Colonizers and Consolidators

The Two Cultures of Corporate Strategy

by Costas Markides and Paul Geroski

Take this quick test: Which innovative company created online bookselling in the 1990s? If your answer is Amazon.com, you are wrong. The idea for online bookselling — and the first online bookstore — came from Charles Stack, an Ohio-based bookseller, in 1991. Computer Literacy, a successful retail chain, also registered an Internet domain name for a bookstore in 1991. Amazon did not enter the market until 1995.

Another quiz: Which innovator came up with the idea for online brokerage services? If you answered Charles Schwab or E-Trade, again you are wrong. Two Chicago brokerage firms — Howe Barnes Investments Inc. and Security APL Inc. — launched the first Internet-based stock trading service, a joint venture called the Net Investor, in January 1995. Schwab did not launch its Web-trading service until March 1996.

Both examples highlight a simple point: The individuals or companies that create radically new markets are not necessarily the ones that scale them into mass markets. Indeed, historical evidence shows that in the majority of cases, product and service pioneers are almost *never* the ones to conquer the markets they create. For at least 20 years, the Xerox Corporation has been derided for its inability to successfully commercialize scores of new products and technologies, including, notably, the now ubiquitous personal computer OS interface, developed at its PARC research center in Northern California. In reality, Xerox's failure is more the norm than the exception.

For those brought up to believe in the enduring value of "pioneering" and "first-mover advantage," such a statement may come as a surprise. However, recent

Illustration by Michael Klein

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work by many scholars, including William Boulding, a professor at Duke University's Fuqua School of Business, and Markus Christen, an assistant professor at INSEAD; former Booz Allen Hamilton executives Rhonda Germany, Raman Muralidharan, Charles E. Lucier, and Janet D. Torsilieri; Steven P. Schnaars, a professor of marketing at Baruch College's Zicklin School of Business; and Gerard J. Tellis, of the University of Southern California's Marshall School of Business, and Peter N. Golder, an associate professor at New York University's Stern School of Business — as well as our own research — has shown that the widely held belief that pioneers enjoy first-mover advantages and grow to market dominance is simply wrong.

Our research, which examined the early evolution of several new markets, provided a number of clues about how markets are created, how they evolve, and what their structural features and characteristics are in their early formative years. (See "Research Methodology," following page.) In industry after industry, we saw the same pattern unfold: Upon the creation of a new market, there's a mad entry rush by scores, sometimes hundreds, of players to colonize it. At some stage in the evolution of the market, a "dominant design" emerges, which standardizes the core product or service being produced, gives it its lasting identity, and defines the identity of the market it serves. Upon the emergence of this dominant design, a shakeout and consolidation takes place in the market: The overwhelming majority of early movers that choose the wrong design go out of business; a few prescient (or lucky) ones that bet on the winning design survive, and a handful of these grow to market dominance.

For example, more than 1,000 firms populated the U.S. automotive industry at one time or another between its creation in 1885 and the introduction of Ford's Model T in 1908; dozens of new carmakers entered and exited the industry each year during that period. Yet by the late 1950s, only seven auto manufacturers were left in the United States. Similarly, there were more than 274 competitors in the tire market in the early 1920s. Fifty years later, no more than 23 had survived. And from a peak of 89 competitors in the television-set industry in the 1950s, only a small number of U.S.-owned manufacturers existed at the end of the 1980s — and none after 1995.

Although the survivors in the consolidation wars are those that, by definition, selected the winning design, only a handful of these lucky or insightful victors will grow to dominate the new market. The eventual market leaders are the firms that proactively and strategically invest to grow the market and attract the average customer to it. These winners are scarcely ever the early entrants. Indeed, the early entrants — we call them colonizers — are almost never the successful consolidators. Most colonizers disappear, never to be heard from again.

The fact that firms that create new product and service markets are rarely the ones that scale them into mass markets carries serious implications for the modern corporation. Our research points to a simple reason for this phenomenon: The skills, mind-sets, and competencies needed for discovery and invention not only are *different* from those needed for commercialization; they *conflict* with the needed characteristics. This means that firms good at invention are unlikely to be good at commercialization, and vice versa.

Some firms are natural colonizers, able to explore

new technologies quickly and effectively and to make the creative leap from a technological novelty to a product or service that meets customer needs. What these firms are good at is creating new market niches. Other firms are natural consolidators. They are able to organize a market, turning a clever idea into something that reliably and regularly meets the promise, can attract consumers, and can be manufactured and distributed efficiently to a mass market.

Very few firms are good at both sets of activities.

Colonizers' Commitments

What skills are needed for effective pioneering? To answer this question, we need to understand how new, disruptive markets are created, and by whom. Our historical analysis of 20 markets that were created in the last 100 years shows that the creation of new markets is consistently accompanied by the same four events:

- The haphazard (and at times accidental or lucky) development of a new technology
- A flood of companies entering the uncertain (and risky) market opened by the development of this new technology
- A slow initial uptake of the products and services associated with the new technology, followed by a huge explosion of customer interest when a dominant design is established
- The death of most of the early entrants (and their products) once a design emerges as dominant

The oft-told story of the development of the Internet provides a ready example. The technologies associated with its invention and growth, including the TCP/IP protocol, the HTML programming language, and the Mosaic browser, were developed randomly. No one involved with the technology in the early days had any idea of the scope or scale of the end product. No one had a master plan that linked the development of new client-server relations to the possibility of booking a hotel room by computer from a mobile phone. This apparently unplanned, unsystematic development of the underlying technology seems to have been largely a consequence of how the work was done, and by whom — mainly scientists and engineers in research institutes and universities that were under contract, at least at the start, to the U.S. Department of Defense.

When the "finished" Internet emerged from the convergence of the three "killer" platform technologies, numerous business possibilities presented themselves. They were poorly defined, but attractive enough to draw hordes of new entrants with a variety of different types of business models. This, in turn, triggered a signal that led to massive market expansion: By introducing new applications, these colonizers made using the Internet attractive for a vast number of new types of consumers and businesses. Internet connection rates, usage, and the revenues generated by various businesses on the Net grew vertiginously.

Yet, while the World Wide Web seemed like an overnight sensation, the fact is its takeoff took decades, and its existence and evolution cannot be credited to any clear customer needs. Rather, engineers "playing" with new technologies propelled the new market onto an unsuspecting population.

Our research shows that a variation on this theme introduces all radically new markets. Such markets, we find over and over, are rarely created by demand or customer needs. Demand-driven innovations can, at best, develop and extend existing markets incrementally. These innovations usually come in the form of either product extensions or process innovations; valuable as they are, they do not create disruptive new markets. Evidence shows that disruptive new markets are actually created in a haphazard manner when a new technology gets *pushed* onto a market.

This kind of innovation process is called "supply push" by economists, and it has a peculiar property: Since innovation leads demand, inventors have to aim at a very imprecise target. Indeed, most new products are *experience goods*; customers are able to form clear preferences about them only by using them. This is very important, and it carries three major implications:

Research Methodology

We examined the historical evolution of 20 newly created markets, from the moment they were formed until they grew to mass market. The 20 markets were television, personal computers, scientific instruments, the Internet, supercomputers, online groceries, cars, beer, Internet service provision, tires, semiconductors, baked beans, genetically modified foods, mobile phones, video recorders, satellite TV, stereo sound, typewriters, computer operating systems, and medical diagnostic imaging. We first examined what new technologies were developed that gave rise to the new products or services and how these technologies were discovered. We then studied how the new markets developed in their early years, how many companies entered and exited the market, and what kinds of product (or service) variants developed. Finally, we examined how the market developed once a dominant design emerged and what firms survived this event. Further details of this research can be found in *The Early Evolution of New Markets*, by Paul Geroski.

• Since the new product or service does not meet an immediate, well-articulated need, it is likely that a long period of time will pass before customers adopt it. Hence, one can expect adoption rates to be slow.

• Since there are no well-articulated needs, it is impossible to be sure of the right design of a new product or service built on the new technology. Hence, the market is likely to fill rapidly with a large supply of products and product variants, as entrepreneurs make guesses about customer wants and needs.

• Since customer preferences will evolve with experience, there is likely to be as much product development postinnovation as there is before the introduction of the new product. Hence, there are likely to be plenty of opportunities for a second mover to come into the market and win a position.

All this suggests that early markets are volatile and unpredictable places, characterized by high technological and customer uncertainty. New entrants come and go, experimentation is a way of life, and high turnover is the norm. Yet these markets are also characterized by two identifiable types of fluidity: fluidity in the number of and rate by which firms enter and leave the market; and fluidity in the number of products and product/feature variants created.

To survive in such an environment — as inhospitable as it may be exciting — colonizers must have certain traits. They must be enthusiasts. They must have deep knowledge of the basic science and technology and should be interested in pushing it as far as they can. This means that colonizers are often serial risk takers. They are willing to bet on seriously speculative projects that result in new products well beyond the frontier of current knowledge about the relevant science and technology. Colonizers often assume that customers share their enthusiasm for science and technology, and value performance in the same way the inventors do.

Colonizers need to be flexible and adaptable so that they can respond to the developments of the new technology or of the new market. They need to be relatively open to outside influences and to have internal processes that facilitate the learning of technical information. On the other hand, they do not require marketing skills (they often need to cultivate the attentions of only a few lead users), and they do not need production skills. Their organizations are not required to be very large or complex, so colonizers don't have to have organizational skills or the ability to build and monitor complex accounting, personnel, or service delivery systems. Typically, colonizers are quick-hit entrants; their competitive advantage arises from their ability to be flexible and agile and to hit their continually moving target accurately.

Effective Consolidators

Compare this set of skills with the competencies consolidators must have to grow niches into mass markets.

Consolidators need to win the dominant design battle and then unify the market whose potential they unleash. Typically, that means making heavy investments in exploiting scale economies, following learning curves, developing strong brands, and controlling the channels of distribution to the mass market.

Creating a dominant design and consolidating a market around it is a formidable task. To do it successfully, a firm needs to make serious investments in production, so it can consistently and efficiently produce a high-quality product. Furthermore, a consolidator needs to be able to sway consumers and create a marketplace consensus to support its proposed dominant design. That requires the consolidator to identify, reach out to, and overcome the risk aversion of the many potential customers who are unwilling to shoulder the hazards of choosing from among a developing market's multiple prototypes. Therefore, a consolidator must have the ability to build brands. Consolidators also must have the skills to create an organization that can distribute to the mass market and serve a large and continuously growing customer base.

For these and other reasons, consolidators are typically slow movers — and they ought to be. The investment in consolidating a market involves substantial sunk costs and should not be undertaken lightly. Consolidators are also risk averse. Having invested heavily in the growth of the market, they are unwilling to throw it all away by undertaking risky investments or projects that might cannibalize their installed customer base.

One can imagine the complexity of trying to set up structures, cultures, and processes that facilitate both colonization and consolidation. The incentives and investment horizons needed to do each activity well are fundamentally different and can rarely coexist. The attitudes toward risk are different. Even the mind-sets and behaviors needed for each activity are so different that coexistence is next to impossible. Perhaps this is why several researchers (e.g., Christopher Meyer and Rudy Ruggles of the now-closed Center for Business Innovation, and James Brian Quinn, emeritus professor

Colonizers are enthusiasts. They are serial risk takers. And they assume that customers share their interest in science and technology.

of management at Dartmouth College's Amos Tuck School of Business) have advised established companies to "outsource" innovation.

The example of Lotus, now part of IBM, highlights how difficult it is to combine the two types of organizations. As Robert Sutton has reported in the *Harvard Business Review*, after Lotus's initial success with its "killer application" product, the spreadsheet program Lotus 1-2-3, the company brought in experienced professional managers to guide it forward. It soon discovered, however, that the structures and processes that the mature Lotus needed to function effectively were inhibiting innovation. In a now-famous experiment to demonstrate this, Lotus executives assembled the resumes of the first 40 people to join the company, changed their names, and put them into the applicant group. Not one was asked in for an interview; the professional managers who were running Lotus considered the "wacky" risk takers who had created the company too deviant from the current culture to warrant even a phone call.

Contemporary business is filled with examples that support the distinctions between colonization and consolidation skills. Apple Computer Inc. pioneered the home PC market, but was unable to scale it up. However, Apple's competencies may yet allow it to win as an online music and entertainment distribution company, expanding a niche that industry pioneer RealNetworks Inc. helped invent but has been unable to scale profitably. The Microsoft Corporation might appear to be both colonizer and consolidator; in fact, though, the company's expertise is in following and growing markets uncovered by others, whether in word-processing programs (Microsoft Word versus WordPerfect), spreadsheets (Excel versus Lotus), operating systems (Windows versus Mac OS), or other products.

There are, of course, exceptions to this rule. 3M was successful in both discovering and commercializing the Post-it Note. But such cases are rare. If we are careful in examining how new markets are created and who the early pioneers really are, we soon see that the companies that scaled up the new markets are rarely the early entrants.

Where Dinosaurs Thrive

Consider most big, established companies in the economy. Given the skills, competencies, attitudes, and cultures they possess, it should come as no surprise to learn that their expertise is in consolidation. Established companies, by definition, have the financial resources, market power, reputation, brand-building skills, and manufacturing ability that consolidation of a market requires. The very firms that we have come to call bureaucracies or dinosaurs are often the ones perfectly positioned to take a niche market and scale it.

That's the good news for established firms. The bad news is that, as we have seen, such firms are not good at *creating* new markets. They often lack the curiosity and the internal incentives to apply new scientific knowledge to what seem like blue-sky projects. They also lack the entrepreneurial skills to succeed with disruptive innovations. Consolidators do not have the cultures or structures necessary to withstand the turbulent environments that characterize new markets. And they lack the attitudes and mind-sets that are required for pioneering.

The best evidence for this is the almost total vacuum during the past quarter-century of dramatic technological upheavals that began at large companies. As Richard

Focus: The Ambidextrousness of E. Leclerc

E. Leclerc, the French supermarket chain, gives us an example of the successes — and the challenges — of operating as an ambidextrous organization. E. Leclerc was founded in the late 1950s by Edouard Leclerc, who gave up a career as a Catholic priest to start a supermarket dedicated to offering branded products at low prices. The organization has grown to a chain of more than 500 hypermarkets. It is now expanding beyond France.

E. Leclerc is a master at balancing quite a few conflicting forces: It has achieved low cost and differentiation simultaneously; it is very decentralized in some value-chain activities and yet centralized in many others; it is broken up into many small autonomous units but still enjoys the benefits of size; it is structured as a federation of independent stores yet behaves as an integrated network; it encourages continuous experimentation with new products and concepts yet survives the inevitable losses without pain; its employees feel and act like "owners" of the organization yet own no stock; the whole organization behaves like one big family yet is a money-making machine.

How could it possibly achieve all these things simultaneously, and how does it manage such variety?

The answer has many angles. First, E. Leclerc is not a single company. The stores are owned and operated by different individuals who choose to trade under the E. Leclerc name. They are not franchisees in the conventional sense: They do not have to pay for the right to use the E. Leclerc name; in fact, they receive numerous benefits from their E. Leclerc association for which they do not have to pay anything. However, they have to abide by certain norms and regulations, including the primary rule that they will never be undersold by competitors. In addition, no individual — including members of the Leclerc family — is allowed to own more than two stores.

Each store is given total autonomy over its affairs. Each is free to decide what products to sell, what prices to charge, what promotions to run, and so on. In addition, each store can find its own suppliers and negotiate its own prices.

Such decentralization and autonomy encourage experimentation, and the structure achieves differentiation, but not at the expense of low cost. For example, each region has its own warehouse, which is owned by the member stores. On behalf of all its members, the warehouse orders and stores those products that do not need to be sold fresh. This achieves purchasing economies. In addition, a cen-

Leifer et al. ask in the book *Radical Innovation*, "How many big companies pioneered the technologies and business models that now dominate e-commerce, personal computing, biotech, and wireless communications?" The answer, according to the authors, is none — which not only subverts the message of their own subtitle, *How Mature Companies Can Outsmart Upstarts*, but undermines the theories of many management gurus about how established firms can strategically innovate in their industries.

Prominent among these beliefs is that established companies can "learn" or "adopt" the skills and attitudes of pioneers in order to create new markets. Look, their advisors tell them: Don't you want to be like Body Shop or Cisco or Virgin? All you have to do is adopt *their* structures, cultures, and processes. Who says elephants can't dance? Just go on a diet and lose some of that excess weight, learn a few tricks, and off you go!

As we have argued in this article, this would not do the established firms much good. Attempting to incorporate the new skills into the existing organization almost always produces one of two outcomes: Either the existing culture and attitudes reject the new transplants, or the transplanted skills and attitudes take over and destroy the very things that have made the established firm a success (and that it still needs to be successful in its existing business).

This helps explain why most established firms, while they are happy to pay high lecture fees, are actually unwilling to implement the advice and ideas that academics and consultants have developed over the past few years to make industry giants more innovative. For example, Gary Hamel has proposed such ideas as making the strategy process democratic and "bringing Silicon Valley inside the organization." Similarly, Costas Markides, an author of this article, argued in 1997 and 1998 that corporations should import into their organizations those features of capitalism that promote innovation (such as decentralized allocation of resources, multiple sources of financing, and constant experimen-

tral purchasing department in Paris identifies potential suppliers and negotiates prices with them. Although individual stores do not have to use a centrally recommended supplier, this method also helps achieve purchasing economies. The use of the E. Leclerc name by all has advertising and promotional benefits and cuts costs. Finally, new E. Leclerc stores are always started by current E. Leclerc employees, who receive the financial backing and guarantees of current E. Leclerc store owners. The financial backing of a prominent local businessperson has benefits in dealing with the banks for startup capital.

Every owner is active in the management of the whole organization. All attend monthly regional meetings as well as frequent national meetings, where decisions are made and experiences exchanged.

Each store belongs to a region, and each region is "run" by a member for three years (on a voluntary basis). The regional president directs the affairs of the region and travels extensively to individual stores to offer advice, monitor plans, and transfer best practices. Furthermore, at the end of each year, each owner has to distribute 25 percent of the store's profits to its employees.

Owners also have the "duty" (not obligation) to act as a "godparent" to one of their employees. The selected employee is someone who has been identified as having high potential and who might be a future E. Leclerc owner. This individual receives continuous support and advice and, when the time comes, financial backing and moral support to start a store. If the new store fails, the "godparent" is financially responsible for liabilities.

How is so much variety managed? Information systems are used to monitor what is happening across the "federation." Frequent meetings also help owners exchange ideas and monitor progress. But the two primary mechanisms of control are (1) a common and deeply felt vision that sets the parameters within which each member store operates; and (2) a strong family culture in which everybody is treated with fairness and openness and all are equal. It is interesting that each store has its own unique culture (created primarily by the personality of the store owner), yet a common E. Leclerc culture still permeates the whole organization. This common culture sets the parameters, the norms, the shared values, and the constraints within which individuals behave. It is this shared culture that allows so much autonomy and freedom without the fear that somebody, somewhere, will do something nasty.

—C.M. and P.G.

tation). This is all sensible stuff, and the ideas appear logical and creative. But how many established companies do you know that have adopted any of them? All this advice might be helpful in making a company more innovative in general, but it will not help established companies create radically new markets.

A similar point has also been made in a slightly different context by Christopher Meyer and Rudy Ruggles. They, too, once believed it was possible to teach established companies how to innovate with the same verve as pioneers, "codify[ing] their secrets into a replicable process that we can impose on our own organizations." But, they conceded last year in the *Harvard Business Review*, "Our attitude is shifting. We now warn companies, 'Don't try this at home.' Like many activities that involve talent and tacit learning, reconnaissance requires an inherent feel for the work and lots of practice. Not many companies can claim that inherent strength; nor can they devote much time to practicing, given that their day-to-day work is exploitation, not exploration."

This isn't to say that established firms have to give up completely on the possibility of creating new markets. Clayton M. Christensen has offered another, more viable option. Recognizing how difficult it is for colonization skills to coexist with consolidation skills, he and his colleagues, as well as Robert A. Burgelman and Leonard R. Sayles, in their 1986 book, *Inside Corporate Innovation: Strategy, Structure, and Managerial Skills*, have advocated the creation of separate units or divisions within established organizations where new, disruptive growth businesses can be nurtured.

Resorting to a separate organizational entity is certainly possible; IBM adopted this strategy when it moved into the PC business, and so did the Royal Bank of Scotland when it created a telephone insurance service in the U.K. But such a strategy is not without problems. Our own recent research on the topic has shown that creating a separate unit to protect the pioneers from the stifling bureaucracy of the established firm is neither necessary nor sufficient for success. Costs are incurred

by the failure to exploit synergies between the two businesses. The "pioneer" unit is also left exposed to attacks from established companies in the industry. Attempts to solve these problems often end up in failure because the established parent begins to apply its own mind-sets and processes to the startup's business.

A third alternative for established firms that want to create radical new markets has been proposed by Michael L. Tushman, of the Harvard Business School, and Charles A. O'Reilly III, of the Stanford Graduate School of Business. They argue that pioneering and consolidation can coexist if the company is successful in creating an "ambidextrous" organizational infrastructure. Such an organization will have successfully put in place multiple, contradictory structures, processes, and cultures. E. Leclerc, the French supermarket chain, is an excellent example of a successful ambidextrous company. (See "Focus: The Ambidextrousness of E. Leclerc," page 7.)

Although the ambidextrous organization is an admirable model, examples are unfortunately few and far between. As Professors Tushman and O'Reilly themselves admit, only a small minority of farsighted firms can claim to be ambidextrous. Most firms that try to operate this way will fail.

Finding Feeders

The final option — and the one that most companies have ignored — is for established businesses to leave the challenges of market creation to startup firms and focus their own attention and resources on consolidation.

But to become successful consolidators, they must be ready to jump into a new market just when the dominant design is about to emerge and the market is ready to take off. For such perfect timing, established firms must create, sustain, and nurture a network of feeder firms — young entrepreneurial companies that are busy colonizing new niches. Through its business development function, the established company could serve as a venture capitalist to these feeder firms. Then, when it is time to consolidate the market, it could build a new mass-market business on the platform that these feeder firms have provided.

Such a specialization of labor already exists in creative industries — movies, book publishing, and the visual and performing arts. As Richard Caves notes in his book *Creative Industries: Contracts Between Art and Commerce*, firms in creative industries are either small-scale pickers that concentrate on the selection and development of new creative talent, or large-scale promoters that undertake the packaging and widespread distribution of established creative goods.

Messrs. Meyer and Ruggles say that a small but rapidly growing industry is emerging around firms that specialize in exploration in non-entertainment industries as well, allowing mature firms to outsource their exploration needs and focus on growing the ideas into mass markets. James Brian Quinn, too, points out that strategically outsourcing innovation is now an accepted practice in a number of industries, including pharmaceuticals, financial services, computers, telecommunications, and energy systems.

Such a "network" strategy has several advantages over the "grow it inside" strategy: It allows the firm to cover more technologies and more market niches; it enables the feeder firms to compete with one another while allowing the parent company to benchmark one against the other; it is easier to manage because it by-

passes the problems of trying to manage two conflicting businesses simultaneously; and it has all the traditional benefits of outsourcing.

Indeed, one can credibly argue that the outsourcing model is in fact the one that has been adopted historically by large firms, albeit in an unplanned and haphazard way. For what are colonizers if not an external source of innovation? And aren't consolidators appropriators and scalers of others' innovations? In effect, we are arguing merely for adding a consciousness to what previously has been an unconscious, random process.

Therefore, the right way forward for established, mature firms is not to build their own new business inside and then consolidate when the time is right. Rather, they should maintain and manage a feeder system of colonizer businesses — very much what pharmaceutical companies are doing with biotech and what Unilever, for example, is doing with new consumer products. Then, when the time is right, they should move in for consolidation and scale up what their partners are doing.

We are aware that this cuts against the grain of much of the thinking of the last few years, which aimed to make established corporations more "entrepreneurial" by developing the cultures and structures of the younger startup firms. In our view, this is misplaced counsel. It's like advising a 70-year-old person how to train to win at the next Olympics — it simply won't happen!

By trying to be ambidextrous, established companies risk being "stuck in the middle." What they need to do is focus on the area where they have an advantage — and that is in consolidating good new ideas drawn from niche markets into new and valuable mass markets. +

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Resources

Rhonda Germany and Raman Muralidharan, "The Three Phases of Value Capture: Finding Competitive Advantage in the Information Age," *s+b*, First Quarter 2001; www.strategy-business.com/press/article/?art=17915

Charles E. Lucier and Janet D. Torsilieri, "The Trillion-Dollar Race to 'E,'" *s+b*, First Quarter 2000; www.strategy-business.com/press/article/?art=19162

William Boulding and Markus Christen, "First-Mover Disadvantage," *Harvard Business Review*, October 2001; www.harvardbusinessonline.com

Clayton M. Christensen, Mark W. Johnson, and Darrell K. Rigby, "Foundations for Growth: How to Identify and Build Disruptive New Businesses," *Sloan Management Review*, Spring 2002; http://smr.mit.edu/

Gary Hamel, "Bringing Silicon Valley Inside," *Harvard Business Review*, September/October 1999; www.harvardbusinessonline.com

Gary Hamel, "Strategy as Revolution," *Harvard Business Review*, July/August 1996; www.harvardbusinessonline.com

Constantinos Markides, "Strategic Innovation," *Sloan Management Review*, Spring 1997; http://smr.mit.edu/

Constantinos Markides, "Strategic Innovation in Established Companies," *Sloan Management Review*, Spring 1998; http://smr.mit.edu/

Christopher Meyer and Rudy Ruggles, "Search Parties," *Harvard Business Review*, August 2002; www.harvardbusinessonline.com

James Brian Quinn, "Outsourcing Innovation: The New Engine of Growth," *Sloan Management Review*, Summer 2000; http://smr.mit.edu/

Robert Sutton, "The Weird Rules of Creativity," *Harvard Business Review*, September 2001; www.harvardbusinessonline.com

Michael L. Tushman and Charles A. O'Reilly III, "The Ambidextrous Organization: Managing Evolutionary and Revolutionary Change," *California Management Review*, Summer 1996; www.haas.berkeley.edu/News/cmr

Robert A. Burgelman and Leonard R. Sayles, *Inside Corporate Innovation: Strategy, Structure, and Managerial Skills* (Free Press, 1986)

Richard Caves, *Creative Industries: Contracts Between Art and Commerce* (Harvard University Press, 2002)

Clayton M. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail* (Harvard Business School Press, 1997)

Paul Geroski, *The Early Evolution of New Markets* (Oxford University Press, 2003)

Gary Hamel, *Leading the Revolution* (Harvard Business School Press, 2000)

Richard Leifer, Christopher M. McDermott, Gina Colarelli O'Connor, Lois S. Peters, Mark P. Rice, and Robert W. Veryzer, *Radical Innovation: How Mature Companies Can Outsmart Upstarts* (Harvard Business School Press, 2000)

Steven P. Schnaars, *Managing Imitation Strategies: How Later Entrants Seize Markets from Pioneers* (Free Press, 1994)

Gerard J. Tellis and Peter N. Golder, *Will and Vision: How Latecomers Grow to Dominate Markets* (McGraw-Hill, 2002)

Constantinos Markides and Constantinos Charitou, "Competing with Dual Strategies," Working Paper, London Business School, March 2003