

# Harvard Business Review

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Our annual survey of emerging ideas considers how nanotechnology will affect commerce, what role hope plays in leadership, and why, in an age that practically enshrines accountability, we need to beware of “accountabalism.”

## —| MARKETING STRATEGY |—

### The Accidental Influentials \*

**1** In his best-selling book *The Tipping Point*, Malcolm Gladwell argues that “social epidemics” are driven in large part by the actions of a tiny minority of special individuals, often called influentials, who are unusually informed, persuasive, or well connected. The idea is intuitively compelling – we think we see it happening all the time – but it doesn’t explain how ideas actually spread.

**An entrepreneurial Japan – which once would have seemed oxymoronic – may ultimately overshadow the much touted start-up cultures in China and India.**

its. The stock market has bounced back, with the Nikkei 225 Index rising to more than 200% of the low it reached in 2003. Office space and labor are scarce. Corporate earnings are at a record high.

Analysts, the media, and the Japanese government attribute this growth to the turnaround of big traditional corporations, such as Toyota, Canon, Nissan, and Nippon Steel, and to industry consolidation, which has created financial giants like Sumitomo Mitsui Banking and JFE Steel. Structural changes implemented by the Koizumi government are often credited with sparking the comeback. But these observers are by capital-intensive industries in which big manufacturing companies are run by people who’ve patiently worked their way up through the organization – has come from a confluence of forces.

## —| POLITICAL ECONOMY |—

### Entrepreneurial Japan

**2** In 2006, Japan experienced an economic revitalization after nearly a decade of deflation, bankruptcies, and sagging prof-

Like Harry Potter, the fictional schoolboy wizard who grows older with his readers, brands that mature with their users can prove particularly durable.

— | MARKETING STRATEGY | —

## Brand Magic: Harry Potter Marketing

**3** The typical brand manager is an ageist. It goes with the territory, because whatever the formal customer segmentation driving a brand strategy, the segments will almost certainly be differentiated by age.

Innéov, a line of nutricosmetics jointly owned by L'Oréal and Nestlé, is a case in point. Its main product, a nutritional supplement called Firmness, targets women aged 45 to 55. One of the Firmness brand manager's greatest worries is that if too many "older" consumers (that is, above 55) are stuck to her proach. Instead of seeking to build immortal brands that generations mature into and then out of, they could create brands around a given cohort of customers. As the customers matured, the brands would evolve with them. The aim would be to match the needs of that cohort at any moment in time. We call this "Harry Potter marketing," after the fictional schoolboy wizard who grows older with his readers.

## Algorithms in the Attic

**4** For a powerful perspective on future business, take a hard look at mathematics past. As computing gets ever faster and cheaper, yesterday's abstruse equations are becoming platforms for tomorrow's breakthroughs. Companies in several industries are now dusting off these formulas and putting them in the service of new products and processes.

Procter & Gamble has been restructuring its supply chain with complex "expressive bidding" algorithms—based on 1950s linear-programming equations—that allow suppliers to bid online with bundled offerings of products and service levels rather than with standardized lots. Google's search engine was possible only because the founders adapted a century-old theorem about matrices to software for ranking Web pages according to links from other sites. Networks like the Web can be expressed as matrices, and a relatively simple calculation gives a ranking of how well each site is connected to the rest of the Web. That formula for automatic ranking—which could be understood and appreciated without a PhD—is one of the most lucrative algorithms ever. The math was there for the taking.

## Panning for Gold on Dusty Shelves

Today's high-speed, cheap computers have given abstruse mathematical advances immediate practical relevance. With the help of "mathematical entrepreneurs," companies can now adapt these equations and algorithms to a range of business challenges. Here are some examples:

Formula	Date of Original Development	Original Use	Current Business Application
Perron-Frobenius theorem	1800s	Ranking nodes in a network	Improving search engines; analyzing and customizing communication on Web sites
Monte Carlo random number generators	1940s	Testing scenarios for atomic bomb explosions	Evaluating the riskiness of competing capital projects
Genetic algorithms	1970s	Demonstrating Darwinian principles in mathematical problem solving	Developing products by computationally evolving the design in response to constraints
Simulated annealing algorithms	1980s	Determining the cooling time for tightly packed crystallizing molecules	From scheduling complicated processes to optimizing product placement on store shelves

**Most business leaders shy away from the notion of hope, perhaps because declaring that one's organization needs hope feels defeatist.**

—| LEADERSHIP |—

## The Leader from Hope

**5** What is hope? Something more than wishful thinking but short of expectation. A rejection of cynicism and dispiritedness. And a state, we believe, quite central to the work of a leader.

Most business leaders, we've discovered in our three years' worth of interviews on the subject, shy away from the word. Perhaps talk of hope comes uncomfortably close to faith and spirituality – or perhaps declaring that one's organization needs hope feels defeatist. "If I set out to instill hope," one might wonder, "am I admitting that our situation is next to hopeless?"

Yet work connected to the positive-psychology movement has made hope discussable in new ways.

Today, customers aren't just voicing their needs to companies that are willing to listen; they're inventing and often building what they want.

—| RESEARCH & DEVELOPMENT |—

## An Emerging Hotbed of User-Centered Innovation \*

**6** A major auto company recently presented its “innovation road map” for the next ten years to a group of journalists and car enthusiasts. As the presentation progressed, it became increasingly clear that some members of the audience were restless. Finally, one listener stood up and said, “Many of us have already built and installed every single one of the innovations you say you are planning to develop in the next ten years. Wake up and smell the coffee! Come out to the parking lot and take a look at what we have developed and installed in our cars!”

The company's engineers and executives weren't sure how to respond. They certainly couldn't say what they felt: “Users should not act like that! They should wait for us to study their needs and develop new products for *them!*”

—| PEOPLE MANAGEMENT |—

## Living with Continuous Partial Attention

**7** We all know the phenomenon: You're in a conference room, and all the people around the table are glancing – frequently and surreptitiously – at the cell phones or BlackBerrys they're holding just below table level. They may be checking their e-mail, looking to see who is trying to reach them on muted incoming calls, sending text messages, scanning stock quotes, making dinner reservations – or, more likely, doing several things at once. Such activities don't only draw participants' attention away from the business being conducted at the table; they also compete with one another – sometimes even generating small alerts that suddenly appear and then dissolve on the screen, silently begging, “Look at me!” This constant checking of handheld electronic devices has become epidemic, and it illustrates what I call “continuous partial attention.”

## Borrowing from the PE Playbook

**8** To survive the economic downturn at the start of the decade, corporations took dramatic steps to reduce costs and improve productivity. As a result, their operating leverage skyrocketed, and when the economy rebounded, corporate profits quickly followed. Since the amount of capital required to sustain organic growth represents a small portion of the cash now coming in, most of these profits are going straight to the balance sheet.

## When to Sleep on It

**9** Have a difficult decision to make? You should engage in long and careful deliberation, right? Not necessarily. Psychological research shows that conscious deliberation, however long and careful, can be a surprisingly crude and ineffective tool, because the conscious mind has a very limited processing capacity. Most people cannot, for example, compare three organizations differing on 14 dimensions. That is simply too much information for the conscious mind to take in and handle all at once.

## Here Comes XBRL

**10** When the U.S. Securities and Exchange Commission last September announced a \$54 million project to accelerate the implementation of XBRL, a new information standard for financial and business reporting, the event hardly seemed like a landmark for companies. The advantage for investors – an enhanced ability to electronically download, analyze, and compare company information submitted to the SEC – got top billing. The SEC chairman, Christopher Cox, briefly noted that adopting the new standard – which is voluntary for SEC filings, at least for now – would also make it easier and less costly for companies to comply with his agency's requirements. But that's just the beginning.

**By almost any measure, the larger a city's population, the greater the innovation and wealth creation per person.**

—| ORGANIZATIONS |—

## Innovation and Growth: Size Matters \*

**11** Executives talk about their companies' "DNA" and roles in "business ecosystems," but the analogy to living organisms is more than metaphorical. Like the mathematical laws governing how organisms' metabolism, growth, evolution, and mortality depend on size, there are rules that appear to govern the growth, performance, and even decline of cities and other social organizations. Although we can't yet predict how specific cities or companies will evolve, we've found general mathematical relationships between population size, innovation, and mine how such characteristics change with size. For example, metabolic rate increases as the  $\frac{3}{4}$  power of mass. Put simply, the scaling law says that if an organism's mass increases by a factor of 10,000 (four orders of magnitude), its metabolic rate will increase by a factor of only 1,000 (three orders of mag-

nitude). This represents an enormous economy of scale: the bigger the creature, the less energy per pound it requires to stay alive. This increase of efficiency with size – manifested by the scaling exponent  $\frac{3}{4}$ , which we say is "sublinear" because it's less than one – permeates biology. These ubiquitous scaling laws have their origin in the universal properties of the networks that sustain life, such as the cardiovascular and respiratory systems.

—| CUSTOMER RELATIONS |—

## Conflicted Consumers

**12** Your data indicate strong customer satisfaction: Repeat purchase levels are high, and many customers have been with you for years. Good news, right? Well, appearances can be deceptive.

There may well lie buried in these data a "stealth" segment of apparently loyal customers who have ethical concerns about your company and are poised to switch as soon as a viable alternative emerges. In other words, they buy your product but they'd rather not. I call such customers "conflicted consumers," and my research shows that more of them are out there than business leaders and their market research teams may realize.

## What Sells When Father Knows Best

**13** The comedian Dick Cavett once quipped, “If your parents never had children, chances are you won’t either.” It’s a funny thought, but it gets at something real.

People who are social, religious, or political conservatives tend to have more children, and that fact has profound implications for culture, for politics, and for business. In the United States, for example, fertility rates are 12% higher in states that voted for George W. Bush in the most recent presidential election than in the more liberal and secular states that supported his opponent. Indeed, if the John Kerry states seceded and formed a new nation, its fertility rate would be just 1.8 children per woman – 13% below the level needed to replace the population.

## Business in the Nanocosm

**14** The scientific and technological revolution that may occur as a result of nanotechnology has

been much discussed. Generally unappreciated so far, but of potentially much greater impact, are the sociocultural and business implications. Nanotechnology may change society over the next few decades just as much as information technology has over the previous few – and in ways that are still hard for our minds to grasp.

Nanotechnology is distinguished from other forms of technology, past and present, by the infinitesimal size of the materials involved (less than 100 nanometers wide) and by its method of operation. Conventional manufacturing carves or distills a purpose-suited device from a mass of raw materials. Nanotechnology, like nature, assembles objects atom by atom, following a design that calls for only what is needed: a place for every atom and every atom in its place. This method of constructing objects (which themselves do not have to be small) will reshape the future not only of manufacturing but also of distribution, retailing, and the environment.

## Act Globally, Think Locally \*

**15** Here's a paradox of our age: The more global the economy and your business, the more important location and physical proximity become. Yes, issues of location – the choice of a factory site, for example, or the tailoring of a marketing message to a region – have always been of strategic importance. However, the conventional emphasis has been on how location affects a company's costs and revenues. In today's knowledge-based economy, we need to reevaluate the very concept of location.

## Seeing Is Treating

**16** Health care often advances hand in hand with technology. When several technologies can be leveraged simultaneously, the possibilities for real breakthroughs in care multiply. That's occurring today with the convergence of imaging technology and biotechnology – enabled by advanced health care information technology – which promises to radically change diagnosis and treatment for

many chronic diseases. Like other technological convergences in our digital and granular world, this one will redefine industry boundaries and inextricably link distinct businesses.

## The Best Networks Are Really Worknets \*

**17** An unruly nebula of concepts is floating around the business world right now – social webs, open innovation, customer-created content, and more – all exploring one big question: Now that we see the power of human networks, how can we use them to produce value? Applications ranging from InnoCentive, Eli Lilly's network for solving scientific riddles, to Internet Based Moms, a Web site where work-at-home moms can seek and share advice on starting Internet businesses, prove the point that many heads are better than one. But up to now, network-building efforts have been hit or miss. Our desktops are littered with passwords to communities that no longer exist.

# In Defense of “Ready, Fire, Aim”

**18** The open source software movement has been one of the great successes of the digital age. Open source projects such as the Linux operating system and the Apache Web server – as we learn nearly every time we pick up a business publication – have turned the efforts of a widely distributed group of programmers, who contribute those efforts free, into world-class products.

Yet when we look closely at the open source ecosystem, a very different picture emerges. For example, the world’s largest open source site, Sourceforge, hosts more than 100,000 projects, and its most popular software is downloaded tens of thousands of times daily. But most projects have never broken a hundred downloads, and more than half are simply inactive: A project was proposed, but nothing happened.