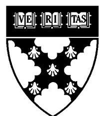
Unbundling the Corporation

by John Hagel III and Marc Singer



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WHAT BUSINESS ARE YOU REALLY IN?

CHANCES ARE, IT'S NOT WHAT YOU THINK.

UNBUNDLING THE CORPORATION

by John Hagel III and Marc Singer

IN THE LATE 1970S, THE COMPUTER INDUSTRY WAS DOMINATED BY huge, vertically integrated companies like IBM, Burroughs, and Digital Equipment. With their vast scale advantages and huge installed bases, they seemed unassailable. Yet just ten years later, the power in the industry had shifted. The behemoths were struggling to survive while an army of smaller, highly specialized companies was thriving. What happened? The industry's sea change can be traced back to 1978, when a then-tiny company, Apple Computer, launched the Apple II personal computer. The Apple II's open architecture unlocked the computer business, allowing the entry of many new companies that specialized in producing specific hardware and software components. Immediately, the advantages of the generalist – size, reputation, integration – began to wither. The new advantages – creativity, speed, flexibility – belonged to the specialist.

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The story of the computer industry illustrates the crucial role that interaction costs play in shaping industries and companies. *Interaction costs* represent the money and time that are expended whenever people and companies exchange goods, services, or ideas.[1] The exchanges can occur within companies, among companies, or between companies and customers, and they can take many everyday forms, including management meetings, conferences, phone conversations, sales calls, reports, and memos. In a very real sense, interaction costs are the friction in the economy.

> When you look beneath the surface of most companies, you find three very different kinds of businesses.

Taken together, interaction costs determine the way companies organize themselves and the way they form relationships with other parties. When the interaction costs of performing an activity internally are lower than the costs of performing it externally, a company will tend to incorporate that activity into its own organization rather than contract with an outside party to perform it. All else being equal, a company will organize in whatever way minimizes overall interaction costs.

The arrival of Apple's open architecture dramatically reduced interaction costs in the computer industry. By conforming to a set of well-documented standards, companies could, for the first time, easily work together to produce complementary products and services. As a result, tightly coordinated webs of specialized companies – with names like Apple, Intel, Microsoft, Sun, Adobe, and Novell – could form and ultimately compete effectively against the entrenched, vertically integrated giants. Many of the new companies grew very large very quickly, but they never lost their focus on carrying out specialized activities.

The moral of the story? Changes in interaction costs can cause entire industries to reorganize rapidly and dramatically. Today, that fact should give all managers pause, for we are on the verge of a broad, systemic reduction in interaction costs throughout the world economy. Electronic networks, combined with powerful personal computers, are enabling companies to communicate and exchange data far more quickly and cheaply than ever before. As more business interactions move onto electronic networks like the Internet, basic assumptions about corporate organization will be overturned. Activities that companies have always believed to be central to their business will suddenly be offered by new, specialized competitors that can do them better, faster, and more efficiently. Executives will be forced to ask the most basic and the most discomforting question about their companies: What business are we really in? Their answers will determine their fate in an increasingly frictionless economy.

One Company, Three Businesses

When you look beneath the surface of most companies, you find three kinds of businesses – a customer relationship business, a product innovation business, and an infrastructure business. Although organizationally intertwined, these businesses are actually very different. They each play a unique role; they each employ different types of people; and they each have different economic, competitive, and even cultural imperatives. (See the exhibit "Rethinking the Traditional Organization.")

The role of a customer relationship business is to find customers and build relationships with them. If you're a bank or a retailer, for example, your marketing function focuses on drawing people into your branches or stores. Another set of employees – loan officers or store clerks, perhaps – assists the customers and tries to build personal relationships with them. Still other employees may be responsible for responding to questions and complaints, processing returns, or collecting customer information. Although these employees may belong to different organizational units, they have a common goal: to attract and hold on to customers.

The role of a product innovation business is to conceive of attractive new products and services and figure out how best to bring them to market. In a bank, for example, employees within various product units or in a centralized business-development function research new products like reverse mortgages and ensure that the bank is capable of bringing them to market successfully. In a retailer, buyers and merchandisers perform the product innovation role, constantly searching for interesting new products and effective ways to present them to shoppers.

The role of an infrastructure business is to build and manage facilities for high-volume, repetitive operational tasks such as logistics and storage, manufacturing, and communications. In a bank, the infrastructure business builds new branches, maintains data networks, and provides the back-office transactional services needed to process deposits and withdrawals and present statements

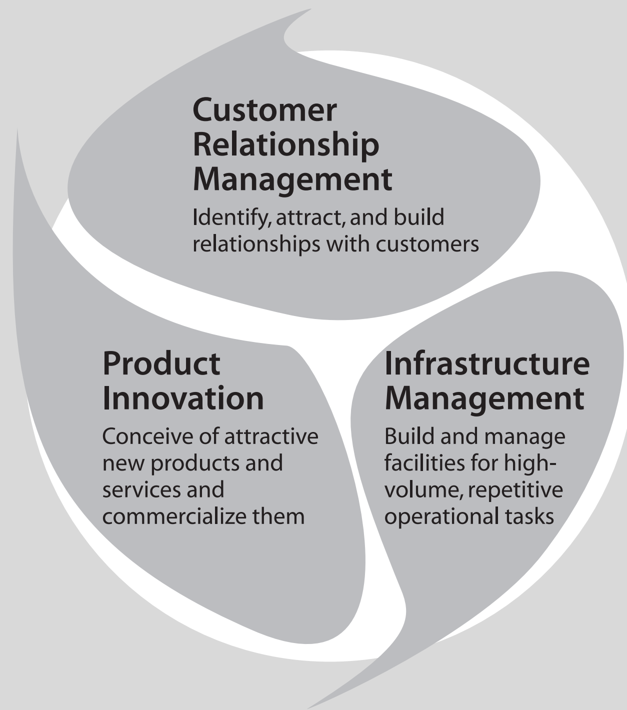
to customers. In a retailer, the infrastructure business constructs new outlets, maintains existing outlets, and manages complex logistical networks to ensure that each store receives the right products at the lowest possible cost.

These three businesses – customer relationship management, product innovation, and infrastructure management – rarely map neatly to the organizational structure of a corporation. Product innovation, for example, typically extends beyond the boundaries of a product development unit to include such activities as conducting market research, qualifying component suppliers, training sales and support people, and designing marketing materials. Rather than representing discrete organizational units, the three businesses correspond to what are popularly called "core processes" – the cross-functional work flows that stretch from suppliers to customers and, in combination, define a company's identity.

Managers talk about their key activities as "processes" rather than as "businesses" because, with rare exceptions, they assume that the activities ought to coexist. Nearly a century of economic theory underpins the conventional wisdom that the management of customers, innovation, and infrastructure must be combined within a single company. If those activities were disbursed to separate companies, the thinking goes, the interaction costs required to coordinate them would be too great. It's cheaper to do them yourself.

Working from that assumption, large companies have in recent years expended a lot of energy and resources reengineering and redesigning their core processes. They've used the latest information technology to eliminate handoffs, cut waiting time,

Rethinking the Traditional Organization



As interaction costs fall, companies will come under pressure to unbundle their core processes, each of which has very different economic, cultural, and competitive imperatives.

	Product Innovation	Customer Relationship Management	Infrastructure Management
Economics	Early market entry allows for a premium price and large market share; speed is key	High cost of customer acquisition makes it imperative to gain large shares of wallet; economies of scope are key	High fixed costs make large volumes essential to achieving low unit costs; economies of scale are key
Culture	Employee centered; coddling the creative "stars"	Highly service oriented; "customer comes first"	Cost focused; stress on standardization, predictability, efficiency
Competition	Battle for talent; low barriers to entry; many small players thrive	Battle for scope; rapid consolidation; a few big players dominate	Battle for scale; rapid consolidation; a few big players dominate

and reduce errors. For many companies, streamlining core processes has yielded impressive gains, saving substantial amounts of money and time, and providing customers with more valuable products and services.

But as managers have found, there are limits to such gains. Sooner or later, companies come up against a cold fact: the economics governing the three core processes conflict. Bundling them into a single corporation inevitably forces management to compromise the performance of each process in ways that no amount of reengineering can overcome.

Take customer relationship management. Finding and developing a relationship with a customer usually requires a big investment. Profitability hinges on achieving economies of scope – extending the relationship for as long as possible and generating as much revenue as possible from it. Only by gaining a large share of a customer's wallet and retaining that share over time can a company earn enough to offset the big up-front investment.

Because of the need to achieve economies of scope, customer relationship businesses naturally seek to offer a customer as many products and services as possible. It is often in their interests to create highly customized offerings to maximize sales. Their economic imperatives lead to an intently service-oriented culture. When a customer calls, people in these businesses seek to respond to the customer's needs above all else. They spend a lot of time interacting with customers, and they develop a sophisticated feel for customers' requirements and preferences, even at the individual level.

Contrast that kind of business with a product innovation business. Speed, not scope, drives the economics of product innovation. Once a product innovation business invests the resources necessary to develop a product or service, the faster it moves from the development shop to the market, the more money the business makes. Early entry into the market increases the likelihood of capturing a premium price and establishing a strong market share.

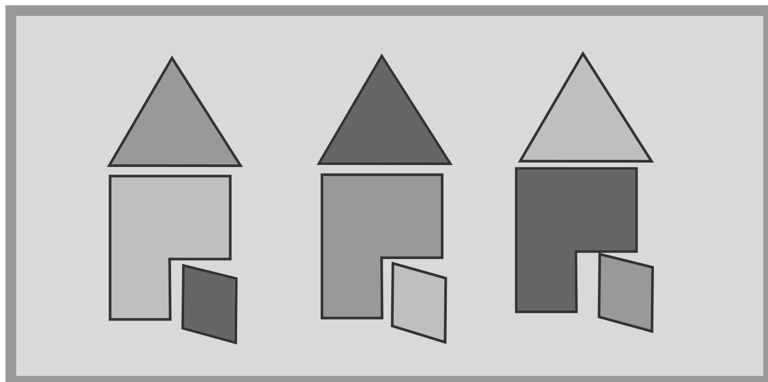
Culturally, product innovation businesses focus on serving employees, not customers. They do whatever they can to attract and retain the talent needed to come up with the latest and best product or service. They reward innovation, and they seek to minimize the administrative distractions that might frustrate or slow down their creative "stars." Not surprisingly, small organizations tend to be better suited than large bureaucracies to nurturing the creativity and fleetness required for product innovation.

If scope drives relationship management businesses and speed drives innovation businesses, scale is what drives infrastructure businesses. Such businesses generally require capital-intensive facilities, which entail high fixed costs. Since unit costs fall as scale increases, pumping large amounts of product or work through the facilities is essential for profitability.

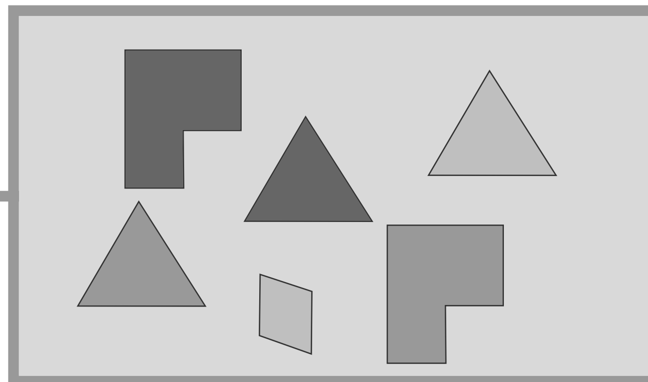
The culture of infrastructure businesses is characterized by a one-size-fits-all mentality that abhors all kinds of customization and special treatment. To keep costs as low as possible, they are motivated to make their activities and outputs as routine and predictable as possible. They account for every penny and frown on anything that does not directly contribute to efficient operations, viewing it as a needless extravagance. Where customer relationship businesses focus on customers and innovation businesses focus on employees, infrastructure businesses are impersonal – they focus on the operation.

When the three businesses are bundled into a single corporation, their divergent economic and cultural imperatives inevitably conflict. Scope, speed, and scale cannot be optimized simultaneously. Trade-offs have to be made. To protect its

Today's integrated corporations...



...will undergo a process of unbundling...



manufacturing scale, for example, a company may prohibit its salespeople from selling another company's products, thus limiting their ability to achieve economies of scope. Or a company may institute standardized pay scales that, while rational for the vast majority of its people, alienate its most talented product designers. Or to protect customer relationships, a company may require a degree of customization that slows product introductions and creates inefficiencies in the production infrastructure.

The Regional Bell Operating Companies – the local telephone carriers in the United States – provide a good example of how these tensions can play out. The retail telephone operation within an RBOC is a customer relationship business; it focuses on acquiring customers and keeping them happy. The wholesale telephone operation is, by contrast, an infrastructure management business; it maintains the RBOC's physical communications facilities and furnishes specialized support services like network management. To maximize their scale economies, the RBOCs could lease their wholesale facilities to specialized telephone-service resellers, which focus on the customer relationship business. But the phone companies are wary of entering into such relationships because they fear that the resellers will drain customers away from their own retail phone business.

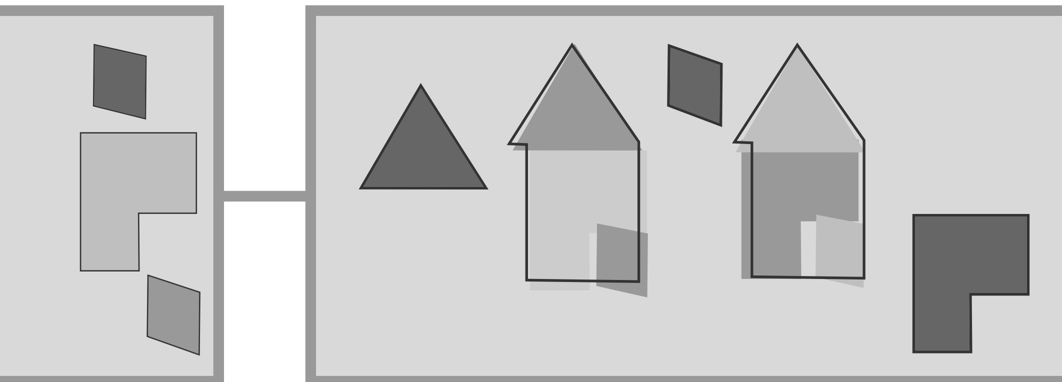
The RBOCs have, in other words, deliberately limited the growth and profitability of their infrastructure businesses to protect their customer relationship businesses. Their decision has encouraged specialized infrastructure businesses, operating their own fiber-optic networks, to enter the competitive fray in metropolitan areas, creating a further threat to the RBOCs.

Most senior managers make such compromises because they believe, or assume, that they have no other option. How, after all, can a core process be removed from a company without somehow undermining its identity or destroying its essence? Such a mind-set, although historically justified, is now becoming increasingly dangerous. While traditional companies strive to keep their core processes bundled together, highly specialized competitors are emerging that can optimize the particular activity they perform. Because they don't have to make compromises, these specialists have enormous advantages over integrated companies.

Organizational Fault Lines

Under the pressures of deregulation, global competition, and advancing technology, a number of industries are already fracturing along the fault lines of customer relationship management, product innovation, and infrastructure management. Look at the newspaper industry, for example. Not so long ago, all three core processes were tightly integrated in most newspapers. A paper took on full responsibility for attracting its customers – both readers and advertisers. It developed most of its product – the news stories presented in its pages. And it managed an extensive infrastructure, printing its editions on its own presses and distributing them with a fleet of its own trucks.

Today the industry is beginning to look very different. Much of the typical newspaper's product is outsourced to specialized news services; the average metropolitan newspaper depends heavily on wire services, syndicated columnists, and publishers of specialty magazine inserts for the words and images that fill its pages. In addition, many newspapers aspire to shed their scale-intensive printing facilities and rely instead on specialized printers to produce the paper each day. As they move away from product innovation and infrastructure management, the newspapers are able to concentrate on the customer relationship portion of the business –



The unbundling of the corporation into its three component businesses – customer relationship management, product innovation, and infrastructure management – is only the first step in the reshaping of organizations. The customer-relationship and infrastructure businesses can be expected to consolidate as companies pursue economies of scope and scale. The product business will likely remain fragmented, with many small, nimble companies competing on the basis of speed and creativity.

helping to connect readers and advertisers. Papers like the *Los Angeles Times,* for example, are creating special sections geared to particular regions or interests, which enable advertisers to better target specific sets of readers. The unbundling is making the newspaper business much less capital intensive, allowing more resources to be devoted to building customer relationships.

A similar unbundling is taking place in many areas of the banking industry. Credit cards, for example, began as a product offered by traditional banks, which operated their credit card businesses as a tightly integrated bundle of activities. Each bank designed and introduced its own credit cards, acquired and maintained its own customer relationships, and handled all the back-office processing for every credit card transaction (while relying on MasterCard and VISA to establish general protocols for those transactions). Over the past decade, however, the credit card business has rapidly unraveled as specialized players have focused on each of the three activities. Affinity groups – from the AARP to American Airlines – have assumed responsibility for finding customers and maintaining relationships with them. Specialized credit-card companies like CapitalOne and Providian Financial are focusing on product innovation, creating new features and pricing programs. And a range of infrastructure companies are processing transactions, managing call centers, and performing other scale-intensive tasks. In fact, infrastructure specialists like First Data now process more than half the credit card transactions in the United States.

To see the future of business organization, you need only look at how Internet companies are organizing today.

An influx of specialized companies has also begun to reshape the pharmaceutical industry. Some product innovators in biotechnology, like Genentech, Amgen, and Myriad Genetics, are focusing on specific techniques such as gene mapping. Others, like Medicis Pharmaceutical and Bausch & Lomb, are concentrating on specific disciplines like dermatology. Rather than invest in their own product development in all these areas, larger drug companies are taking equity stakes in or allying with these niche players. Roche Holding, for example, has purchased over two-thirds of Genentech, and Merck has entered into a collaborative research and licensing agreement with Aurora Biosciences. On the infrastructure side of the business, the big drug companies have begun to outsource the planning and execution of large-scale pharmaceutical trials to contract-research organizations like Quantum. And big distribution specialists like McKesson and Cardinal now warehouse and deliver most drugs.

As the newspaper, credit card, and pharmaceutical industries went through the unbundling process, established companies faced a series of hard choices. They had to rethink their traditional roles and identities, challenge their organizational assumptions, and in many cases fundamentally change the way they operated. Now, as electronic commerce reduces interaction costs throughout the economy, more and more companies will face equally tough, if not tougher, decisions.

Organization and the Internet

To see into the future of business organization, you need only look at how Internet companies are organizing today. Portal businesses like Yahoo! are focusing increasingly on customer relationship management while relying on other companies to provide innovative Web-based products and services on the one hand and infrastructure management on the other. Many people still think of Yahoo! as a search engine, but in fact its searching product is provided by another company, Inktomi, an innovator whose expertise in parallel computing enables its engine to search millions of Web pages almost instantly. And Yahoo! has forged relationships with big Internet-access providers like AT&T, which manage a large portion of the Internet's infrastructure. Yahoo! is thus freed to concentrate on attracting customers, gathering data on them, and connecting them with both advertisers and merchants. It is positioned to become what we call an *infomediary* – a company whose rich store of customer information enables it to control the flow of commerce on the Web.[2]

Because electronic commerce has such low interaction costs, it is natural for Web-based businesses to concentrate on a single core activity – whether it be just customer relationship management, just product innovation, or just infrastructure management. That's not to say that all current Internet companies are pure players. Excite, for example, is principally a customer relationship business, but it has acquired several product-innovation companies, including Jango and Classifieds2000, in order to offer new on-line services to customers quickly. Similarly, America Online has incubated a number of product businesses internally to ensure a steady supply of content for its customers. We would argue,

though, that such hybrid models are transitional, necessitated by the infancy of electronic commerce. As the Internet industry matures, mixed models will become less attractive and less sustainable. (See the insert "Whither Amazon.com?")

As electronic commerce spreads out into other, more traditional industries, they too will begin to fracture. Take the automotive business, for example. Small entrepreneurial companies like Auto-by-Tel and Autoweb.com have recently emerged on the Web and are already beginning to gain control over customer relationships. These companies' sites provide car buyers with a broad range of information about current models and pricing. The sites then collect detailed data about the customers and their preferences and use that information to refer customers to appropriate automobile dealers. In 1997, Web site referrals accounted for about 2% of all nonfleet new-car sales. Although 2% is a small percentage, it represents 300,000 cars, or $6 billion in revenue – and those numbers are growing explosively. J.D. Power & Associates predicts that one-third of all new-car buyers will buy cars using the Web by the year 2000.

As the infomediaries gain more control over customer purchases and, even more important, over customer information, car companies will have to rethink the role of the traditional automobile dealer. Dealers may give up their customer relationship business entirely and focus narrowly on the infrastructure business – managing showrooms, for example. The independent, on-line infomediaries would take over the role of acquiring and managing customer relationships. As they develop a deeper understanding of each customer, the infomediaries could play an ever more central role in determining which make and model a customer buys. In fact, they could come to fulfill virtually all of a customer's car-related needs:

- selecting the auto loan with the best terms
- selecting the insurance package with the best rate and the most cost-effective trade-off between premiums and deductibles
- providing a list of qualified repair and maintenance shops and towing companies
- recommending car phone companies and phone service packages
- providing reminders of required servicing and then recording maintenance information for the customer's records.

Auto manufacturers would love to access all this valuable information, but they could never collect it as efficiently or effectively as the infomediaries. A carmaker might be able to gather data on the people who bought its own models, but it would be hard-pressed to assemble information on people who bought competitors' models. Instead, car manufacturers may decide – or be forced – to unbundle their businesses, outsourcing the customer-relationship-management role to the infomediary and focusing on product innovation. Who knows? Automobile manufacturers already outsource a significant portion of subassembly manufacturing – perhaps some day, they might outsource all their manufacturing operations to infrastructure management businesses.

In financial services, similar forces are at work. Companies like Microsoft, Intuit, and E*Trade are using the Internet to build customer relationship businesses, drawing control of customers' purchases away from traditional banks and brokerages. Building on the popularity of its Quicken personal-financial-management software, for example, Intuit has attracted hundreds of thousands of customers to its Web site, where it offers easy access to products and services from a broad range of financial service providers. Customers can identify the best deals on CDs, mortgages, and checking and savings accounts. They can get tips on tax planning, financial planning, and retirement planning. And they can access brokers like E*Trade and Charles Schwab to trade on-line.

> As infomediaries rise to power, many traditional companies will find themselves cut off from their customers.

As Intuit and other infomediaries gather greater stores of information about customers and their buying behavior, they will be able to extend their control over the relationship business. They will know individual customers' circumstances and preferences, anticipate their needs, and identify appropriate products and providers. The infomediary might, for example, notify a customer that mortgage rates have dropped enough to make refinancing worthwhile, or, based on the way a customer uses his credit card, it might recommend a card with a higher annual fee but a lower interest rate as a better alternative. Or knowing the customer has a new baby, it might recommend a particular life-insurance package or a mutual fund for college savings.

As infomediaries build these customer relationships, traditional banks will find themselves in a tight spot. They might try to turn into infomediaries, but that's unlikely. Most banks have proven reluctant to resell other institutions' products (except

when those institutions don't sell competing products). And even if banks did offer other companies' products, customers might question their objectivity as information suppliers. Even more fundamental, most banks are still struggling to integrate their computer systems so that they can merge all their information about a customer – a prerequisite for an effective customer-relationship business.

The secret to success in fractured industries is not just to unbundle, but to unbundle and rebundle, creating a new organization.

Given these constraints, many banks might have to concede the role of customer relationship manager to the new infomediaries. Some might choose to focus on developing attractive product and service portfolios that could be marketed through the infomediaries. Others might choose to concentrate on back-office processing operations, providing transactional support for products like credit cards, loans, and investment accounts. Each of the three businesses will likely provide attractive opportunities, but it's unlikely that one company will be able to do them all and still continue to increase its profits over the long haul.

A Road Map for Unbundling

As more and more industries fracture, many traditional companies will find themselves cut off from their customers. Just to reach their markets, they will have to compete or cooperate with an increasingly powerful group of infomediaries. To survive, they may have no choice but to unbundle themselves and make a definitive decision about which business to focus on: customer relationship management, product innovation, or infrastructure management.

As we've seen, the economics driving each of these businesses are different, and those economics will determine their ultimate structures. Although industries will fracture, they will not necessarily break into lots of small pieces. In fact, the structure of only one of the three businesses – product innovation – is likely to be characterized by large numbers of small businesses competing on a level playing field where barriers to entry are low. The product innovator's need to provide a fertile environment for creativity tends to favor smaller organizations, as does its need for speed and agility in bringing products to market.

The other two businesses will probably consolidate quickly, as a small number of large companies assume dominance. Since economies of scope are necessary in the customer relationship business, it's likely that only a few big infomediaries will survive. America Online's decision to acquire Netscape, with its popular Netcenter Web portal, provides strong evidence that the consolidation of this business is already well under way. Similarly, in the infrastructure business, economies of scale create irresistible pressures toward the formation of large, focused enterprises.

Once a company decides where it wants to direct its energies, it will probably need to divest itself of its other businesses. That will be a big challenge. Few senior managers of large companies have ever attempted a systematic divestiture program. The divestitures that have occurred have usually been spin-offs of recent acquisitions whose expected synergies never materialized. Even AT&T's highly publicized divestiture of its computer and telecommunications-equipment businesses, NCR and Lucent, falls largely into this category. For most companies, the closest analogue to the kind of divestiture we're talking about is the establishment of outsourcing relationships in which infrastructure management activities like logistics, manufacturing, or data processing are contracted to outside providers.

Divestiture is, of course, a radical step. It's fair to say that in most cases executives will need to perceive a significant and immediate threat before they will consider such aggressive surgery. For that reason, the first divestiture programs will probably be launched by companies whose markets are in the midst of major technological or regulatory change, such as the computer, telecommunications, media, and banking industries. Companies in other industries will be able to learn from their successes – and their mistakes.

If a company has chosen to compete in customer relationship management or infrastructure management, where size matters, divestiture won't be enough. It will also need to build scope or scale through mergers and acquisitions. It is likely that each acquired company will have to go through a similar process of unbundling, shedding unneeded businesses to help fund the next wave of acquisitions and integrating the remaining businesses into the existing operation. The secret to success in fractured industries is not just to unbundle, but to unbundle and rebundle, creating a new organization with the capabilities and size required to win.

Whither Amazon.com?

Amazon.com, the on-line book and media retailer, has emerged as one of the most powerful players in electronic commerce. Thus far in its brief history, Amazon has pursued a hybrid strategy, focusing on both customer relationship management and infrastructure management. Its user-friendly site, its vast selection, and its low prices have earned the company the trust and the business of thousands of on-line shoppers. In return, Amazon has been able to assemble a great store of information on the buying habits of each of its customers. It recommends books and CDs to customers on the basis of their previous purchases, and through its 1-Click program, it streamlines the buying process by storing detailed customer information, including credit card numbers.

At the same time, Amazon has built a powerful infrastructure for processing and delivering on-line orders. By working closely with big book distributors – who are themselves in the infrastructure business – Amazon is able to ship books, CDs, DVDs, and other products rapidly without maintaining huge inventories. In effect, Amazon acts as a sophisticated transshipper. Once a customer places an order for a book that is not in Amazon's stock, the order is immediately passed on to one of the distributors (or directly to a publisher), which includes the book in its next daily shipment to Amazon's facility. When the book arrives, Amazon quickly repackages it, together with other products that the customer has ordered, and ships it to the customer.

Amazon has so far been successful in building both of its businesses. But to become truly profitable over the longer term, it may have to choose which of the two businesses to focus on, or it may have to unbundle itself into two separate organizations. Already, some tensions in Amazon's business model are beginning to appear.

The company is, for example, aggressively building up an affiliate network – a set of Web sites that sell Amazon's books in return for a cut of the revenues. So far, the company has signed up tens of thousands of affiliates, ranging from tiny, personal home pages to huge portals like America Online, Yahoo!, and Excite.

Because these affiliates increase Amazon's sales, they're great for the company's scale-intensive infrastructure business. But they raise problematic issues for its customer relationship business. Many of these affiliates, after all, are themselves in the customer relationship business and are thus actively competing with Amazon for customer information and loyalty. If it turns out that Amazon's customer relationship business is more lucrative than its infrastructure business, the company's aggressive affiliate program may prove to have been a big mistake.

Rebundling will be a very different process from the vertical integration that has often characterized traditional acquisition programs. Because companies will be focusing on a single activity – relationship management or infrastructure management – their acquisitions will be aimed at achieving horizontal integration. They will be seeking to build scope or scale first within their own industry and then, to further leverage their capabilities, across related industries.

Senior managers will face many painful decisions as they make the wrenching changes that are needed to realign their businesses. Difficult as the choices may be, it is likely that there won't be much time in which to make them. Once interaction costs begin to fall, the ensuing reorganization of an industry can happen remarkably quickly – as we saw with the computer industry. Sources of strength can turn into sources of weakness almost overnight, and even the most successful company can quickly find itself in a position that has become untenable.

1. We believe that the term *interaction costs* is more accurate than the common term *transaction costs.* Transaction costs, as economists have defined them, include the costs related to the formal exchange of goods and services between companies or between companies and customers. Interaction costs include not only those costs but also the costs for exchanging ideas and information. They thus cover the full range of costs involved in economic interactions. For more about the implications of falling interaction costs see Patrick Butler *et al.,* "A Revolution in Interaction," *The McKinsey Quarterly,* 1997, No. 1.

2. While big portal companies like Yahoo! and Excite have the potential to evolve into infomediaries, they are not there yet. To play a true infomediary role, they will need to deepen their ability to create detailed customer profiles and, even more important, they will need to build a greater degree of trust with their customers. Many portals are renting large portions of their Web space to vendors, not just for advertisements but also as part of exclusive sales partnerships. Such arrangements generate near-term revenues, but they may undermine customers' trust over the longer run. For further reading on infomediaries, see "The Coming Battle for Customer Information" by John Hagel III and Jeffrey F. Rayport (*HBR,* January–February 1997).

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