

HOW TO RESHAPE YOUR BUSINESS
FOR A **CONNECTED** WORLD

The Digital Enterprise

EDITED WITH AN INTRODUCTION BY
NICHOLAS G. CARR

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for a Connected World

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A Harvard Business Review Book

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Introduction: The New Business Code

Nicholas G. Carr

In late February 2000, just as the dot-com bubble was reaching the extreme of its tumescence, I flew across the country, from frigid Boston to balmy Silicon Valley, to interview the venture capitalist Vinod Khosla. Khosla, a cofounder of Sun Microsystems and a general partner with Kleiner Perkins Caufield & Byers, has thought as deeply as anyone about information technology's impact on business. On the afternoon we met in his firm's offices in Menlo Park, he was at once ebullient and wary. When asked his reaction to the flood of venture capital that was then pouring into Internet start-ups, he gave a mixed reply. On the one hand, he said, the easy money was encouraging a flurry of experimentation, allowing smart young entrepreneurs to test even their wildest ideas and thus speeding the adoption and refinement of the most powerful communication network the world has ever seen. On the other hand, investors' expectations had become irrational. Eager to make a killing, they were throwing cash at kids with untested technologies and half-baked business plans. Inevitably, said Khosla, there would be a counterreaction. He predicted that many of the high-flying start-ups would fall to earth, and a great deal of money would be lost. In response, fear would replace greed in investors' hearts, the deep pools of venture capital would dry up, and innovation would be hobbled.

As the year unfolded, Khosla's gloomy prognosis played out. One dot-com after another went bankrupt, the IPO market fell quiet, and venture capitalists tightened their purse strings. The business press, which had until then been the Internet economy's biggest booster, be-

came its undertaker, publishing endless stories about failed start-ups and unemployed twenty-something ex-millionaires. By year's end, with the NASDAQ still vainly seeking a bottom, it was clear that the party was over and the hangover had begun.

No matter how painful, the market correction is a healthy event, for it serves not only to adjust investors' expectations but also to refocus the thinking of executives, entrepreneurs, and other members of the business community. The fads that have defined the Internet in the popular mind, from e-tailing to portals to business-to-business exchanges, are largely sideshows. The real impact of the Internet is taking place beneath the surface of commerce, where the basic economic forces that determine the behavior of companies and customers are shaped. An entirely new infrastructure for business is being put into place, and an entirely new kind of business—the digital enterprise—is coming into being. This book, which brings together many of the best writings about the Internet from the pages of the *Harvard Business Review*, illuminates the workings of the digital enterprise. It reveals that, whatever the vagaries of the stock market, new technologies are altering the economic trade-offs that determine the shape of business and rewriting the rules of competition.

Strategy Is Dead

As an editor, I'm paid to pay attention to words, and in the business world, that means paying attention to jargon as well. I've always been fascinated by the way jargon shapes, and at times distorts, the way we think about business. Perhaps the most striking change in the corporate lexicon over the past few years has been the supplanting of "business strategy" by "business model" as the term used to describe the way companies define and distinguish themselves. Today, everyone has something to say about business models, but not much is heard about strategy.

It's tempting to dismiss the change from "strategy" to "model" as mere semantics—the latest round in the eternal game of musical buzzwords played by consultants, academics, gurus, and journalists. But while it's true that "business model" is a uniquely squishy phrase, adaptable to almost any meaning, its adoption marks a fundamental change in business thinking. It underscores, in particular, the uncertain role of long-term planning in today's economy.

One could argue that the meaning of “strategy,” as it applies to business today, was established in March 1979, when the *Harvard Business Review* published Michael Porter’s seminal article “How Competitive Forces Shape Strategy.” Porter argued that profitability in any industry is determined by five forces: the competition among existing players, the threat of new entrants, the power of suppliers, the power of customers, and the availability of substitute products. By rigorously analyzing these forces, the astute manager could determine the optimal positioning for his or her company, identifying and seizing control of the most lucrative combination of links in the value chain. In the Porterian universe, industries have fairly clear boundaries and fairly stable structures, and the success of a company is determined less by the quality of its products or the innovativeness of its people than by the logic of its strategy.

It’s no coincidence that the ascendancy of such a highly codified form of business thinking came at the end of the Industrial Age. By the late 1970s, the industrial economy had been chugging along for almost a century, and, for the most part, its structure *was* fixed and competition *was* predictable. The professional manager had long since taken over from the entrepreneur.

The cult of strategy reached its logical, and absurd, conclusion in the 1980s, when managers spent all of their time “restructuring” their companies. Customers, products, and employees became unimportant. All that mattered was manipulating assets to earn higher financial returns. Strategy had become an end in itself.

Whenever a system becomes a parody of itself, it’s a good bet that it’s about to be replaced by a new one. That’s exactly what has happened over the last ten or so years. The industrial era has given way to the information era. Structure and predictability have been replaced by formlessness and uncertainty.

In the early stages of any economic system, the rewards go to those who create the new, not those who conserve the old. Entrepreneurship, to paraphrase Gary Hamel, becomes more important than stewardship. Since the ultimate form of the new system remains unknowable, strategic planning, in its Porterian sense, has limited use. A new way of thinking about business is required.

That brings us back to the linguistic shift from business strategy to business model. But what exactly is a business model? Tom Malone, a business professor at the Massachusetts Institute of Technology who is developing an on-line catalog of business models, once offered me a

simple definition: a business model is “what a company does and how it makes money doing it.” I think that definition is as good as any, but I would boil it down even further. Whereas a business strategy is a theory—a line of reasoning that ends in a logical conclusion—a business model is a hypothesis. It’s a tentative stab at the truth.

If we can build a smart, fast network at the edge of the Internet, companies will pay us to expedite the distribution of their on-line content and functions—that’s Akamai’s business model. If we can provide a forum where consumers share product reviews, we will become a tollgate for on-line commerce—that’s Epinions’s model. When business thinkers and practitioners use the term “business model,” they are telling us that, in these early days of the digital economy, we aren’t yet at the stage where we can prove theories. The best we can do is to test hypotheses.

Long Live Strategy

Ultimately, though, hypotheses are proven either true or false, and as we learn the outcomes of the myriad business experiments currently being conducted, our understanding of the fundamentals of the digital enterprise becomes clearer. We become better able to answer the core question—the *strategic* question—that has always and will always face business decision makers: Where will the profits reside in the economy, and who will capture them?

To understand the distribution of profits in any economy, you need to look at its underpinnings—the technological infrastructure that determines the way goods move, information is shared, and transactions are carried out. Once you get down to this fundamental level, you immediately see that the Internet economy is different from its industrial predecessor and that the distribution of profits will likely be different as well.

The core elements of the industrial infrastructure—physical things like highways, railroads, turbines, and telephone lines—were visible, easy to understand, and, most important, stable. Once put in place, they didn’t change much. Because the infrastructure was hard to manipulate, the organizations that controlled it—such as transporters, telephone companies, and government agencies—came to have relatively

little economic power. Caretakers of a fixed system, they had to content themselves with collecting only modest tolls. The real wealth and growth went to the users of the infrastructure—manufacturers, retailers, and financiers. They were the ones who had room to innovate.

The Internet infrastructure, in contrast, is constructed not of physical things but of information, in the form of digital code. Code is largely invisible, exceedingly difficult to understand, and highly unstable. Any software engineer has the potential to modify the code of the Internet and thus alter, in a small or a profound way, the entire infrastructure of business.

The malleability of digital infrastructure changes the rules of the game. It opens up opportunities for companies that neither create nor sell goods but simply manipulate the infrastructure to their own benefit. These intermediaries—the access providers, the search engines, the content cachers, the affiliate aggregators, the electronic market makers, and so on—become the innovators and the value creators. The users of the infrastructure, on the other hand, are often forced into a reactive posture, constantly adapting their business models to the changes in infrastructure. Economic power shifts from manufacturers and retailers to intermediaries, as we enter an age of what I’ve come to call “hypermediation.”

Whether you’re a modeler or a strategist, your success in business in the coming years will hinge on your ability to understand and anticipate the way digital code changes the business infrastructure and, in turn, the distribution of profits. Each of the pieces collected in this book explores the form and economics of the new digital infrastructure and considers its influence over the day-to-day decisions executives and entrepreneurs need to make. I have divided the writings into three sections. Part I, “Remodeling Business,” provides new conceptual frameworks for thinking about the way business is conducted at the most fundamental level—how the value chain is constructed, how individual companies determine their positioning and scope, and how interactions between companies are carried out. Part II, “Remaking Markets,” examines the many ways that the Internet is altering the buying process, both in consumer and in business-to-business markets. Finally, Part III, “Reimagining Management,” looks at the operational implications of the Internet and offers practical advice on how to organize and motivate people.

Remodeling Business

The Internet and related information technologies are changing the very way we think about business, as this section makes clear. We begin with “Unbundling the Corporation,” which won the McKinsey prize as the best article published in the *Harvard Business Review* in 1999. The authors, John Hagel and Marc Singer, explore how digitization is exposing fault lines that have long lay hidden beneath the surface of business organizations. No matter how monolithic companies may seem, the authors argue, most are really engaged in three kinds of businesses: one attracts and serves customers, another develops products, and the third manages operations. Although organizationally intertwined, these businesses have conflicting characteristics. It takes a big investment to find and develop a relationship with a customer, so profitability hinges on achieving economies of scope—gaining a large “share of wallet.” But speed, not scope, drives the economics of product innovation. And the high fixed costs of capital-intensive infrastructure businesses require economies of scale. Scale, scope, and speed can’t be optimized simultaneously, so trade-offs have to be made when the three types of businesses are bundled into one corporation.

Historically, these businesses have been bundled together because the transaction costs incurred in separating them (the “friction” inherent in business) were too high. But we are in the midst of a worldwide reduction in transaction costs, as electronic networks drive down the costs of communicating and of exchanging data. Activities that companies have always believed were central to their businesses are increasingly being offered by new, specialized competitors that don’t have to make trade-offs. Ultimately, Hagel and Singer predict, traditional businesses will have no choice but to unbundle and then rebundle into large infrastructure and customer-relationship businesses and small, nimble product-innovation companies. Executives in many industries will be forced to ask the most basic question about their companies: What business are we really in? The answer will determine their fate in an increasingly frictionless economy.

In “Syndication: The Emerging Model for Business in the Internet Era,” Kevin Werbach further explores the changing nature of business economics and its effect on how companies organize and operate. He argues that digitization, by permitting products, commerce, and corporations to be broken down into freely tradable modules, will

force businesses into syndication networks. Syndication has long been a fundamental organizing principle in the entertainment world, but it's rare elsewhere in business. The fixed physical assets and slow-moving information that characterized the industrial economy made it difficult, if not impossible, to create the kind of fluid networks that are essential for syndication. Werbach writes that with the rise of the information economy, flexible business networks are not only becoming possible—they're becoming essential. As a result, syndication is moving from the periphery of business to its center.

Within a syndication network there are three roles that businesses can play. Originators create original content, encompassing everything from entertainment programming to products to business processes. Syndicators package that content, often integrating it with content from other originators. Distributors deliver the content to consumers. A company can play a single role, or two or three roles simultaneously. Syndication requires businesses to rethink their strategies and relationships in radical ways. Because a company's success hinges on its connections to other companies, it can no longer view its core capabilities as secrets to protect. Instead, it needs to see them as products to sell. FedEx, for example, is succeeding by distributing its sophisticated package-tracking capability to other companies operating on the Internet. As this new way of doing business takes hold, companies may look the same as they did before to their customers, but behind the scenes they will be in constant flux, melding with one another in ever-changing, self-organizing networks.

It used to be that companies shaped technology to fit their needs. Now, however, that relationship is being reversed: technology is shaping business. That phenomenon provides the backdrop to "Where Value Lives in a Networked World," by Mohanbir Sawhney and Deval Parikh. The authors assert that the seemingly endless upheavals of the digital age are actually more predictable than is commonly assumed. At the root of many of the changes lie two patterns in the migration of network intelligence. First, intelligence is "de-coupling"—that is, high-speed, digital communications technologies are pushing back-end processing intelligence and front-end customer-interface intelligence to opposite ends of the network. The processing intelligence is consolidating, on massive shared servers, for example, while the customer-interface intelligence is fragmenting among innumerable specialized devices. Second, network intelligence is becoming more fluid and modular. Small units of intelligence now float freely like molecules in

the ether, coalescing into temporary bundles whenever and wherever necessary to create value. As Sawhney and Parikh show, these patterns aren't only determining the way the Internet works, they're influencing the structure of entire industries and individual companies. Today, they argue, the network *is* the economy.

The interview that my colleague David Champion and I conducted with Vinod Khosla comes next. Khosla provides the view of the entrepreneur, of the business creator. Understanding that particular view is essential to understanding the forces that are reshaping business. After all, it is the entrepreneur who is largely responsible for creating business's new, digital infrastructure. As Khosla explains, the explosion in business innovation is overturning many long-standing tenets of business. Because large companies are often at a disadvantage when it comes to moving quickly, they are seeing their economies of scale turn into diseconomies of scale. Similarly, highly formalized, highly efficient operating processes, long a fundamental advantage held by established companies, undermine an organization's ability to change at the pace required by today's markets. "Yesterday," says Khosla, "you optimized your business for cost and performance. Today, you have to optimize for flexibility and adaptability."

This section ends with a look ahead to a new technological revolution: the rise of life sciences. Not all information technologies are man-made; the greatest of them all—the genetic code—is a creation of nature, and it may end up having an impact on business that dwarfs even that of the Internet. In "Transforming Life, Transforming Business: The Life-Science Revolution," Juan Enriquez and Ray Goldberg explain how advances in genetics will not only have dramatic implications for people and society, they will also reshape vast sectors of the world economy. The boundaries between many once-distinct businesses, from agribusiness and chemicals to pharmaceuticals and health care to energy and computing, will blur and out of that convergence will emerge what promises to be the largest industry in the world: life science. As scientific advances continue to accelerate, more and more businesses will be drawn, by choice or by necessity, into the life-science industry.

Companies have realized that unlocking life's code opens up virtually unlimited commercial possibilities, but as the authors show, operating within this new industry presents a raft of wrenchingly difficult challenges as well. Companies must rethink their business, financial, and M&A strategies. They must make vast R&D investments with

distant and uncertain payoffs. They must enter into complex partnerships and affiliations, sometimes with direct competitors. And perhaps most difficult, they must contend with a public that is uncomfortable with even the thought of genetic engineering. The optimal structure of the life-science industry—and of the companies that compose it—is as yet unknown. But the actions that executives take now will go a long way toward determining the ultimate role their companies play in the world's most important industry.

Remaking Markets

Part II of this book looks at the different ways the Internet is changing the marketplace, in both the consumer and business-to-business sectors. In "Getting Real About Virtual Commerce," Philip Evans and Thomas Wurster examine the key forces that are influencing the evolution of electronic markets. They argue that the first generation of e-commerce was simply a land-grab. Space on the Internet was claimed by whoever got there first with enough resources to create a credible business. It took speed, a willingness to experiment, and a lot of cyber-savvy. Companies that had performed brilliantly in traditional settings seemed hopelessly flat-footed, while the pure-play dot-coms, for all their agility, seemed clueless about how to turn a profit.

Now, Evans and Wurster contend, we are entering the second generation of e-commerce, and it will be shaped more by strategy than by experimentation. The key players—branded-goods suppliers, physical retailers, e-tailers, and pure navigators—will shift their attention from claiming territory to defending or capturing it. They will be forced to focus on strategy to achieve competitive advantage. Success will go to the businesses that get closest to consumers, the ones that help customers navigate the Web. Indeed, the authors argue, navigation is the battlefield on which competitive advantage will be won or lost. There are three dimensions of navigation: reach is about access and connection; affiliation is about whose interests the business represents; and richness is the depth of the information that a business gives to or collects about its customers. Pure navigators and e-tailers have the natural advantage in reach and affiliation, while branded-goods suppliers and physical retailers have the edge in richness. The authors offer practical advice to each player on competing in this latest generation of e-commerce.

"The Future of Commerce" offers three perspectives on the way markets will work in the coming years. Adrian Slywotzky argues that the Internet will overturn the inefficient push-model of supplier-customer interaction. He predicts that suppliers will no longer be able to force customers to choose from a limited set of preselected offerings. In all sorts of markets, customers will use choiceboards—interactive, on-line systems that let people design their own products by choosing from a menu of attributes, prices, and delivery options. He explores how the shifting role of the customer—from passive recipient to active designer—will change the way companies compete. Clayton Christensen and Richard Tedlow agree that e-commerce, on a broad level, will change the basis of competitive advantage in retailing. While the essential mission of retailing—getting the right product in the right place at the right price at the right time—is a constant, retailers have over the years fulfilled that mission in different ways, thanks to a series of disruptive technologies. The authors identify patterns in the way that previous retailing transformations have unfolded to shed light on how retailing may evolve in the Internet era. The third perspective is my own. I take issue with the widespread notion that the Internet will usher in an era of "disintermediation," in which producers of goods and services bypass wholesalers and retailers to connect directly with their customers. Instead, I argue that business is undergoing precisely the opposite phenomenon—hypermediation. Transactions over the Web routinely involve all sorts of intermediaries. It is these middlemen that are positioned to capture much of the profit.

While most of the attention given to the Internet has focused on the World Wide Web, the Web is not the only game in town. In fact, as David Kenny and John Marshall make clear in "Contextual Marketing: The Real Business of the Internet," the Web may not be the most important facet of the Internet. The painful truth, the authors write, is that the dominant model for Internet commerce thus far, the destination Web site, doesn't really suit the needs of businesses or their customers. Most consumer product companies don't provide enough value to induce customers to make the repeat visits—and disclose the detailed information—that make such sites profitable. Instead of trying to create destinations that people will come to, companies need to use the power and reach of the Internet to deliver tailored messages and information to customers. Companies have to become what the authors call "contextual marketers." Delivering the most relevant information possible to consumers in the most timely manner

possible will become feasible, they say, as access to the Internet expands beyond the personal computer to shopping malls, retail stores, airports, bus stations, and even cars. The authors describe how the ubiquitous Internet will hasten the demise of the destination Web site—and open up attractive opportunities to reach customers through marketing “mobilemediaries”: smart cards, e-wallets, bar code scanners, and so on.

Using the Internet to facilitate business-to-business, or B2B, commerce promises many benefits, such as dramatic cost reductions and greater access to buyers and sellers. Yet little is known about how B2B e-commerce will evolve. In “Beyond the Exchange: The Future of B2B,” Richard Wise and David Morrison provide important clues. Drawing on the experience of the financial services industry, which has many of the same characteristics as the B2B industry, the authors argue that on-line exchanges will not be the primary source of value in B2B markets. Rather, value will tend to accumulate among a diverse group of specialists that focus on such tasks as packaging, standard setting, arbitrage, and information management. Originators will handle the origination and aggregation of complex transactions before sending them onto the exchanges for processing. E-speculators will jump in and out of high-volume markets, making profits by trading on the basis of sophisticated analyses of real-time market data. Independent “solution providers” will operate in niches, offering product sales as just one element in a suite of distinctive services. And sell-side asset exchanges will help groups of suppliers swap and resell orders among themselves. As for exchanges, they will get very big, but they are unlikely to ever be very profitable.

Reimagining Management

As markets change, so too must management. That’s the subject of Part III of this book. In “Bringing Silicon Valley Inside,” Gary Hamel sounds a call to arms, encouraging executives to emulate the entrepreneurs of Northern California. In Silicon Valley, he says, ideas, capital, and talent circulate freely, gathering into whatever combinations are most likely to generate innovation and wealth. Unlike most traditional companies—which spend their energy in resource allocation, a system designed to avoid failure—the Valley operates through resource attraction, a system that nurtures innovation. In a traditional

company, people with innovative ideas must go hat in hand to the guardians of the old ideas for funding and staff. But in Silicon Valley, a slew of venture capitalists vie to attract the best new ideas, infusing relatively small amounts of capital into a portfolio of ventures. And talent is free to go to the companies offering the most exhilarating work and the greatest potential rewards. By setting up similar markets for capital, ideas, and talent inside their own walls, big companies can accelerate their own innovation and value creation.

In “Meeting the Challenge of Disruptive Change,” Clayton Christensen and Michael Overdorf present a darker view of companies’ ability to innovate. They argue that the reason large companies fail to capitalize on the opportunities brought about by major, disruptive changes in their markets lies in the very capabilities that define those companies. As any company grows, what it can and cannot do becomes more sharply defined in certain predictable ways. When the company is young, its resources—its people, equipment, technologies, cash, brands, suppliers, and the like—define what it can and cannot do. As the company matures, its abilities stem more from its processes—for example, product development, manufacturing, and budgeting. In the largest companies, values—particularly those that determine what are the companies’ acceptable gross margins and how big an opportunity has to be before it is worth pursuing—define what the company can and cannot do. Because resources are more adaptable to change than processes or values, smaller companies tend to respond to major market shifts better than larger companies. The lesson that Christensen and Overdorf teach is a fatalistic one: more frequently than not, large companies cannot successfully transform themselves; they are what they are.

Ricardo Semler, in “How We Went Digital Without a Strategy,” provides a more optimistic view of organizational change. Semler, the majority owner of Semco in São Paulo, Brazil, believes that real change cannot be dictated from above; it only happens when individual employees are given complete freedom to pursue their own interests. While many executives pay lip service to empowerment, Semler literally gives his employees complete control over what they do and how they do it. The company has no set work hours, no assigned offices, no policy manuals, no compensation standards; it doesn’t even have an HR department. Semco’s experience shows that such a radical approach can pay off in the digital economy. Until recently, the company earned the vast majority of its revenues from manufacturing.

But over the last few years it has moved successfully into services and from there into Web markets and other Internet initiatives. The company's ability to transform itself derives wholly from the freedom—and the funding—it gives its people.

We end with “Managing for the Next Big Thing,” Paul Hemp’s interview with Michael Ruettggers, the CEO of data-storage giant EMC, one of the most successful companies of the past ten years. Ruettggers speaks in detail about the managerial practices that have allowed EMC to anticipate and exploit technological advances and market opportunities ahead of its competitors. Emphasizing timing and speed has been critical to EMC’s success. Rather than develop and introduce new products sequentially, the company simultaneously pursues multiple generations of new storage technologies, and it avoids excessive product refinements that can slow time to market. Through quarterly goal-setting and monthly forecasting meetings, the company imbues a sense of urgency in every one of its employees. Perhaps most important, it has many formal programs to bring the insights and opinions of customers into its own operations. EMC engineers, for example, frequently meet with customers in intensive working sessions to refine ideas to better meet market needs, and the company monitors customers’ use of its products in real time. In many ways, EMC presents a model, or at least a prototype, of the digital enterprise—a company adapted to the new business infrastructure and new competitive pace of the digital age. EMC’s story provides a positive note on which to close this book, for it reveals not only the challenges that lie ahead for all companies, but also the enormous rewards available to those companies that meet the challenges successfully.

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