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# Wringing Real Value from IT, Second Edition

We're spending more  
and more on IT. But  
how do we make those  
investments pay off?

Included with this collection:

- 2 [IT Doesn't Matter](#)  
by Nicholas G. Carr
- 13 [Strategy and the Internet](#)  
by Michael E. Porter
- 34 [The Real New Economy](#)  
by Diana Farrell

Product [5135](#)

## Collection Overview

We continue pumping \$2 trillion annually into information technology to pursue competitive advantage and spur productivity. But extracting strategic value and productivity gains from IT has become increasingly challenging.

First, like other widely adopted technologies—electricity, phone systems, on-line shopping—IT no longer affords a unique competitive edge. You can't do business *without* it. But scarcity—not ubiquity—makes technologies strategic.

Second, despite the coincidence of increased productivity and IT spending in the 1990s, IT didn't directly fuel that productivity. Instead, it enabled companies to answer stiffening competition with new products and more efficient business processes. The spread of these *innovations* spurred productivity.

Does that mean that IT has little impact on strategic value and productivity today? Not if you apply the following practices:

**Manage IT's risks:** Buy only what your company needs, not the excess capacity suppliers sell. Delay cutting-edge IT investments to avoid getting soon-to-be-obsolete applications.

**Use IT to create a unique strategic position:** Integrate IT with your company's other functions—in ways that rivals can't imitate and that help you generate better products, higher-quality services, or proprietary content.

**Understand IT's role in productivity.** Concentrate IT investments on the levers exerting the most impact on productivity in your company. Beware of investing in IT systems that all your rivals are considering. And pursue technological and managerial innovations in tandem.

## The Articles

### 3 [Article Summary](#)

#### 4 [IT Doesn't Matter](#)

by Nicholas G. Carr

Carr examines the risks associated with IT's ubiquity. For instance, though businesses buy 100 million+ PCs annually, most workers use their computers for simple applications that require a fraction of available computing power. Solution? Explore cheaper alternatives, such as open-source systems and bare-bones PCs. In addition, delay investing in cutting-edge technology. Instead, let impatient rivals shoulder the costs of experimentation—then sweep past them, paying less while getting more.

### 12 [Further Reading](#)

#### 14 [Article Summary](#)

#### 15 [Strategy and the Internet](#)

by Michael E. Porter

The Internet has accelerated the trend toward generic, ubiquitous IT systems that offer no competitive advantage. But it *can* support your strategic position—if you use it to complement, rather than replace, your traditional ways of competing and to integrate your virtual and physical activities. For example, employ your Web site to attract customers and draw them to flesh-and-blood salespeople, who provide personalized advice and after-sales service.

### 33 [Further Reading](#)

#### 35 [Article Summary](#)

#### 36 [The Real New Economy](#)

by Diana Farrell

Companies that pour money into IT without understanding how the competition-innovation-productivity cycle works in their industry often see scant returns on their investment. IT's no silver bullet—but it *can* be a powerful competitive weapon if you aim your investments in it accurately. Figure out what drives productivity in your company (labor efficiency? asset utilization? cost reduction?), and sequence your investments so they build on each other. And if you have qualms about your company's tolerance for risk or its ability to merge IT with other advantages to stay ahead of the pack, then follow—don't lead—IT trends.

### 45 [Further Reading](#)

1st article from the collection:  
**Wringing Real Value from IT,**  
Second Edition

# IT Doesn't Matter

by Nicholas G. Carr

Included with this full-text *Harvard Business Review* article:

3 [Article Summary](#)

The Idea in Brief—*the core idea*

The Idea in Practice—*putting the idea to work*

4 [IT Doesn't Matter](#)

12 [Further Reading](#)

A list of related materials, with annotations to guide further exploration of the article's ideas and applications

Product [3566](#)

# IT Doesn't Matter

## The Idea in Brief

To beat your competitors, are you devoting more than 50% of your capital expenditures to information technology? If so, you're not alone. Businesses worldwide pump \$2 trillion a year into IT. But like many broadly adopted technologies—such as railways and electrical power—IT has become a commodity. Affordable and accessible to everyone, it no longer offers strategic value to anyone.

Scarcity—not ubiquity—makes a business resource truly strategic. Companies gain an edge by having or doing something others can't have or do. In IT's earlier days, forward-looking firms trumped competitors through innovative deployment of IT; for example, Federal Express's package-tracking system and American Airlines' Sabre reservation system.

Now that IT is ubiquitous, however, we must focus on its risks more than its potential strategic advantages. Consider electricity. No company builds its strategy on its electrical usage—but even a brief lapse in supply can be devastating. Today, an IT disruption can prove equally paralyzing to your company's ability to make products, deliver services, and satisfy customers.

But the greatest IT risk is overspending—putting your company at a cost disadvantage. The lesson? Make IT management boring. Instead of aggressively seeking an edge through IT, manage IT's costs and risks with a frugal hand and pragmatic eye—despite any renewed hype about its strategic value. Worrying about what might go wrong isn't glamorous, but it's smart business now.

## The Idea in Practice

To avoid overinvesting in IT:

### SPEND LESS.

Rigorously evaluate expected returns from IT investments. Separate essential investments from discretionary, unnecessary, or counterproductive ones. Explore simpler and cheaper alternatives, and eliminate waste.

#### ► Example:

Businesses buy 100 million+ PCs annually—yet most workers use PCs for simple applications that require a fraction of their computing power. Start imposing hard limits on upgrade costs—rather than buying new computers and applications every time suppliers roll out new features. Negotiate contracts ensuring long-term usefulness of your PC investments. If vendors balk, explore cheaper solutions, including bare-bones network PCs.

Also assess your data storage, which accounts for 50%+ of many companies' IT expenditures—even though most saved data consists of employees' e-mails and files that have little relevance to making products or serving customers.

### FOLLOW, DON'T LEAD.

Delay IT investments to significantly cut costs *and* decrease your risk of buying flawed or soon-to-be obsolete equipment or applications. Today, smart IT users hang back from the cutting edge, buying only after standards and best practices solidify. They let more impatient rivals shoulder the high costs of experimentation. Then they sweep past them, paying less while getting more.

### FOCUS ON RISKS, NOT OPPORTUNITIES.

Many corporations are ceding control over their IT applications and networks to vendors and other third parties. The consequences of moving from tightly controlled, proprietary systems to open, shared ones? More and

more threats in the form of technical glitches, service outages, and security breaches. Focus IT resources on preparing for such disruptions—not deploying IT in radical new ways.

*As information technology's power and ubiquity have grown, its strategic importance has diminished. The way you approach IT investment and management will need to change dramatically.*

HBR AT LARGE

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# IT Doesn't Matter

by Nicholas G. Carr

In 1968, a young Intel engineer named Ted Hoff found a way to put the circuits necessary for computer processing onto a tiny piece of silicon. His invention of the microprocessor spurred a series of technological breakthroughs—desktop computers, local and wide area networks, enterprise software, and the Internet—that have transformed the business world. Today, no one would dispute that information technology has become the backbone of commerce. It underpins the operations of individual companies, ties together far-flung supply chains, and, increasingly, links businesses to the customers they serve. Hardly a dollar or a euro changes hands anymore without the aid of computer systems.

As IT's power and presence have expanded, companies have come to view it as a resource ever more critical to their success, a fact clearly reflected in their spending habits. In 1965, according to a study by the U.S. Department of Commerce's Bureau of Economic Analysis, less than 5% of the capital expenditures of American companies went to information technol-

ogy. After the introduction of the personal computer in the early 1980s, that percentage rose to 15%. By the early 1990s, it had reached more than 30%, and by the end of the decade it had hit nearly 50%. Even with the recent sluggishness in technology spending, businesses around the world continue to spend well over \$2 trillion a year on IT.

But the veneration of IT goes much deeper than dollars. It is evident as well in the shifting attitudes of top managers. Twenty years ago, most executives looked down on computers as proletarian tools—glorified typewriters and calculators—best relegated to low level employees like secretaries, analysts, and technicians. It was the rare executive who would let his fingers touch a keyboard, much less incorporate information technology into his strategic thinking. Today, that has changed completely. Chief executives now routinely talk about the strategic value of information technology, about how they can use IT to gain a competitive edge, about the “digitization” of their business models. Most have appointed chief information of-

ficers to their senior management teams, and many have hired strategy consulting firms to provide fresh ideas on how to leverage their IT investments for differentiation and advantage.

Behind the change in thinking lies a simple assumption: that as IT's potency and ubiquity have increased, so too has its strategic value. It's a reasonable assumption, even an intuitive one. But it's mistaken. What makes a resource truly strategic—what gives it the capacity to be the basis for a sustained competitive advantage—is not ubiquity but scarcity. You only gain an edge over rivals by having or doing something that they can't have or do. By now, the core functions of IT—data storage, data processing, and data transport—have become available and affordable to all.<sup>1</sup> Their very power and presence have begun to transform them from potentially strategic resources into commodity factors of production. They are becoming costs of doing business that must be paid by all but provide distinction to none.

IT is best seen as the latest in a series of broadly adopted technologies that have reshaped industry over the past two centuries—from the steam engine and the railroad to the telegraph and the telephone to the electric generator and the internal combustion engine. For a brief period, as they were being built into the infrastructure of commerce, all these technologies opened opportunities for forward-looking companies to gain real advantages. But as their availability increased and their cost decreased—as they became ubiquitous—they became commodity inputs. From a strategic standpoint, they became invisible; they no longer mattered. That is exactly what is happening to information technology today, and the implications for corporate IT management are profound.

### Vanishing Advantage

Many commentators have drawn parallels between the expansion of IT, particularly the Internet, and the rollouts of earlier technologies. Most of the comparisons, though, have focused on either the investment pattern associated with the technologies—the boom-to-bust cycle—or the technologies' roles in reshaping the operations of entire industries or even economies. Little has been said about the way the technologies influence, or fail to influence, competition at the firm level. Yet it is here that history offers some of its most im-

portant lessons to managers.

A distinction needs to be made between proprietary technologies and what might be called infrastructural technologies. Proprietary technologies can be owned, actually or effectively, by a single company. A pharmaceutical firm, for example, may hold a patent on a particular compound that serves as the basis for a family of drugs. An industrial manufacturer may discover an innovative way to employ a process technology that competitors find hard to replicate. A company that produces consumer goods may acquire exclusive rights to a new packaging material that gives its product a longer shelf life than competing brands. As long as they remain protected, proprietary technologies can be the foundations for long-term strategic advantages, enabling companies to reap higher profits than their rivals.

Infrastructural technologies, in contrast, offer far more value when shared than when used in isolation. Imagine yourself in the early nineteenth century, and suppose that one manufacturing company held the rights to all the technology required to create a railroad. If it wanted to, that company could just build proprietary lines between its suppliers, its factories, and its distributors and run its own locomotives and railcars on the tracks. And it might well operate more efficiently as a result. But, for the broader economy, the value produced by such an arrangement would be trivial compared with the value that would be produced by building an open rail network connecting many companies and many buyers. The characteristics and economics of infrastructural technologies, whether railroads or telegraph lines or power generators, make it inevitable that they will be broadly shared—that they will become part of the general business infrastructure.

In the earliest phases of its buildout, however, an infrastructural technology can take the form of a proprietary technology. As long as access to the technology is restricted—through physical limitations, intellectual property rights, high costs, or a lack of standards—a company can use it to gain advantages over rivals. Consider the period between the construction of the first electric power stations, around 1880, and the wiring of the electric grid early in the twentieth century. Electricity remained a scarce resource during this time, and those manufacturers able to tap into it—by, for example, building their plants near generating stations—

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often gained an important edge. It was no coincidence that the largest U.S. manufacturer of nuts and bolts at the turn of the century, Plumb, Burdick, and Barnard, located its factory near Niagara Falls in New York, the site of one of the earliest large-scale hydroelectric power plants.

Companies can also steal a march on their competitors by having superior insight into the use of a new technology. The introduction of electric power again provides a good example. Until the end of the nineteenth century, most manufacturers relied on water pressure or steam to operate their machinery. Power in those days came from a single, fixed source—a waterwheel at the side of a mill, for instance—and required an elaborate system of pulleys and gears to distribute it to individual workstations throughout the plant. When electric generators first became available, many manufacturers simply adopted them as a replacement single-point source, using them to power the existing system of pulleys and gears. Smart manufacturers, however, saw that one of the great advantages of electric power is that it is easily distributable—that it can be brought directly to workstations. By wiring their plants and installing electric motors in their machines, they were able to dispense with the cumbersome, inflexible, and costly gearing systems, gaining an important efficiency advantage over their slower-moving competitors.

In addition to enabling new, more efficient operating methods, infrastructural technologies often lead to broader market changes. Here, too, a company that sees what's coming can gain a step on myopic rivals. In the mid-1800s, when America started to lay down rail lines in earnest, it was already possible to transport goods over long distances—hundreds of steamships plied the country's rivers. Businessmen probably assumed that rail transport would essentially follow the steamship model, with some incremental enhancements. In fact, the greater speed, capacity, and reach of the railroads fundamentally changed the structure of American industry. It suddenly became economical to ship finished products, rather than just raw materials and industrial components, over great distances, and the mass consumer market came into being. Companies that were quick to recognize the broader opportunity rushed to build large-scale, mass-production factories. The resulting economies of scale al-

lowed them to crush the small, local plants that until then had dominated manufacturing.

The trap that executives often fall into, however, is assuming that opportunities for advantage will be available indefinitely. In actuality, the window for gaining advantage from an infrastructural technology is open only briefly. When the technology's commercial potential begins to be broadly appreciated, huge amounts of cash are inevitably invested in it, and its buildout proceeds with extreme speed. Railroad tracks, telegraph wires, power lines—all were laid or strung in a frenzy of activity (a frenzy so intense in the case of rail lines that it cost hundreds of laborers their lives). In the 30 years between 1846 and 1876, reports Eric Hobsbawm in *The Age of Capital*, the world's total rail trackage increased from 17,424 kilometers to 309,641 kilometers. During this same period, total steamship tonnage also exploded, from 139,973 to 3,293,072 tons. The telegraph system spread even more swiftly. In Continental Europe, there were just 2,000 miles of telegraph wires in 1849; 20 years later, there were 110,000. The pattern continued with electrical power. The number of central stations operated by utilities grew from 468 in 1889 to 4,364 in 1917, and the average capacity of each increased more than tenfold. (For a discussion of the dangers of overinvestment, see the sidebar "Too Much of a Good Thing.")

By the end of the buildout phase, the opportunities for individual advantage are largely gone. The rush to invest leads to more competition, greater capacity, and falling prices, making the technology broadly accessible and affordable. At the same time, the buildout forces users to adopt universal technical standards, rendering proprietary systems obsolete. Even the way the technology is used begins to become standardized, as best practices come to be widely understood and emulated. Often, in fact, the best practices end up being built into the infrastructure itself; after electrification, for example, all new factories were constructed with many well-distributed power outlets. Both the technology and its modes of use become, in effect, commoditized. The only meaningful advantage most companies can hope to gain from an infrastructural technology after its buildout is a cost advantage—and even that tends to be very hard to sustain.

That's not to say that infrastructural technologies don't continue to influence competition.

*When a resource becomes essential to competition but inconsequential to strategy, the risks it creates become more important than the advantages it provides.*

They do, but their influence is felt at the macro-economic level, not at the level of the individual company. If a particular country, for instance, lags in installing the technology—whether it's a national rail network, a power grid, or a communication infrastructure—its domestic industries will suffer heavily. Similarly, if an industry lags in harnessing the power of the technology, it will be vulnerable to displacement. As always, a company's fate is tied to broader forces affecting its region and its industry. The point is, however, that the technology's potential for differentiating one company from the pack—its strategic potential—inexorably declines as it becomes accessible and affordable to all.

### The Commoditization of IT

Although more complex and malleable than its predecessors, IT has all the hallmarks of an infrastructural technology. In fact, its mix of characteristics guarantees particularly rapid commoditization. IT is, first of all, a transport mechanism—it carries digital information just as railroads carry goods and power grids carry electricity. And like any transport mechanism, it is far more valuable when shared than when

used in isolation. The history of IT in business has been a history of increased interconnectivity and interoperability, from mainframe time-sharing to minicomputer-based local area networks to broader Ethernet networks and on to the Internet. Each stage in that progression has involved greater standardization of the technology and, at least recently, greater homogenization of its functionality. For most business applications today, the benefits of customization would be overwhelmed by the costs of isolation.

IT is also highly replicable. Indeed, it is hard to imagine a more perfect commodity than a byte of data—endlessly and perfectly reproducible at virtually no cost. The near-infinite scalability of many IT functions, when combined with technical standardization, dooms most proprietary applications to economic obsolescence. Why write your own application for word processing or e-mail or, for that matter, supply-chain management when you can buy a ready-made, state-of-the-art application for a fraction of the cost? But it's not just the software that is replicable. Because most business activities and processes have come to be embedded in software, they become replicable, too. When companies buy a generic application, they buy a generic process as well. Both the cost savings and the interoperability benefits make the sacrifice of distinctiveness unavoidable.

The arrival of the Internet has accelerated the commoditization of IT by providing a perfect delivery channel for generic applications. More and more, companies will fulfill their IT requirements simply by purchasing fee-based "Web services" from third parties—similar to the way they currently buy electric power or telecommunications services. Most of the major business-technology vendors, from Microsoft to IBM, are trying to position themselves as IT utilities, companies that will control the provision of a diverse range of business applications over what is now called, tellingly, "the grid." Again, the upshot is ever greater homogenization of IT capabilities, as more companies replace customized applications with generic ones. (For more on the challenges facing IT companies, see the sidebar "What About the Vendors?")

Finally, and for all the reasons already discussed, IT is subject to rapid price deflation. When Gordon Moore made his famously pre-

## Too Much of a Good Thing

As many experts have pointed out, the overinvestment in information technology in the 1990s echoes the overinvestment in railroads in the 1860s. In both cases, companies and individuals, dazzled by the seemingly unlimited commercial possibilities of the technologies, threw large quantities of money away on half-baked businesses and products. Even worse, the flood of capital led to enormous overcapacity, devastating entire industries.

We can only hope that the analogy ends there. The mid-nineteenth-century boom in railroads (and the closely related technologies of the steam engine and the telegraph) helped produce not only widespread industrial overcapacity but a surge in productivity. The combination set the stage for two solid decades of deflation. Although worldwide economic production continued to grow

strongly between the mid-1870s and the mid-1890s, prices collapsed—in England, the dominant economic power of the time, price levels dropped 40%. In turn, business profits evaporated. Companies watched the value of their products erode while they were in the very process of making them. As the first worldwide depression took hold, economic malaise covered much of the globe. "Optimism about a future of indefinite progress gave way to uncertainty and a sense of agony," wrote historian D.S. Landes.

It's a very different world today, of course, and it would be dangerous to assume that history will repeat itself. But with companies struggling to boost profits and the entire world economy flirting with deflation, it would also be dangerous to assume it can't.



scientist assertion that the density of circuits on a computer chip would double every two years, he was making a prediction about the coming explosion in processing power. But he was also making a prediction about the coming free fall in the price of computer functionality. The cost of processing power has dropped relentlessly, from \$480 per million instructions per second (MIPS) in 1978 to \$50 per MIPS in 1985 to \$4 per MIPS in 1995, a trend that continues unabated. Similar declines have occurred in the cost of data storage and transmission. The rapidly increasing affordability of IT functionality has not only democratized the computer revolution, it has destroyed one of the most important potential barriers to competitors. Even the most cutting-edge IT capabilities quickly be-

come available to all.

It's no surprise, given these characteristics, that IT's evolution has closely mirrored that of earlier infrastructural technologies. Its buildout has been every bit as breathtaking as that of the railroads (albeit with considerably fewer fatalities). Consider some statistics. During the last quarter of the twentieth century, the computational power of a microprocessor increased by a factor of 66,000. In the dozen years from 1989 to 2001, the number of host computers connected to the Internet grew from 80,000 to more than 125 million. Over the last ten years, the number of sites on the World Wide Web has grown from zero to nearly 40 million. And since the 1980s, more than 280 million miles of fiber-optic cable have been installed—enough, as *BusinessWeek* recently noted, to “circle the earth 11,320 times.” (See the exhibit “The Sprint to Commoditization.”)

As with earlier infrastructural technologies, IT provided forward-looking companies many opportunities for competitive advantage early in its buildout, when it could still be “owned” like a proprietary technology. A classic example is American Hospital Supply. A leading distributor of medical supplies, AHS introduced in 1976 an innovative system called Analytic Systems Automated Purchasing, or ASAP, that enabled hospitals to order goods electronically. Developed in-house, the innovative system used proprietary software running on a mainframe computer, and hospital purchasing agents accessed it through terminals at their sites. Because more efficient ordering enabled hospitals to reduce their inventories—and thus their costs—customers were quick to embrace the system. And because it was proprietary to AHS, it effectively locked out competitors. For several years, in fact, AHS was the only distributor offering electronic ordering, a competitive advantage that led to years of superior financial results. From 1978 to 1983, AHS's sales and profits rose at annual rates of 13% and 18%, respectively—well above industry averages.

AHS gained a true competitive advantage by capitalizing on characteristics of infrastructural technologies that are common in the early stages of their buildouts, in particular their high cost and lack of standardization. Within a decade, however, those barriers to competition were crumbling. The arrival of personal computers and packaged software, together with the emergence of networking standards, was

## What About the Vendors?

Just a few months ago, at the 2003 World Economic Forum in Davos, Switzerland, Bill Joy, the chief scientist and cofounder of Sun Microsystems, posed what for him must have been a painful question: “What if the reality is that people have already bought most of the stuff they want to own?” The people he was talking about are, of course, businesspeople, and the stuff is information technology. With the end of the great buildout of the commercial IT infrastructure apparently at hand, Joy's question is one that all IT vendors should be asking themselves. There is good reason to believe that companies' existing IT capabilities are largely sufficient for their needs and, hence, that the recent and widespread sluggishness in IT demand is as much a structural as a cyclical phenomenon.

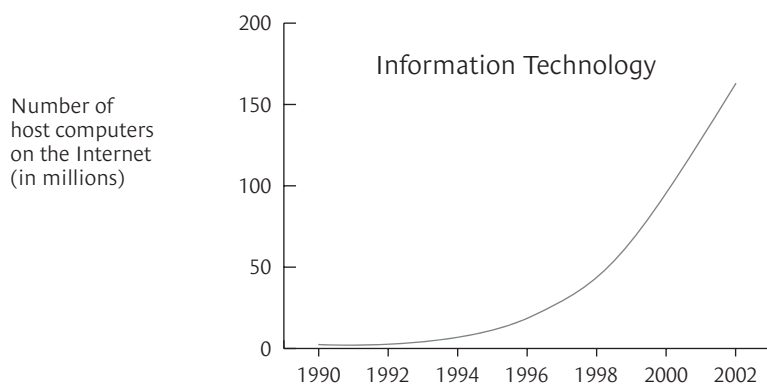
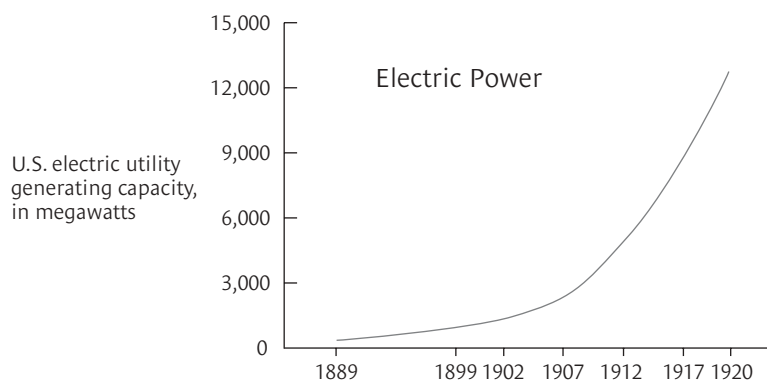
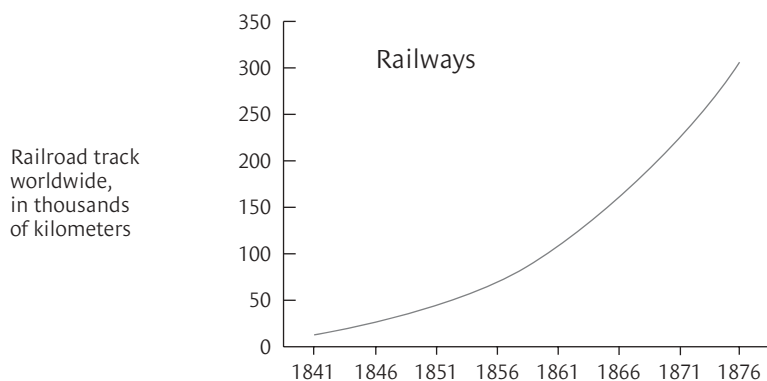
Even if that's true, the picture may not be as bleak as it seems for vendors, at least those with the foresight and skill to adapt to the new environment. The importance of infrastructural technologies to the day-to-day operations of business means that they continue to absorb large amounts of corporate cash long after they have become commodities—indeinitely, in many cases. Virtually all companies today continue to spend heavily on electricity and phone service,

for example, and many manufacturers continue to spend a lot on rail transport. Moreover, the standardized nature of infrastructural technologies often leads to the establishment of lucrative monopolies and oligopolies.

Many technology vendors are already repositioning themselves and their products in response to the changes in the market. Microsoft's push to turn its Office software suite from a packaged good into an annual subscription service is a tacit acknowledgment that companies are losing their need—and their appetite—for constant upgrades. Dell has succeeded by exploiting the commoditization of the PC market and is now extending that strategy to servers, storage, and even services. (Michael Dell's essential genius has always been his unsentimental trust in the commoditization of information technology.) And many of the major suppliers of corporate IT, including Microsoft, IBM, Sun, and Oracle, are battling to position themselves as dominant suppliers of “Web services”—to turn themselves, in effect, into utilities. This war for scale, combined with the continuing transformation of IT into a commodity, will lead to the further consolidation of many sectors of the IT industry. The winners will do very well; the losers will be gone.

## The Sprint to Commoditization

One of the most salient characteristics of infrastructural technologies is the rapidity of their installation. Spurred by massive investment, capacity soon skyrockets, leading to falling prices and, quickly, commoditization.



Sources: railways: Eric Hobsbawm, *The Age of Capital* (Vintage, 1996); electric power: Richard B. Duboff, *Electric Power in Manufacturing, 1889–1958* (Arno, 1979); Internet hosts: Robert H. Zakon, *Hobbes' Internet Timeline* ([www.zakon.org/robert/internet/timeline/](http://www.zakon.org/robert/internet/timeline/)).

rendering proprietary communication systems unattractive to their users and uneconomical to their owners. Indeed, in an ironic, if predictable, twist, the closed nature and outdated technology of AHS's system turned it from an asset to a liability. By the dawn of the 1990s, after AHS had merged with Baxter Travenol to form Baxter International, the company's senior executives had come to view ASAP as "a millstone around their necks," according to a Harvard Business School case study.

Myriad other companies have gained important advantages through the innovative deployment of IT. Some, like American Airlines with its Sabre reservation system, Federal Express with its package-tracking system, and Mobil Oil with its automated Speedpass payment system, used IT to gain particular operating or marketing advantages—to leapfrog the competition in one process or activity. Others, like Reuters with its 1970s financial information network or, more recently, eBay with its Internet auctions, had superior insight into the way IT would fundamentally change an industry and were able to stake out commanding positions. In a few cases, the dominance companies gained through IT innovation conferred additional advantages, such as scale economies and brand recognition, that have proved more durable than the original technological edge. Wal-Mart and Dell Computer are renowned examples of firms that have been able to turn temporary technological advantages into enduring positioning advantages.

But the opportunities for gaining IT-based advantages are already dwindling. Best practices are now quickly built into software or otherwise replicated. And as for IT-spurred industry transformations, most of the ones that are going to happen have likely already happened or are in the process of happening. Industries and markets will continue to evolve, of course, and some will undergo fundamental changes—the future of the music business, for example, continues to be in doubt. But history shows that the power of an infrastructural technology to transform industries always diminishes as its buildout nears completion.

While no one can say precisely when the buildout of an infrastructural technology has concluded, there are many signs that the IT buildout is much closer to its end than its beginning. First, IT's power is outstripping most of the business needs it fulfills. Second, the price

of essential IT functionality has dropped to the point where it is more or less affordable to all. Third, the capacity of the universal distribution network (the Internet) has caught up with demand—indeed, we already have considerably more fiber-optic capacity than we need. Fourth, IT vendors are rushing to position themselves as commodity suppliers or even as utilities. Finally, and most definitively, the investment bubble has burst, which historically has been a clear indication that an infrastructural technology is reaching the end of its buildout. A few companies may still be able to wrest advantages from highly specialized applications that don't offer strong economic incentives for replication, but those firms will be the exceptions that prove the rule.

At the close of the 1990s, when Internet hype was at full boil, technologists offered grand visions of an emerging “digital future.” It may well be that, in terms of business strategy at least, the future has already arrived.

### From Offense to Defense

So what should companies do? From a practical standpoint, the most important lesson to be learned from earlier infrastructural technologies may be this: When a resource be-

comes essential to competition but inconsequential to strategy, the risks it creates become more important than the advantages it provides. Think of electricity. Today, no company builds its business strategy around its electricity usage, but even a brief lapse in supply can be devastating (as some California businesses discovered during the energy crisis of 2000). The operational risks associated with IT are many—technical glitches, obsolescence, service outages, unreliable vendors or partners, security breaches, even terrorism—and some have become magnified as companies have moved from tightly controlled, proprietary systems to open, shared ones. Today, an IT disruption can paralyze a company's ability to make its products, deliver its services, and connect with its customers, not to mention foul its reputation. Yet few companies have done a thorough job of identifying and tempering their vulnerabilities. Worrying about what might go wrong may not be as glamorous a job as speculating about the future, but it is a more essential job right now. (See the sidebar “New Rules for IT Management.”)

In the long run, though, the greatest IT risk facing most companies is more prosaic than a catastrophe. It is, simply, overspending. IT may be a commodity, and its costs may fall rapidly enough to ensure that any new capabilities are quickly shared, but the very fact that it is entwined with so many business functions means that it will continue to consume a large portion of corporate spending. For most companies, just staying in business will require big outlays for IT. What's important—and this holds true for any commodity input—is to be able to separate essential investments from ones that are discretionary, unnecessary, or even counterproductive.

At a high level, stronger cost management requires more rigor in evaluating expected returns from systems investments, more creativity in exploring simpler and cheaper alternatives, and a greater openness to outsourcing and other partnerships. But most companies can also reap significant savings by simply cutting out waste. Personal computers are a good example. Every year, businesses purchase more than 100 million PCs, most of which replace older models. Yet the vast majority of workers who use PCs rely on only a few simple applications—word processing, spreadsheets, e-mail,

## New Rules for IT Management

With the opportunities for gaining strategic advantage from information technology rapidly disappearing, many companies will want to take a hard look at how they invest in IT and manage their systems. As a starting point, here are three guidelines for the future:

**Spend less.** Studies show that the companies with the biggest IT investments rarely post the best financial results. As the commoditization of IT continues, the penalties for wasteful spending will only grow larger. It is getting much harder to achieve a competitive advantage through an IT investment, but it is getting much easier to put your business at a cost disadvantage.

**Follow, don't lead.** Moore's Law guarantees that the longer you wait to make an IT purchase, the more you'll get for your money. And waiting will de-

crease your risk of buying something technologically flawed or doomed to rapid obsolescence. In some cases, being on the cutting edge makes sense. But those cases are becoming rarer and rarer as IT capabilities become more homogenized.

**Focus on vulnerabilities, not opportunities.** It's unusual for a company to gain a competitive advantage through the distinctive use of a mature infrastructural technology, but even a brief disruption in the availability of the technology can be devastating. As corporations continue to cede control over their IT applications and networks to vendors and other third parties, the threats they face will proliferate. They need to prepare themselves for technical glitches, outages, and security breaches, shifting their attention from opportunities to vulnerabilities.

and Web browsing. These applications have been technologically mature for years; they require only a fraction of the computing power provided by today's microprocessors. Nevertheless, companies continue to roll out across-the-board hardware and software upgrades.


Much of that spending, if truth be told, is driven by vendors' strategies. Big hardware and software suppliers have become very good at parceling out new features and capabilities in ways that force companies into buying new computers, applications, and networking equipment much more frequently than they need to. The time has come for IT buyers to throw their weight around, to negotiate contracts that ensure the long-term usefulness of their PC investments and impose hard limits on upgrade costs. And if vendors balk, companies should be willing to explore cheaper solutions, including open-source applications and bare-bones network PCs, even if it means sacrificing features. If a company needs evidence of the kind of money that might be saved, it need only look at Microsoft's profit margin.

In addition to being passive in their purchasing, companies have been sloppy in their use of IT. That's particularly true with data storage, which has come to account for more than half of many companies' IT expenditures. The bulk of what's being stored on corporate networks has little to do with making products or serving customers—it consists of employees' saved e-mails and files, including terabytes of spam, MP3s, and video clips. *Computerworld* estimates that as much as 70% of the storage capacity of a typical Windows network is wasted—an enormous unnecessary expense. Restricting employees' ability to save files indiscriminately and indefinitely may seem distasteful to many managers, but it can have a real impact on the bottom line. Now that IT has become the dominant capital expense for most businesses, there's no excuse for waste and sloppiness.

Given the rapid pace of technology's advance, delaying IT investments can be another powerful way to cut costs—while also reducing a firm's chance of being saddled with buggy or soon-to-be-obsolete technology. Many companies, particularly during the 1990s, rushed their IT investments either because they hoped to capture a first-mover advantage or because they feared being left behind. Except in very rare cases, both the hope and the fear were un-

warranted. The smartest users of technology—here again, Dell and Wal-Mart stand out—stay well back from the cutting edge, waiting to make purchases until standards and best practices solidify. They let their impatient competitors shoulder the high costs of experimentation, and then they sweep past them, spending less and getting more.

Some managers may worry that being stingy with IT dollars will damage their competitive positions. But studies of corporate IT spending consistently show that greater expenditures rarely translate into superior financial results. In fact, the opposite is usually true. In 2002, the consulting firm Alinean compared the IT expenditures and the financial results of 7,500 large U.S. companies and discovered that the top performers tended to be among the most tightfisted. The 25 companies that delivered the highest economic returns, for example, spent on average just 0.8% of their revenues on IT, while the typical company spent 3.7%. A recent study by Forrester Research showed, similarly, that the most lavish spenders on IT rarely post the best results. Even Oracle's Larry Ellison, one of the great technology salesmen, admitted in a recent interview that "most companies spend too much [on IT] and get very little in return." As the opportunities for IT-based advantage continue to narrow, the penalties for overspending will only grow.

IT management should, frankly, become boring. The key to success, for the vast majority of companies, is no longer to seek advantage aggressively but to manage costs and risks meticulously. If, like many executives, you've begun to take a more defensive posture toward IT in the last two years, spending more frugally and thinking more pragmatically, you're already on the right course. The challenge will be to maintain that discipline when the business cycle strengthens and the chorus of hype about IT's strategic value rises anew. 

1. "Information technology" is a fuzzy term. In this article, it is used in its common current sense, as denoting the technologies used for processing, storing, and transporting information in digital form.

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*Studies of corporate IT spending consistently show that greater expenditures rarely translate into superior financial results. In fact, the opposite is usually true.*

# IT Doesn't Matter

## Further Reading

### ARTICLES

#### [What Is Strategy?](#)

by Michael E. Porter  
*Harvard Business Review*  
 December 1996  
 Product no. 4134

In this article, Porter builds the conceptual framework for understanding why IT is no longer a source of strategic advantage. He explains the dynamics of **strategic positioning**—and the forces dulling a company's competitive edge—by examining strategy through the lens of operational effectiveness. Companies can reap enormous advantages from operational effectiveness—creating, producing, selling, and delivering their offerings faster or better than rivals. But best practices are easily copied. As competitors adopt them, their *industry* enjoys absolute improvement in operational effectiveness. But individual *companies* see no relative improvement.

To maintain their strategic positioning, companies must perform different activities from rivals, or perform similar activities differently. Three principles can help: 1) *Adopt a unique position.* Will you, for example, serve few needs of many customers? (Jiffy Lube provides only auto lubricants.) Broad needs of few customers? (Bessemer Trust targets only high-wealth clients.) 2) *Make trade-offs between incompatible competitive activities.* Neutrogena positions its soap as a medicinal product—marketing directly to doctors and in medical journals rather than through supermarkets and price promotions. 3) *Create "fit" across all of your company's activities.* When activities mutually reinforce each other, competitors can't easily copy them. When Continental Lite tried to match several of Southwest Airlines' activities, but not the whole interlocking system, the effort failed.

#### [Six IT Decisions Your IT People Shouldn't Make](#)

by Jeanne W. Ross and Peter Weill  
*Harvard Business Review*  
 November 2002  
 Product no. 2160

These authors concur that investing in IT for technology's sake erodes your company's competitive advantage. Before spending, clarify your company's strategy, then ensure that all your IT decisions support that strategy. How? Reclaim six crucial decisions about strategy and execution from your IT managers.

**Strategy decisions:** 1) "How much should we spend on IT?" Define crystal-clear goals, then set IT funding to achieve them. 2) "Which business processes should receive IT dollars?" Fund only IT initiatives that will further your company's strategy. 3) "Which IT capabilities should be firmwide?" Weigh trade-offs between money saved by centralizing IT capabilities—and flexibility lost.

**Execution decisions:** 4) "How good must our IT services be?" Don't let IT managers demand "Cadillac" service when a "Buick" will do. 5) "What security and privacy risks will we accept?" Weigh trade-offs between privacy versus convenience. 6) "Whom do we blame if an IT initiative fails?" IT managers' responsibility is to deliver systems on time and within budget. Your job is to make organizational changes that generate business value from those systems. Designate "sponsors" to assign resources to IT initiatives, establish success metrics, and oversee implementation.

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# Strategy and the Internet

by Michael E. Porter

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14 [Article Summary](#)

The Idea in Brief—*the core idea*

The Idea in Practice—*putting the idea to work*

15 [Strategy and the Internet](#)

33 [Further Reading](#)

A list of related materials, with annotations to guide further exploration of the article's ideas and applications

# Strategy and the Internet

## The Idea in Brief

Does the Internet render established rules about strategy obsolete? To the contrary, it makes them more vital than ever.

Why? The Internet weakens industries' profitability, as rivals compete on price alone. And it no longer provides proprietary advantages, as virtually all companies now use the Web.

The Internet is no more than a tool—albeit a powerful one—that can support or damage your firm's strategic positioning. The key to using it most effectively? *Integrate* Internet initiatives into your company's overall strategy and operations so that they 1) complement, rather than cannibalize, your established competitive approaches and 2) create systemic advantages that your competitors can't copy.

Integrating Internet initiatives enhances your company's ability to develop unique products, proprietary content, distinctive processes, and strong personal service—all the things that create true value, and that have always defined competitive advantage.

## The Idea in Practice

### THE INTERNET'S INFLUENCE

The Internet powerfully influences industry structure and sustainable competitive advantage.

**Industry structure** derives from the basic forces of competition: competitor rivalry; entry barriers for new competitors; the threat of substitute offerings; and the bargaining power of suppliers, channels, and buyers. How does the Internet affect these forces?

- It's an open system whose technological advances level most industries' playing fields—thus intensifying competitive rivalry and reducing entry barriers.
- It dramatically increases available information, shifting bargaining power to buyers.

**Sustainable competitive advantage** comes from operational effectiveness (doing what your competitors do, but better) or strategic positioning (delivering unique value to customers by doing things *differently* than your competitors).

Most companies define Internet competition in terms of operational effectiveness (speed, flexibility, efficiency). But because competitors can easily copy your firm's advances in these areas, strategic positioning becomes most important.

### THE INTERNET AS STRATEGIC COMPLEMENT

Although the Internet makes it difficult to sustain operational effectiveness, it makes it easier to maintain strategic positioning. How?

- It lets you create a customized, common information technology platform for all your company's activities—resulting in unique, integrated systems that reinforce the strategic fit among your firm's many functions. Even better, competitors can't easily imitate these systems.
- Rather than cannibalizing your traditional ways of competing, it can complement

them. For example, the Walgreens drug-store chain provides on-line prescription ordering. Because 90% of customers who order over the Web prefer to pick up their prescriptions at a store, Walgreens brick-and-mortar business benefits.

- By integrating virtual and physical activities to compensate for the Internet's performance limits (e.g., customers can't physically touch and test products), companies gain competitive advantage. For example, if you use your Web site to attract customers and draw them to flesh-and-blood salespeople who provide personalized advice and after-sales service, you reinforce connections—and strengthen sales.

The question isn't whether you should use the Internet or traditional methods to compete; it's how you can use *both* to your greatest strategic advantage.

*Many have argued that the Internet renders strategy obsolete. In reality, the opposite is true. Because the Internet tends to weaken industry profitability without providing proprietary operational advantages, it is more important than ever for companies to distinguish themselves through strategy. The winners will be those that view the Internet as a complement to, not a cannibal of, traditional ways of competing.*

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# Strategy and the Internet

by Michael E. Porter

The Internet is an extremely important new technology, and it is no surprise that it has received so much attention from entrepreneurs, executives, investors, and business observers. Caught up in the general fervor, many have assumed that the Internet changes everything, rendering all the old rules about companies and competition obsolete. That may be a natural reaction, but it is a dangerous one. It has led many companies, dot-coms and incumbents alike, to make bad decisions—decisions that have eroded the attractiveness of their industries and undermined their own competitive advantages. Some companies, for example, have used Internet technology to shift the basis of competition away from quality, features, and service and toward price, making it harder for anyone in their industries to turn a profit. Others have forfeited important proprietary advantages by rushing into misguided partnerships and outsourcing relationships. Until recently, the negative effects of these actions have been obscured by distorted signals from the marketplace. Now, however, the

consequences are becoming evident.

The time has come to take a clearer view of the Internet. We need to move away from the rhetoric about “Internet industries,” “e-business strategies,” and a “new economy” and see the Internet for what it is: an enabling technology—a powerful set of tools that can be used, wisely or unwisely, in almost any industry and as part of almost any strategy. We need to ask fundamental questions: Who will capture the economic benefits that the Internet creates? Will all the value end up going to customers, or will companies be able to reap a share of it? What will be the Internet’s impact on industry structure? Will it expand or shrink the pool of profits? And what will be its impact on strategy? Will the Internet bolster or erode the ability of companies to gain sustainable advantages over their competitors?

In addressing these questions, much of what we find is unsettling. I believe that the experiences companies have had with the Internet thus far must be largely discounted and that many of the lessons learned must be forgotten.



When seen with fresh eyes, it becomes clear that the Internet is not necessarily a blessing. It tends to alter industry structures in ways that dampen overall profitability, and it has a leveling effect on business practices, reducing the ability of any company to establish an operational advantage that can be sustained.

The key question is not whether to deploy Internet technology—companies have no choice if they want to stay competitive—but how to deploy it. Here, there is reason for optimism. Internet technology provides better opportunities for companies to establish distinctive strategic positionings than did previous generations of information technology. Gaining such a competitive advantage does not require a radically new approach to business. It requires building on the proven principles of effective strategy. The Internet per se will rarely be a competitive advantage. Many of the companies that succeed will be ones that use the Internet as a complement to traditional ways of competing, not those that set their Internet initiatives apart from their established operations. That is particularly good news for established companies, which are often in the best position to meld Internet and traditional approaches in ways that buttress existing advantages. But dot-coms can also be winners—if they understand the trade-offs between Internet and traditional approaches and can fashion truly distinctive strategies. Far from making strategy less important, as some have argued, the Internet actually makes strategy more essential than ever.

### Distorted Market Signals

Companies that have deployed Internet technology have been confused by distorted market signals, often of their own creation. It is understandable, when confronted with a new business phenomenon, to look to marketplace outcomes for guidance. But in the early stages of the rollout of any important new technology, market signals can be unreliable. New technologies trigger rampant experimentation, by both companies and customers, and the experimentation is often economically unsustainable. As a result, market behavior is distorted and must be interpreted with caution.

That is certainly the case with the Internet. Consider the revenue side of the profit equation in industries in which Internet technology is widely used. Sales figures have been unreli-

able for three reasons. First, many companies have subsidized the purchase of their products and services in hopes of staking out a position on the Internet and attracting a base of customers. (Governments have also subsidized on-line shopping by exempting it from sales taxes.) Buyers have been able to purchase goods at heavy discounts, or even obtain them for free, rather than pay prices that reflect true costs. When prices are artificially low, unit demand becomes artificially high. Second, many buyers have been drawn to the Internet out of curiosity; they have been willing to conduct transactions on-line even when the benefits have been uncertain or limited. If Amazon.com offers an equal or lower price than a conventional bookstore and free or subsidized shipping, why not try it as an experiment? Sooner or later, though, some customers can be expected to return to more traditional modes of commerce, especially if subsidies end, making any assessment of customer loyalty based on conditions so far suspect. Finally, some “revenues” from on-line commerce have been received in the form of stock rather than cash. Much of the estimated \$450 million in revenues that Amazon has recognized from its corporate partners, for example, has come as stock. The sustainability of such revenue is questionable, and its true value hinges on fluctuations in stock prices.

If revenue is an elusive concept on the Internet, cost is equally fuzzy. Many companies doing business on-line have enjoyed subsidized inputs. Their suppliers, eager to affiliate themselves with and learn from dot-com leaders, have provided products, services, and content at heavily discounted prices. Many content providers, for example, rushed to provide their information to Yahoo! for next to nothing in hopes of establishing a beachhead on one of the Internet’s most visited sites. Some providers have even paid popular portals to distribute their content. Further masking true costs, many suppliers—not to mention employees—have agreed to accept equity, warrants, or stock options from Internet-related companies and ventures in payment for their services or products. Payment in equity does not appear on the income statement, but it is a real cost to shareholders. Such supplier practices have artificially depressed the costs of doing business on the Internet, making it appear more attractive than it really is. Finally, costs have been

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*Internet technology provides better opportunities for companies to establish distinctive strategic positionings than did previous generations of information technology.*

distorted by the systematic understatement of the need for capital. Company after company touted the low asset intensity of doing business on-line, only to find that inventory, warehouses, and other investments were necessary to provide value to customers.

Signals from the stock market have been even more unreliable. Responding to investor enthusiasm over the Internet's explosive growth, stock valuations became decoupled from business fundamentals. They no longer provided an accurate guide as to whether real economic value was being created. Any company that has made competitive decisions based on influencing near-term share price or responding to investor sentiments has put itself at risk.

Distorted revenues, costs, and share prices have been matched by the unreliability of the financial metrics that companies have adopted. The executives of companies conducting business over the Internet have, conveniently, downplayed traditional measures of profitability and economic value. Instead, they have emphasized expansive definitions of revenue, numbers of customers, or, even more suspect, measures that might someday correlate with revenue, such as numbers of unique users ("reach"), numbers of site visitors, or click-through rates. Creative accounting approaches have also multiplied. Indeed, the Internet has given rise to an array of new performance metrics that have only a loose relationship to economic value, such as pro forma measures of income that remove "non-recurring" costs like acquisitions. The dubious connection between reported metrics and actual profitability has served only to amplify the confusing signals about what has been working in the marketplace. The fact that those metrics have been taken seriously by the stock market has muddied the waters even further. For all these reasons, the true financial performance of many Internet-related businesses is even worse than has been stated.

One might argue that the simple proliferation of dot-coms is a sign of the economic value of the Internet. Such a conclusion is premature at best. Dot-coms multiplied so rapidly for one major reason: they were able to raise capital without having to demonstrate viability. Rather than signaling a healthy business environment, the sheer number of dot-coms in many industries often revealed nothing more

than the existence of low barriers to entry, always a danger sign.

### **A Return to Fundamentals**

It is hard to come to any firm understanding of the impact of the Internet on business by looking at the results to date. But two broad conclusions can be drawn. First, many businesses active on the Internet are artificial businesses competing by artificial means and propped up by capital that until recently had been readily available. Second, in periods of transition such as the one we have been going through, it often appears as if there are new rules of competition. But as market forces play out, as they are now, the old rules regain their currency. The creation of true economic value once again becomes the final arbiter of business success.

Economic value for a company is nothing more than the gap between price and cost, and it is reliably measured only by sustained profitability. To generate revenues, reduce expenses, or simply do something useful by deploying Internet technology is not sufficient evidence that value has been created. Nor is a company's current stock price necessarily an indicator of economic value. Shareholder value is a reliable measure of economic value only over the long run.

In thinking about economic value, it is useful to draw a distinction between the uses of the Internet (such as operating digital marketplaces, selling toys, or trading securities) and Internet technologies (such as site-customization tools or real-time communications services), which can be deployed across many uses. Many have pointed to the success of technology providers as evidence of the Internet's economic value. But this thinking is faulty. It is the uses of the Internet that ultimately create economic value. Technology providers can prosper for a time irrespective of whether the uses of the Internet are profitable. In periods of heavy experimentation, even sellers of flawed technologies can thrive. But unless the uses generate sustainable revenues or savings in excess of their cost of deployment, the opportunity for technology providers will shrivel as companies realize that further investment is economically unsound.

So how can the Internet be used to create economic value? To find the answer, we need to look beyond the immediate market signals

to the two fundamental factors that determine profitability:

- *industry structure*, which determines the profitability of the average competitor; and
- *sustainable competitive advantage*, which allows a company to outperform the average competitor.

These two underlying drivers of profitability are universal; they transcend any technology or type of business. At the same time, they vary widely by industry and company. The broad, supra-industry classifications so common in Internet parlance, such as business-to-consumer (or “B2C”) and business-to-business (or “B2B”) prove meaningless with respect to profitability. Potential profitability can be understood only by looking at individual industries and individual companies.

### **The Internet and Industry Structure**

The Internet has created some new industries, such as on-line auctions and digital marketplaces. However, its greatest impact has been to enable the reconfiguration of existing industries that had been constrained by high costs for communicating, gathering information, or accomplishing transactions. Distance learning, for example, has existed for decades, with about one million students enrolling in correspondence courses every year. The Internet has the potential to greatly expand distance learning, but it did not create the industry. Similarly, the Internet provides an efficient means to order products, but catalog retailers with toll-free numbers and automated fulfillment centers have been around for decades. The Internet only changes the front end of the process.

Whether an industry is new or old, its structural attractiveness is determined by five underlying forces of competition: the intensity of rivalry among existing competitors, the barriers to entry for new competitors, the threat of substitute products or services, the bargaining power of suppliers, and the bargaining power of buyers. In combination, these forces determine how the economic value created by any product, service, technology, or way of competing is divided between, on the one hand, companies in an industry and, on the other, customers, suppliers, distributors, substitutes, and potential new entrants. Although some have argued that today’s rapid pace of technological change makes industry analysis less

valuable, the opposite is true. Analyzing the forces illuminates an industry’s fundamental attractiveness, exposes the underlying drivers of average industry profitability, and provides insight into how profitability will evolve in the future. The five competitive forces still determine profitability even if suppliers, channels, substitutes, or competitors change.

Because the strength of each of the five forces varies considerably from industry to industry, it would be a mistake to draw general conclusions about the impact of the Internet on long-term industry profitability; each industry is affected in different ways. Nevertheless, an examination of a wide range of industries in which the Internet is playing a role reveals some clear trends, as summarized in the exhibit “How the Internet Influences Industry Structure.” Some of the trends are positive. For example, the Internet tends to dampen the bargaining power of channels by providing companies with new, more direct avenues to customers. The Internet can also boost an industry’s efficiency in various ways, expanding the overall size of the market by improving its position relative to traditional substitutes.

But most of the trends are negative. Internet technology provides buyers with easier access to information about products and suppliers, thus bolstering buyer bargaining power. The Internet mitigates the need for such things as an established sales force or access to existing channels, reducing barriers to entry. By enabling new approaches to meeting needs and performing functions, it creates new substitutes. Because it is an open system, companies have more difficulty maintaining proprietary offerings, thus intensifying the rivalry among competitors. The use of the Internet also tends to expand the geographic market, bringing many more companies into competition with one another. And Internet technologies tend to reduce variable costs and tilt cost structures toward fixed cost, creating significantly greater pressure for companies to engage in destructive price competition.

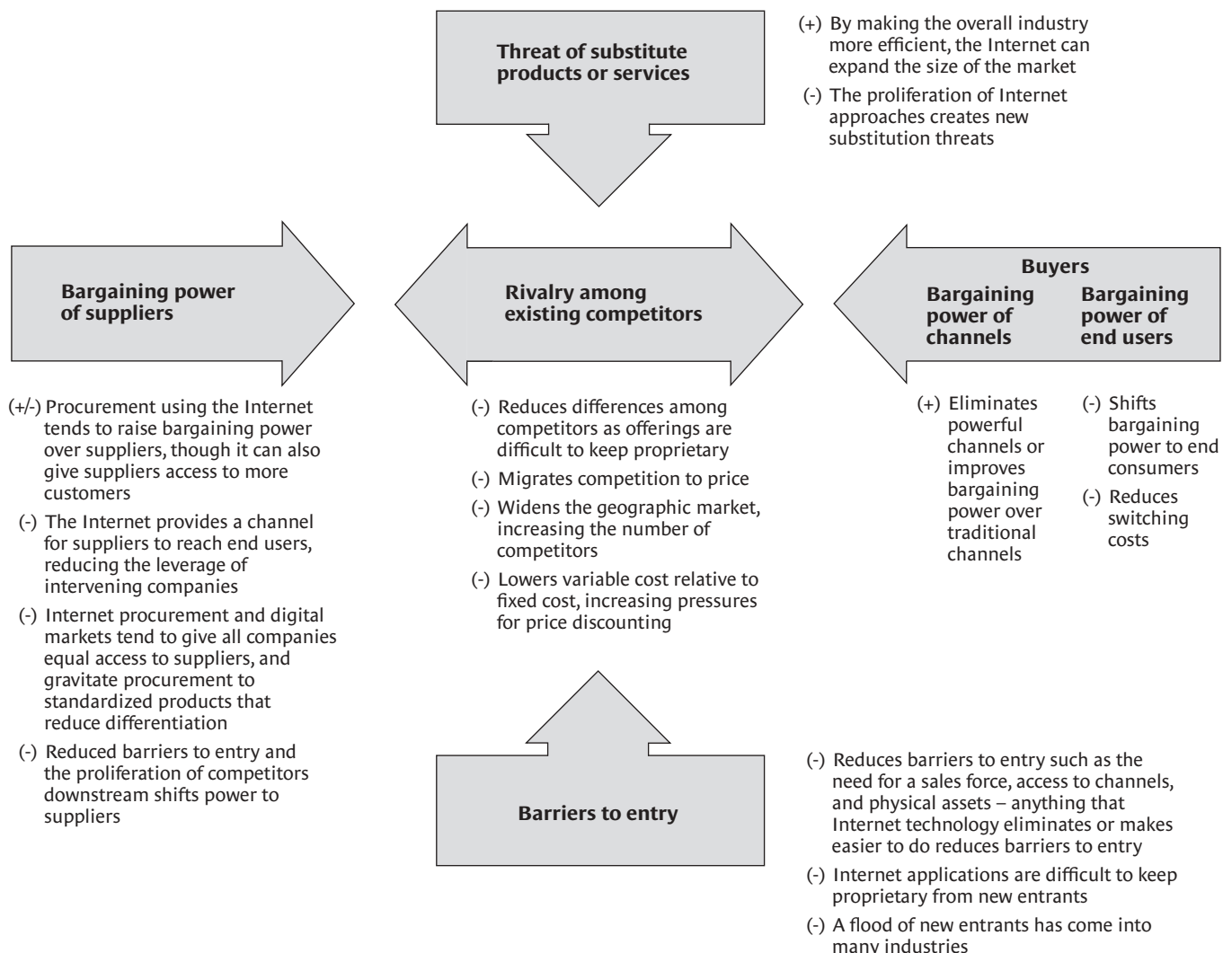
While deploying the Internet can expand the market, then, doing so often comes at the expense of average profitability. The great paradox of the Internet is that its very benefits—making information widely available; reducing the difficulty of purchasing, marketing, and distribution; allowing buyers and sellers to find and transact business with one another more

easily—also make it more difficult for companies to capture those benefits as profits.

We can see this dynamic at work in automobile retailing. The Internet allows customers to gather extensive information about products easily, from detailed specifications and repair records to wholesale prices for new cars and average values for used cars. Customers can also choose among many more options from which to buy, not just local dealers but also various types of Internet referral networks (such as Autoweb and AutoVantage) and on-

line direct dealers (such as Autobyte.com, AutoNation, and CarsDirect.com). Because the Internet reduces the importance of location, at least for the initial sale, it widens the geographic market from local to regional or national. Virtually every dealer or dealer group becomes a potential competitor in the market. It is more difficult, moreover, for on-line dealers to differentiate themselves, as they lack potential points of distinction such as showrooms, personal selling, and service departments. With more competitors selling

## How the Internet Influences Industry Structure



This discussion is drawn from the author's research with David Sutton.  
For a fuller discussion, see M.E. Porter, *Competitive Strategy*, Free Press, 1980.

largely undifferentiated products, the basis for competition shifts ever more toward price. Clearly, the net effect on the industry's structure is negative.

That does not mean that every industry in which Internet technology is being applied will be unattractive. For a contrasting example, look at Internet auctions. Here, customers and suppliers are fragmented and thus have little power. Substitutes, such as classified ads and flea markets, have less reach and are less convenient to use. And though the barriers to entry are relatively modest, companies can build economies of scale, both in infrastructure and, even more important, in the aggregation of many buyers and sellers, that deter new competitors or place them at a disadvantage. Finally, rivalry in this industry has been defined, largely by eBay, the dominant competitor, in terms of providing an easy-to-use marketplace in which revenue comes from listing and sales fees, while customers pay the cost of shipping. When Amazon and other rivals entered the business, offering free auctions, eBay maintained its prices and pursued other ways to attract and retain customers. As a result, the destructive price competition characteristic of other on-line businesses has been avoided.

eBay's role in the auction business provides an important lesson: industry structure is not fixed but rather is shaped to a considerable degree by the choices made by competitors. eBay has acted in ways that strengthen the profitability of its industry. In stark contrast, Buy.com, a prominent Internet retailer, acted in ways that undermined its industry, not to mention its own potential for competitive advantage. Buy.com achieved \$100 million in sales faster than any company in history, but it did so by defining competition solely on price. It sold products not only below full cost but at or below cost of goods sold, with the vain hope that it would make money in other ways. The company had no plan for being the low-cost provider; instead, it invested heavily in brand advertising and eschewed potential sources of differentiation by outsourcing all fulfillment and offering the bare minimum of customer service. It also gave up the opportunity to set itself apart from competitors by choosing not to focus on selling particular goods; it moved quickly beyond electronics, its initial category, into numerous other product categories in which it had no unique offering. Although the

company has been trying desperately to reposition itself, its early moves have proven extremely difficult to reverse.

### **The Myth of the First Mover**

Given the negative implications of the Internet for profitability, why was there such optimism, even euphoria, surrounding its adoption? One reason is that everyone tended to focus on what the Internet could do and how quickly its use was expanding rather than on how it was affecting industry structure. But the optimism can also be traced to a widespread belief that the Internet would unleash forces that would enhance industry profitability. Most notable was the general assumption that the deployment of the Internet would increase switching costs and create strong network effects, which would provide first movers with competitive advantages and robust profitability. First movers would reinforce these advantages by quickly establishing strong new-economy brands. The result would be an attractive industry for the victors. This thinking does not, however, hold up to close examination.

Consider switching costs. Switching costs encompass all the costs incurred by a customer in changing to a new supplier—everything from hashing out a new contract to reentering data to learning how to use a different product or service. As switching costs go up, customers' bargaining power falls and the barriers to entry into an industry rise. While switching costs are nothing new, some observers argued that the Internet would raise them substantially. A buyer would grow familiar with one company's user interface and would not want to bear the cost of finding, registering with, and learning to use a competitor's site, or, in the case of industrial customers, integrating a competitor's systems with its own. Moreover, since Internet commerce allows a company to accumulate knowledge of customers' buying behavior, the company would be able to provide more tailored offerings, better service, and greater purchasing convenience—all of which buyers would be loath to forfeit. When people talk about the "stickiness" of Web sites, what they are often talking about is high switching costs.

In reality, though, switching costs are likely to be lower, not higher, on the Internet than they are for traditional ways of doing business,

including approaches using earlier generations of information systems such as EDI. On the Internet, buyers can often switch suppliers with just a few mouse clicks, and new Web technologies are systematically reducing switching costs even further. For example, companies like PayPal provide settlement services or Internet currency—so-called e-wallets—that enable customers to shop at different sites without having to enter personal information and credit card numbers. Content-consolidation tools such as OnePage allow users to avoid having to go back to sites over and over to retrieve information by enabling them to build customized Web pages that draw needed information dynamically from many sites. And the widespread adoption of XML standards will free companies from the need to reconfigure proprietary ordering systems and to create new procurement and logistical protocols when changing suppliers.

What about network effects, through which products or services become more valuable as more customers use them? A number of important Internet applications display network effects, including e-mail, instant messaging, auctions, and on-line message boards or chat rooms. Where such effects are significant, they can create demand-side economies of scale and raise barriers to entry. This, it has been widely argued, sets off a winner-take-all competition, leading to the eventual dominance of one or two companies.

But it is not enough for network effects to be present; to provide barriers to entry they also have to be proprietary to one company. The openness of the Internet, with its common standards and protocols and its ease of navigation, makes it difficult for a single company to capture the benefits of a network effect. (America Online, which has managed to maintain borders around its on-line community, is an exception, not the rule.) And even if a company is lucky enough to control a network effect, the effect often reaches a point of diminishing returns once there is a critical mass of customers. Moreover, network effects are subject to a self-limiting mechanism. A particular product or service first attracts the customers whose needs it best meets. As penetration grows, however, it will tend to become less effective in meeting the needs of the remaining customers in the market, providing an opening for competitors with different offerings. Fi-

nally, creating a network effect requires a large investment that may offset future benefits. The network effect is, in many respects, akin to the experience curve, which was also supposed to lead to market-share dominance—through cost advantages, in that case. The experience curve was an oversimplification, and the single-minded pursuit of experience curve advantages proved disastrous in many industries.

Internet brands have also proven difficult to build, perhaps because the lack of physical presence and direct human contact makes virtual businesses less tangible to customers than traditional businesses. Despite huge outlays on advertising, product discounts, and purchasing incentives, most dot-com brands have not approached the power of established brands, achieving only a modest impact on loyalty and barriers to entry.

Another myth that has generated unfounded enthusiasm for the Internet is that partnering is a win-win means to improve industry economics. While partnering is a well-established strategy, the use of Internet technology has made it much more widespread. Partnering takes two forms. The first involves complements: products that are used in tandem with another industry's product. Computer software, for example, is a complement to computer hardware. In Internet commerce, complements have proliferated as companies have sought to offer broader arrays of products, services, and information. Partnering to assemble complements, often with companies who are also competitors, has been seen as a way to speed industry growth and move away from narrow-minded, destructive competition.

But this approach reveals an incomplete understanding of the role of complements in competition. Complements are frequently important to an industry's growth—spreadsheet applications, for example, accelerated the expansion of the personal computer industry—but they have no direct relationship to industry profitability. While a close substitute reduces potential profitability, for example, a close complement can exert either a positive or a negative influence. Complements affect industry profitability indirectly through their influence on the five competitive forces. If a complement raises switching costs for the combined product offering, it can raise profitability. But if a complement works to standard-

*Another myth that has generated unfounded enthusiasm for the Internet is that partnering is a win-win means to improve industry economics.*

ize the industry's product offering, as Microsoft's operating system has done in personal computers, it will increase rivalry and depress profitability.

With the Internet, widespread partnering with producers of complements is just as likely to exacerbate an industry's structural problems as mitigate them. As partnerships proliferate, companies tend to become more alike, which heats up rivalry. Instead of focusing on their own strategic goals, moreover, companies are forced to balance the many potentially conflicting objectives of their partners while also educating them about the business. Rivalry often becomes more unstable, and since producers of complements can be potential competitors, the threat of entry increases.

Another common form of partnering is outsourcing. Internet technologies have made it easier for companies to coordinate with their suppliers, giving widespread currency to the notion of the "virtual enterprise"—a business created largely out of purchased products, components, and services. While extensive outsourcing can reduce near-term costs and improve flexibility, it has a dark side when it comes to industry structure. As competitors turn to the same vendors, purchased inputs become more homogeneous, eroding company distinctiveness and increasing price competition. Outsourcing also usually lowers barriers to entry because a new entrant need only assemble purchased inputs rather than build its own capabilities. In addition, companies lose control over important elements of their business, and crucial experience in components, assembly, or services shifts to suppliers, enhancing their power in the long run.

### **The Future of Internet Competition**

While each industry will evolve in unique ways, an examination of the forces influencing industry structure indicates that the deployment of Internet technology will likely continue to put pressure on the profitability of many industries. Consider the intensity of competition, for example. Many dot-coms are going out of business, which would seem to indicate that consolidation will take place and rivalry will be reduced. But while some consolidation among new players is inevitable, many established companies are now more familiar with Internet technology and are rapidly deploying on-line applications. With a combina-

tion of new and old companies and generally lower entry barriers, most industries will likely end up with a net increase in the number of competitors and fiercer rivalry than before the advent of the Internet.

The power of customers will also tend to rise. As buyers' initial curiosity with the Web wanes and subsidies end, companies offering products or services on-line will be forced to demonstrate that they provide real benefits. Already, customers appear to be losing interest in services like Priceline.com's reverse auctions because the savings they provide are often outweighed by the hassles involved. As customers become more familiar with the technology, their loyalty to their initial suppliers will also decline; they will realize that the cost of switching is low.

A similar shift will affect advertising-based strategies. Even now, advertisers are becoming more discriminating, and the rate of growth of Web advertising is slowing. Advertisers can be expected to continue to exercise their bargaining power to push down rates significantly, aided and abetted by new brokers of Internet advertising.

Not all the news is bad. Some technological advances will provide opportunities to enhance profitability. Improvements in streaming video and greater availability of low-cost bandwidth, for example, will make it easier for customer service representatives, or other company personnel, to speak directly to customers through their computers. Internet sellers will be able to better differentiate themselves and shift buyers' focus away from price. And services such as automatic bill paying by banks may modestly boost switching costs. In general, however, new Internet technologies will continue to erode profitability by shifting power to customers.

To understand the importance of thinking through the longer-term structural consequences of the Internet, consider the business of digital marketplaces. Such marketplaces automate corporate procurement by linking many buyers and suppliers electronically. The benefits to buyers include low transaction costs, easier access to price and product information, convenient purchase of associated services, and, sometimes, the ability to pool volume. The benefits to suppliers include lower selling costs, lower transaction costs, access to wider markets, and the avoidance of powerful

channels.

From an industry structure standpoint, the attractiveness of digital marketplaces varies depending on the products involved. The most important determinant of a marketplace's profit potential is the intrinsic power of the buyers and sellers in the particular product area. If either side is concentrated or possesses differentiated products, it will gain bargaining power over the marketplace and capture most of the value generated. If buyers and sellers are fragmented, however, their bargaining power will be weak, and the marketplace will have a much better chance of being profitable. Another important determinant of industry structure is the threat of substitution. If it is relatively easy for buyers and sellers to transact business directly with one another, or to set up their own dedicated markets, independent marketplaces will be unlikely to sustain high levels of profit. Finally, the ability to create barriers to entry is critical. Today, with dozens of marketplaces competing in some industries and with buyers and sellers dividing their purchases or operating their own markets to prevent any one marketplace from gaining power, it is clear that modest entry barriers are a real challenge to profitability.

Competition among digital marketplaces is in transition, and industry structure is evolving. Much of the economic value created by marketplaces derives from the standards they establish, both in the underlying technology platform and in the protocols for connecting and exchanging information. But once these standards are put in place, the added value of the marketplace may be limited. Anything buyers or suppliers provide to a marketplace, such as information on order specifications or inventory availability, can be readily provided on their own proprietary sites. Suppliers and customers can begin to deal directly on-line without the need for an intermediary. And new technologies will undoubtedly make it easier for parties to search for and exchange goods and information with one another.

In some product areas, marketplaces should enjoy ongoing advantages and attractive profitability. In fragmented industries such as real estate and furniture, for example, they could prosper. And new kinds of value-added services may arise that only an independent marketplace could provide. But in many product areas, marketplaces may be superseded by di-

rect dealing or by the unbundling of purchasing, information, financing, and logistical services; in other areas, they may be taken over by participants or industry associations as cost centers. In such cases, marketplaces will provide a valuable "public good" to participants but will not themselves be likely to reap any enduring benefits. Over the long haul, moreover, we may well see many buyers back away from open marketplaces. They may once again focus on building close, proprietary relationships with fewer suppliers, using Internet technologies to gain efficiency improvements in various aspects of those relationships.

### **The Internet and Competitive Advantage**

If average profitability is under pressure in many industries influenced by the Internet, it becomes all the more important for individual companies to set themselves apart from the pack—to be more profitable than the average performer. The only way to do so is by achieving a sustainable competitive advantage—by operating at a lower cost, by commanding a premium price, or by doing both. Cost and price advantages can be achieved in two ways. One is operational effectiveness—doing the same things your competitors do but doing them better. Operational effectiveness advantages can take myriad forms, including better technologies, superior inputs, better-trained people, or a more effective management structure. The other way to achieve advantage is strategic positioning—doing things differently from competitors, in a way that delivers a unique type of value to customers. This can mean offering a different set of features, a different array of services, or different logistical arrangements. The Internet affects operational effectiveness and strategic positioning in very different ways. It makes it harder for companies to sustain operational advantages, but it opens new opportunities for achieving or strengthening a distinctive strategic positioning.

**Operational Effectiveness.** The Internet is arguably the most powerful tool available today for enhancing operational effectiveness. By easing and speeding the exchange of real-time information, it enables improvements throughout the entire value chain, across almost every company and industry. And because it is an open platform with com-



mon standards, companies can often tap into its benefits with much less investment than was required to capitalize on past generations of information technology.

But simply improving operational effectiveness does not provide a competitive advantage. Companies only gain advantages if they are able to achieve and sustain higher levels of operational effectiveness than competitors. That is an exceedingly difficult proposition even in the best of circumstances. Once a company establishes a new best practice, its rivals tend to copy it quickly. Best practice competition eventually leads to competitive convergence, with many companies doing the same things in the same ways. Customers end up making decisions based on price, undermining industry profitability.

The nature of Internet applications makes it more difficult to sustain operational advantages than ever. In previous generations of information technology, application development was often complex, arduous, time consuming, and hugely expensive. These traits made it harder to gain an IT advantage, but they also made it difficult for competitors to imitate information systems. The openness of the Internet, combined with advances in software architecture, development tools, and modularity, makes it much easier for companies to design and implement applications. The drugstore chain CVS, for example, was able to roll out a complex Internet-based procurement application in just 60 days. As the fixed costs of developing systems decline, the barriers to imitation fall as well.

Today, nearly every company is developing similar types of Internet applications, often drawing on generic packages offered by third-party developers. The resulting improvements in operational effectiveness will be broadly shared, as companies converge on the same applications with the same benefits. Very rarely will individual companies be able to gain durable advantages from the deployment of “best-of-breed” applications.

**Strategic Positioning.** As it becomes harder to sustain operational advantages, strategic positioning becomes all the more important. If a company cannot be more operationally effective than its rivals, the only way to generate higher levels of economic value is to gain a cost advantage or price premium by competing in a distinctive way. Ironically, companies

today define competition involving the Internet almost entirely in terms of operational effectiveness. Believing that no sustainable advantages exist, they seek speed and agility, hoping to stay one step ahead of the competition. Of course, such an approach to competition becomes a self-fulfilling prophecy. Without a distinctive strategic direction, speed and flexibility lead nowhere. Either no unique competitive advantages are created, or improvements are generic and cannot be sustained.

Having a strategy is a matter of discipline. It requires a strong focus on profitability rather than just growth, an ability to define a unique value proposition, and a willingness to make tough trade-offs in choosing what not to do. A company must stay the course, even during times of upheaval, while constantly improving and extending its distinctive positioning. Strategy goes far beyond the pursuit of best practices. It involves the configuration of a tailored value chain—the series of activities required to produce and deliver a product or service—that enables a company to offer unique value. To be defensible, moreover, the value chain must be highly integrated. When a company’s activities fit together as a self-reinforcing system, any competitor wishing to imitate a strategy must replicate the whole system rather than copy just one or two discrete product features or ways of performing particular activities. (See the sidebar “The Six Principles of Strategic Positioning.”)

### The Absence of Strategy

Many of the pioneers of Internet business, both dot-coms and established companies, have competed in ways that violate nearly every precept of good strategy. Rather than focus on profits, they have sought to maximize revenue and market share at all costs, pursuing customers indiscriminately through discounting, giveaways, promotions, channel incentives, and heavy advertising. Rather than concentrate on delivering real value that earns an attractive price from customers, they have pursued indirect revenues from sources such as advertising and click-through fees from Internet commerce partners. Rather than make trade-offs, they have rushed to offer every conceivable product, service, or type of information. Rather than tailor the value chain in a unique way, they have aped

the activities of rivals. Rather than build and maintain control over proprietary assets and marketing channels, they have entered into a rash of partnerships and outsourcing relationships, further eroding their own distinctiveness. While it is true that some companies have avoided these mistakes, they are exceptions to the rule.

By ignoring strategy, many companies have undermined the structure of their industries, hastened competitive convergence, and reduced the likelihood that they or anyone else will gain a competitive advantage. A destructive, zero-sum form of competition has been set in motion that confuses the acquisition of customers with the building of profitability. Worse yet, price has been defined as the primary if not the sole competitive variable. Instead of emphasizing the Internet's ability to support convenience, service, specialization, customization, and other forms of value that

justify attractive prices, companies have turned competition into a race to the bottom. Once competition is defined this way, it is very difficult to turn back. (See the sidebar "Words for the Unwise: The Internet's Destructive Lexicon.")

Even well-established, well-run companies have been thrown off track by the Internet. Forgetting what they stand for or what makes them unique, they have rushed to implement hot Internet applications and copy the offerings of dot-coms. Industry leaders have compromised their existing competitive advantages by entering market segments to which they bring little that is distinctive. Merrill Lynch's move to imitate the low-cost on-line offerings of its trading rivals, for example, risks undermining its most precious advantage—its skilled brokers. And many established companies, reacting to misguided investor enthusiasm, have hastily cobbled together Internet

## The Six Principles of Strategic Positioning

To establish and maintain a distinctive strategic positioning, a company needs to follow six fundamental principles.

First, it must start with the *right goal*: superior long-term return on investment. Only by grounding strategy in sustained profitability will real economic value be generated. Economic value is created when customers are willing to pay a price for a product or service that exceeds the cost of producing it. When goals are defined in terms of volume or market share leadership, with profits assumed to follow, poor strategies often result. The same is true when strategies are set to respond to the perceived desires of investors.

Second, a company's strategy must enable it to deliver a *value proposition*, or set of benefits, different from those that competitors offer. Strategy, then, is neither a quest for the universally best way of competing nor an effort to be all things to every customer. It defines a way of competing that delivers unique value in a particular set of uses or for a particular set of customers.

Third, strategy needs to be reflected in a *distinctive value chain*. To establish a sustainable competitive advantage, a company must perform different activities than rivals

or perform similar activities in different ways. A company must configure the way it conducts manufacturing, logistics, service delivery, marketing, human resource management, and so on differently from rivals and tailored to its unique value proposition. If a company focuses on adopting best practices, it will end up performing most activities similarly to competitors, making it hard to gain an advantage.

Fourth, robust strategies involve *trade-offs*. A company must abandon or forgo some product features, services, or activities in order to be unique at others. Such trade-offs, in the product and in the value chain, are what make a company truly distinctive. When improvements in the product or in the value chain do not require trade-offs, they often become new best practices that are imitated because competitors can do so with no sacrifice to their existing ways of competing. Trying to be all things to all customers almost guarantees that a company will lack any advantage.

Fifth, strategy defines how all the elements of what a company does *fit* together. A strategy involves making choices throughout the value chain that are interdependent; all a company's activities must be mutually

reinforcing. A company's product design, for example, should reinforce its approach to the manufacturing process, and both should leverage the way it conducts after-sales service. Fit not only increases competitive advantage but also makes a strategy harder to imitate. Rivals can copy one activity or product feature fairly easily, but will have much more difficulty duplicating a whole system of competing. Without fit, discrete improvements in manufacturing, marketing, or distribution are quickly matched.

Finally, strategy involves *continuity* of direction. A company must define a distinctive value proposition that it will stand for, even if that means forgoing certain opportunities. Without continuity of direction, it is difficult for companies to develop unique skills and assets or build strong reputations with customers. Frequent corporate "reinvention," then, is usually a sign of poor strategic thinking and a route to mediocrity. Continuous improvement is a necessity, but it must always be guided by a strategic direction.

For a fuller description, see M.E. Porter, "What Is Strategy?" (HBR November–December 1996).

units in a mostly futile effort to boost their value in the stock market.

It did not have to be this way—and it does not have to be in the future. When it comes to reinforcing a distinctive strategy, tailoring activities, and enhancing fit, the Internet actually provides a better technological platform than previous generations of IT. Indeed, IT worked against strategy in the past. Packaged software applications were hard to customize, and companies were often forced to change the way they conducted activities in order to conform to the “best practices” embedded in the software. It was also extremely difficult to connect discrete applications to one another. Enterprise resource planning (ERP) systems linked activities, but again companies were forced to adapt their ways of doing things to the software. As a result, IT has been a force for standardizing activities and speeding competitive convergence.

Internet architecture, together with other improvements in software architecture and development tools, has turned IT into a far more powerful tool for strategy. It is much easier to customize packaged Internet applications to a company’s unique strategic positioning. By providing a common IT delivery platform across the value chain, Internet architecture and standards also make it possible to build

truly integrated and customized systems that reinforce the fit among activities. (See the sidebar “The Internet and the Value Chain.”)

To gain these advantages, however, companies need to stop their rush to adopt generic, “out of the box” packaged applications and instead tailor their deployment of Internet technology to their particular strategies. Although it remains more difficult to customize packaged applications, the very difficulty of the task contributes to the sustainability of the resulting competitive advantage.

### The Internet as Complement

To capitalize on the Internet’s strategic potential, executives and entrepreneurs alike will need to change their points of view. It has been widely assumed that the Internet is cannibalistic, that it will replace all conventional ways of doing business and overturn all traditional advantages. That is a vast exaggeration. There is no doubt that real trade-offs can exist between Internet and traditional activities. In the record industry, for example, on-line music distribution may reduce the need for CD-manufacturing assets. Overall, however, the trade-offs are modest in most industries. While the Internet will replace certain elements of industry value chains, the complete cannibalization of the value chain will be exceedingly rare. Even in the music business, many traditional activities—such as finding and promoting talented new artists, producing and recording music, and securing airplay—will continue to be highly important.

The risk of channel conflict also appears to have been overstated. As on-line sales have become more common, traditional channels that were initially skeptical of the Internet have embraced it. Far from always cannibalizing those channels, Internet technology can expand opportunities for many of them. The threat of disintermediation of channels appears considerably lower than initially predicted.

Frequently, in fact, Internet applications address activities that, while necessary, are not decisive in competition, such as informing customers, processing transactions, and procuring inputs. Critical corporate assets—skilled personnel, proprietary product technology, efficient logistical systems—remain intact, and they are often strong enough to preserve existing competitive advantages.

## Words for the Unwise: The Internet’s Destructive Lexicon

The misguided approach to competition that characterizes business on the Internet has even been embedded in the language used to discuss it. Instead of talking in terms of strategy and competitive advantage, dot-coms and other Internet players talk about “business models.” This seemingly innocuous shift in terminology speaks volumes. The definition of a business model is murky at best. Most often, it seems to refer to a loose conception of how a company does business and generates revenue. Yet simply having a business model is an exceedingly low bar to set for building a company. Generating revenue is a far cry from creating economic value, and no business model can be evaluated inde-

pendently of industry structure. The business model approach to management becomes an invitation for faulty thinking and self-delusion.

Other words in the Internet lexicon also have unfortunate consequences. The terms “e-business” and “e-strategy” have been particularly problematic. By encouraging managers to view their Internet operations in isolation from the rest of the business, they can lead to simplistic approaches to competing using the Internet and increase the pressure for competitive imitation. Established companies fail to integrate the Internet into their proven strategies and thus never harness their most important advantages.

In many cases, the Internet complements, rather than cannibalizes, companies' traditional activities and ways of competing. Consider Walgreens, the most successful pharmacy chain in the United States. Walgreens introduced a Web site that provides customers with extensive information and allows them to order prescriptions on-line. Far from cannibalizing the company's stores, the Web site has underscored their value. Fully 90% of customers who place orders over the Web prefer to pick up their prescriptions at a nearby store rather than have them shipped to their homes. Walgreens has found that its extensive network of stores remains a potent advantage, even as some ordering shifts to the Internet.

Another good example is W.W. Grainger, a distributor of maintenance products and spare parts to companies. A middleman with stocking locations all over the United States, Grainger would seem to be a textbook case of an old-economy company set to be made obso-

lete by the Internet. But Grainger rejected the assumption that the Internet would undermine its strategy. Instead, it tightly coordinated its aggressive on-line efforts with its traditional business. The results so far are revealing. Customers who purchase on-line also continue to purchase through other means—Grainger estimates a 9% incremental growth in sales for customers who use the on-line channel above the normalized sales of customers who use only traditional means. Grainger, like Walgreens, has also found that Web ordering increases the value of its physical locations. Like the buyers of prescription drugs, the buyers of industrial supplies often need their orders immediately. It is faster and cheaper for them to pick up supplies at a local Grainger outlet than to wait for delivery. Tightly integrating the site and stocking locations not only increases the overall value to customers, it reduces Grainger's costs as well. It is inherently more efficient to take and pro-

## The Internet and the Value Chain

The basic tool for understanding the influence of information technology on companies is the value chain—the set of activities through which a product or service is created and delivered to customers. When a company competes in any industry, it performs a number of discrete but interconnected value-creating activities, such as operating a sales force, fabricating a component, or delivering products, and these activities have points of connection with the activities of suppliers, channels, and customers. The value chain is a framework for identifying all these activities and analyzing how they affect both a company's costs and the value delivered to buyers.

Because every activity involves the creation, processing, and communication of information, information technology has a pervasive influence on the value chain. The special advantage of the Internet is the ability to link one activity with others and make real-time data created in one activity widely available, both within the company and with outside suppliers, channels, and customers. By incorporating a common, open set of communication protocols, Internet technology provides a standardized infrastructure, an intuitive browser interface for information access and delivery,

bidirectional communication, and ease of connectivity—all at much lower cost than private networks and electronic data interchange, or EDI.

Many of the most prominent applications of the Internet in the value chain are shown in the figure on the next page. Some involve moving physical activities on-line, while others involve making physical activities more cost effective.

But for all its power, the Internet does not represent a break from the past; rather, it is the latest stage in the ongoing evolution of information technology.<sup>1</sup> Indeed, the technological possibilities available today derive not just from the Internet architecture but also from complementary technological advances such as scanning, object-oriented programming, relational databases, and wireless communications.

To see how these technological improvements will ultimately affect the value chain, some historical perspective is illuminating.<sup>2</sup> The evolution of information technology in business can be thought of in terms of five overlapping stages, each of which evolved out of constraints presented by the previous generation. The earliest IT systems automated discrete transactions such as order entry and ac-

counting. The next stage involved the fuller automation and functional enhancement of individual activities such as human resource management, sales force operations, and product design. The third stage, which is being accelerated by the Internet, involves cross-activity integration, such as linking sales activities with order processing. Multiple activities are being linked together through such tools as customer relationship management (CRM), supply chain management (SCM), and enterprise resource planning (ERP) systems. The fourth stage, which is just beginning, enables the integration of the value chain and entire value system, that is, the set of value chains in an entire industry, encompassing those of tiers of suppliers, channels, and customers. SCM and CRM are starting to merge, as end-to-end applications involving customers, channels, and suppliers link orders to, for example, manufacturing, procurement, and service delivery. Soon to be integrated is product development, which has been largely separate. Complex product models will be exchanged among parties, and Internet procurement will move from standard commodities to engineered items.

In the upcoming fifth stage, information technology will be used not only to connect

the various activities and players in the value system but to optimize its workings in real time. Choices will be made based on information from multiple activities and corporate entities. Production decisions, for example, will automatically factor in the capacity available at multiple facilities and the inventory available at multiple suppliers. While early fifth-stage applications will involve relatively simple optimization of sourcing, production, logistical, and servicing transactions, the deeper levels of optimization will involve the

product design itself. For example, product design will be optimized and customized based on input not only from factories and suppliers but also from customers.

The power of the Internet in the value chain, however, must be kept in perspective. While Internet applications have an important influence on the cost and quality of activities, they are neither the only nor the dominant influence. Conventional factors such as scale, the skills of personnel, product and process technology, and in-

vestments in physical assets also play prominent roles. The Internet is transformational in some respects, but many traditional sources of competitive advantage remain intact.

1. See M.E. Porter and V.E. Millar, "How Information Gives You Competitive Advantage," (HBR July–August 1985) for a framework that helps put the Internet's current influence in context.
2. This discussion is drawn from the author's research with Philip Bligh.

### Prominent Applications of the Internet in the Value Chain

<p><b>Firm Infrastructure</b></p> <ul style="list-style-type: none"> <li>• Web-based, distributed financial and ERP systems</li> <li>• On-line investor relations (e.g., information dissemination, broadcast conference calls)</li> </ul>				
<p><b>Human Resource Management</b></p> <ul style="list-style-type: none"> <li>• Self-service personnel and benefits administration</li> <li>• Web-based training</li> <li>• Internet-based sharing and dissemination of company information</li> <li>• Electronic time and expense reporting</li> </ul>				
<p><b>Technology Development</b></p> <ul style="list-style-type: none"> <li>• Collaborative product design across locations and among multiple value-system participants</li> <li>• Knowledge directories accessible from all parts of the organization</li> <li>• Real-time access by R&amp;D to on-line sales and service information</li> </ul>				
<p><b>Procurement</b></p> <ul style="list-style-type: none"> <li>• Internet-enabled demand planning; real-time available-to-promise/capable-to-promise and fulfillment</li> <li>• Other linkage of purchase, inventory, and forecasting systems with suppliers</li> <li>• Automated "requisition to pay"</li> <li>• Direct and indirect procurement via marketplaces, exchanges, auctions, and buyer-seller matching</li> </ul>				
<p><b>Inbound Logistics</b></p> <ul style="list-style-type: none"> <li>• Real-time integrated scheduling, shipping, warehouse management, demand management and planning, and advanced planning and scheduling across the company and its suppliers</li> <li>• Dissemination throughout the company of real-time inbound and in-progress inventory data</li> </ul>	<p><b>Operations</b></p> <ul style="list-style-type: none"> <li>• Integrated information exchange, scheduling, and decision making in in-house plants, contract assemblers, and components suppliers</li> <li>• Real-time available-to-promise and capable-to-promise information available to the sales force and channels</li> </ul>	<p><b>Outbound Logistics</b></p> <ul style="list-style-type: none"> <li>• Real-time transaction of orders whether initiated by an end consumer, a sales person, or a channel partner</li> <li>• Automated customer-specific agreements and contract terms</li> <li>• Customer and channel access to product development and delivery status</li> <li>• Collaborative integration with customer forecasting systems</li> <li>• Integrated channel management including information exchange, warranty claims, and contract management (versioning, process control)</li> </ul>	<p><b>Marketing and Sales</b></p> <ul style="list-style-type: none"> <li>• On-line sales channels including Web sites and marketplaces</li> <li>• Real-time inside and outside access to customer information, product catalogs, dynamic pricing, inventory availability, on-line submission of quotes, and order entry</li> <li>• On-line product configurators</li> <li>• Customer-tailored marketing via customer profiling</li> <li>• Push advertising</li> <li>• Tailored on-line access</li> <li>• Real-time customer feedback through Web surveys, opt-in/opt-out marketing, and promotion response tracking</li> </ul>	<p><b>After-Sales Service</b></p> <ul style="list-style-type: none"> <li>• On-line support of customer service representatives through e-mail response management, billing integration, co-browse, chat, "call me now," voice-over-IP, and other uses of video streaming</li> <li>• Customer self-service via Web sites and intelligent service request processing including updates to billing and shipping profiles</li> <li>• Real-time field service access to customer account review, schematic review, parts availability and ordering, work-order update, and service parts management</li> </ul>
<p>← • Web-distributed supply chain management →</p>				

cess orders over the Web than to use traditional methods, but more efficient to make bulk deliveries to a local stocking location than to ship individual orders from a central warehouse.

Grainger has also found that its printed catalog bolsters its on-line operation. Many companies' first instinct is to eliminate printed catalogs once their content is replicated on-line. But Grainger continues to publish its catalog, and it has found that each time a new one is distributed, on-line orders surge. The catalog has proven to be a good tool for promoting the Web site while continuing to be a convenient way of packaging information for buyers.

In some industries, the use of the Internet represents only a modest shift from well-established practices. For catalog retailers like Lands' End, providers of electronic data interchange services like General Electric, direct marketers like Geico and Vanguard, and many other kinds of companies, Internet business looks much the same as traditional business. In these industries, established companies enjoy particularly important synergies between their on-line and traditional operations, which make it especially difficult for dot-coms to compete. Examining segments of industries with characteristics similar to those supporting on-line businesses—in which customers are willing to forgo personal service and immediate delivery in order to gain convenience or lower prices, for instance—can also provide an important reality check in estimating the size of the Internet opportunity. In the prescription drug business, for example, mail orders represented only about 13% of all purchases in the late 1990s. Even though on-line drugstores may draw more customers than the mail-order channel, it is unlikely that they will supplant their physical counterparts.

Virtual activities do not eliminate the need for physical activities, but often amplify their importance. The complementarity between Internet activities and traditional activities arises for a number of reasons. First, introducing Internet applications in one activity often places greater demands on physical activities elsewhere in the value chain. Direct ordering, for example, makes warehousing and shipping more important. Second, using the Internet in one activity can have systemic consequences, requiring new or enhanced physical activities that are often unanticipated. Internet-based

job-posting services, for example, have greatly reduced the cost of reaching potential job applicants, but they have also flooded employers with electronic résumés. By making it easier for job seekers to distribute résumés, the Internet forces employers to sort through many more unsuitable candidates. The added back-end costs, often for physical activities, can end up outweighing the up-front savings. A similar dynamic often plays out in digital marketplaces. Suppliers are able to reduce the transactional cost of taking orders when they move on-line, but they often have to respond to many additional requests for information and quotes, which, again, places new strains on traditional activities. Such systemic effects underscore the fact that Internet applications are not stand-alone technologies; they must be integrated into the overall value chain.

Third, most Internet applications have some shortcomings in comparison with conventional methods. While Internet technology can do many useful things today and will surely improve in the future, it cannot do everything. Its limits include the following:

- Customers cannot physically examine, touch, and test products or get hands-on help in using or repairing them.
- Knowledge transfer is restricted to codified knowledge, sacrificing the spontaneity and judgment that can result from interaction with skilled personnel.
- The ability to learn about suppliers and customers (beyond their mere purchasing habits) is limited by the lack of face-to-face contact.
- The lack of human contact with the customer eliminates a powerful tool for encouraging purchases, trading off terms and conditions, providing advice and reassurance, and closing deals.
- Delays are involved in navigating sites and finding information and are introduced by the requirement for direct shipment.
- Extra logistical costs are required to assemble, pack, and move small shipments.
- Companies are unable to take advantage of low-cost, nontransactional functions performed by sales forces, distribution channels, and purchasing departments (such as performing limited service and maintenance functions at a customer site).
- The absence of physical facilities circumscribes some functions and reduces a means to reinforce image and establish performance.

- Attracting new customers is difficult given the sheer magnitude of the available information and buying options.

Traditional activities, often modified in some way, can compensate for these limits, just as the shortcomings of traditional methods—such as lack of real-time information, high cost of face-to-face interaction, and high cost of producing physical versions of information—can be offset by Internet methods. Frequently, in fact, an Internet application and a traditional method benefit each other. For example, many companies have found that Web sites that supply product information and support direct ordering make traditional sales forces more, not less, productive and valuable. The sales force can compensate for the limits of the site by providing personalized advice and after-sales service, for instance. And the site can make the sales force more productive by automating the exchange of routine information and serving as an efficient new conduit for leads. The fit between company activities, a cornerstone of strategic positioning, is in this way strengthened by the deployment of Internet technology.

Once managers begin to see the potential of the Internet as a complement rather than a cannibal, they will take a very different approach to organizing their on-line efforts. Many established companies, believing that the new economy operated under new rules, set up their Internet operations in stand-alone units. Fear of cannibalization, it was argued, would deter the mainstream organization from deploying the Internet aggressively. A separate unit was also helpful for investor relations, and it facilitated IPOs, tracking stocks, and spin-offs, enabling companies to tap into the market's appetite for Internet ventures and provide special incentives to attract Internet talent.

But organizational separation, while understandable, has often undermined companies' ability to gain competitive advantages. By creating separate Internet strategies instead of integrating the Internet into an overall strategy, companies failed to capitalize on their traditional assets, reinforced me-too competition, and accelerated competitive convergence. Barnes & Noble's decision to establish Barnesandnoble.com as a separate organization is a vivid

## Strategic Imperatives for Dot-Coms and Established Companies

At this critical juncture in the evolution of Internet technology, dot-coms and established companies face different strategic imperatives. Dot-coms must develop real strategies that create economic value. They must recognize that current ways of competing are destructive and futile and benefit neither themselves nor, in the end, customers. Established companies, in turn, must stop deploying the Internet on a stand-alone basis and instead use it to enhance the distinctiveness of their strategies.

The most successful dot-coms will focus on creating benefits that customers will pay for, rather than pursuing advertising and click-through revenues from third parties. To be competitive, they will often need to widen their value chains to encompass other activities besides those conducted over the Internet and to develop other assets, including physical ones. Many are already doing so. Some on-line retailers, for example, distributed paper catalogs for the 2000 holiday season as an added convenience to their shoppers. Others are introducing proprietary products under their own

brand names, which not only boosts margins but provides real differentiation. It is such new activities in the value chain, not minor differences in Web sites, that hold the key to whether dot-coms gain competitive advantages. AOL, the Internet pioneer, recognized these principles. It charged for its services even in the face of free competitors. And not resting on initial advantages gained from its Web site and Internet technologies (such as instant messaging), it moved early to develop or acquire proprietary content.

Yet dot-coms must not fall into the trap of imitating established companies. Simply adding conventional activities is a me-too strategy that will not provide a competitive advantage. Instead, dot-coms need to create strategies that involve new, hybrid value chains, bringing together virtual and physical activities in unique configurations. For example, E\*Trade is planning to install stand-alone kiosks, which will not require full-time staffs, on the sites of some corporate customers. VirtualBank, an on-line bank, is cobranding with corporations to create in-

house credit unions. Juniper, another on-line bank, allows customers to deposit checks at Mail Box Etc. locations. While none of these approaches is certain to be successful, the strategic thinking behind them is sound.

Another strategy for dot-coms is to seek out trade-offs, concentrating exclusively on segments where an Internet-only model offers real advantages. Instead of attempting to force the Internet model on the entire market, dot-coms can pursue customers that do not have a strong need for functions delivered outside the Internet—even if such customers represent only a modest portion of the overall industry. In such segments, the challenge will be to find a value proposition for the company that will distinguish it from other Internet rivals and address low entry barriers.

Successful dot-coms will share the following characteristics:

- Strong capabilities in Internet technology
- A distinctive strategy vis-à-vis established companies and other dot-coms, resting on a clear focus and meaningful advantages

example. It deterred the on-line store from capitalizing on the many advantages provided by the network of physical stores, thus playing into the hands of Amazon.

Rather than being isolated, Internet technology should be the responsibility of mainstream units in all parts of a company. With support from IT staff and outside consultants, companies should use the technology strategically to enhance service, increase efficiency, and leverage existing strengths. While separate units may be appropriate in some circumstances, everyone in the organization must have an incentive to share in the success of Internet deployment.

### The End of the New Economy

The Internet, then, is often not disruptive to existing industries or established companies. It rarely nullifies the most important sources of competitive advantage in an industry; in many cases it actually makes those sources even more important. As all companies come to embrace Internet technology, moreover, the Internet itself will be neutralized as a source of advantage. Basic Internet applica-

tions will become table stakes—companies will not be able to survive without them, but they will not gain any advantage from them. The more robust competitive advantages will arise instead from traditional strengths such as unique products, proprietary content, distinctive physical activities, superior product knowledge, and strong personal service and relationships. Internet technology may be able to fortify those advantages, by tying a company's activities together in a more distinctive system, but it is unlikely to supplant them.

Ultimately, strategies that integrate the Internet and traditional competitive advantages and ways of competing should win in many industries. On the demand side, most buyers will value a combination of on-line services, personal services, and physical locations over stand-alone Web distribution. They will want a choice of channels, delivery options, and ways of dealing with companies. On the supply side, production and procurement will be more effective if they involve a combination of Internet and traditional methods, tailored to strategy. For example, customized, engineered

- Emphasis on creating customer value and charging for it directly, rather than relying on ancillary forms of revenue
- Distinctive ways of performing physical functions and assembling non-Internet assets that complement their strategic positions
- Deep industry knowledge to allow proprietary skills, information, and relationships to be established

Established companies, for the most part, need not be afraid of the Internet—the predictions of their demise at the hands of dot-coms were greatly exaggerated. Established companies possess traditional competitive advantages that will often continue to prevail; they also have inherent strengths in deploying Internet technology.

The greatest threat to an established company lies in either failing to deploy the Internet or failing to deploy it strategically. Every company needs an aggressive program to deploy the Internet throughout its value chain, using the technology to reinforce traditional competi-

tive advantages and complement existing ways of competing. The key is not to imitate rivals but to tailor Internet applications to a company's overall strategy in ways that extend its competitive advantages and make them more sustainable. Schwab's expansion of its brick-and-mortar branches by one-third since it started on-line trading, for example, is extending its advantages over Internet-only competitors. The Internet, when used properly, can support greater strategic focus and a more tightly integrated activity system.

Edward Jones, a leading brokerage firm, is a good example of tailoring the Internet to strategy. Its strategy is to provide conservative, personalized advice to investors who value asset preservation and seek trusted, individualized guidance in investing. Target customers include retirees and small-business owners. Edward Jones does not offer commodities, futures, options, or other risky forms of investment. Instead, the company stresses a buy-and-hold approach to investing involving mutual funds, bonds, and blue-chip equities.

Edward Jones operates a network of about 7,000 small offices, which are located conveniently to customers and are designed to encourage personal relationships with brokers.

Edward Jones has embraced the Internet for internal management functions, recruiting (25% of all job inquiries come via the Internet), and for providing account statements and other information to customers. However, it has no plan to offer on-line trading, as its competitors do. Self-directed, on-line trading does not fit Jones's strategy nor the value it aims to deliver to its customers. Jones, then, has tailored the use of the Internet to its strategy rather than imitated rivals. The company is thriving, outperforming rivals whose me-too-Internet deployments have reduced their distinctiveness.

The established companies that will be most successful will be those that use Internet technology to make traditional activities better and those that find and implement new combinations of virtual and physical activities that were not previously possible.



inputs will be bought directly, facilitated by Internet tools. Commodity items may be purchased via digital markets, but purchasing experts, supplier sales forces, and stocking locations will often also provide useful, value-added services.


The value of integrating traditional and Internet methods creates potential advantages for established companies. It will be easier for them to adopt and integrate Internet methods than for dot-coms to adopt and integrate traditional ones. It is not enough, however, just to graft the Internet onto historical ways of competing in simplistic “clicks-and-mortar” configurations. Established companies will be most successful when they deploy Internet technology to reconfigure traditional activities or when they find new combinations of Internet and traditional approaches.

Dot-coms, first and foremost, must pursue their own distinctive strategies, rather than emulate one another or the positioning of established companies. They will have to break away from competing solely on price and instead focus on product selection, product design, service, image, and other areas in which they can differentiate themselves. Dot-coms can also drive the combination of Internet and traditional methods. Some will succeed by creating their own distinctive ways of doing so. Others will succeed by concentrating on market segments that exhibit real trade-offs between Internet and traditional methods—either those in which a pure Internet approach best meets the needs of a particular set of customers or those in which a particular product or service can be best delivered without the need for physical assets. (See the sidebar “Strategic Imperatives for Dot-Coms and Established Companies.”)

These principles are already manifesting themselves in many industries, as traditional leaders reassert their strengths and dot-coms adopt more focused strategies. In the brokerage industry, Charles Schwab has gained a larger share (18% at the end of 1999) of on-line trading than E\*Trade (15%). In commercial banking, established institutions like Wells Fargo, Citibank, and Fleet have many more

on-line accounts than Internet banks do. Established companies are also gaining dominance over Internet activities in such areas as retailing, financial information, and digital marketplaces. The most promising dot-coms are leveraging their distinctive skills to provide real value to their customers. ECollege, for example, is a full-service provider that works with universities to put their courses on the Internet and operate the required delivery network for a fee. It is vastly more successful than competitors offering free sites to universities under their own brand names, hoping to collect advertising fees and other ancillary revenue.

When seen in this light, the “new economy” appears less like a new economy than like an old economy that has access to a new technology. Even the phrases “new economy” and “old economy” are rapidly losing their relevance, if they ever had any. The old economy of established companies and the new economy of dot-coms are merging, and it will soon be difficult to distinguish them. Retiring these phrases can only be healthy because it will reduce the confusion and muddled thinking that have been so destructive of economic value during the Internet’s adolescent years.

In our quest to see how the Internet is different, we have failed to see how the Internet is the same. While a new means of conducting business has become available, the fundamentals of competition remain unchanged. The next stage of the Internet’s evolution will involve a shift in thinking from e-business to business, from e-strategy to strategy. Only by integrating the Internet into overall strategy will this powerful new technology become an equally powerful force for competitive advantage. 

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# Strategy and the Internet

## Further Reading

### ARTICLES

#### [What Is Strategy?](#)

by Michael E. Porter  
*Harvard Business Review*  
November-December 1996  
Product no. 4134

In this article, Porter sharpens the focus on the two components of sustainable competitive advantage discussed in “Strategy and the Internet”: operational effectiveness and strategic positioning. He emphasizes that it’s strategic positioning, not operational effectiveness, that lets a company most effectively distinguish itself from competitors. He then outlines three key principles behind strategic positioning: 1) creating a unique, valuable position through serving a few needs of many customers, broad needs of a few customers, or broad needs of many customers; 2) making trade-offs in competition (i.e., choosing what not to do); and—most relevant to his discussion of integration in “Strategy and the Internet”—3) improving “fit” among the company’s activities so that they reinforce one another. As he explains, when a company’s activities reinforce one another in a tightly interlocked system, competitors can’t easily imitate that system.

#### [Strategy as Simple Rules](#)

by Kathleen M. Eisenhardt and Donald N. Sull  
*Harvard Business Review*  
November-December 1996  
Product no. 5858

This article provides practical guidelines for strengthening your company’s strategic positioning. Like Porter, Eisenhardt and Sull emphasize the importance of strategy in today’s unpredictable, complex markets. They emphasize keeping strategy clear and simple by focusing on a unique set of strategic processes—e.g., product innovation, partnering, branding—that place your company where the flow of opportunities is swiftest and deepest, and then defining just a handful of simple

rules to guide those processes. The authors outline five kinds of rules, including mandates for quickly ranking competing opportunities, deciding when to pull the plug on an opportunity, and distinctively executing your key processes.

### B O O K

#### [On Competition](#)

by Michael E. Porter  
Harvard Business School Press  
1998  
Product no. 7951

This book—a collection of Porter’s articles from the *Harvard Business Review*, augmented by two new selections and an introduction—is a more expansive treatment of Porter’s perspectives on the core concepts of competition and strategy, which he refers to in “Strategy and the Internet.” He shows how crucial business activities, such as staking out and maintaining a distinctive competitive position and continually improving productivity, are intimately linked to strategic positioning.

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# The *Real* New Economy

by Diana Farrell

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35 [Article Summary](#)

The Idea in Brief—*the core idea*

The Idea in Practice—*putting the idea to work*

36 [The \*Real\* New Economy](#)

45 [Further Reading](#)

A list of related materials, with annotations to guide further exploration of the article's ideas and applications

# The *Real* New Economy

## The Idea in Brief

Heated debate about information technology's strategic value continues unabated: What impact does information technology have on your company's ability to compete? *Did* IT really fuel the productivity surge of the 1990s—or were other factors as work?

Competition and innovation—much more than IT—led to that period's extraordinary productivity gains. Industries jockeying fiercely for customers and profits innovated aggressively. Those innovations—in technology *as well as* products and business processes—boosted productivity. As productivity rose, competition intensified further, bringing fresh waves of innovation. Result? A virtuous cycle of competition, innovation, and productivity growth.

IT enabled the innovation part of this cycle in three ways:

- It helped companies develop attractive new products and efficient new processes.
- It facilitated the rapid, industrywide diffusion of innovations.
- Its benefits multiplied quickly as its use expanded.

Industries dependent on intensive information processing gained the most from IT. Yet even in these industries, many firms failed to earn strong returns from their technology investments. Viewing IT as a panacea, they poured money into technology without understanding how the competition-innovation-productivity cycle worked in their businesses.

IT is not a silver bullet. But it *can* be a powerful competitive weapon—if you aim it accurately by applying four practices.

## The Idea in Practice

### TARGET THE PRODUCTIVITY LEVERS THAT MATTER.

Productivity levers vary across—and within—industries. General-purpose applications rarely influence productivity. And systems that pay off for one competitor may do little for you. Analyze your firm's economics, and concentrate your IT spending on the levers that will exert the *greatest* impact on productivity.

For example, in retail banking, customized IT applications that automate lending and credit-card operations have boosted productivity dramatically. In retailing, it's applications that streamline distribution, merchandise management, and store operations.

Even within an industry, levers vary. For instance, general-merchandise retailers such as Wal-Mart get the most benefit from tools, such as warehouse and transportation management systems, that tighten their links to suppliers and increase inventory turns for a given product. But specialty apparel retailers like the Gap benefit most from assortment and allocation planning tools to cut obsolescence and inventory-holding costs.

### GET THE SEQUENCING RIGHT.

IT investments build on each other in complex ways. By carefully sequencing your investments you reap greater rewards.

#### ► Example:

Wal-Mart first used IT to manage the flow and storage of products throughout its far-flung network of suppliers, warehouses, and distribution centers. Then it used IT to gain even greater efficiencies by coordinating operations more tightly with those of suppliers. Only then did it invest in technology to plan product mix and replenishment.

### GET THE TIMING RIGHT, TOO.

Ask, "Should we lead or follow IT trends?" Rush an investment only when you're certain the

technology will advance your firm's business goals and stave off imitation by rivals.

But watch for red flags indicating that an investment won't differentiate your firm—such as a rolling wave of competitors considering the same system. And know your company: its taste for risk, managers' confidence that they can merge IT with other advantages, your corporate track record in mobilizing people to effect change. Where indicators are weak, follow—don't lead—IT trends.

### PURSUE MANAGERIAL AND TECHNOLOGICAL INNOVATIONS IN TANDEM.

Technological innovations have little value until managerial practices adapt to them. Wal-Mart, for instance, would have gained nothing from its investments in innovative information systems if it hadn't also redefined its relationships with suppliers and simplified its distribution centers' logistics.

CRM (customer relationship management software systems) in retail banking provides the cautionary tale. Despite massive spending on this technology, many banks' productivity has remained flat. Why? Banks' business units continue to be organized around specific products and customer segments, hindering the integrated management of overall customer relationships. And incentive structures for sales personnel undermine the cross-selling that CRM enables.

*Yes, something big did happen in the 1990s. But it was less about technology and more about new forms of competition. The keys to success now? Aggressive innovation and highly targeted investments in IT.*

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# The Real New Economy

by Diana Farrell

A mythic aura surrounds the soar and swoon of the “new economy.” The scale was breathtaking, illusions abounded, and the forces at work seemed at once powerful and elusive. As the bubble inflated, many felt that information technology, and the Internet in particular, would “change everything.” Today, with the technology sector in shreds, more than a few believe that IT changed scarcely anything at all. The truth, of course, lies somewhere in between. But where? What became of all the innovation we thought we were seeing? What actually happened to productivity growth? What effect did IT really have on companies and their ability to compete? Most important, what can managers learn from it all?

For more than two years, the McKinsey Global Institute has been studying labor productivity in the United States, France, and Germany and its connection to corporate IT spending and use. My colleagues and I have examined a large body of statistical and experiential evidence and conducted in-depth case studies of 20 industries, eight in the United

States and six apiece in Germany and France. The studies involved not only the collection and analysis of data on industry and company performance but also extensive interviews with executives in each sector.

We found that a new economy did indeed come into being in the 1990s, but that it is very different from the one that was widely promoted and discussed at the time. Rather than springing from the Internet, it emerged from intensifying business competition and a resulting surge in managerial innovation. Information technology’s role in the new business world, we also discovered, is more complicated than has been assumed. IT is of great, but not primary, importance to the fate of industries and individual companies. By uncovering the true drivers of corporate success today, our research provides a clearer understanding of the recent upheavals in business and points the way to a more effective deployment of corporate IT investments and assets.

### The Truth About Productivity

Something did change in the economy in the late 1990s, and it is visible in the productivity statistics. After growing at an anemic 1.4% annual rate from 1973 through 1994, U.S. labor productivity shot up 2.4% a year from 1995 through 1999. And productivity has remained fairly vigorous even during the recent economic downturn, rising at 2.9% in 2000, 1.1% in 2001, and 4.8% in 2002, according to the Bureau of Labor Statistics.

The late 1990s productivity surge coincided with a big increase in the money and attention U.S. companies devoted to information technology. In many industries, technology spending doubled as businesses wove computer and communications systems more deeply into the fabric of their operations. Overall, the percentage of the gross domestic product accounted for by technology goods rose sixfold, from 2% to 12%, during the decade.

Not surprisingly, many people looked at these numbers and concluded that the IT investments drove the productivity gains. But it's not that simple. When we examined the performance of different industries, we saw little correlation between productivity and IT investment. Although most industries significantly boosted their IT spending, their rates of productivity growth varied enormously. In fact, in the United States, productivity gains were concentrated in just six sectors: retailing, securities brokerage, wholesaling, semiconductors, computer assembly, and telecommunications. These sectors account for only 32% of the U.S. GDP, but they contributed 76% of the country's net productivity gain. Many other sectors, such as hotels and television broadcasting, invested heavily in IT but saw little or no productivity growth. (See the exhibit "America's Uneven Productivity Boom.")

If information technology wasn't the primary factor in the productivity surge, what was? The answer is clear: Intensifying competition led to productivity-boosting innovations in the six key sectors. Our research shows that managers in those industries were forced to innovate aggressively to protect their revenues and profits in the face of strong competition. It was those innovations—in products, business practices, and technology—that led to the gains in productivity. In fact, an important dynamic of the new economy—the *real* new economy—is the

virtuous cycle of competition, innovation, and productivity growth. Fierce competition spurs innovation, in both technology and business processes. These innovations spread quickly, improving productivity across the sector. As productivity rises, competition intensifies further, bringing a fresh wave of innovation.

The crucial role played by competition can be seen clearly in the performance variations that were evident across countries and industries. In sectors where competition was promoted—through the dismantling of regulatory constraints, primarily—innovation flourished and productivity soared. But wherever regulation or other forces warped the competitive environment, competitive pressures eased, innovations failed to develop or to spread rapidly, and productivity growth slackened.

Look at the mobile-telecommunications industry. In the United States, the government's auction of additional spectrum in 1995 led to increased competition, with the average number of competitors in a local market jumping from two to almost five. Prices fell, usage increased, and the entire sector's productivity grew at an average annual rate of 15% during the decade. That's a very healthy rate, yet it pales in comparison with the 25% gains posted by the mobile-telecom sectors in France and Germany. The difference is that U.S. regulations created a fragmented and protected market with dozens of subscale regional providers and little national competition. Today, more than 50 providers serve fewer than 200,000 customers each in the United States. In France and Germany, by contrast, a handful of national providers serve an average of 10 million customers each. The strong rivalry among the big European providers, as well as their superior scale, led to the exceptional productivity gains.

Such differences between nations were evident in other sectors as well. Competition in retail banking, for example, is freer in the United States than in Germany, where small state-owned and cooperative banks have been unable to build sufficient scale yet remain shielded from the shareholder demands of capital markets. Our study showed that weaker competition kept German banking at a significant productivity disadvantage, even though the sector grew healthily as a result of higher customer demand and a wave of consolida-

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**Diana Farrell** is the director of the McKinsey Global Institute in San Francisco.

tions. Retail banking productivity in Germany was only 74% of the U.S. level by the end of the 1990s.

In food retailing, France fell behind the United States in productivity gains. Again, the culprit was restrained competition. Zoning laws effectively shielded the dominant French hypermarkets from innovative competitors, and smaller, traditional merchants also enjoyed considerable governmental protection. The productivity of the French grocery sector actually fell at a 0.5% annual rate in the 1990s, while U.S. food retailers posted 1.6% annual gains.

Competition was not the only force driving productivity in the 1990s. Strong consumer confidence, for example, led customers to purchase more expensive goods, which also helped boost productivity. And buoyant capital markets contributed to gains in the securities sector. But our research clearly shows that wherever competitive intensity was greatest, innovative products and practices proliferated and productivity grew robustly. And wherever competition was constrained, innovation waned and productivity suffered.

### The Role of Information Technology

When competition intensifies and companies face the possibility of lost customers and profits, managers have overwhelming incentives to pursue creative ways to cut the costs of their operations and increase the value they provide to buyers. The choice really is to innovate or die. There are many ways for managers to innovate, of course, but during the 1990s information technology proved to be a particularly powerful tool. We found three reasons why that was so. First, IT enabled the develop-

ment of both attractive new products and efficient new business processes. Second, it facilitated the rapid industrywide diffusion of innovations. And third, it exhibited strong scale economies—its benefits multiplied rapidly as its use expanded.

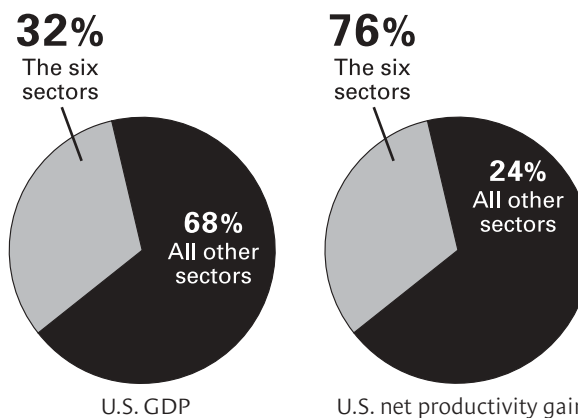
IT's power to promote innovation was not felt equally in all industries, however. The sectors most dependent on intensive information processing—those with highly complex operating processes, heavy transaction loads, or technically sophisticated products, for example—reaped the lion's share of the gains. When an industry had such characteristics and exhibited intensifying competition, productivity boomed.

**New Products and Processes.** Some of the IT-based innovations of the last decade came in the form of new products and services (such as faster microprocessors or on-line securities trading). Others were enhancements to existing business processes (such as check imaging and centralized credit authorization in retail banking). In many cases, the new products and processes were tightly intertwined. In the semiconductor industry, for instance, the rapid increase in the complexity of chip designs required ever stricter process controls and diagnostics. That spurred the development of sophisticated new information systems for managing chip fabrication, which boosted productivity throughout the sector.

The six industries we identified as showing the greatest productivity gains during the 1990s all leveraged new IT capabilities to create products or refine processes. Sophisticated new IT systems were, for example, a godsend for retailing. Big retailers execute millions of relatively small transactions each day, creating

## America's Uneven Productivity Boom

Most companies invested heavily in IT during the late 1990s, but only a few managed to reap the rewards of strong productivity growth. In fact, productivity gains were concentrated in just six sectors: retailing, securities brokerage, wholesaling, semiconductors, computer assembly, and telecommunications. These sectors account for only one-third of the United States' GDP, but they contributed more than three-quarters of the country's net productivity gain.



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*Fast diffusion is a double-edged sword. While it improves overall industry productivity, it can erode the competitive advantages of individual companies.*

extraordinary operating complexity. IT helps them manage that complexity much more effectively. It not only automates routine functions such as inventory receiving and control, price scans, and checkout, it also optimizes many complicated processes, including supply chain management, merchandising, and customer relationship management.

Securities brokerage is another information-intensive industry that benefited greatly from new IT capabilities. Between 3 million and 4 million securities transactions, with an average size of \$25,000, take place in the United States each day. With the spread of the Internet, innovators like Charles Schwab and E\*Trade were able to incorporate highly efficient on-line trading into their already productive discount brokerage models. Our research reveals that, without on-line interfaces, these brokerages would have needed ten times more brokers or other customer service employees to handle the demand they encountered. The adoption of on-line interfaces has been remarkably swift. Almost no retail brokerage trades were executed on-line in 1995; by 2000, 40% were handled over the Internet. Interestingly, on-line trading was the only instance in which the Internet contributed significantly to the economy's overall productivity jump during the so-called dot-com boom.

In U.S. wholesaling, the use of IT in distribution centers significantly boosted productivity. By combining relatively simple hardware (like bar codes, scanners, and picking machines) with sophisticated software (warehouse management systems for inventory control and tracking, for example), wholesalers were able to partially automate the flow of goods and thereby reduce labor costs significantly.

**Diffusion.** As new technologies spread across a sector, they often had a striking impact on productivity. In the retail sector, for instance, many companies were quick to adopt warehouse management and automation systems, bar code scanners and readers, and ERP modules for human resources, payroll, and reporting. Those systems helped automate processes that traditionally required large staffs, leading to significant reductions in labor costs throughout the industry. In the U.S. trucking industry, major carriers rapidly embraced network optimization systems and bar coding and scanning technologies, driving productivity gains across the sector. French

and German trucking firms, only recently exposed to strong competition through EU deregulation, lagged in their adoption of these new technologies. As a result, their productivity remained well below that of U.S. companies, with France at 85% and Germany at 83% of U.S. levels.

Technological innovations not only increased productivity in some sectors; IT itself also directly facilitated the diffusion of many business and technological innovations. Companies used more sophisticated corporate planning tools, improved communications systems, and continuous on-line monitoring to increase the speed with which they replicated the breakthroughs of their competitors. New technological capabilities played a particularly strong role in spreading innovations across distribution centers and stores in the retail sector and across banking and brokerage branches in the financial sector.

Fast diffusion is a double-edged sword, however. While it improves overall industry productivity, it can erode the competitive advantages of individual companies. Once rivals in a sector adopt an IT innovation, after all, it becomes just another cost of doing business. As a result, many companies that spent heavily on state-of-the-art technology in the 1990s failed to recoup their investments. On-line banking spread so rapidly, for example, that no individual bank was able to reap any competitive advantage—the benefits all went to customers. (In this case, the banks also had unrealistic expectations of changing consumer behavior. U.S. customers have adopted on-line banking so slowly that it has yet to have a major impact on sector productivity.)

The secret to retaining an edge from rapidly diffusing technologies, we found, is to couple them with other distinctive capabilities or processes in ways that are hard to replicate. J.P. Morgan Chase recently used IT to augment its strengths in the automotive finance market. In early 2001, the financial services giant had 9,000 dealers in its system and was a leader in the prime-lending segment. It then dramatically extended its distribution network—to 18,000 dealers—by rolling out its on-line DealerTrack system, which dealers use to help customers find and close loans electronically. Because DealerTrack supports J.P. Morgan Chase's existing advantages, its benefits cannot be easily copied by competitors—even if they



install the same technology.

**Scaling.** The benefits of most IT innovations grow dramatically as scale increases. Once you install new software for transaction processing, for example, the marginal cost of processing additional transactions falls rapidly toward zero. Indeed, given the often high up-front costs of adopting a new technology, achieving scale is often crucial to reaping a return on an IT investment.

When technology innovations spread equally through countries, we found their impact on productivity could still vary widely depending on the extent of industry consolidation. IT innovations had their greatest impact in industries with a high degree of concentration or with a high volume output per customer. Retail banking is a good example. Retail banks in all three countries we studied have automated their back offices, enabling

them to service a virtually unlimited number of transactions at negligible marginal cost. Yet U.S. banks have enjoyed the greatest productivity gains. That's because U.S. consumers typically carry two to three times more financial assets and loans than their French and German counterparts. U.S. banks simply process more transactions per customer.

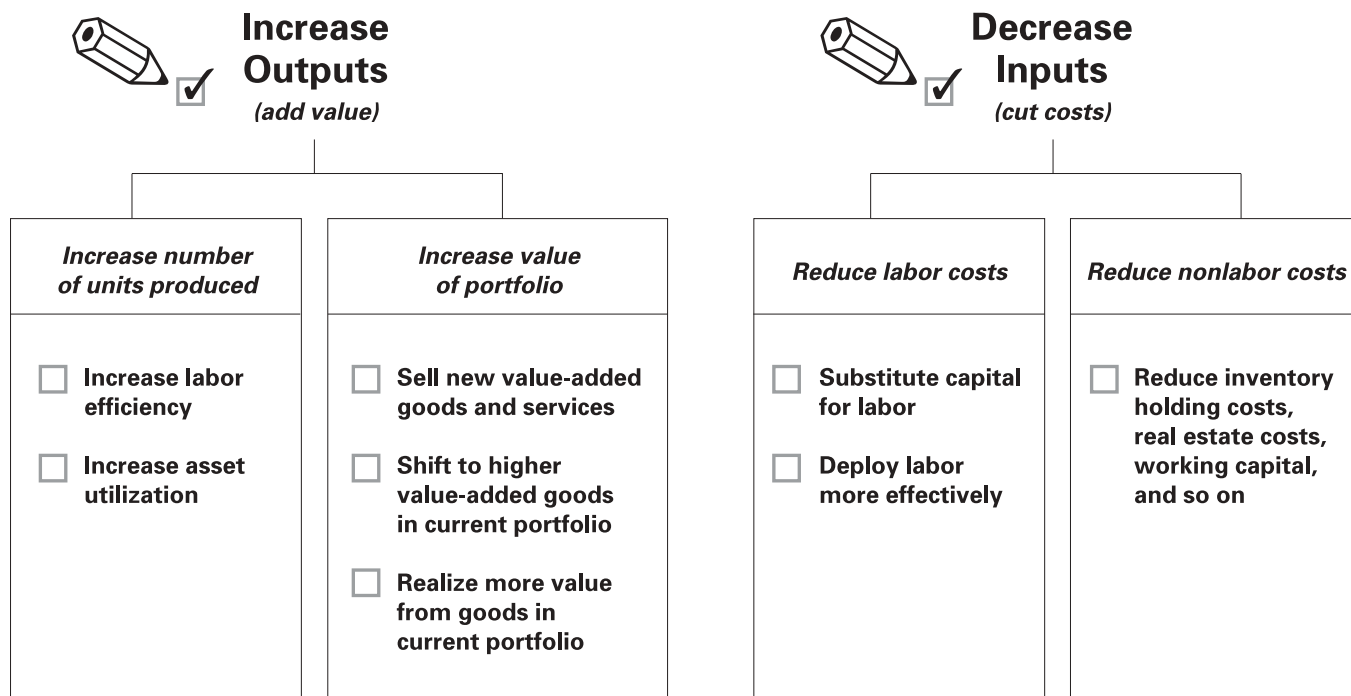
German retailing is also illustrative. Weak corporate governance kept unproductive German retailers in business, leading to overcapacity and meager profits. That limited German retailers' ability to invest in the IT-enabled, long-term efficiency improvements that some French and most U.S. retailers were adopting.

### A New Agenda for IT

Even in the six sectors that gained the most from IT, many companies failed to earn strong returns from their technology investments.

## Working with the Productivity Equation

The productivity equation is simple: It is outputs divided by inputs. To improve productivity, you must raise the first, lower the second, or both. Smart managers look at all inputs (capital, materials, and labor) as well as outputs, and use IT creatively to improve productivity in the areas that matter. The chart below can help managers take a first cut at identifying the productivity levers best suited to their companies and industries.



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Some simply abandoned new systems when implementation difficulties arose or costs exceeded expectations. Others took a piecemeal approach, automating only parts of their business processes. Still others didn't invest in the areas with the biggest potential impact on productivity or invested too early in systems that competitors could easily copy.

Some of these errors seem surprisingly obvious. But in retrospect it's easy to see how some managers in the late 1990s got carried away with IT and spent money unwisely. As IT investment soared, so did productivity growth, economic growth, earnings, and stock market valuations. IT took on the appearance of a panacea, leading many managers to assume that "me-too" investments would pay off.

There's much to be learned from the companies that gained the most from their investments. Our research revealed, in particular, that three practices distinguish the companies that were most successful in their IT investments. First, such companies targeted their investments at the productivity levers that mattered most for their industries and themselves. Second, they carefully thought through the sequence and timing of their investments. Third, they didn't pursue IT in isolation but rather developed managerial innovations in tandem with technological ones. Let's look more closely at how these imperatives drive productivity. (For a discussion of the implications of these imperatives for technology companies, see the sidebar "The Challenge for IT Ven-

## The Challenge for IT Vendors

Our research revealed three practices that distinguish the companies that gained the most from their IT investments. These imperatives for effective use of IT have important implications for vendors as well.

**1**  
Managerial imperative  
**Target the productivity levers that matter.**  
Vendor response  
**Gain customer-specific know-how, and focus development and sales efforts on specific sectors and business models.**

IT providers must learn more about how their technology can enhance each customer's business. Whether they are helping to improve retail supply chains, cut processing time for insurance claims, or reduce errors in hospital lab work, they must master the details necessary to raise their customers' productivity.

The shotgun approach—supplying all kinds of products to all kinds of customers—will almost surely be a losing strategy for vendors. Those with a panoply of offerings will become mired in the complexity of managing the business, and mediocre execution for all customers will likely ensue. So providers face hard choices. They must decide where to focus and, by implication, how to "right size" themselves. The good news is that the lessons of the past decade suggest that vendors can gain valuable benefits by addressing well-defined customer segments whose performance they can really improve.

**2**  
Managerial imperative  
**Get the sequencing and timing right.**  
Vendor response  
**Help customers find value in sunken IT investments.**

Many companies with apparently lifeless IT investments may be missing one final piece of technology. So IT vendors must develop solutions to help their customers turn around unsuccessful technology deployments and articulate and deliver a clear value proposition for future investments. Unless they do both, customers will be less likely to accept big up-front costs for software and hardware in the future.

**3**  
Managerial imperative  
**Pursue managerial and technological innovations in tandem.**  
Vendor response  
**Innovate selectively, and form learning partnerships with customers and third parties.**

Technology-driven innovation will remain vital, but as companies grasp the need for simultaneous managerial innovation, their IT investments will become much more selective. In this environment, partnering to

learn is vital. Vendors in retail banking, for example, can build long-term partnerships with banks by working with them to identify and execute the business changes necessary to fully benefit from investments such as data warehouses, CRM, customer data integration, and on-line banking. Many customers made large infrastructure investments over the past five to eight years, and they want new products and services that leverage the assets they already have.

Partnering with third parties can also help vendors tie their technical innovations with managerial breakthroughs. To achieve the highest value from IT investments, buyers need to make critical improvements in their business processes and organizational structures. An integrated information system will achieve little, for instance, if business units continue to be managed in isolation without any cross-unit incentives or reviews. By partnering with firms that specialize in redesigning processes and managing change, successful IT vendors will help ensure that their customers reap the full benefits of their new systems.

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**Target the productivity levers that matter.**

There are many ways to improve productivity, as the exhibit “Working with the Productivity Equation” illustrates. You can reduce labor or other factor costs. You can increase labor efficiency or asset utilization. Or you can sell new or higher value-added goods to your customers. IT can play a role in each of these areas. The trick is to concentrate your IT spending on those levers that will have the greatest effect on productivity. Many companies we looked at spent heavily on seemingly attractive new technologies, only to find that they had little effect on results.

The levers that matter vary from industry to industry. That explains why the IT applications with the greatest impact are often tailored to particular sectors. We found, in fact, that no general-purpose application had much effect on productivity. In retail banking, customized applications for automating lending, credit card operations, and back-office transactions provided the greatest boosts to productivity. In consumer retailing, the key applications focused on streamlining distribution and logistics, merchandise planning and management, and store operations. In the semiconductor industry, the greatest gains came from highly specialized tools for electronic design automation, process control, and yield optimization. CRM applications, on the other hand, generally purposed to increase revenue through better customer management, tended to yield mostly poor results.

Even within an industry, different productivity levers can have very different impacts. Consider retailing. General merchandise retailers like Wal-Mart are low-margin, high-turnover businesses selling a vast number of items, many of which are consumer staples. They get the most benefit from tools such as warehouse and transportation management systems that allow for a tighter link with suppliers and an increase in inventory turns for a given product. On the other hand, specialty-apparel retailers like the Gap handle many items with short shelf lives and therefore rely on assortment and allocation planning tools to cut obsolescence and inventory-holding costs. Among electronics retailers like Circuit City or Best Buy, store allocation and price optimization tools play a key role in reducing mark-downs. Home improvement retailers, whose

profits hinge on after-sales services such as warranties, home deliveries, and repairs rely on extended order management systems to ensure greater customer satisfaction.

As these examples show, simply following broad IT trends can backfire. The smartest companies analyze their economics carefully and spend aggressively on only those IT applications that will deliver outsized productivity gains. As for other necessary applications, they seek out the cheapest possible solutions. And they always remember that the system that pays off for one competitor may do little for another. Take supply chain management systems, for instance. Spending on these popular technologies has proven to be a boon to general merchandisers, but comparable investments by apparel companies have yielded very little.

**Get the sequencing and timing right.**

IT investments build on one another, often in complex ways. Companies that install sophisticated (and expensive) new applications before they’ve done the necessary groundwork are almost always disappointed. They either fail to achieve the expected benefits, or they find themselves doing constant retrofitting. But companies that take a disciplined approach, sequencing their investments carefully, often reap great rewards.

Wal-Mart’s “step change” approach to IT investment during the 1990s is a great example. First, the company installed software to manage the flow and storage of products through its far-flung network of suppliers, warehouses, and distribution centers. Once it had automated product flow, it focused on using IT to coordinate its operations more tightly with those of its suppliers, leveraging its greater efficiency. With that smoother coordination, Wal-Mart could invest effectively in technology to plan the mix and replenishment of its goods. Finally, after integrating all these capabilities, the company built a data warehouse that uses information pulled from a range of sources to handle complex queries.

KMart, by contrast, made a misstep in its IT investments that undermined their effectiveness. It invested in systems to improve promotions management before it had installed the supply chain systems necessary to handle fluctuations in sales volume. As a result, it was unable to capitalize on the more precisely targeted promotions. Many retail banks also

made errors in sequencing. They invested in popular customer relationship management systems before they had built repositories of consistent and reliable customer data. Not surprisingly, the CRM investments fell well short of expectations.

Even with a sound plan for sequencing, firms have to consider the timing of their investments. They must ask themselves, in particular, one crucial question: Should we lead or follow IT trends? In making this decision, firms must understand that IT alone is almost never a true differentiator. As we saw with J.P. Morgan Chase's DealerTrack system, IT provides distinction only when coupled with other, less replicable advantages, such as scale or a strong brand.

A company should rush an investment, therefore, only when it's clear that the technology will advance the firm's business goals, enable true innovation that strengthens existing advantages, and be resistant to the leveling effect of imitation. In semiconductors, where superior chip design confers a major edge, Intel's investment in the development of the Pentium processor to replace the 486 proved essential to staying ahead of the competition. In semiconductor equipment, Applied Materials' aggressive investments in new manufacturing technologies also paid off, simply because its smaller rivals lacked the resources to rapidly imitate the advances.

Of course, it's hard to foresee whether an investment will yield innovative results. At the critical moment of decision, managers must be alert for red flags indicating that the investment will not differentiate the firm, such as widespread hype about the IT opportunity or a rolling wave of competitors considering it. Such signals of broad awareness suggest that any added profitability from the innovation will quickly dissipate. Companies must also know themselves: their taste for risk, their confidence that they can merge IT with other advantages to stay ahead of the pack, and their corporate track record in mobilizing people and processes to effect change. Where the indicators are weak, the best course is usually to follow, not lead.

**Pursue managerial and technological innovations in tandem.** History shows that technological innovations are typically of little use until managerial practices adapt to them. That was certainly true in the 1990s,


and it remains true today. Wal-Mart, for instance, would have gained little from its investments in innovative information systems if it hadn't also redefined its relationships with suppliers and dramatically simplified the logistics practices at its distribution centers. Best Buy and Target would not have become leaders in retailing if they hadn't combined advanced IT with collaborative purchasing systems and advances in warehouse automation, cross-docking, and inventory tracking. Intel's IT investments turbocharged its productivity because they accompanied breakthroughs in materials technology and manufacturing processes. In all these cases, business managers led the way, reshaping their companies' processes and practices so that the full benefits of new information systems could be realized.

CRM in retail banking provides the cautionary tale. Banks hoped that the new systems for gathering and sharing customer information would boost cross-selling rates, reduce customer attrition, attract new customers, and increase profitability per customer. Yet despite massive spending on CRM, the number of products held by an average household at its primary bank has remained flat over the past three years. One reason for this, as already noted, was poor sequencing—the required customer data was not yet in place when the CRM systems came on-line. But many bank managers also failed to make necessary changes to their sales and marketing processes. The banks' business units continued to be organized around specific products and customer segments, hindering the integrated management of overall customer relationships. In addition, incentive structures for sales personnel undermined the kind of cross-selling that CRM theoretically makes possible.

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The success of IT investments hinges on the particular characteristics of different industries and the particular practices of different companies. That fact goes a long way toward explaining the lack of correlation between IT spending and productivity that we've seen in recent years. For IT to fulfill its promise, users and vendors must deploy it thoughtfully, tailoring it to individual sectors and businesses and merging it with other product and process innovations. The challenge will be to use existing systems effectively while at the same time making targeted new investments that main-

*Simply following broad IT trends can backfire. The system that pays off for one competitor may do little for another.*

tain competitive parity and, when possible, strengthen differentiation and buttress advantage. IT is not a silver bullet. But if it is aimed correctly, it can be an important competitive weapon. 

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# The Real New Economy

## Further Reading

### ARTICLES

#### [What Is Strategy?](#)

by Michael E. Porter

*Harvard Business Review*

November-December 1996

Product no. 4134

Porter examines the leveling effect that IT and other tools for improving operational effectiveness eventually exert when all competitors in an industry adopt them. As adoption spreads, costs decrease and value improves within the industry—but not for individual competitors. Instead, companies become less distinguishable from one another and lose their edge.

To achieve *sustainable* competitive advantage, firms must preserve what's distinctive about them through their **strategic positioning**—performing *different* activities from rivals or *similar* activities in different ways.

Three principles underlie strategic positioning: 1) *Create a unique and valuable position* by serving few needs of many customers, broad needs of few customers, or broad needs of many customers. 2) *Make trade-offs in competing*, saying “No” to activities that give you gains in one area only at the expense of another area. 3) *Create a unique “fit” among your company's activities* so they reinforce one another and can't easily be copied by rivals.

#### [Six IT Decisions Your IT People Shouldn't Make](#)

by Jeanne W. Ross and Peter Weill

*Harvard Business Review*

November 2002

Product no. 2160

How to make your IT investments generate the best possible returns? Don't leave crucial information-technology decisions to IT executives—they'll likely make choices that inadvertently clash with your corporate strategy.

Instead, manage the following decisions yourself: 1) *How much to spend on IT*. Define crystal-clear IT goals, then set funding to achieve them. 2) *Which business processes should receive IT dollars*. Fund only those IT initiatives that will support your corporate strategy. 3) *Which IT capabilities should be firmwide*. Weigh trade-offs associated with centralizing IT capabilities—including saving money versus limiting business units' flexibility. 4) *How good your IT services need to be*. Don't buy “Cadillac” service when a “Buick” will do. 5) *Which security and privacy risks you'll accept*. Weigh trade-offs between privacy versus convenience. 6) *Whom to blame if an IT initiative fails*. The IT department is responsible for delivering systems on time and within budget. Your job is to make organizational changes that generate business value from those systems.

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