivators, and information. Like the four nucleotides of DNA, he says, these basic building blocks combine to produce myriad organizational forms—some viable and some not. There isn't one optimal design. Just as high performance in the natural world can take the form of a hummingbird or a husky, in the business world it can be generated by wildly different kinds of companies. The DNA metaphor reveals the danger of tinkering with any one element—say, incentives (motivators)—in isolation. A change in one area will have far-reaching effects and will yield mostly unintended traits. Booz Allen seeks to understand the elements' interactions so well that the consequences of interventions become predictable. "Right now," Neilson says, "we've cracked the diagnostic side of it."

Accenture's Institute for High Performance Business is similarly focused on identifying the factors that can put organizations into the zone, but researchers at the institute prefer to speak in terms of "performance anatomy" rather than DNA, according to the firm's chief strategist, Tim Breene. The implication is that a company is not locked into its fate—it can improve through sustained effort. And what is it that companies must learn to do better? Five things: balance the managerial demands of today and tomorrow; create "talent multipliers" that amplify people's contributions to produce a superior return on salary investments; apply technology strategically rather than for incremental productivity gains; focus on a select few (but diverse) aspects of the business that are critical to success; and continuously renew the organization's vitality. By attaching appropriate metrics and projects to these goals, Breene claims, managers can achieve real performance gains.

Booz Allen's and Accenture's initiatives are important for a few reasons. They are redefining the problem of organizational performance, elevating it above the too-squishy territory of corporate culture and too-mechanistic models of organizational structure. In so doing, they're making the je ne sais quoi of companies more decodable, teachable, and learnable. And they're doing this just at the point when managers most sorely need it.

Across the board, management consulting firms report that clients are hungry for insights on how to close the gap between an organization's performance and its potential. Neilson figures the hunger comes from the bind CEOs find themselves in. Recent years have seen an increase in forced turnover among their ranks,

so they feel pressure to "deliver or depart." If a CEO can't come up with the goods instantaneously, he must be able to convince his newly aggressive board that he is moving the organization toward the top of its game. And he must be able to make the same persuasive argument to Wall Street, which assumes slipups are likely along the way and so routinely discounts the potential impact of strategy announcements. Neilson says companies want to get to the point where Wall Street simply assumes they have the ability to execute; ultimately, they'd like to be able to spot the next big thing and be immediately rewarded with a share-price increase. As one CFO succinctly put it: "What I'm looking for is an execution premium."

Wouldn't that be nice? Perhaps it's not such an outlandish thought—if you've already discovered what kind of complex organism you're dealing with, what care and feeding it needs to stay healthy, and what carrots or spurs will get it to rise to a challenge.

Julia Kirby (jkirby@hbsp.harvard.edu) is a senior editor at HBR.

3. The Velcro Organization

In the Velcro organization, relationships need to be rearranged quickly, easily, and effectively.

Competing in global markets raises thorny issues about organizational design. Functional excellence is a necessity in international markets; that's a given. But a customer orientation is also required. Indeed, when their customers are located in multiple countries, companies need to be responsive to local cultural, legal, and competitive requirements. This isn't textbook knowledge: Managers need to know about the individuals and relationships that make business work in a particular place.

Traditional organizational design assigns responsibility for different parts of the company or division to specific managers. Susan is the sales manager. John is the product manager. That approach has led to complex matrix structures in multinationals, with individuals serving more than one boss. Susan is responsible for sales of dessert products in Spain. She reports to both the country manager for Spain and the product manager for desserts.

Managers in matrix organizations often complain that decision making is slow and the bureaucracy is burdensome. At a more fundamental level, the matrix structure is problematic because, as research shows, structure shapes strategy. The organization's hard wiring, including its information and compensation systems, shapes how managers think about the business. Susan's bosses optimize results in their own organizations because they have the information to do that and because that's what they're rewarded for. The matrix structure is also resistant to change. It doesn't magically rearrange itself, even if, as is so often the case, cross-unit work offers the best bet for growth.

There is a better approach. It asks managers to shift roles depending on the tasks they are performing. For each task, accountability must be clear. If a manager is responsible for several tasks, then she may find herself playing several roles. When Susan is planning the sales efforts for desserts in Spain, she is a line manager with responsibility for results. When she takes part in a strategic planning exercise for new desserts, she may have a staff role—or, if her skill set is appropriate, she may be the leader of the European markets team. The assets of the organization are clearly identified, but how they are assembled varies with the task. I call this the "Velcro organization" because in it, relationships need to be rearranged quickly, easily, and effectively. The approach (without the name) can be seen in many organizations, from WPP and Merck to McKinsey and Harvard Business School.

At HBS, where I've taught for 41 years, the faculty must be able to organize its various skills to deliver core programs. To make that happen, we have learned to play multiple roles. For example, I chair the General Manager Program. One of the program's instructors is the senior associate dean for executive education. For the purposes of that program, he works for me. For purposes of planning executive education, I work for him. Other HBS professors have roles that require them to look after faculty development or program staffing. Depending on the task, we wear different hats.

The important idea here is that managers have major assignments in addition to their primary functional roles. But those roles aren't hardwired into a hierarchy or matrix; they are defined in terms of contingent purposes. When the individuals on a team work on tasks for which they are accountable, they have considerable power to formulate and implement plans using valuable resources. In other circumstances, those individuals have very different powers. Power is in the role, not the indi-

vidual. And the roles are about helping the organization succeed, not about turf or internal boundaries.

Companies with Velcro capability tend to be flat and tend to be organized around the operating units. The connections of those units to the top look simplistic. The key is that executives have figured out how to move people in and out of different roles. They do it with all kinds of temporary formal groups, such as teams and task forces. These are superimposed on the semipermanent matrix organization of products, functions, and countries. They get the resources they need, and their members work as hard on the temporary assignments as they do on their primary functional roles.

I've done field work related to this topic for a long time. Even so, I can't say with certainty why some organizations are good at helping managers play different roles under different circumstances. But I do know—as you do—that this is the biggest organizational challenge facing a great many businesses. I can also tell you what successful Velcro companies have in common:

- Their business-unit and country managers understand in their bones what the corporate strategy is and what the strategy means in terms of purposes and priorities.
- Individual operations have a high degree of functional excellence. (Only units that are strong in their own right have managers who are comfortable and effective wearing multiple hats.)
- Managers in individual units believe that their peers in other units are very good at what they do and that they are willing to focus on corporate, rather than unit, success when asked to do so.
- Information systems can track performance across units so that managers get the same answer whether they slice by country, business, or project.
- Compensation systems reward cross-unit effort without diluting the incentive for local effort.
- Finally, the company culture develops senior executives who are comfortable with the ambiguity required of a Velcro organization.

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4. Demand-Side Innovation*

Look over the extensive literature on innovation, and you'll find that most of it deals with how companies should meet challenges on what might be called the supply side. The questions are familiar: How do we innovate better and faster in products and services? How do we ride the waves of disruptive technologies? How do we manage the diffusion of innovations once we have created them? How do we "cross the chasm" from early adopters to early majority? All those challenges are real, but, sad to say, overcoming them will not give you a lasting competitive advantage. In a world of ultracompressed life cycles for products, a company's ability to develop viable new products or services rapidly is more important than ever. The problem is that each brilliant innovation has half the impact and half the shelf life of a product in the previous generation. For most companies, the focus of innovation will have to shift to the demand side.

Demand-side innovation is a different animal, and companies need to manage it differently. It's not about product features or functions but about how a company orchestrates its customer interactions and relationships. It's innovation with respect to *how* companies go to market, as opposed to *what* they bring to market. Of course, every manager considers these questions today, but few companies have thought through the implications deeply. As demand-side innovation becomes the central innovation process within most companies, managers can no longer relegate it to a secondary role. Scattershot implementation won't work. How companies go to market will determine who wins and loses the game.

Innovation on the demand side can uncover new sources of growth by illuminating opportunities in unexpected places. Consider what's happened recently in the competition to sell cellular phones and services. Hewlett-Packard identified villages in rural India as a burgeoning market for mobile telephones, even though customers there cannot afford to buy handsets and won't run up enough usage minutes to justify subsidies for the hardware. HP opened up the phone market by creating a new economic model for handset sales: It leases phones to users and collects rent and usage fees. Closer to home, Sprint created the fastest-growing cellular services brand in the United States by licensing the Virgin Mobile

Companies can take a lesson from Sprint and "reskin" their offerings. They can borrow an identity from someone else.

brand; the company did an end run around a mature market by tapping into a new demographic segment—teenagers.

Demand-side innovation can take many forms. In HP's case, it meant revising the underlying economic model of the business. That's what automakers did when they started pushing financing over purchases. More recently, eBay and Priceline have done the same by creating global platforms for consumer-run retail auctions and reverse-marketing travel services, respectively.

Companies can also take a lesson from Sprint and "reskin" their offerings. That is, they can borrow an identity from someone else to appeal more powerfully to target customer segments, or they can create a radically different interface for a familiar offering, as Google did with its simple search site. The most innovative experiment along these lines has been the WiLL brand, a concept that embraces a variety of lifestyle products (cars, consumer electronics, beverages) and that was created by a consortium of Japanese companies including Toyota, Matsushita, and Asahi Breweries. To appeal to a certain hip demographic segment, the product lines shed their old brand skins and pooled their efforts to design and promote WiLL offerings.

Or demand-side innovation can involve customers at an emotional level—creating halo effects for products and services through social, cultural, or linguistic movements. Before the World Cup in 2002, SK Telecom lost out to a rival in its bid to become the official sponsor. Rather than sit out the season, SK created what was, in effect, a social movement that ultimately signed up more than 5 million South Koreans. In SK's "Be the Reds" campaign, customers identified themselves by wearing bright-red SK-branded shirts at the soccer games. The shirts reinforced South Korean nationalism, promoted the country's team, and became a visual symbol of SK's central place in customers' lives. Similarly, American automaker Saturn snapped "family portraits" of new Saturn owners with its dealership staffs and followed that up by hosting "reunions" at the company's headquarters in rural Tennessee.

Companies have become more adept at using customer information to customize or personalize their offerings. Every Amazon customer has encountered this in the form of personalized Web page content that is dynamically generated based on his or her search and purchase history. Off-line, too, we see hotel chains, airlines, casinos, and retailers using data from loyalty programs to personalize services for repeat customers.

One last way that companies can pursue demand-side innovation is by involving customers in the creation of products and services. Levi's failed to market customer-designed jeans, but Land's End made it work online with basics such as khaki trousers and men's shirts. Indeed, many offerings—from My Yahoo personal pages to Reflect.com's beauty solutions, which are created according to individual taste—engage customers in the design process to good effect. Nike's success suggests that sometimes the customer's participation is purely psychological. Since the brand aims to connect its products with the idea of achieving one's "personal best," the experience doesn't materialize unless the customer steps up to the challenge.

Demand-side innovation demands in-depth consideration. Companies should manage it for what it is—a core element of corporate strategy. Within most companies, demand-side innovation is, at best, a poor cousin to a host of traditional innovation or R&D activities, an afterthought that's left to marketers, ad agencies, and marketing services companies. Its rising importance suggests that demand-side innovation must become an essential management process and the new focal point of innovation efforts.

Not surprisingly, some firms specialize in demand-side innovation. The mission of Walker Digital (run by Jay Walker, founder of Priceline) is to dream up demand-side innovations and protect them with business process patents. Walker Digital represents a signpost to the future—a future in which competitive advantage will depend increasingly on demand-side, not supply-side, innovation, and companies will live and die by how distinctively they take their present and future products and services to market.

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5. You Heard It Here First

For decades, technology and business have delighted customers' eyes with ever brighter, sharper, and sleeker products. Utility is chiefly realized through sight; hearing, by contrast, has remained vision's poor cousin. "If you compare [sound design] to the visual world, we're still 20 years behind," audio guru Dane Davis told *Wired* magazine a few years after winning an Academy Award for his sound-editing work on *The Matrix*. In the interview, Davis described dropping cars from cranes and smacking stuff with wrecking balls to achieve his effects. He'd rather construct noises sitting at his computer. Unfortunately, audio software is not yet up to snuff.

But the ears are coming into their own. Progress in sound technology seems likely to follow the trajectory that computer graphics traced in the last two decades, which means we may be on the threshold of a world in which synthetic sound is ubiquitous and indistinguishable from natural sound. Movies, obviously, will benefit. Video games—whose sound tracks are laughably primitive—will benefit even more. And that's just the beginning: The creation of sounds that are not just realistic but also rich in information suggests applications in many industries.

An intriguing multidisciplinary science called auditory display (AD) is studying how the brain responds to sound, how sound affects things like mood and performance, and how technology can put sound to practical use. Applications emerging from AD are already present in aircraft control panels, surgical equipment, and ICU monitors. The most common use is in alarm systems for people who work in environments that are saturated with visual data, but those applications remain fairly simplistic.

A more exciting technique is data sonification, the transformation of complex data into sound. Qualities such as pitch, volume, and vibrato speed can be mapped to various pieces and kinds of data; listeners extract meaning from the sound patterns. Are the data in clusters or segments? Are there detectable trends? Long-range correlations? The most basic type of sonification is the computer "earcon" (analogous to the visual icon), which represents an event such as the emptying of a desktop recycling bin. But technology companies are exploring far more sophisticated tools that could help users extract meaning from a terabyte or so of data, potentially wringing new value from corporate data warehouses. (Obviously these tools would require significant training. Users of them would have to learn what data are associated with what sound attributes and how to interpret patterns.)

Another promising development is directional sound. That technology essentially does to sound what lasers do to light, shooting a beam so intensely focused that only those within a narrow area can hear it. Advocates are discussing many applications, including billboards that address consumers as they pass but don't disturb the neighbors, radios that allow passengers in a car to listen to their own stations, and various navigational aids for the blind.

The psychological effects of sound are also intriguing. We have long recognized that certain types of music—particularly classical music—positively affect mood and performance. During the Great Depression, Muzak introduced music into typing pools to boost productivity and into elevators to soothe the nerves of early riders. Today, the application of music and other sounds in retail and work environments is a matter of growing interest. In Britain, researchers found that consumers' selection of French or German wine was influenced by whether French or German music was being played at the time of purchase. And businesses are increasingly incorporating music into their brands, marketing CDs that have little or nothing to do with the coffee or home furnishings at their competencies' cores.

The revolution in graphics greatly improved the way people worked with computers and other technology; the revolution in sound may well do the same thing. With all the visual data thrown at us every day, we are in danger of missing the information that really matters. Sound may help us cut through the noise.

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6. Seek Validity, Not Reliability*

Corporations believe that they face problems of ethics and credibility, but the underlying issue may well be a crisis of meaning. CEOs complain that investors care only about quarterly earnings—not about companies' long-term health or the broader role they play in society. That's

not all. Customers feel disappointed by the lack of a warm, human connection with the companies that supply them. Employees, particularly young ones, worry that there's nothing meaningful about their work, that it's only about the money. In addition, social activists excoriate businesses, especially transnational corporations, for their lack of conscience. Yet companies pay little attention to the issue of how people find meaning in economic matters.

Business has only itself to blame: Corporate processes and systems have created and, in fact, exacerbated the lack of meaning. Firms have adopted Six Sigma programs to improve the quality of their manufacturing processes, but those initiatives haven't made employees feel that their work is more meaningful. Companies have installed customer relationship management systems to forge links with consumers, but the latter feel more manipulated than understood as a result. Governments have enacted laws like the Sarbanes-Oxley Act to prevent companies from defrauding investors, but corporate boards sleepwalk through its procedures, and that leaves investors just as vulnerable to fraud as they used to be.

Six Sigma, CRM, Sarbanes-Oxley, and most other corporate systems have one thing in common: They are reliability-oriented processes. They are intended to produce identical or consistent results under all circumstances, often by analyzing objective data from the past. For instance, a perfectly reliable poll would be able to produce the same result from ten random samples of voters. By contrast, a perfectly *valid* poll would be able to predict an election's winner.

Companies don't realize that when they make their systems more reliable, they render them less valid or meaningful. In other words, the processes produce consistent outcomes, but the results may be neither accurate nor desirable. That's because, to make their processes more reliable, companies have to reduce the number of variables and standardize measurements. To achieve high validity, however, systems must take into account a large number of variables and use subjective measurements. Adding squishy variables and using gut feel allows for outcomes that are more accurate, even though the processes may not be able to deliver accurate results consistently. (See the exhibit "Reliability Versus Validity.")

There's a tension between reliability and validity in almost every business system. For instance, most compensation methods, like the Hay system, award points to each job so that companies can calculate how much to pay managers. That results in bias-free compensation levels, but companies can't really use points to rank a human being's value to the organization. So the points approach is balanced against senior executives' judgments about individual managers. A similar balancing act happens when companies test ads. Companies find it convenient to test ads on large samples of people because messages that do well in those tests are bound to appeal to customers. The danger is that the samples may not be representative of the products' users. If firms were to test ads on users, the results wouldn't be as statistically significant, because the samples would be smaller. So firms have to choose between clear results from irrelevant audiences and fuzzy results from relevant audiences. Reliability and validity occupy opposite ends of the spectrum that defines how companies create systems and frame solutions.

While it would be optimal to achieve both

The systems and processes at left can be highly reliable, but they won't necessarily achieve validity in the form of the desired results at right.

Reliability	Validity
Enterprise resource planning	A robust strategy
Customer relationship management	Customer intimacy
Six Sigma and total quality management	Design excellence
Knowledge management systems	Creativity
Incentive compensation	Jobs that have meaning
Shareholder value maximization	Corporate social responsibility
Meeting analysts' quarterly targets	A successful company

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validity and reliability, companies have mostly favored reliable processes, for two reasons. First, valid systems require the use of subjective or qualitative data, and companies have an aversion to biases. Second, reliable processes result in claims that are provable because they're based on past data; only the future can provide confirmation of a process's validity.

Unfortunately, companies' obsession with reliability hasn't prevented them from getting on the wrong side of customers or being ambushed by new rivals. Indeed, the quest for greater reliability has created corporations that make little effort to consider the purpose or meaning behind the business results that are endlessly crunched out.

A company that produces reliable, predictable, but meaningless results is not unlike a well-tuned car that runs full speed off a cliff. To save themselves, corporations will have to figure out how to become more welcoming for people who are comfortable handling fuzzy data, using their judgment, and creating a sense of purpose in the workplace. For instance, CEOs should go out and talk in person to customers, even if the sample size isn't statistically significant, rather than sit in their offices and make decisions based on statistically significant market research. Rather than focusing on managing corporate earnings, CFOs should concentrate on helping managers better understand the economics of their businesses.

Senior executives also need to stop promoting managers based on the consistency of their track records and start promoting them for breaking out of the box. Boards must get used to approving plans based on the logic of what might be rather than on regressions of what has always been. They need to understand that variability in outcomes is as likely to be a sign of creativity as a sign of bad management, and that the more they drive out variability, the more they ensconce mediocrity. Finally, stock analysts must realize that when they insist on reliability of earnings, they drive out the creativity, innovation, and emotional connection with customers and employees that together produce long-term growth in those earnings.

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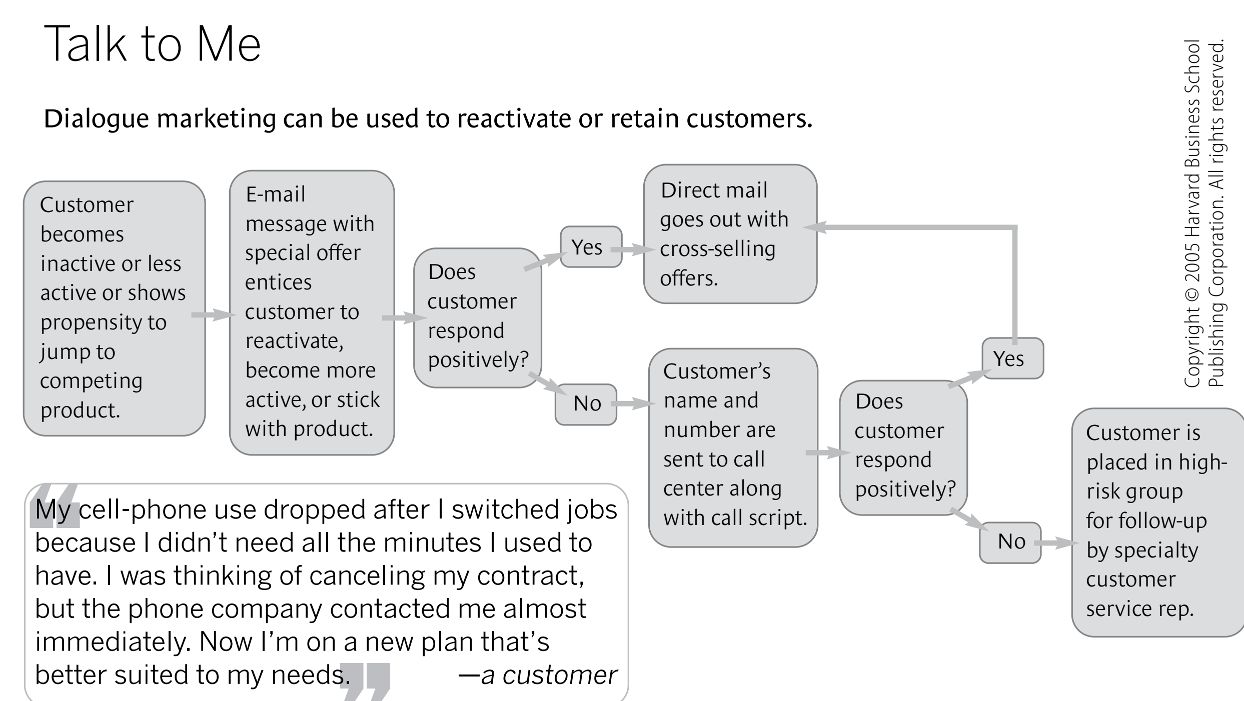
7. "When" Is the New "What"

The din of marketing has escalated to a cacophony, with the whines of e-mails, phone calls, and direct mailings drowning one another out. But when customers actually require help or when their needs or desires change, they hear nary a peep from companies. That is because

Talk to Me

Dialogue marketing can be used to reactivate or retain customers.



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Consumers say time is their most valuable asset; they won't thank companies that waste theirs with information they don't need.

marketing organizations spend their time figuring out "whom" to target with "what" message but have largely ignored the question of "when."

Airlines, for example, send an expensive package of promotions with each and every loyalty-program statement to their most valuable customers. But what happens when a customer suddenly stops flying her usual carrier? That defection is a fundamental alteration in behavior that the airline should act on immediately if it wants to keep her business.

Companies in industries ranging from media to financial services to consumer goods are adopting systems that specify when to interact with customers as well as what to say to them. (See the exhibit "Talk to Me.") Instead of blasting out messages according to marketing department schedules, they are monitoring customer activity (or cessation of activity) to spot the conditions under which a communication will have real impact. When those conditions are met, the systems automatically contact the customer with an appropriate, personalized message. The process relies heavily on technology: data warehouses, enterprise software engines, and Web applications and services. The individual pieces are being introduced by several vendors, and some can be built in-house.

Such a capability is one aspect of an emerging practice called dialogue marketing, which achieves much of what relationship marketing promised but never delivered. In this context, a dialogue is a multistep conversation between company and customer that takes place over an extended period, involves multiple channels, and is triggered by customer transitions. Those transitions might include conducting a first transaction in a particular category (first purchase of a suit, first visit to a new property) or purchasing an item that suggests the customer is embarking on a large project (kitchen cabinets, a stroller).

Transitions trigger a step in the dialogue, such as sending a personalized e-mail, alerting a salesperson to make a call, or queuing up a personalized direct mail piece. The system might also create a point-of-sale message for use by a store associate during the customer's next visit—or on the company Web site for an online shopper.

After a transition triggers a communication, the system waits for a response from the customer, then acts accordingly. Lack of a response sets in motion its own sequence of events. Suppose a transition triggers an e-mail message, but after a week the customer still hasn't replied. The silence alerts a salesperson to give the customer a call. The dialogue system waits another week, then sends the customer a reminder e-mail with a link to the company's Web site, where he is greeted by personalized information related to his recent transition. An upcoming birthday, a brand promotion, or the purchase of a certain product could generate a specific message leading to another visit and another purchase.

Dialogues can be used to preempt defections, win back lost business, and usher customers through increasing levels of loyalty. For example, Harrah's automatically contacts casino patrons who are approaching the highest tier of its frequent visitor program with such messages as, "You are only one visit away from our Total Diamond reward level." A major regional grocer noticed that loyalty rose after customers visited its online store more than four times, so it designed a communication- and reward-heavy dialogue system to get them to that point. After the fourth visit, the system automatically reduces communications and incentives—and consequently the cost of marketing to that customer.

Consumers say time is their most valuable asset; they won't thank companies that waste theirs with information they don't need. But what is dismissed as junk at the wrong moment may be valued and pursued at the right one. Companies that use dialogue marketing always know the best time to reach their customers.

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8. Swapping Your Country's Risks

You're a citizen of a developing country notorious for its boom and bust cycles. How do you prevent the value of your assets from disappearing during the next economic downturn if capital controls prohibit you from exporting

capital overseas?

You're the president of the same country, and you've pledged to reduce your country's dependence on a single industry—silicon chips, say, or textiles. How do you diversify your economy without spending tens of billions of dollars that you don't have and that would be better used for improving the industries in which your country already enjoys an advantage?

The answers to both questions may well be the same: the equity swap, a financial tool that works in much the same way as its famous cousin, the interest rate swap. Imagine that you are an institutional investor, such as a trust bank or a mutual fund, in a developing country and you want to reduce the risks of your domestic stock holdings. You could create an equity swap, arranging with a number of large foreign investors to exchange the dollar returns on your home-country stock investments for the dollar returns on an equivalent amount of investments in other stock markets. The magnitudes of the exchanges would be determined by the "notional," or principal, dollar amount of the assets deemed to have been swapped.

These agreements would effectively transfer the risk of your home-country stock market to foreign investors and could provide you and other domestic investors with the risk/return pattern of a well-diversified world portfolio. Since there are no initial payments between parties, there are no initial capital flows in or out of the countries involved, which would reassure governments worried about dependency on skittish foreign investors. Subsequent payments involve only the difference between the returns on the two assets.

So let's suppose that you enter into an equity swap agreement with a U.S. mutual fund in which you exchange the returns on $1 billion invested in your domestic market for the returns on $1 billion invested in a global stock portfolio. If the global stock market portfolio earns 10% over the subsequent year and the developing country market earns 12%, you pay (.12 - .10) x $1 billion, or $20 million, to the mutual fund. If your market underperforms the global stock portfolio, the swap generates net cash flows to you (reversing the numbers in our example gives you a net inflow of $20 million). Note that you make payments only when you can best afford to—when your local market outperforms the world markets.

Foreign investors—including U.S. mutual funds—should be willing parties to this kind of deal. Using swaps, they would avoid both the costs of trading in individual securities in the local markets and the problems of corporate control that arise when foreigners acquire large ownership positions in domestic companies. The situation is unlike that of investments in equities or debt in that foreign investors' default or expropriation exposure would be limited to the difference in returns instead of the total gross return plus principal (that is, $20 million versus $1.12 billion).

The equity swap also makes a useful policy tool. Suppose the government of Taiwan wanted to reduce its economy's dependence on U.S. demand for electronic products. Following the usual practice, it would probably sink billions into creating national champions in another industry—automobiles being a typical example. But if other countries' experiences are anything to go by, that would be billions of dollars very badly spent. The diversification could be achieved much more cost-effectively through an equity swap whereby the Taiwanese government would pay returns on a world electronics portfolio in exchange for returns on a world automobile portfolio. In this way, Taiwan would eliminate its exposure to the *world* chip market, over which it has no control. At the same time, it would retain the economic gains from and its risk exposure to the *local* component of its electronics industry, which it does control and in which it can continue making capital investments. The logical counterpart would be a country whose economy is heavily dependent on the automobile industry. With this approach, countries could focus on industries in which they have a comparative advantage and still pursue efficient risk diversification.

All the conditions for an active market in equity swaps already exist. There's no need to create a special exchange for them—swaps are bilateral agreements, and positions are unwound simply by entering into another agreement. Contract terms are standardized under International Swaps and Derivatives Association agreements. In addition, there's a considerable body of global law and convention relating to swap contracts that can be carried over from the interest rate and currency markets. Using mixtures of existing traded indices as the

underlying assets would ensure liquidity and make the settlement mechanics fairly straightforward. Contract credit risk is also an important consideration, but here, too, a lot is known about designing solutions, whether by a combination of mark-to-market collateral, purchase of private-sector performance guarantees, or efforts involving government and quasi-government institutional guarantees. And as we've seen, when used for diversification, the contracts call for payments by the party that is doing better economically and thus has the ability to pay.

So far, the market in equity swaps is relatively small. According to statistics from the Bank for International Settlements, as of June 2003, the outstanding notional amounts of assets covered by equity swaps and forward agreements amounted to $601 billion. By comparison, the notional amounts covered by currency swaps totaled $6.4 trillion, and the number for interest rate swaps was a staggering $111 trillion. But once investors and governments start to realize the power of the equity swap, we can expect it to take a much greater share of the overall business in asset swaps.

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9. Wanted: A Continuity Champion*

Few people would deny Lou Gerstner, CEO of IBM from 1993 to 2002, a place among the most effective business leaders of recent times. He ran IBM—we would all agree on this, too—during a period of unprecedented change, especially in the information technology industry. But what were Gerstner's first important decisions? One was to squash talk about breaking up the company. The second was to stand firmly behind IBM's "dinosaur" business, mainframe computing. They were, in other words, decisions to keep some things the same.

The ability to champion change is the very mark of a leader, we hear. Change agents are sexy by business standards. They battle strong vested interests and mankind's reluctance to rock a boat, even (or especially) if it leaks. Change will not happen without their heroic assistance.

But that does not mean continuity can fend for itself. Continuity needs champions, too—and rarely gets them, or it gets the wrong kind. On the one hand, leaders who spend too much time midwifing change may neglect traditional, core businesses. (Even as overextended Enron sank downward to darkness, it had a profitable pipeline business.) On the other, the defenders of the status quo too often appear to be—and are—knee-jerk naysayers who champion the wrong continuity. It's more glamorous to be Napoleon (who gained and lost an empire in little more than a decade) than Hadrian (who gave the Roman Empire a stability that endured for generations).

Continuity gets a bad name partly because people misread the literature on leadership and change. In 1977 in these pages, Abraham Zaleznik started the conversation with "Managers and Leaders: Are They Different?" which argued that leaders engage people's motives and dreams, whereas managers are technocrats who have algorithms but not rhythm. In 1990, John Kotter described "What Leaders Really Do." There he said, "Leadership…is about coping with change," and "most companies are overmanaged and underled."

Neither man said, "Leaders are cool people who make change happen, and managers are boring old poops who defend the past." Both argued that leaders and managers need each other. And note this: Kotter's leaders cope with change. That is, they respond to it. They do this by seeing the big picture (while managers focus on detail), setting direction (while managers plan), aligning (while managers organize), and motivating (while managers problem-solve). But "coping with change" can mean standing firm against a tide. "Setting direction" can mean staying the course. Part of the leader's job is to evaluate the threats and opportunities that change creates. Is this a big danger, something that will blow up our business? A big chance, worth pursuing with a lot of resources? When Gerstner fingered life sciences as a major new business for IBM, he acted like a leader by campaigning for change; but for every move like that, he made half a dozen where he led by championing continuity.

It's true that without change a company

Every business worth working for has something worth fighting for, even in the teeth of tremendous pressure to change.

goes nowhere but down. Also, corporate revolutionaries need all the help they can get, especially in large organizations. For one thing, the employees who are drawn to big companies are likely to value stability. For another, big company processes by their nature slow change to a walking pace.

But the role of the champion of continuity is every bit as challenging. The job is to get maximum effectiveness in coping with change, combined with minimum disruption of the business that, after all, got you to where you are today. He or she should:

- Make sure everyone knows the difference between the big house and the outbuildings. In their eagerness to celebrate what's new, senior managers can create the impression that the core business is an intellectual, financial, and managerial backwater. That's not the way your customers see it; it shouldn't be how employees see it.
- Identify the forces of continuity. A continuity champion should analyze the relative power of what's changing versus what's staying more or less the same. It's easy to overestimate the importance of a novel idea or trend. For example, technological change encourages people to work from home or other remote locations. But before a company starts encouraging telecommuting, it should weigh countervailing forces, such as the growing need for teamwork and cross-functional collaboration, which require people to be together.
- Keep legacy businesses sound. Entropy attacks all things. Managers obsessed with change may not see termites in the main house until too late. Jack Welch, an advocate of change if ever there was one, described his first decade at GE as "fixing the manufacturing guts of this business"—an example of continuity championship. In particular, a business that's considered a cash cow may struggle to get capital; but undernourished cows give less milk.
- Maintain communication between new and legacy businesses. A lot of research suggests that disruptive or innovative businesses develop best apart from legacy businesses. As long as there's one bottom line, however, it is important for a continuity champion to describe what the businesses have in common and to maintain the bridges across which people, money, and culture travel.
- Define what lies outside the reach of change. It may be a business, like mainframes; it may be a process, like leadership development; it may be a belief, like Johnson & Johnson's credo. Every business worth working for has something worth fighting for, even in the teeth of tremendous pressure to change.

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10. Blog-Trolling in the Bitstream

For years, the media on the Internet looked a lot like the media off the Internet. News got out quicker, but it was largely the same news, reported by many of the same people who worked for such corporations as Time Warner and News Corporation. Much of the content was repurposed from traditional outlets—television, newspapers, and magazines. Advertising paid for most of it.

But a different model is emerging from the Internet's primordial soup. The "blogosphere"—a grassroots ecosystem comprising millions of Web logs—is decentralized and ungoverned. But like traditional media (and unlike most personal Web sites), it is gaining the power to influence what people think, do, and buy. The blogosphere has begun to generate its own rating schemes, ratings leaders, business models, and brand-name celebrities. As the blogosphere takes its place among entertainment and information channels, companies must devise strategies for marketing in and around it.

The blogosophere's rules are very different from those of traditional media or dot-coms. In the blogosphere, as in the open-source movement, social recognition matters more than financial gain. Bloggers are driven by a desire to share their ideas and opinions with anyone who cares to tune in. That enhances their credibility, making them more attractive to marketers. But it is also likely to make bloggers more cautious about tainting their reputations by trafficking with corporations. Traditional media and dot-coms need marketers as much as—often more than—marketers need them. The same can't be said of blogs.

Marketers will naturally want their messages promoted on influential blogs and protected from critical ones. But they will find it difficult to navigate this complex blend of ad-

vertising, content, dialogue, and public relations. So far, the blogosphere lacks the equivalent of Madison Avenue to serve as a middleman for media buying and ad creation. But that is starting to change. A number of companies—including Blogdex, Daypop, Slashdot, Technorati, and Popdex—are already rating and ranking the popularity and influence of blogs and other consumer-generated media (see the exhibit "Rating the Blogs"). Ratings leaders are also beginning to emerge: Prominent bloggers Andrew Sullivan, Lawrence Lessig, and Glenn Reynolds attract tens of thousands of readers. And an advertising service called Blogads is helping bloggers sell ads. (A business model has arisen with its own catchy neologism: blogonomics.)

Corporate marketers must deal with bloggers differently from they way they deal with traditional media. First, they must realize that the blogosphere is not just a place in which to advertise; it is a medium in which to participate. Marketers can join the conversation on influential blogs related to their products or companies—or, even better, they can become bloggers in their own right by hosting blogs for customers. Most radically, they can host independent bloggers on their Web sites, essentially trading exposure for reach and credibility.

Second, companies must try to cultivate bloggers rather than control them. Instead of making ham-handed efforts to influence bloggers, marketers should attempt to win them over by sharing information openly with those who write about their companies and by responding to the issues that are raised, even—especially—if they are negative.

Third, the blogosphere is fluid and ever changing. Ad buys will become more dynamic, as new technologies and modified contract terms let marketers shift rapidly from blog to blog in pursuit of customers' fickle attention.

The grassroots media will not replace big media any more than online commerce destroyed brick-and-mortar businesses. But the blogosphere will soon take its rightful place as a full-fledged media branch, demanding attention from marketers and advertisers. Markets are conversations, as is noted in the provocative book *The Cluetrain Manifesto*. Blogs are the most conversational of all the forms of media, and marketers can't afford to be left out of the talk.

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Rating the Blogs

Several companies are already ranking Web logs by various criteria. Daypop, for example, creates a score that is intended to be proportional to the probability that a reader will arrive at a site while randomly hopping from blog to blog. (The ranking changes all the time; this was the order on December 4, 2004.)

Top Five Blogs, by Daypop Score

1. Just Another Blogger, www.weblog.ro, 128 Web log citations, Daypop score 94.57
2. Slashdot: News for Nerds. Stuff That Matters. www.slashdot.org, 451 Web log citations, Daypop score 87.22
3. Scott Watermasysk, www.scottwater.com, 369 Web log citations, Daypop score 80.94
4. Boing Boing: A Directory of Wonderful Things, www.boingboing.net, 535 Web log citations, Daypop score: 71.14
5. Blogarama: The Blog Directory, www.blogarama.com, 275 Web log citations, Daypop score 67.67

11. No Risk Is an Island*

It's a risky world, and planetary circumstances at the dawn of 2005 aren't conspiring to make us any less jumpy.

Terrorism and the rocketing U.S. debt are bad enough. Add species-hopping diseases like mad cow and bird flu, a fossil fuel addiction that's changing global weather patterns, plants dispatching engineered DNA to their wild cousins to ambiguous effect, a new nanoindustry that is preparing to release millions of teensy molecular machines into our bodies and the environment with barely a peep heard about consequences, an electrical grid cobbled together with baling wire and spit…A person could develop a nervous tic.

People who manage risk in enterprises are already twitching, trying to avoid more prosaic daily minefields: What if the technology breaks, what if the customers hate it, what if the market crashes again before we get our next round of funding? But the big risks affect

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them, too. We're all connected, and not just by the (hacker- and virus-infested) Internet—as so many industries discovered after September 11, 2001, again when SARS broke out, and again during the 2003 blackout.

Clearly the enterprise is not isolated from the world it inhabits—not "an island entire of itself," as that famous management expert John Donne wrote. Like it or not, it's forced to cope with blowback from risks well or badly taken by others. Which raises the question: How do you manage the big risks that you can't control and that are, practically speaking, owned by no one?

How do you manage the big risks that you can't control and that are owned by no one?

There is not much new to do about the true "act of God" risks. But of those generated by science and technology, Donne might say: No *risk* is entire of itself, either.

Man-made risks exist in context. We decide as a society, as individuals, and in our enterprises what we think is risky and what we think isn't. These decisions reflect our values and biases. Traditional risk calculations only increase the skew, since they are forced to produce a number that represents the problem—even if the interested parties don't agree on what the problem is, the assumptions that were used to bound it, or whether the calculations even measure anything meaningful.

Companies tend to focus on their immediate interests. But big risk affects people and organizations far beyond the risk taker. Refusal to acknowledge or tackle this point exposes organizations to all kinds of unforeseen liabilities. Whether a beleaguered company suffers from lost profits and jobs or the government coughs up a taxpayer-financed bailout, everybody pays. For example, Monsanto says its transgenic corn and soy are safe. But if something bad happens, every entity that its genetically modified products have touched—food manufacturers, grocery stores, distributors, consumers, and farmers—takes the hit.

These types of risks are often both anticipated by outsiders and unheeded by decision makers. Yet in several reports, the U.S. National Academy of Sciences has addressed the question of how to work effectively with risks of this sort. The reports strongly suggest that companies adopt a transparent risk-assessment process to avoid the blindered view so often bred by conflicts of interest between risk takers—scientists and inventors and the companies that employ them—and regulators. They state categorically that "value-free" risk assessment is impossible, because each expert's values define the terms of any analysis and because those who conduct risk assessments bring their own biases to the task.

The National Academy of Sciences reports also exhort risk managers to embrace uncertainty in ways that are rarely practiced today—that is, to actively consider questions that may not be answerable or measurable. Although this seems counterintuitive, it greatly improves the technical quality of a risk assessment. The 1994 report "Science and Judgment in Risk Assessment," for example, advised the Environmental Protection Agency not to "abandon assessments when data are inadequate. Instead, seek to explore the implications for research." So if the EPA is grappling with a large unknown like the future impact of genes from genetically modified crops on neighboring plant and animal species, it should pursue research in that area and not base its decisions on existing, possibly irrelevant, data.

And the pièce de résistance: Risk isn't just a social construct. It's a social *endeavor*. To be effective, assessments of big risk must involve a broad, deliberately constructed community of experts and stakeholders. To be trustworthy, they must embrace a cross section of society: experts and professionals, of course, but also anyone who is interested in or affected by the risk.

This method—iterating between analysis and deliberation, experts and stakeholders—is more truthful, less tolerant of bias, and more revealing than most of today's trade-secretive corporations could bear. As a result, it's rarely practiced, particularly in the United States. It's messy, it reeks of humanity, and it seldom yields the tidy probability equation that sells a risk to the executive team. Yet it's been used well in at least a few places—mostly by private risk consultants and a few progressive corporations, and deep within the bowels of a few regulatory organizations that have the courage to confront their own ineffectiveness.

Consider this idea in the context of the commonsensible Nobel-winning theory of Kahneman and Tversky that all people operate from values and biases and not from rationality. When you include technical experts, scientists, and risk managers in your definition of "people," then the benefit of inviting more people to the risk table is a no-brainer.

We know what to do and how to do it. What are we waiting for?

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12. Let Them All Be Power Users

"To make knowledge work productive will be the great management task of this century, just as to make manual work productive was the great management task of the last century."

Peter Drucker wrote those words back in 1968, later calling knowledge-worker productivity the decisive competitive factor in the world economy. Let's assume Drucker was—as usual—right. If knowledge workers are the horses pulling the economic plow, have corporations maximized their horsepower? What have organizations done to help knowledge workers become more effective?

Not much, it turns out. Most corporate productivity efforts address production or administrative work. Knowledge workers have largely escaped scrutiny because they often work autonomously, and much of their labor is invisible, taking place inside their brains. Yet increasing amounts of knowledge work—an average of three hours and 14 minutes per day—involves visible, measurable activities performed with electronic communications (see the exhibit "Ripe for Improvement"). Knowledge workers read and write, talk informally and in meetings, and use technology to manage their personal information and knowledge environments. That last type of activity can be observed, calibrated, and improved—but only if employees are shown how to do so.

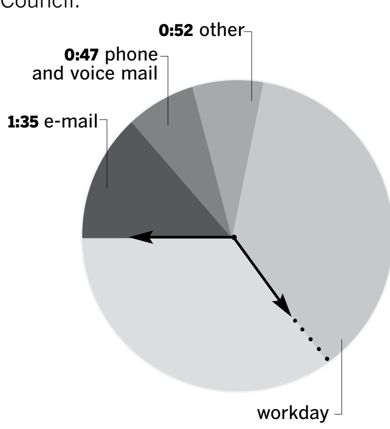
Companies load up knowledge workers with desktop and laptop computers, personal digital assistants, cell phones, wireless communicators, e-mail, voice mail, and instant messaging—then leave them to their own devices, so to speak. Employees receive little or no guidance about how to apply those technologies to their work. And the devices remain largely unintegrated.

As a result, most people aren't very good at managing their personal information. My informal surveys suggest that only about 1% of knowledge workers feel they have mastered this area, and only 4% have received substantial help from their employers. In short, companies' most valuable employees spend 40% of the workday doing something they don't do well and so fail to extract the most from their stock in trade: knowledge. It's a bit like bricklaying before Frank Gilbreth.

A few organizations are wising up. Information technology companies, which after all have something to prove, are heavily represented among the first movers. Intel, for example, has launched an ambitious internal eWorkforce program that segments the company's knowledge workers into types, defines some key tasks (such as arranging and running a global meeting), and supplies education, coaching, and tailored applications to help workers perform those tasks better. Cisco Systems' Change the Way We Work initiative teaches employees how to exploit new personal-information technologies. Microsoft has undertaken both research and internal IT efforts to enhance "information work productivity." Outside the technology ranks, Capital One has turned its IT function loose on the problem. And Raytheon's Space and Airborne Systems division has introduced education pro-

Ripe for Improvement

Knowledge workers can calibrate and improve their use of technology if they are shown how. A 2003 survey of office workers who used computers every day showed that they spent, on average, three hours and 14 minutes daily—some 40% of the workday—using e-mail, phones, and other technologies to process work-related information. The survey, which had 504 respondents, was conducted under the auspices of the Information Work Productivity Council.



INCOMING (per day)

- 44 e-mails per person in an average of three accounts (four respondents got 500 messages a day)
- 8 phone calls
- 8 voice-mail messages

OUTGOING (per day)

- 17 e-mails
- 15 phone calls

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In many companies, painful external issues that can seriously affect strategy never get an airing.

grams and policies to turn the company's employees into power users of communication tools.

There are, as yet, no best practices for improving personal-information management. So companies awash with knowledge workers should be experimenting. Internal experts may be the best source for this particular curriculum. Managers might identify a job or process that is both important and knowledge intensive, then observe how the most and least productive employees attack it. Or they can simply ask the most effective users of personal technologies in their organizations what they do. Finally, remember that technology isn't everything. Knowledge workers should also learn how to modify behaviors, priorities, and relationships. Knowledge, after all, is a yeasty, mutable substance, and communication requires nuance as well as speed. The brain remains knowledge workers' principal work space. Employees whose external information environment is well managed can keep that internal environment clutter free and operating at peak efficiency.

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13. A Taboo on Taboos*

A reporter sniffing around PeopleSoft's user conference last fall was surprised by what she didn't smell: fear. Despite the sword of Damocles suspended over their investments by Oracle's hostile takeover bid, customers discussed "comfortable subjects regarding PeopleSoft's business administration programs, such as new features they'd like to see in the next version—rather than whether there will even be a next version," wrote Alorie Gilbert on CNET News.com. Those nonconversations probably sounded a lot like the airlines' 25-year silence on deregulation's threat to their business models. Not to mention the only recently disturbed hush over underfunded pension plans.

The worst thing about elephants in the room is that if you ignore them long enough, they become invisible. That's what happens when companies avoid subjects because they are politically dangerous, socially unacceptable, or just too dire to contemplate. The result can be a failure to anticipate predictable developments and consequent errors in strategy.

The *Encyclopedia Britannica* defines "taboo" as the prohibition of an action that is either sacred or perceived as "dangerous, unclean, and accursed." In organizations, taboos may involve actions (no groping colleagues; no dressing casual-Friday on uptight Monday), but most involve ideas and language. There's substantial literature in an "emperor has no clothes" vein that preaches the need for candor about sensitive internal issues. Employees, we are told, must feel free to speak hard truths: This feature won't work or that process is too cumbersome or has anybody else noticed that the boss is crazy?

But in many companies, painful external issues that can seriously affect strategy never get an airing, says Victor Halberstadt, a professor of economics at Leiden University in the Netherlands. In several large European companies, Halberstadt has observed a widespread unwillingness to broach topics that seem too big or intractable or that call into question the wisdom of government policies or corporate directions. Among the buried hot potatoes: whether European integration is truly manageable or is perhaps overstretched; whether the EU's private sector will continue to deindustrialize; the probability that educational systems are failing the economy; and the unsustainability of current welfare states in Europe.

"There are too many taboos on subjects that can be very serious barriers to long-term economic growth," says Halberstadt. "If we don't talk about them today, then ten or 15 years out, bad things will happen that will be seen as surprises."

Similarly, avoiding social third rails can render organizations' marketing and product development efforts less innovative as the firms gloss over profound ideas with safe, tepid language and images. We know sex sells—explicitly in advertising and more subtly in design and other areas. Sexuality is a serious and complex subject that touches many aspects of our lives (love, self-respect, beauty, procreation, disease). Yet the threat of litigation and the inevitable snicker factor mean most companies never engage the subject in a meaningful way. Language, in particular, be-

comes enfeebled when we actively eschew provocative words, those most freighted with meaning. Instead we fall back on clichés and euphemisms, which in turn take on their own salacious connotations and must be discarded. (Harvard linguist Steven Pinker calls this "the euphemism treadmill.")

We are embarrassed by sex. We'd rather not think about death. And if we bring up God (or god or gods), noses will get out of joint. Yet sex, death, and God are the most profound considerations of mankind. How can companies hope to remain relevant if they won't discuss them?

IDEO, the famously innovative design firm, set out to topple taboos in its own workforce and in the process to connect more empathically with customers and break down barriers to open collaboration. The company identified several subjects that are deeply felt but difficult to talk about—among them sex, death, and birth—and gave teams the task of exploring and demystifying them. In an exercise that was more extreme example than best practice (the company doesn't expect others to follow its lead), a six-member, coed, cross-functional team immersed itself in all things erotic—visiting a transvestite bar, viewing pornographic movies, and confessing to one another their most intimate experiences. "This was a team exercise of desensitizing them to the subject, but doing it with a huge degree of humor and a huge degree of consciousness," says Paul Bennett, leader of IDEO's consumer experience design practice. "People tend to mythologize and sensationalize sex or any taboo subject when the real thing is much more interesting and provocative."

At project's end, the team developed several not-meant-for-the-real-world offerings, including products to prepare someone for a first sexual experience and a personal trainer for one's sex life. Prior to the taboo-toppling, the group would have been unable to push back its mental boundaries enough to dream those up, according to Bennett.

A somewhat different kind of boundary breaking has more practical business applications. Does everybody in your company see—but no one talk about—the competitor who has been eating away market share 3% a year for the last four years? Is nobody discussing—but everybody fearing—the movement of technology jobs offshore?

The challenge is to enable full and frank discussions of touchy topics without creating a hostile environment. The best place to start, perhaps, is a public acknowledgement of what is not being talked about, followed by education about what is in and out of bounds (with the emphasis on "in"). Halberstadt suggests that top management routinely meet with outsiders who are comfortable with transgression—including artists, independent academics, and some journalists. "They need someone to confront them about these things they would rather ignore," says Halberstadt. "They need someone who will talk about the world as it is."

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14. Toward a New Science of Services

Services is the name of the game in today's economy. Services represent about 80% of the U.S. gross domestic product and between 60% and 80% of the GDPs of the rest of the world's advanced economies. Getting better at services management must be a priority. Companies like General Electric, Xerox, and IBM that are seeing their own businesses shift from products to services are acutely aware of this. (At IBM, for example, more than half of total revenue now comes from services.)

So why can't we agree that services science is a legitimate field? Even as it is researched, written about, and taught, services management is not a discipline in its own right but rather a stepchild of academic fields like marketing or operations. Under their watchful eyes, its growth is being stunted.

That's not to say those disciplines have made no progress. There are marketers doing great work on marketing of services. There are operations people making inroads on the operational challenges of services. (Much has been learned about operational optimization in supply chain management, for example.) A few individuals have become acknowledged experts in the management of certain vertical industries, such as financial services or management consulting.

But we're not making progress across disciplinary boundaries. People in these different areas don't review each other's work because they don't publish in the same journals, and

Logically, the study of services needs its own discipline. But logic may not matter.

they don't meet because there isn't a definitive conference covering the field. It's no surprise that the work shows little cumulative advance in learning. Logically, for the theory and practice of services management to move forward, the study of services needs its own discipline.

But logic may not matter. The history of science shows us that some new areas become academic fields while others—seemingly just as vibrant and promising—do not. Computer science, now a full-fledged discipline, was once a subspecialty in engineering, math, or physics. By contrast, organization science, associated with Herb Simon and Jim March, never gained its own stance.

My sense is that three factors made the difference for computer science. First was the scale of the phenomenon. As computing reached a critical mass, people generally sensed it was worthy of study in its own right. Second, the tools of the trade—computers, programming languages, compilers, and software—became increasingly widespread, making it easier for research to be built upon. Third, grand challenges energized and united the field—challenges that were of only peripheral interest to students of math, physics, and engineering.

What does that suggest for the future of services science? The signs are promising. There is an extremely important phenomenon to be explained, one even bigger than the preponderance of service businesses in the economy. Consider that in shifting from products to services, a supplier does more for the customer than it used to and thereby allows the customer to off-load some work and thus do more for his own customer. In a phrase favored by high-tech executives, the customer moves "up the stack" in the value-added chain. The result is an enhanced standard of living and prosperity—an extremely important outcome in an advanced economy.

Services also meets the criterion for tools. Business process modeling, for example, now makes it possible to break down a company's business into processes, trace the various activities that constitute each, explain in detail how the parts relate, and figure out how the process might be done differently. Building on that, we have techniques to see how the workings of one process might be reused in other processes and when that would be appropriate, given the inevitable trade-offs between custom and off-the-shelf solutions.

And what of the need for grand challenges? What questions is services science trying to answer that are not well addressed by other fields? Let's start with the problem of innovation in services. Without tangible products to prototype and focus on, how can we determine whether we're designing what customers want? Next: Given that a service is an intangible output produced largely from intangible inputs, how do we measure and improve productivity? Services also bring new urgency to the challenge of tacit knowledge transfer, since service encounters bring together people who would benefit by learning more from each other.

It should be remembered that even computer science didn't emerge fully formed. Decades passed while schools gradually added courses and departments fought over them. It's also worth noting that the very first course in this new field, back in 1946, was developed by IBM. (The senior Tom Watson, then a trustee of Columbia University, persuaded the school to offer it.) The interest of big companies like IBM may likewise make the difference to services science. As IBM senior VP for research Paul Horn notes, "At IBM, we've been working closely with academic institutions to stimulate a cross-disciplinary focus on 'services science.' We need to overcome the silos of departments and disciplines if we are going to generate the innovation needed in a services economy." In the end, corporate support could be the decisive force that brings a coherent new field into being.

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15. The Coming Crisis over Intellectual Property Rights*

The system for protecting intellectual property rights faces a fundamental challenge that governments and corporations haven't fully appreciated yet. Many executives acknowledge the problems that have been posed to the global system by recent attitudinal changes in society: the growing sentiment among consumers that there's nothing wrong with sharing music or video files over the Internet, for instance, and

the rising opposition to transnational corporations that charge remunerative prices for lifesaving drugs in poor countries. Companies are busy responding to the fast-changing environment, but they've underestimated the potential threat from developments in China.

China's reforms have created a situation in which more of its companies now steal intellectual property, including from transnational corporations that do business there. If Chinese companies flood the world's markets with pirated versions of every kind of product from cars and airplane parts to pharmaceuticals and software—as they have started to do—bottom lines everywhere will suffer, and businesses will have to rethink the manner in which they develop new technologies and bring them to market.

That nightmare isn't as far-fetched as it seems. Beijing has turned a socialist economy into a decentralized dynamo through a key device: It has given officials at all levels the freedom to pursue economic growth. Local GDP growth qualifies bureaucrats for promotions, and it puts money in their pockets by giving them opportunities to acquire equity stakes in local firms, to gain employment opportunities for their relatives, and to engage in plain-vanilla corruption. Officials naturally protect "their" companies from punishment even when Chinese courts rule against them on IPR-related issues. Thus, the links between companies' profits and officials' incomes have laid the foundation for widespread theft of intellectual property by Chinese firms.

Moreover, uncertainty surrounds the future scale of intellectual property theft in China. The country's accession to the World Trade Organization in 2001 requires Beijing to limit domestic economic interventions largely to fiscal and monetary policy, law and regulation, and industry-level policies. China is also taking steps to respect intellectual property by setting up IPR courts, and many Chinese firms have sought better protections for their intellectual property. However, those steps will prove insufficient unless Beijing successfully cuts the ties that bind local officials to firms. The central government is finding it difficult to do that because unlike previous reforms, this initiative would take money away from key officials throughout the country. Besides, intellectual property theft in China is easier than ever because of the country's encouragement of foreign investment in order to bring in new technologies; the rising number of Chinese engineers; and technological advances that have made reverse engineering more feasible.

What can firms do? Companies must treat IPR protection as a strategic issue when conducting business in China. They should work out what intellectual property they must protect and what they can afford to lose. They may have to keep key production technologies outside of China. Smart companies will also set up fully owned ventures rather than form joint ventures, so that they can control information in ways that protect their secrets. They should compartmentalize different parts of the production process; find ways to make sure after-sales protections are tied only to products they have manufactured; educate the public on how to differentiate the real from the fake; and pursue pirates in court.

In addition, businesses should band together with other firms in their industries to confront the Chinese government. They should pressure their own governments to use bilateral methods and the mechanisms of the WTO to force improvements in China's IPR enforcement.

At another level, companies should wake up to the reality that the global IPR regime has eroded to the point that if China does not change, they will soon need new models for earning rewards for their innovation investments. In that sense, the China factor could become the straw that breaks the back of the IPR system in the next decade.

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16. Biometrics Meets Services

With today's focus on security, demand is booming for biometric devices that can look at your features and decide if you're who you say you are. Machines that scan fingerprints, palms, retinas, and faces are cropping up in airports, banks, hotels, and even supermarkets to improve security and prevent fraud and theft. But while biometrics may make things safer, security won't be the killer app. Using a fingerprint scan to open a locker—as visitors to the

Statue of Liberty now do—is not fundamentally different from (or easier than) using a key. It's just more secure.

But using biometrics to enhance the customer experience—*that* will change how companies do business. Imagine an airline that uses scans of fingerprints and faces to allow travelers to breeze through check-in, customs, security, and boarding in under 60 seconds—and automatically get seat assignments based on their preferences. Who wouldn't choose that carrier over its competitors?

Singapore Airlines (SIA) and its hub, Changi Airport, are collaborating on just such a system, betting on biometrics to improve productivity, reduce costs, lure fliers with unprecedented service, and enhance security to boot. In November, SIA and Changi launched a six-month pilot test of Fully Automated Seamless Travel (FAST) involving 9,000 SIA frequent fliers. Each received a smart card encoded with fingerprint and facial data. At check-in, these travelers simply walk through a separate gateway, slide their cards through a reader, and have their fingerprints and faces scanned. If the card data match the holders' features, the system clears security and immigration, recommends preferred seats, and prints boarding passes. The entire process takes less than a minute, compared with a current average of eight to 15 minutes. SIA and Changi are exploring a similar system for baggage handling; passengers would be able to skip lines and drop off biometrically tagged luggage outside the terminal, to be reunited with it—after scanning—at the destination.

While the airline rolls out these beta tests, it is studying other ways biometrics could enhance services, including speeding ticketing and payment, customizing loyalty-program services, and improving the efficiency of call centers through voice recognition.

Biometrics' ability to improve service delivery in other industries, we believe, will be limited less by technology, regulation, or public acceptance than by imagination. Any service offering in which knowledge of customers' identities and preferences could be used to customize and streamline sales is a candidate. Imagine the principles demonstrated in the SIA-Changi experiment applied to the process by which customers buy clothing, financial services, health care—even a personalized cup of coffee.

In a recent retreat, an SIA task force identified 113 potential uses for biometrics in its business. If that's 113 more than you've thought of, you've got some thinking to do.

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17. Getting Time on Your Side*

We are looking at increased longevity all wrong. People live longer, so we picture them spending more years in old age. Yet if we think of old age as a period of weakness and decline, it has not lengthened significantly. What's longer is the prime of life. Society should adapt to longevity by focusing on the middle of life and position the additional time as a second stage of healthy, energetic adulthood, postponing rather than lengthening retirement.

It is up to employers to design policies that make this new stage of adulthood vital and creative. Careers, like marriages, can grow stale. Technical training updates obsolete skills, but renewing aspirations is a greater challenge.

We are accustomed to lives that unfold according to a familiar rhythm of preparation and achievement, arrivals and departures, excitement and quiescence. But our mental model of these stages and transitions is fast becoming outdated. Adulthood simply goes on too long without punctuation. The famous midlife crisis is a search for that punctuation, for the feeling that one is making a new start. How much fresh energy, creativity, and loyalty would senior management reap from employees if it could provide that feeling on the job?

A metaphor may be helpful. Adding a room to a house is likely to change the way all the rooms are used. Midcareer renewal is potentially a more dramatic change: Rather than building something on at the back, we are moving the walls and creating an atrium in the center. The atrium is filled with fresh air and sunlight, and it presents an opportunity for reflection on all the rooms that open off of it.

What would it take to offer large numbers of adults a year off (or even two) somewhere around age 50 or 55?

What would it take to offer large numbers of adults a year off (or even two) somewhere around age 50 or 55, a year that would challenge them to rethink their lives and return to their jobs with renewed energy and motivation? One model is the academic sabbatical, designed not as a reward or a vacation but as a way to refresh teachers by letting them tackle new and exciting questions. In an industry equivalent, some employees might return to school; others might perform public service. Some might revisit an earlier dream—writing a novel, for instance—and accomplish it or finally put it to rest.

Afterward, many would return to their jobs eager for fresh responsibilities, motivated to embark on a second era of high performance. A few would decide to follow their discoveries elsewhere. They would be grateful for their new direction; their employers might be glad to have dealt with diminishing productivity so humanely.

It is easiest to make a change when you are clearly at the end of something. Men and women who lose their jobs because of restructuring often seek additional education and may find themselves in more interesting, demanding careers as a result. Lacking a natural transition point, however, even those middle-aged employees who feel bored and trapped in their jobs are unlikely to risk their security for an adventure into the unknown. But many midcareer people would love to make a change and take a chance. In exchange, they would willingly defer retirement for a year or two, expecting that those additional years—and the years leading up to them—would be richer and more satisfying, thanks to the time in the atrium.

The midlife atrium will introduce risks and costs for both employees and employers and will consequently require ingenious design. Employees will need new options for financial planning, and they will need benefits to make the transition less hazardous. Employers will have to change their staffing models and employee development programs. Financial institutions, which focus so profitably on retirement planning, must create products to support this new life stage.

But it will be worth it. Burnout is taking an ever greater toll on companies' productivity and morale. The enemy of stagnation is challenge, the dizzying ascent into an unfamiliar space.

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18. Inversion of Privacy

We know that people will trade some personal information for security or convenience. Still, we never question the idea that almost everyone fundamentally values privacy. For that reason, organizations seeking access to consumer data assume they will always confront reluctance, if not open resistance. They plan protracted sieges armed with trade-offs, reassurances, and warnings.

But blanket, long-range privacy strategies may not be effective. Attitudes toward privacy differ dramatically on the basis of age, geography, and who is doing the prying. And under the influence of shifting demographics, attitudes will likely change even more. Corporate and government policies should take account of those distinctions.

When I talk to students and adults about privacy in the digital age, I am struck by a persistent generation gap: The younger the audience, the weaker its concern about personal exposure. For example, when I ask for reactions to the "naked machine," an electronic strip-search device being tested at airports, college and law students are generally unperturbed by it. Business leaders over 40, by contrast, are far less comfortable. Of course, people in the older group worry about displaying the effects of gravity; but they also consider the violation itself to be more grave.

My anecdotal perception is confirmed by empirical studies. A 2000 survey by the Pew Internet and American Life Project found that 67% of 50-to-64-year-old respondents were very concerned about consumer privacy, compared with only 47% of 18-to-29-year-olds. International studies have reached similar conclusions.

Young people's relaxed attitude toward privacy is less a matter of youth (with fewer experiences, they have less to hide) than a matter of upbringing—and is consequently likely to

Students are generally unperturbed by the "naked machine," an electronic strip-search device being tested at airports. Business leaders over 40 are far less comfortable.

stay with them as they age. Their worldview has been shaped by technologies of personal exposure, including Web logs, cell phones, and digital cameras. They have grown up visiting sites like eBay and Napster, where the identities of the corporations collecting their personal information are masked by interactions with other users like themselves. Self-revelation is prized over reticence in our reality-TV-obsessed culture, because getting noticed matters more than upholding traditional norms of discretion.

Civic privacy is a different matter. Younger people are more concerned than older ones about surveillance by the state. A 2002 survey by the British government found that younger groups were less convinced than older groups of the benefits of sharing private data with the public sector. The older groups trusted government more, largely because of positive experiences with the welfare state during and after World War II. A similar generation gap exists in the United States.

Culture also influences attitudes. For example, Europeans generally worry more about corporate data surveillance, while Americans are concerned with what government is up to. Those geographic differences reflect very different histories. Europeans have traditionally been concerned about protecting the dignity of high-status individuals from a prying public. Americans, by contrast, focus on protecting the liberty of individuals against intrusions by the state. The distinctions are reflected in the regions' privacy laws.

Understanding these differences is crucial for companies as they do more business online, make more sophisticated use of their databases, and cooperate with governments. Younger consumers may be more willing than older ones to trade their personal data for a toaster; but in the United States, at least, neither group will do so if it perceives federal snoops peering over corporate shoulders. As young exhibitionists get older and become the dominant demographic, companies should worry less about collecting data for use inside their own walls and more about cooperating with government security initiatives. To sustain consumer trust, companies should push for amendments to the USA Patriot Act, for example, that would insure accountability and transparency and protect privacy (although further attacks by terrorists may make broader government surveillance widely palatable).

In other markets, where consumers are more resistant to corporate data collection, companies need stricter privacy policies. There is a widespread perception that U.S. companies are less respectful of consumer privacy than are European firms. If not countered, that perception could inhibit the global competitiveness of American corporations.

Public- and private-sector data are increasingly integrated and globalized, making it even harder for organizations to balance the tangle of privacy expectations from around the globe. As the public in different regions grows more open and more suspicious in diverse ways, a single level of optimal protection may be increasingly elusive.

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19. In Praise of Feedership

Of all the biological metaphors used in business discourse, none is more central to strategy than "survival of the fittest," with its implications of incessant rivalry and ruthless competition for scarce resources. But head-to-head competition is only a small, and not even particularly interesting, part of the struggle for survival. The familiar image—in films, literature, and one's imagination—of ferocious predators dominating a nature "red in tooth and claw" is simply not borne out by observations in bush and field. Predators' teeth and claws, fearful and fascinating though they may be, are rarely the utensils of choice at life's table. So what are? Overcome for a moment your natural revulsion and consider the lowly parasite.

The vast majority of species are parasites, exploiting the evolutionary discovery that the best way of making a living is to be closely attached to something else that is living. As much as we may resent their choice of residence, we must respect their strategic genius, for nowhere are life-sustaining warmth, nutrition, and shelter as abundantly present as in other forms of life.

In an economy, such prime real estate would carry a steep price; in biology, the price comes in the form of a coevolutionary race of innova-

tion between parasites' ploys to gain entry and the steadily more formidable defenses of resistant hosts. As a result, both parasites and hosts are characterized by a wondrous complexity of adaptations. These adaptations are far more subtle and cunning than the relatively unimaginative ones that have evolved from predatory competition.

For an illustration of this complex host–parasite negotiation, consider the curious interaction of the fig and its parasite: the fig wasp. Squeezing through a narrow opening, the female wasp forces her way into the richly provisioned interior of the fig to lay her eggs on the developing flowers of the fruit, which will nourish the wasp larvae. The seeds thus lost and the damage due to the forcible entry represent serious costs to the fig.

So far so good for the wasp. But now consider the concessions extracted by the fig in the long process of evolutionary negotiation. The female wasp, moving about the interior of the fig depositing her eggs, fertilizes the flowers with pollen carried on her body from the fig in which she originally emerged. When her female descendants exit through the eye of the fruit, they brush against the pollen-laden male flowers near the opening and carry the precious dust to the figs in which they will build their nests.

And what of the newborn males, which presumably would carry away half of the pollen on journeys of amorous adventure and, as they have no reason to reenter and thus pollinate another fig, provide no benefit to the fig species? Their unfortunate lot is the final concession in the evolutionary bargain struck by the fig and the wasp. When the males hatch, they lack vision, wings, and all but the basic motility required to immediately seek out and mate with the new females. Having acquitted themselves of this reproductive chore, the males expire unceremoniously within the fig, never having seen the light of day and, more important, never having had a chance to waste the precious pollen of the fig.

The value of this peculiar tale—which actually isn't that unusual in the often bizarre world of parasitism—lies not in its specifics but in its suggestion of a rich new way to think about strategic interaction. The survival-of-the-fittest metaphor calls for the mobilization of all resources to deny access to intruders; parasitism, in contrast, suggests to the strategist that there may be benefits in letting down one's defenses. In business, parasitic activity—for example, the infringement or appropriation of patents, brands, and intellectual property—would long ago have become prevalent were it not for the existence of property rights. But in today's global economy, in which tangible assets are becoming less important than intangible ones, the enforcement of those rights is increasingly costly and difficult. Nature, ignorant of formal property rights and hospitable to parasitic species, offers some ideas for turning this threat into a platform for innovation.

For instance, might makers of branded luxury goods view cheap knock-off watches and handbags as "pollen" in winning the brand awareness of consumers whose income does not match their discriminating taste for fashion? Or might the firms learn some valuable insights from their imitators' low-cost production, sourcing, and distribution methods? There are no ready answers to such questions, but (for that very reason) the questions offer a chance to escape the mental tunnel created by a conception of business as being exclusively competitive or predatory and to envision entirely new ways of formulating strategy.

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20. Don't Believe Everything You Read (Except for This)

Organizational leaders are deluged with advice. There are more than 30,000 business books in print, with some 3,500 new titles published each year, and too many management-related articles, newsletters, and Web sites to count. There are not, of course, 3,500 *good* new management ideas—or even old management ideas worth elucidating in 300 pages. Much of this advice is, at best, a waste of time. At worst, it can—if followed—create more problems than it solves.

Reengineering projects, fueled in large part by a certain red-jacketed volume, have experienced an estimated failure rate as high as 70% (a statistic supplied by reengineering champi-

ons Michael Hammer and James Champy themselves). And what about all those books and articles that touted Enron's innovative business model and people-management strategies? Consultants, too, can sometimes make matters worse. Blake Nordstrom, president of the department store chain of that name, told me that his predecessor in the job spent about $60 million annually on nearly 50 consultants and consulting firms. Yet the company's results only deteriorated. In fact, things got worse as conflicting advice immobilized the organization. Nordstrom began its successful turnaround when it rediscovered its focus on customer service and the basics of retailing—a strategy it (re-)figured out for itself.

What's a poor executive to do? Here are a few simple, commonsense guidelines to separate the gold from the dross in the management-idea marketplace:

Beware anything touted as "new." In medicine and the physical sciences, discoveries invariably build upon (and their authors acknowledge) the work of others. Innovation is mostly about combining existing ideas in new ways, as product developers at IDEO will tell you, or about finding new uses for existing technologies (Viagra, remember, was originally a drug to treat blood pressure ailments). Rather than pursue "what's new," you would do better to seek "what's true." Ford Motor Company got bored with the mundane details of total quality management, experimented with IT innovations and the Internet, and lost its focus on the details of designing and making great automobiles. Meanwhile, Toyota just kept doing the same things it had always done and did them better and better. The respective results speak for themselves. Toyota's recent profits were higher than Ford's and GM's combined.

Be skeptical of "proof by anecdote." Stories are a useful way of illustrating ideas and bringing them to life, but their color may obscure black-and-white evidence of whether a practice actually worked. For instance, McKinsey's *The War for Talent* was full of compelling stories, but the management practices that were supposedly responsible for companies' financial performance were measured *after* the performance itself was measured. Temporal ordering (cause coming before effect) is a necessary, albeit insufficient, condition for establishing that one thing causes another. In addition, anecdotes may sacrifice critical detail in the interest of enhancing narrative momentum. Sometimes the things that are just too complicated to explain are the things that—to some readers anyway—would have made all the difference.

Be alert for half-truths. That is what my colleague Bob Sutton and I call ideas that are partly or sometimes right but also partly or sometimes wrong. Many ideas fall into this category, such as the importance of financial incentives and the notion that work is so distinct from the rest of life that people can't be themselves on the job. Advice is more likely to be good when it acknowledges its own downsides and suggests ways to cope with them. The risk may be worth taking, and the management approach may be useful, but in order to make sensible judgments, you need to know the whole story.

Avoid self-proclaimed gurus. Whoever first applied the term "guru" to management thinkers probably meant well: The original Sanskrit word means venerable teacher. But over the years the term became associated more with best-sellers and astronomical speaking fees than with original thinking and serious fieldwork.

Understand cognitive biases. I am not talking about the biases described in behavioral decision theory, but about even more insidious distortions. One such bias is the desire to hear (and deliver) good news; another is to prefer ideas we agree with and people who agree with us. Both of these come into play when we work with consultants. Yet as Charlie Bresler of Men's Wearhouse points out, people benefit most from constructive criticism that actually teaches them to do things better. The best management advice need not be downright painful. But like diet advice—perhaps the only subject that generates a comparable amount of verbiage—if it doesn't cause at least a bit of discomfort, it's probably not going to have much impact.

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