Creating Wealth from Talent in the 21st-Century Organization

Mobilizing Minds

Lowell L. Bryan
Claudia I. Joyce

McGraw-Hill
New York Chicago San Francisco
Lisbon London Madrid Mexico City Milan
New Delhi San Juan Seoul Singapore
Sydney Toronto

PART I

A NEW MODEL

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OPPORTUNITY FOR BETTER DESIGN

In the classic 1936 film *Modern Times,* Charlie Chaplin was found struggling to cope with the industrial age's idea of work: Reporting to an assembly line with the task of tightening the bolts on an endless stream of machine parts, the Little Tramp finds himself unable to keep up, and he is eventually sucked into the cogs and wheels and devoured by the industrial machine.

Today, we see ourselves falling into a similar fate through the eyes of Dilbert, only in his case it is a sentence of eternal frustration, spent doing endless hours of pointless work within the fluorescent-lit cubicles of the modern white-collar work-pen.

Having passed through the organizational angst of the industrial age, we now find ourselves in the digital age, facing a new set of problems.

Ask any midlevel professional or manager at almost any large company—even a very successful one—and he or she will tell you that the growing complexity of work is becoming a greater and greater problem.

Surveys confirm the symptoms of the disease, which include e-mail and voice-mail overload, task forces that go nowhere, pointless meetings, delays in making decisions because of scheduling conflicts, too much raw data and not enough information, and challenges in getting the knowledge one needs because of organizational silos. The result is long hours, gobbled lunches at one's desk, and strained personal relationships—with too little progress or productivity to show for it (Figure 1-1).

One survey by the research firm Net Future Institute (NFI) showed that nearly 75 percent of senior managers consider the workload of people in their department to be too heavy. Another survey by the same firm found that most people do their best business thinking not while at work but while commuting to work or in their home. Why? Because that's when they finally get some time to think![1]

The increasing frustration of the workforce is symptomatic of an even more fundamental issue: the organization of most companies today—and how it limits the ability of talented people to perform and take full advantage of the opportunities of the 21st century. The modern, "thinking" company should be a fluid and fast-moving creature, in which its workers discover knowledge and exchange it with their peers, collaborating with others to create value.

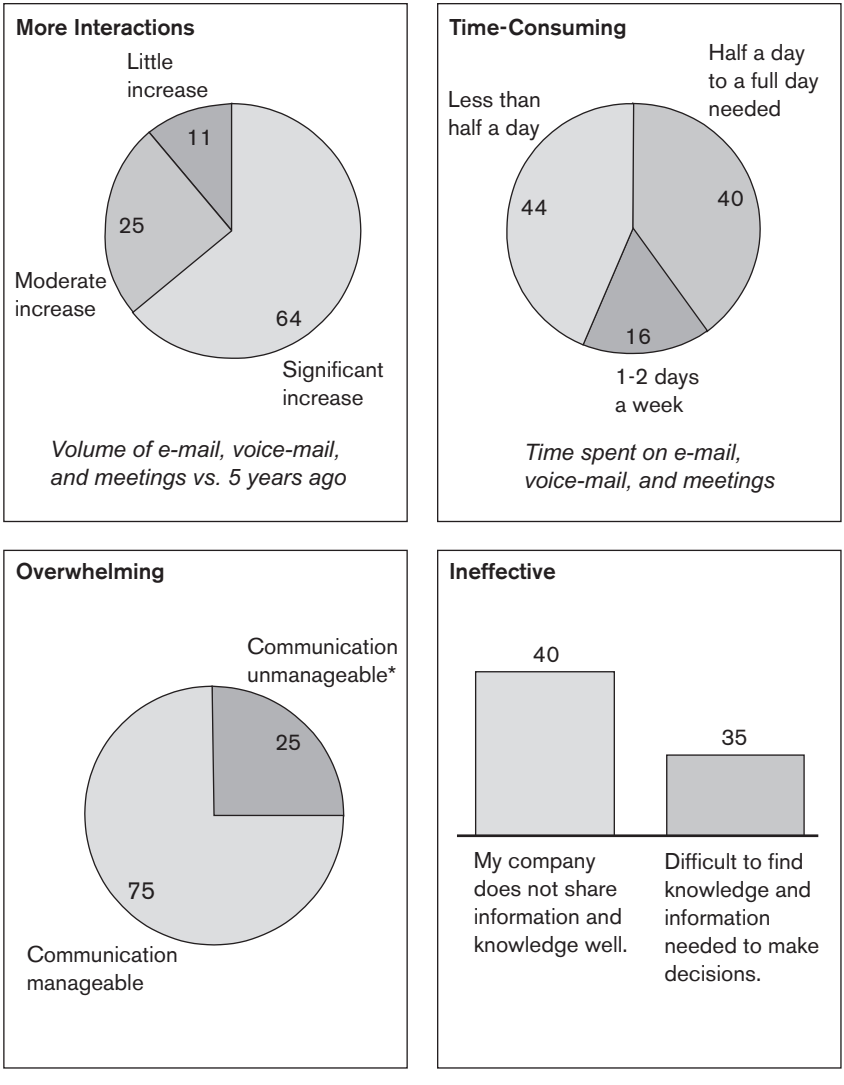
The problem, however, is that most of today's large companies fall well short of creating conditions that maximize the productivity of their thinking, problem-solving, self-directed people. Too bad this thinking machine isn't working nearly as well as it should be.

Unproductive Complexity

For a while in the 1990s, we thought that digital technology would enable us to overcome our communication challenges. Interaction costs, indeed, have been falling toward zero. This fall in interaction costs has enabled well-managed companies to leverage their management capabilities. It has greatly helped managers and subordinates to interact with one another. It has enabled workers to collaborate with one another as well and to access public knowledge from the outside world.

FIGURE 1-1

Struggling with Complexity (Percent)



* 80% of those reporting "communication unmanageable" admit having difficulty fulfilling their key responsibilities.

Source: Electronic survey of 7,800 global executives who are McKinsey Quarterly *readers in July 2005, excluding results from small companies. Survey may be biased by underestimating problem since many executives who are truly overwhelmed are unlikely to take the time to complete surveys.*

INTERACTION COSTS

Interaction costs involve searching for information and knowledge, coordinating activities and exchanges, and monitoring and controlling the performance of others within the same firm. Ronald Coase is widely credited with identifying the economic importance of interaction costs in his 1937 paper The Natu re of the Firm."

We do not usually spend much time thinking about interaction costs. Rather, when we think about the costs of production within a firm, we tend to think about the costs of the tangible inputs to production—such things as the costs of labor, raw materials, land, energy, and capital. Yet the interaction costs, which are embedded in our processes of transforming inputs to outputs, are enormous.

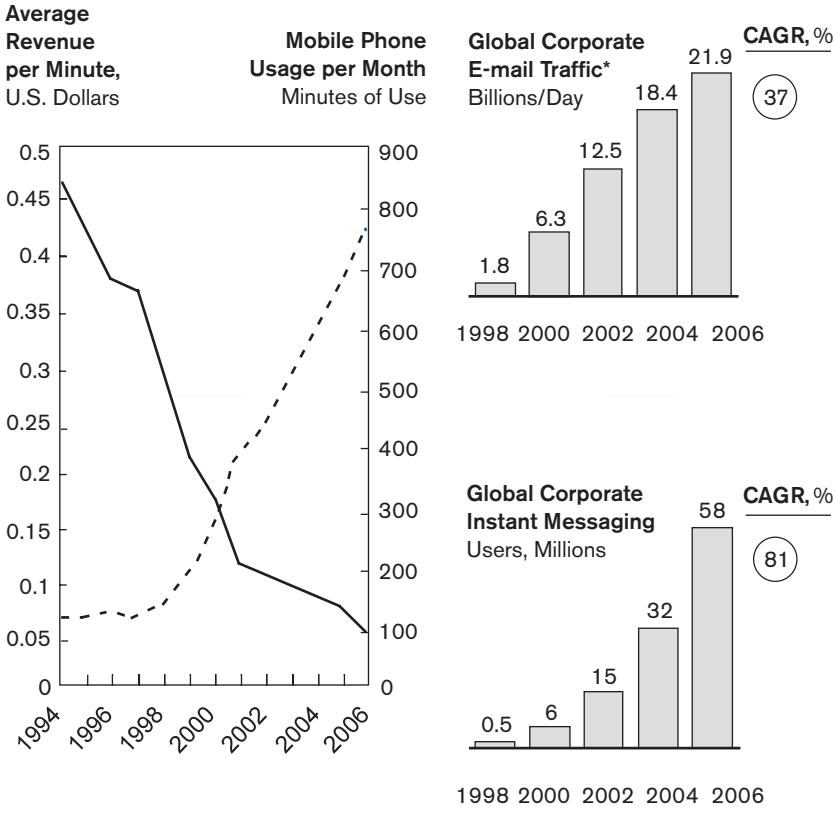
Interaction costs pervade all organizations, particularly those of developed nations. Research undertaken by McKinsey & Company, for example, concluded that interaction costs account for over half (that is, 51 percent) of all labor costs in the United States.[2]

But the fall in interaction costs has not necessarily enabled professionals and managers to collaborate, especially through the thick silo walls of many of today's corporations. Much of the communication is worthless noise: In a 2005 survey conducted by the *McKinsey Quarterly*, of senior and top executives, 60 percent said their company's size and complexity have made it somewhat difficult, or much more difficult, to capture opportunities than it was just five years ago.[3] Little wonder, then, that ineffective bureaucracies develop within large companies, that the head office seems remote from the field, and that the "left hand doesn't know what the right hand is doing."

A symptom of the problem companies face today is simply the amount of energy they waste. We're familiar with one plant manager in one talent-intensive, megainstitution who receives 200 e-mail messages a day. We know of another staff person in a different megainstitution who receives 300 a day. The problem is that as interaction costs head

FIGURE 1-2

Marginal Interaction Costs Falling Sharply in Contrast to Skyrocketing Numbers of Interactions



* Excludes unsolicited bulk e-mail.

Source: IDC; Federal Communications Commission (FCC); Pyramid Research.

toward zero, the volume of interactions is headed toward infinity (Figure 1-2).

The problem is that today companies rely on a model designed for the 20th century, one that depends on vertical, top-down hierarchical authority. The problem is that in the 21st century, the key to creating value is not just in providing top-down direction, vertically, but also in

enabling and motivating self-directed, thinking-intensive professionals and managers to work with one another horizontally across the firm. Leveraging hierarchical leadership is still important, but it has become equally important to enable large-scale collaboration across the enterprise.

A major barrier to doing so is that the 20th-century model relies on the self-containment of businesses, a practice that puts boundaries around this vertical authority. Unfortunately, the great majority of companies using the model have allowed these boundaries to harden into thick silo walls, impediments that block collaboration across the boundaries. A related complication is that since each manager is usually allowed to organize his or her business as he or she likes, the organizations are frequently incompatible. This lack of standardization makes it difficult for a person whose job is defined one way to have much in common with someone in another silo whose job is defined very differently.

Facilitating the collaboration of well-motivated people with one another across an organization that was not designed to accommodate much collaboration is enormously challenging. It is analogous to pushing automobile and truck traffic through the heart of European cities whose streets were designed for the horse and buggy. In cities, the problem is congestion. In companies, the problem is unproductive complexity.

Today's vertically oriented organizational structures, retrofitted with ad hoc and matrix overlays, nearly always make professional work more complex and inefficient. These vertical structures—relics of the industrial age—are singularly ill suited to the professional work process. Professionals need to collaborate horizontally with one another throughout a company, yet vertical structures force such men and women to search across poorly connected organizational silos to find knowledge and collaborators and to gain their cooperation once they have been found.

One could argue that this continued rise in internal complexity is an inevitable by-product of our times, that unproductive internal com-

plexity is simply the price one pays for operating a big company. Under this rationale, you simply let your people deal with it, day by day, however they can. Unfortunately, this response is the equivalent of addressing the lack of urban planning by permitting urban sprawl.

Another approach is the creation of patchwork solutions—like matrix structures, internal joint ventures, and units—headed by more than one person. These relieve the pressure on one issue but create pressure on others. It is the equivalent of reducing traffic congestion on the expressway by blocking its access roads (which alleviates expressway traffic but makes getting on the expressway difficult or impossible). The problem in such approaches, for companies and cities alike, is that they result in unintended and often negative outcomes. In fact, most companies now suffer from their previously constructed patchwork of expedient, one-off decisions, which, in combination, have greatly confused hierarchical relationships.

Confusion over Hierarchical Authority

The organization of most companies today bears limited resemblance to the original intended design. While there are plenty of well-managed companies that are exceptions, most are struggling: Their hierarchical relationships have become so confused that the power of hierarchy to drive performance is compromised. This dysfunction is usually felt most severely at the front line, where the brainpower and the energy of frontline workers are significantly consumed in the struggle against the internal complexity of their organizations.

The fact is that even the most self-directed, brilliant people can't create wealth by working alone. They need help mobilizing the talents of other thinking-intensive people and securing crucial capital and labor. They need to be able to convert their thinking into moneymaking activities.

When a talented person has a clear hierarchical leader, someone who has the clout to get the needed resources and the authority to make decisions—in other words, someone who can commit the entire organization

he or she commands to supporting implementation—it is often amazing how much can be accomplished, and how quickly.

But more frequently, the fate of thinking, creative people, stuck in the traditional hierarchy, is quite similar to that of Charlie Chaplin caught in the wheels of the industrial machine. Only their agony isn't found between the wheels but rather in e-mail overload, meaningless meetings, and the realization that a matrix is just a fancy word for a prison that they can't escape.

The problem is that matrix structures, designed to accommodate the secondary-level management axes that cut across vertical silos, frequently burden professionals with two bosses—one responsible for the sales force, say, and another for a product line. Professionals seeking to collaborate thus need to go *up* the organization before they can go *across* it. Effective collaboration takes place only when would-be collaborators enlist hierarchical line managers to resolve conflicts between competing organizational silos. Much time is lost reconciling divergent agendas and finding common solutions.

Consider, for example, two MBAs at a wine bar, comparing war stories from the front lines of corporate life:

> "We have a terrific opportunity to sell telecommunications equipment in China, but the customer wants a lot of on-the-ground support from our IT area," confides one of the MBAs. "She also wants a Mandarin-speaking engineer to help her manage the project. The problem is that IT won't return my phone calls or even my e-mails. My buddy in Engineering says that I'm being stonewalled because his boss is allocating all the engineers with the necessary language skills to a project that is credited to Engineering—even though my project offers far better profits for the company as a whole."
>
> "Did you go to your boss for help?" asks the other.
>
> "I did. But he said he was powerless to get IT or Engi-

neering to cooperate unless he goes to his boss—which he's reluctant to do."

"Well," the other replies, setting down her glass, "at least you have one boss. I have two. I've been trying to develop a marketing program for the 'working mothers' segment across our product line for four months now. It's got great potential, but my product boss has little interest in this segment, while my sales boss doesn't have access to the product knowledge and the information I need."

"Can't you get your sales boss to call your product boss?"

"He won't. So now I'm trying to get them together. It took me a month to schedule a meeting—and it just got scratched. The CEO called a meeting to discuss our lack of growth. I'm at my wit's end."

A New Problem

To be sure, corporate bellyaching has been around ever since the invention of the corporation. But today the dysfunction is far greater than ever before. Why? For one thing, there are far more thinking workers under the corporate roof. Their need to interact is greater than ever. The digital technology of today has given them a great opportunity to do so—but it has also increased to an unbearable degree the complexity of these interactions.

For another, the matrix structures that were created in the 1960s to use authority to force managers to collaborate with one another were never meant for extensive use. Originally, matrix structures were always to be used sparingly. But today, matrices have blossomed everywhere. The problem is that because companies have now realized how important it is to gain collaboration, they have started to use more and more authority-based matrix structures to force collaboration everywhere. But true collaboration is based on mutual self-interest, not authority. Self-directed people should be motivated to work together, not

forced to do so. As matrix structures proliferate, reporting relationships become confused, and the effectiveness of hierarchy erodes. Meanwhile, opportunities to collaborate are lost.

Where does the greatest dysfunction exist? We find it most often in the intermediate structures of the organization. Here we find the organizational silos that create impenetrable walls—walls that block collaboration and the flows of information, knowledge, and talent across the firm. It is here that we find matrix structures that try to bridge the silos with horizontal-vertical hybrids that endlessly convolute reporting relationships. And it is here that we find communications gridlocks—the confluence of different initiatives, by different managers, with different agendas, that often create the organizational equivalent of traffic jams.

Often the underlying source of the dysfunction lies at the very top of the company, especially when corporate politics are rampant. Much of the dysfunction is also created by people focused on making budget—even if it means taking uneconomic actions that make their reported results look better but negatively affect enterprisewide returns.

What causes all these problems? For one thing, the reporting relationships in these intermediate organizing structures are rarely defined. Senior managers are often left to interpret their own roles. They may feel empowered to issue directives to frontline units without feeling the need to coordinate with the managers to whom the frontline units report, thus creating multiple, overlapping initiatives. These can overload the line's capacities to do its job.

In addition, there are often so many intermediate levels of the organization that the top loses touch with the front line, and the front line doesn't really understand what the top is trying to do. Finally, in the intermediate levels, there is a tendency, if things go badly, to elevate decisions to avoid accountability. This tendency forces a large volume of small decisions up to very busy senior and top managers, who serve as tiebreakers. As a consequence, many such jobs become "undoable" from the point of view of the incumbent, or they create "bottlenecks" from the point of view of everyone else.

Much of the underlying problem is the use of internal financial reports that do not reflect the underlying economic relationship of intangibles to profit making. Managers can look good on reported results, even as they take actions that hurt the enterprise. These issues are compounded by performance measurement approaches that reward selfish, divisive behavior at the expense of collaborative behaviors for the common good.

Even strong leaders at the top can get frustrated, especially as they find top-down pressure ineffective in generating better performance. Organizational complexity can sap the power of even the strongest hierarchical leader. Or, as one leader said to us in despair, "I pressed the red button, but the rockets didn't launch."

Mobilizing Mind Power

The work that needs to be done in the 21st century, of course, is different from that which was required in the 20th century. Back then the organizing model was designed to mobilize labor and capital, but today you need to mobilize mind power as well. By "mind power" we mean the intangible output of thinking employees, those who use subjective thinking and problem solving to do their jobs.

If your organization can harness this mind power—if you can boost the profits from each thinking employee—then your organization will be on the path to great success and competitive advantage in the 21st-century world.

Today's corporations have vastly greater numbers of these thinking workers than ever before. GE and Citigroup, for instance, have over 150,000 workers in such thinking jobs. Even such a labor-intensive company as Wal-Mart, with 1.7 million workers, has over 120,000 workers in thinking-intensive jobs (largely in managerial and supervisory positions). We estimate that there are some 20 million such thinking-intensive workers in the largest 1,500 companies in the world.

There are two fundamentally different ways such workers, exercising subjective judgment and problem solving, add value. The first is in

using mind power through hierarchical authority to manage other people's work. The second is in self-directing work, collaborating with others, and using one's own, unique skills, knowledge, and thinking capacities.

Throughout this book we will refer to people using their minds primarily to exercise authority as "managers" and to people primarily self-directing their thinking-intensive work as "professionals." Of course, many people in organizations both self-direct their work and manage that of others. In particular, leaders of other professionals often play the role of "player-coach."

Most companies are tapping into only a small fraction of the potential to create wealth from the mind power of all the managers and professionals they employ. During the 20th century, the costs of coordinating work across large companies were so large that mind power was trapped in small pockets of people scattered throughout each company. But nowadays this is no longer true. As a result, today there is an opportunity to earn large "rents" (that is, profits disproportionate to the amounts of labor and/or capital that are invested).

Where the Money Is

It would be reason enough to develop better organizing approaches if all that was accomplished was to make the jobs of talented employees more rewarding. All business leaders know how important talent is to their current success. Furthermore, it could be argued, actions taken that will enable companies to attract, develop, and reward talent bring their own reward. Still, we believe developing a better organizing model is more than that. In the 21st century, it's where the money is.

As we described in the Introduction, many large companies have already shown an ability in the digital age to create rents. Such rents are possible today because these companies have been able to mobilize labor, capital, and mind power into monetizable institutional skills, intellectual property, networks, and brands (Figure 1-3).

The returns from doing so are extremely attractive simply because

FIGURE 1-3

Intangibles as Owned by Either Individuals or Firms

Individual Intangibles	Firm Intangibles
Knowledge can be owned as a private good by individuals.	• Knowledge can become a public good within a firm or can be retained as a private good by the firm when the firm transacts with other parties.* • Firm can combine private knowledge of multiple individuals to provide unique value through **intellectual property.**
Relationships can be interpersonal and owned as a private good by the individuals.	• Relationships can become a public good within the firm. • Firm can mobilize multiple interpersonal relationships and form unique institutional relationships. • Firm can create unique value through building and leveraging **networks**.
Reputation can be attributed to individuals and owned as a private good by individuals.	• Reputation can become a public good within the firm and owned uniquely by the firm as a private good through a **trademark or brand**.
People can use their own skills and own them as a private good.	• Firms can mobilize individual's **talent** by organizing work that he or she could not otherwise self-organize (e.g., client service teams).
Captured by Individuals in the Form of Compensation	**Captured by Firms in the Form of Higher Returns to Capital and Labor**

* This assumes a Coasian rationale for firms: The firm boundary is located to overcome market interaction costs.

intangibles enjoy potentially enormous scale and scope advantages. Furthermore, because they represent assets that are unique to the individual company (that is, are in unique supply), they can enable creating "natural monopolies" that are difficult for other companies to compete away.

ECONOMIES OF SCALE AND SCOPE

Economies of scale decrease the average cost of production as firms produce more output. The average cost is the total cost of production—including both fixed and variable costs—divided by number of units of output. With economies of scale, each additional output adds less to the total costs than the average of the preceding units.

Economies of scale have historically been limited by the increasing diseconomies of scale including particularly the complexity of coordinating the service of more and more customers, more and more employees, and more and more suppliers, as volume grows. In other words, if firms become "excessively large" relative to minimum efficient size (the volume of production that minimizes unit costs), the marginal costs of increased volume of production will grow faster than the marginal scale effects, and the average unit costs will rise rather than fall.

Economies of scope occur when companies produce multiple goods with shared factor inputs, thereby saving the need to pay for those factors twice. For example, if investments in a brand can be shared across multiple products, then it provides economies of scope. Again, as with economies of scale, economies of scope have also been historically limited by the diseconomies of complexity that arise as the firm's scope expands due to serving more diverse customer bases, with more diverse services and products, over more diverse geographies.

Because of the development of globalization and advances in technology, scale and scope effects have increased across the board—particularly in those effects related to intangibles. By "intangibles" we mean such assets as the brands, intellectual property, and proprietary networks that are unique to individual firms.

Economies of scale can be extremely large for intangible-rich offerings. Indeed, some intangible-based offerings display continual economies of scale no matter how much output is produced. While the fixed costs of producing a distinctive new drug, computer chip, soft-

ware product, or movie may be very large, for example, the marginal costs of production can be close to zero, thereby creating enormous scale effects.

Intangibles, in fact, can even demonstrate increasing returns to scale. Increasing returns to scale are a corollary to economies of scale: An addition of a factor of production leads to an increase in total productivity (more output per unit of input).[4] Networks, in particular, have this potential, as has been demonstrated through research: One person connected to a network adds no value. Two people connected to a network can interact with each other, so each individual can accomplish more. Ten people connected to a network can interact with nine others, so the number of possible productive interactions is greatly increased, with the result that the productivity of each individual connected to the network is greater.

Globalization and advances in technology have also greatly increased scope effects. Intangible economies of scope are even more special than intangible scale effects simply because large companies tend to be quite different from one another. Each large firm, out of its history, usually competes in very different geographies, products, and customer markets than any other large firm. This creates the opportunity for each firm to find different, and potentially unique, intangible scope advantages that cannot by enjoyed by competitors—*if* the company can create a unique set of product and service offerings that draw upon these differences.

GE, for example, can leverage its distinctive knowledge and capabilities in different aspects of the aircraft market by providing aircraft engines, the leasing or sales financing of the aircraft, the maintenance of the engines and the planes, and the brokerage of used aircraft and parts among customers—all this to offer these goods and services in varying combinations. And since it can benefit from economies of scope, it can do so at better prices. Since GE is essentially the only company that has this particular combination of capabilities and can offer these particular products and services, it is a unique provider in the market for comprehensive aircraft service.

Intangibles can capture economies of scope wherever multiple production processes, businesses, or products can share the asset. A firm can use its "insider" relationships in China, for example, to gain privileged distribution of multiple products to the Chinese market.

Economies of scope can generate rents if the cost and value advantages from them are not shared equally across all competitors. A financial services firm with a privileged relationship with a large client, which thereby acquires superior knowledge of the client's needs, for example, can enable the tailored bundling of services to that specific client (providing both greater value to the client and a cost advantage to the producer by spreading coverage costs across more products).

The ability to create rents, as David Ricardo pointed out over 150 years ago, requires a provider to enjoy unique ownership (that is, unique supply) of an asset that is superior in quality. Valuable intangibles meet the test. Ricardo, though, had a third condition for creating rents: The asset needed also to be limited in supply. But today's owner of intangibles can choose to supply whatever quantity of intangibles it chooses, since the marginal costs of producing any given intangible is often virtually "zero." This ability to control supply of whatever quantity the market demands enables a firm that owns valuable intangibles to enjoy natural monopoly effects (that is, the company is a unique provider).

A natural monopoly, such as an electric utility, occurs when one firm has economies of scale and scope over the range of production needed to supply the entire market, and it is less costly (socially) to have one producer supply the entire market than to have two firms compete. The common structural element of most natural monopolies is large fixed costs and negligible variable costs (or virtually unlimited economies of scale and scope). This enables a natural monopoly to be a "social good" simply because it lowers rather than raises the costs of production. It is cheaper, for example, to have one electric distribution grid supply an entire city than to have two distributors each supplying a portion of the market demand.

Many intangible-rich products have this cost structure. They are the

source of much of the rents we've observed that some firms now enjoy. When the intangibles owned by a firm are distinctive (that is, there are no effective substitutes), the firm becomes a sole provider, and therefore has very significant price discretion. But firms can't assume that picking a high price point maximizes profits. With intangible-based natural monopolies (unlike tangible-based monopolies), picking a *low, rather than high, price point* may enable the maximum capture of rents. Because of the extreme economies of scale and scope of many intangible-rich offerings, a lower price point (one that captures all available demand) can often create higher total returns than a high price point that captures only a fraction of potential demand. A lower price point also makes a natural monopoly less vulnerable to competition from close substitutes.

Natural monopolies based on intangibles such as intellectual property (or branding) are usually temporary. They are subject to erosion over time through continuing advances in technology and by the competition's investing in near substitutes. Pharmaceutical companies, for example, must routinely compete by seeking new patents that are targeted at the same health issues addressed by their competitors' patents. Software companies routinely find alternative software solutions to customer needs, and so on. However, while a natural monopoly exists, the returns can be very substantial.

New Opportunities

The ability to capture such rents is not new. For example, throughout most of the entire 20th century, many consumer package goods companies created rents through branding, and many pharmaceutical companies created rents through patent protection. Indeed, the classic way that companies created rents was to develop value propositions based on intellectual property or brands.

What is new is that in the digital age, as intangible scale and scope effects have increased, opportunities to create rents are becoming ubiquitous. Substantial rents are now not just being earned from

brands (for example, iPod) and intellectual property (for example, Windows) but also from networks (for example, Google) and institutional skills (for example, Toyota).

Well-managed firms today often combine these categories of intangibles. For example, intellectual property, networks, institutional skills, and brands combine to create production processes and business models (for example, the supply chains of Dell and Wal-Mart). Or networks and institutional skills enable some companies to develop and launch successful products continuously (for example, Apple and Samsung).

The opportunities to create rents in the 21st century are robust. Huge opportunities exist for companies to mobilize mind power in order to help discover and build new, winning value propositions in all of the marketplaces in which they choose to compete. Similarly, there are enormous opportunities to bring intangibles created by the mind power of an acquirer's employees to improve the performance of newly acquired companies (and to bring to bear the mind power of the acquisition to the acquirer). In other words, in the 21st century, mobilizing mind power is the key to getting better results from traditional strategic decisions concerning where and how to compete.

That said, we believe many of the best opportunities in the 21st century are not just from getting better results from traditional strategic decisions. Increasingly, the great new opportunity is for a large company to liberate the latent mind power of its tens of thousands of workers to capture rents in their day-to-day jobs.

The "raw materials" for such rents occur as a by-product of thinking-intensive workers simply doing their jobs. As employees exchange knowledge, debate issues, and solve problems with one another, new knowledge is continuously produced. Reputations emerge as people continually produce valuable work products. Relationships are created as multiple people interact with customers, suppliers, regulators, and so on. Individuals, as they work together, build new, deep personal competencies. Any large company, simply to exist, must employ literally thousands of talented thinking-intensive people, producing such

intangibles. The opportunity is to bring the entire firm's mind power and the related intangibles to every job, to increase the value of every person's work, every day. The related opportunity is to simultaneously reduce the cost of unproductive complexity arising from the unnecessary or unproductive search for access to this mind power, or to the unnecessary costs in coordinating work with others. Said differently, the opportunity is to enable all people in the firm to be able to perform better in their roles. You want to enable average workers to perform much closer to the level of your very best employees.

A product marketing executive who can efficiently and effectively mobilize the unique talent, knowledge, relationships, and reputations of the entire firm to develop a winning, differentiated marketing campaign, for instance, can generate more rents than an executive who designs a "me-too" campaign. A manager of a plant who can mobilize enterprisewide mind power to produce output that is superior in quality and lower in cost can also create rents. As an aside, Toyota is a good example of a company already skilled in capturing rents routinely through its "lean manufacturing" institutional skills, skills that are delivered through literally thousands of experienced managers.

It is the opportunity to convert these kinds of "routine opportunities"—opportunities from the latent mind power that already exists in its workforce—that makes us quite comfortable believing that even the average large company, in nearly any industry or headquartered in nearly any geography, should be able to target an increase in profit per employee of 30 to 60 percent or more simply by investing in designing and building the strategic organizational capabilities needed to mobilize mind power.

The good news is that the same investments in building these organizational capabilities (to make all employees better at their jobs) will also improve a company's ability to get better results from the traditional strategic decisions over where and how to compete.

In the past, companies thought about the opportunities to create rents from intangibles in terms of making large investments in research

and development to create intellectual property or in advertising to create brand value. We believe the opportunity in the 21st century is much bigger than that.

We are arguing that companies need to view investing in designing and building strategic organizational capabilities as means to capturing rents from everything they do. Companies are being constrained, unnecessarily, by the unproductive complexity of working in their organizations. We believe that investing in capabilities to relax these constraints, thus enabling a company to mobilize not just labor and capital but also the company's unique mind power, is the key to creating wealth in the 21st century.

These strategic organizational capabilities, once created, will enable firms to harness the enormous latent scale and scope effects already inherent in employing tens of thousands of thinking workers serving different customers, operating in different geographies, and producing different goods and services.

Furthermore, we truly believe that companies have only begun to tap the opportunities to create wealth in the 21st century. Why? Because they are still using an organizing model designed for the industrial age rather than for the digital age. To create greater wealth in the future, we believe that all companies should make organizational design the centerpiece of their corporate strategies.

2

DESIGNING ORGANIZATIONS FOR THE 21ST CENTURY

IT TAKES MORE than a little hubris to think that you can successfully design and complete major organizational change initiatives in a modern megainstitution.

Today's megainstitutions are massive, complex, dynamic ecosystems that are continuously adapting to external and internal stimuli.

Externally, the corporation is continuously adapting to changing customer demands, technology, competitor actions, social norms, and regulatory conditions. Internally, there are often myriad competing strategies and conflicting personal agendas, usually played out through organizational politics, as individuals vie with one another for power. The result is one change in leadership after another, a continuous motion that distracts talent from the more pressing issues at hand. Overhanging every action taken is the constant pressure from the capital market to deliver the next quarter's earnings.

The modern public company lives in a fishbowl, as well, which not only makes a shortfall in earnings (against expectations) a cataclysmic event but also gives business executives the attention formerly reserved for actors, sports stars, and royalty. Changing the trajectory of the company through major organizational design changes is hard. To use an old saw, making a major organizational design change in a company is like trying to change a tire on a car that never stops.

Rather than attempting major organizational design changes, many top leaders are more comfortable making limited organizational interventions. The organizational inertia in a large company is considerable as it evolves to its future. Large companies usually operate through a legacy of organizational behaviors, driven by managing approaches established by long-departed former leaders. Unfortunately, most of these organizational behaviors were designed to work for the industrial age, not the digital age; so it is not surprising that they are not always effective today. Nevertheless, they represent "the way we do things around here." Changing organizational mindsets and behaviors is hard and time-consuming. Why distract people from the day-to-day challenge of producing operating earnings, after all?

It is not surprising, therefore, that most leaders opt for tweaking their organizations rather than transforming them. They seem to believe that what organization is all about is picking people. To be sure, as people such as Jim Collins have noted in *Built to Last,* picking the right people is critical. The problem is that it is often done with the mindset that all you need to do is pick the right people, hold them accountable, and let them figure out the rest. Indeed, many of the people you pick may take umbrage at being given any direction over how they should organize their reports. But when different managers, with different responsibilities, make separate, uncoordinated organizing decisions, they usually wind up making it more difficult for people in their respective organizational units to work together. When you multiply this tendency across an entire company, it is no wonder that unproductive complexity is the result.

If top leaders do make structural changes, the changes often amount

to little more than quick fixes and "bolt-ons," such as adding a new role to put focus on a particular issue or making an ad hoc change such as having a person report to two people rather than one or putting co-heads in charge of a unit. These changes often serve only to make the entire organization more complex to operate within.

The problem is that large companies desperately need to become less complex rather than more complex. Complexity is the common enemy that limits the performance of all large enterprises. The opportunity, therefore, is to relieve complexity constraints on better performance rather than add to them.

Internal and External Complexity Limits

Economists have long recognized that internal complexity, as it rises, creates increasing limits on economies of scale and scope. The underlying question is not the absolute scale or scope of the company but whether it is "excessively" complex and therefore unable to realize the full economic potential of managing that scale and scope. A 100-person "job shop" producing several versions of a manufactured good would have been excessively complex in the 18th century. But a well-organized, 100-person factory producing very superior manufactured goods need not be excessively complex today, even with a far greater scale and scope of production than its 18th-century counterpart.

The organizational challenge today is in eliminating unproductive (that is, not value-added) complexity while increasing the value earned from managing productive complexity—this to increase economies of scale and scope. A great amount of thinking has gone into determining how to increase the productivity of tangibles (for example, lean manufacturing). Our focus instead is on managing complexity to increase the productivity of intangible assets. This is where we feel the greatest untapped value exists. In terms of employees, this means that you want to increase the number of productive interactions among your workers (those that create or exchange intangibles) while reducing the number of unproductive interactions. To be sure, unproductive

interactions are necessary costs of doing business (like searching for information or coordinating work). The trick is to reduce these unproductive interactions to a minimum, thereby pushing back the limits of complexity. As we described earlier, the benefits of doing so get very large, very quickly.

If a company with 300,000 employees can add $13,333 of "rents" per employee (that is, earnings requiring *no* additional employment of capital or labor) by reducing unproductive complexity, it can add $4 billion in additional earnings—which, if valued at a capitalization rate of 10 percent, would be worth approximately $40 billion in market capitalization.

Or if a much smaller company with "only" 10,000 employees can add $50,000 per employee (the potential is greater because the complexity constraints are less), it would add $500 million in profits, or $5 billion in market capitalization (which likely would be an even greater improvement in market value relative to the larger company).

Companies cannot control much of the complexity they face. Much of the complexity of companies that needs to be managed is driven by the continuously changing external world. As Eric Beinhocker and others have observed, companies exhibit complex, adaptive behaviors, which means that to survive, a company, like a species, must continuously adapt and evolve to maintain a "fit" with the ever-changing complexities of the world.[1] Companies have no alternative but to adapt to the changing external world. They must learn to deal with that kind of complexity. The complexity that is avoidable, however, is the internal complexity that results from unnecessarily complex organizations.

The challenge of managing the internal complexity of organizing work is not new; it has been around as long as humans have worked together in organizations.

Role of Hierarchy and Collaboration

There are only two real ways that humans have found for organizing work: hierarchy, which organizes work through authority, and collaboration, which organizes work through mutual self-interest.

In a hierarchy, interactions among workers are primarily top down and bottom up. Hierarchy works because it lowers interaction costs. In a hierarchy, interactions are simple. It is efficient to tell people what to do. And if the person at the top of the organizational pyramid knows more, is smarter, or is a better leader than the other workers, then hierarchy leverages that person's abilities. If the person at the top is not particularly knowledgeable or smart or effective, however, the organization will be worse off.

Collaboration organizes work through mutual self-interest. In collaboration, workers are free to interact with everyone else, and they choose their associations based on the nature of the work that needs to be done. Collaboration enables better use of the specialized skills and the knowledge of different individuals, and it increases total thinking capacity for problem solving. Collaboration, however, usually requires a greater volume of transactions and more complex interactions than hierarchy to organize work.

It is only with the advent of today's networked digital technology that large-scale collaboration among large numbers of workers has become possible. Even with today's technology, however, achieving large-scale collaboration among many people can be very inefficient—not just because the interaction costs to achieve extensive collaboration can be very high but also because human psychology and behavior, combined with different individual self-interests, can make it difficult to get decisions made by relying on collaboration alone (for example, who should play what role?).

The art in organizational design is to find both the right mix of hierarchy and collaboration as well as the right mix of individual and mutual accountability to best achieve the work that needs to be done. This is an age-old challenge. Let's explain what we mean by this.

A (Very Short) History of the Firm

The 20th-century model evolved from the long history of human beings searching for a better way to organize themselves to get work done.

Early on, humans discovered that specialization allows individuals to undertake work that best uses their personal talents. The more experience that people get, the better they get at their work. They develop the intangible assets needed to do the work (that is, knowledge, relationships, reputations, and so on). Once people specialize, they become mutually dependent (because no one produces everything he or she needs). Therefore, people need to trade their own specialized work for the work of others. Markets enable people to do this. But markets often fail to deliver exactly what the customer wants, or they simply don't exist for the particular need. This is where private organizations have come into play. Firms innovate to organize work to produce output otherwise not available in the marketplace (at an equivalent price). In doing so, they combine what can be bought from the market with that which has to be provided uniquely by the firm.[2]

From Roman times to the end of the Middle Ages, the job shop represented the state of the art in organizing firms. Think of such medieval crafts as blacksmithing or weaving, for which the master craftsmen used journeymen and apprentices to expand output. As successful sole proprietors learned to leverage their own talents by organizing people to work for them, these job shops evolved and grew larger. But at the same time as they were adding more workers, they also became more complex, since they now had added to the interaction costs of the people working together under their roofs the costs of searching for information, exchanging knowledge and information, and coordinating work activities.[3]

Despite this, job shops succeeded by creating more output, through the effective organizing of workers, than could have been had through the efforts of a talented worker alone. Job shops were usually limited to about 7 to 10 people, since the level of complexity often became unmanageable after that. A few job shops had 20 or more. The largest firm in Roman times had about 100 employees.[4] These limitations were imposed both by the size of the market available to them and by their capacity to produce output before they reached maximum efficient scale and scope. (Maximum efficient scale or scope is reached when

INTERACTION AND TRANSACTION COSTS

When you read the economic literature, you realize there is no consistent definition of "transaction costs" or "interaction costs." To help the reader understand our ideas, we are providing definitions of "transaction costs" and "interaction costs" as we use the terms.

Transaction costs, as we define them, are the costs associated with getting parties with independent interests to trade items of value. Transaction costs include the interaction costs of making an exchange, including all the costs involved in searching to find trading parties (for example, hiring an agent), making the exchange itself (for example, writing a contract), and the after-trade costs (for example, ensuring compliance with the terms of the contract). In addition, when the parties are not in the same location, the costs of travel and transportation are transaction costs. While transaction costs were originally the costs associated with bartering, today almost all transactions involve one party paying the other party in money.

In contrast, when workers within the same economic entity (for example, a company) work together, they do not usually interact with one another by explicitly trading items of value. Therefore, no money usually exchanges hands when employees interact with one another. Instead, they are paid by their employer to work together. Throughout this book, although transaction costs are actually a subcategory of interaction costs, for simplicity's sake,

- "Transaction costs" will mean the costs of parties with *independent* economic interests trading with one another.
- "Interaction costs" will mean the costs of parties with *dependent* economic interests working together *within* the same economic entity (that is, the costs of organizing people working together within a firm).

incremental production diminishes returns and when incremental returns begin to be offset by rapidly increasing marginal costs of production.) Marginal costs include, particularly, the increasing internal costs of complexity arising from increased volume of production, managing more people, serving more clients, offering new products, and serving wider geographies.

Starting in the early 18th century, however, a dramatic innovation in organizing work developed. It radically transformed the economies of specialization, scale, and scope of manufacturing. We call it the factory. The phenomenon it inspired is called "the Industrial Revolution."

Factories enabled the design of work flows and continuous processes that combined newly available technology (for example, steam engines) with the efficient mobilization of the factors of production (for example, labor, capital, energy, and raw materials). These work-flow designs increased dramatically the number of productive interactions among workers and decreased dramatically the number of unproductive interactions. Factories converted complex interaction, labor-intensive job shop work to simple, low-interaction-cost, routine work. Given the importance of the costs of physical labor in manufacturing, the factories enabled stunning increases in the output worked per hour.

The objective of a factory was to lower interaction costs by minimizing the need for workers to search for and exchange knowledge and information. It did this by making the work routine, and, through standardized process and supervision, by making coordination and control easier. In other words, factories were designed to overcome the costs of complexity as the scale and scope of the work escalates.

This enabled the work to be performed without much, if any, subjective thinking or problem solving on the part of its workers. It made them, individually, far more fungible with one another. In turn, high volumes (available to suppliers) and lower prices (available to customers) provided opportunities to lower transaction and transportation costs either directly (by spreading fixed costs, like the costs of building a large cargo ship, over more volume) or indirectly, by providing the incentives to innovators to lower these costs further.

THE THEORY OF THE FIRM

One of the questions of economics is why, once the markets formed, didn't the now more specialized employees simply then eliminate the owners of the firm by organizing the work among themselves through a market? Had they done so, they would have been able to split the owner's share among themselves.

The answer is that it would have happened, all other things being equal, if the transaction costs the workers would have incurred as private counterparties were less than the interaction costs they would have incurred by working within the same firm. Of course, not all things are equal, because the proprietor-owner may have had proprietary intangible assets (for example, knowledge about how to organize the work and a reputation earned from delivering quality output to customers over time). Proprietary knowledge could have enabled the owner to organize the workers to produce more, better output, at lower costs than the employees could have produced by themselves if they had worked separately, and the reputation of the owner could have enabled the firm to attract new customers at lower costs than the employees would have been able to attract if they had worked separately.

In fact, it is the ability to freely share and exchange valuable intangibles within a firm that, as Roland Coase described, is the reason the firm exists. In short, employees of the same firm interact with one another more freely and with lower interaction costs than they would incur if they worked separately.

Another answer to this question is provided by Ken Arrow, author of *The Limits of Organization,* who notes that firms also exist to overcome market failures; that is, firms fill in the gaps wherever markets fail to satisfy economic needs.

In the 21st century, these ideas remain important, particularly since, as today's global markets grow in scale and scope, they continuously take over work that previously was undertaken by firms.

At first, most factories were still relatively small (very few firms employed more than 100 people even as recently as the late 19th century), as were the markets within which they competed. It was the principle of competition among these relatively small firms, including the competition between job shops and "factories," that Adam Smith described in his book *The Wealth of Nations*. In fact, it was the interaction between competitive suppliers and customers within markets served by these small firms that led to his famous "invisible hand" observations about the ability of markets to allocate resources to the highest social good.

Creation of Large Integrated Firms

With the innovation of the factory, the stage was set for the emergence of the large integrated corporation. As Alfred Chandler famously observed in *Scale and Scope,* the "modern business enterprise" came into existence "only when the visible hand of management became more efficient than the invisible hand of market forces."[5] To make this leap, all the company had to do was find the means of overcoming the existing limits to the scale and scope in a particular business. The winning model was usually a joint stock company. Such an organization was able to mobilize the capital and other tangible factors of production (such as raw materials and labor) needed to operate an integrated value chain of production (from the acquisition of raw materials to the distribution to the customer).

The driving force behind the development of most large firms in the late 19th century and early 20th century was usually an individual owner-entrepreneur, a person who saw an opportunity to integrate a value chain of production around a particular kind of economic activity. Thus there was Richard Sears in retailing, John D. Rockefeller in petroleum, Andrew Carnegie in steel, Cornelius Vanderbilt in railroads and shipping, and many others.[6] The organizing approach was both patriarchal and hierarchical. The equivalent, in social organization, was the tribe. As in a tribe, the patriarchal entrepreneur articulated the group's strategic vision, then used the hierarchy (and individual and mutual

accountability) to make the organization perform in accordance with that vision. Henry Ford was the epitome of the founding owner-entrepreneur: He was determined to control everything himself. His success in inventing the assembly line enabled him to create one of the most successful industrial firms in the world.

But Ford had a fatal flaw. Even when modern management practices began to appear, he still insisted on controlling everything himself. He held everyone both individually and mutually accountable for "doing it his way." Even as his organization expanded in scale and scope and as its complexity mounted, he let it be known that any employee found with an organizational chart would be fired. That attitude was his undoing. Although Ford survived as a carmaker, he lost what was once a dominating market share to Alfred Sloan's General Motors.

Development of the 20th-Century Model

It was Alfred Sloan, in fact, who (along with Pierre DuPont and drawing on the ideas of other thinkers such as Frederick Taylor) created a new way to organize and manage firms. His model, designed in the 1920s, relied heavily on hierarchy, individual accountability, and divisions to organize firms. General Electric, U.S. Steel, Standard Oil, and many others soon adopted this model. John Micklethwait and Adrian Wooldridge's book *The Company* provides a concise description of how this model, which we call the "20th-century model," came into being.[7] The big idea of this model was the use of the multibusiness (that is, multidivisional organization) that migrated the functional model of production to a multibusiness model usually organized around geography or product. Importantly, this model put the control under a CEO who was an agent for the owners rather than an owner himself. The age of the professional manager had arrived.

This innovation created general managers, each of whom had functional reports, who in turn were delegated with much of the authority of the CEO (subject to the CEO's control, of course) within the business they ran. It expanded from one to a dozen or more "thinking minds"

driving the company. This organization of the company into businesses greatly expanded the organization's capacity to mobilize, manage, and control resources beyond the CEO's personal capacity. In turn, this capacity enabled each business to devote its energy to more specialized work (for example, the responsibility for a geographic region), which in turn enabled expansion of the company's overall scale or scope. Expansion was relatively easy. If you needed to add a new product or a new geography, you simply added a new division.

Sloan wrote, "I do not regard size as a barrier. To me it is only a problem of management."

Business schools, consulting firms (including McKinsey & Company), and early management gurus (such as Peter Drucker) promoted this model. By the late 1960s it had spread globally to become the dominant managing model in the developed world.

In the 1960s, 1970s, and early 1980s, the leaders of large companies often put extraordinary energy into designing how these organizations would work. Since complexity is the enemy of economies of scale and scope (especially in a world where the costs of interacting were very high), it was important to eliminate unproductive complexity. Great attention was focused on clarifying the structure of the organization to eliminate confusion over details. Reporting relationships, roles, and processes were carefully defined and communicated. Rules of thumb, such as "Spans of control should not exceed seven people," were applied to designing organizational structures. Axioms of management, such as "Accountabilities should match responsibilities" or "Every person should have one clearly defined boss," were also abundant in the 1960s, 1970s, and early 1980s.

The model itself had many variants. Some single-business companies were structured to be managed by function, others by geography, others by product, and still others by customer group. Some companies were centralized. Others were decentralized. But what they all had in common was a reliance on hierarchical structures that split work up among the individual managers—who themselves were allowed to organize their units as they saw fit. In the process, authority passed down

a chain of command. With that came accountability: The individual was expected to perform in accordance with the directions and expectations of the superior officer.

The number of layers in the chain of command in this model varied with the span control of each manager, which, in turn, varied with the nature of the work and how much control was being exercised by each link in the chain, and with the total size of the organization. Some organizations found it necessary to set up a dozen or more layers of hierarchy—until, finally, one reached the front line, where the real work of the company was done.

Widespread Adoption of the Model

The 20th-century model was a wild success, not only in manufacturing but eventually also in firms ranging from commercial banks and retailers to telecommunications companies. Even as the scale and scope of a firm increased, it enabled the enterprises to deliver earnings. The key to its success was that negotiations could progress smoothly down the chain of command concerning expected earnings (that is, the annual budget) and the accountability of each individual to make that budget. This process cascaded down the chain of command until it reached the front line—where the budget expectations were expected to be achieved. This "operating performance pressure" motivated the down-the-line employees to make budgets "at all costs." In turn, that meant selling hard and cutting expenses wherever they could be cut.

For most of the 20th century, and particularly from the end of World War II into the 1980s, it was reasonable for top management to set annual financial targets and to develop long-range plans and "visions" to reach them. These usually meant leveraging core competencies across ever-widening geography. Given the opaqueness of the information provided to shareholders at this time and the strength and profitability of core businesses (much due to weak competition and the pricing umbrellas put in place by companies propped up by regulation), the apparent successes often masked real weaknesses within.

Finally, as powerful global market forces began to be unleashed at the end of the 1980s, the free ride ended. Fewer and fewer weak competitors were left to exploit (most of them in the developed world had already been acquired or had failed). And so we entered the 1990s.

Then, without much warning, the world abruptly changed again.

The Digital Age

Over the last 15 years, driven by falling interaction and transaction costs, the global economy has witnessed a fundamental transition. Interaction and transaction costs have fallen continuously throughout human history, but in the early 1990s—largely due to digital technology but also to changes in regulations, capital mobility, and the development of global standards (such as English as the language of business)—these costs began a sharp descent, one that continues today. In a few short years, working with any other workers, anywhere in the world, in any line of business, became easier than any one of us could ever have imagined.

Moreover, just as lowered interaction and transaction costs increased economies of scale and scope, they also increased economies of specialization. Low interaction and transaction costs allow companies to focus on only those activities they do best. More and more, they are able to obtain from others, at manageable costs, all the pieces of the value chain for which they lack comparative advantage. As the complication and cost of accessing supply through outsourcing decreases, the logic of a world filled only with world-class producers in every piece of the value chain becomes compelling.

This enables companies rich in intangible assets, for example, to capture economies of scale and scope related to those assets while simultaneously divesting activities for which they lacked such intangible advantages. This has made it possible for the best-managed firms, with the most valuable intangible assets, to find prosperity in the digital age.

General Electric is one of them. Over the last 20 years, GE has made a profound shift in its business mix—from being a heavy-

industries-dominated firm to becoming much more of a financial services, energy, and health-care firm. Another way of saying this is that GE has shifted from labor-intensive activities to thinking-intensive activities.

In 1984, GE employed 330,000 people. About 20 percent of them were either managers or professionals. By 2004, GE had reduced its workforce to 307,000, but its percentage of employees who were professionals or managers had increased to roughly 55 percent. In the process, as GE added some 100,000 professional and managerial employees, its *profit per employee* per year quadrupled, from $12,500 per employee in 1984 to $54,000 per employee in 2004. Its market capitalization increased from $47 billion to $386 billion—or 825 percent—while its book equity increased only 482 percent.

GE is representative of a new superclass of firms—which includes names such as ExxonMobil, IBM, Microsoft, Johnson & Johnson, Toyota, and British Petroleum. These firms are not only very large; they also have an incredibly rich mix of thinking, talented people. These companies organize these workers well (even though by 20th-century principles) and thereby are able to earn outstanding returns, as measured by profit per employee, relative to companies of equivalent size, as measured by number of employees.

What distinguishes such companies is not only their size but also their ability to manage. Most are adept at the use of hierarchy, but they are also able to operate as "one company." Rather than being overcome by the complexity of operating such large, diverse firms, these thinking, talent-intensive megainstitutions have managed to shift their bases of competition from tangibles to intangibles, and they are thereby creating extraordinary profits and market capitalization.

Intangibles are critical to such high performance in all industries. Even very labor-intensive firms (such as Toyota) mobilize world-class intangibles in "lean manufacturing," which translates into fundamental labor productivity advantages. Even very capital intensive companies (like ExxonMobil) translate world-class intangibles in exploration and production into fundamental capital productivity advantages over rivals.

Because the names of these companies are so familiar to all of us, there is a tendency for even close observers to miss the economic significance of their ability to create wealth. During the 1990s, something changed in the economy, something that released the complexity constraints that had been limiting the ability of large companies to create wealth rapidly.

That "something," as we described in Chapter 1, was the ability of some large companies to generate profits based on increased economies of scale and scope from intangibles (in unique supply) that enabled increases in returns without commensurate investments in labor and capital. It is not that these companies adopted fundamentally new managing models to obtain this high performance. It is rather that these companies already had superior intangibles and organizing approaches. The old economy was constraining the scale and scope effects these companies could enjoy. When the economy changed, these latent advantages were released and, in terms of wealth creation, the result was spectacular.

Problem of Large Numbers

But most of even these superclass companies have not entirely captured the full potential of the scale and scope effects latent in their employment of ever-larger numbers of thinking-intensive workers. Even these companies do not deploy organizing models designed for the 21st century. This is good news for these companies. Why? Because if they can overcome this challenge, they will have spectacular opportunities to create wealth.

Not just superclass companies but almost all large companies everywhere are struggling with overcoming the complexity challenges of gaining effective collaboration among the very large numbers of people they employ.

While modern technology offers the potential to enable very large numbers of people to work with others across an organization, com-

plexity constraints today limit the ability to take full advantage of this potential.

Here's the dilemma: Most of the thinking-intensive work, even in superclass companies, is still done by individuals working alone, or at best, within small teams. But many of the great, untapped opportunities of the digital age are elsewhere—in the ability of individuals to communicate across the entire enterprise, to collaborate on work with people they might not even know, to match talents and job opportunities. Because of the sheer number of possibilities, making the right connections is difficult. It is a problem of large numbers. As large numbers of people reach out to each other for information and knowledge, the unwanted by-product is increased complexity.

The number of potential opportunities to collaborate, for instance, rises rapidly as the number of people working together increases. If there are 10 people in an organization, there are 45 potential bilateral collaborative relationships among them. If you have 100 people, there are about 5,000. If you have 100,000, as the largest companies do, there are 5 billion potential bilateral relationships.[8]

Not everyone, of course, needs to interact with everyone else, but even the subgroups in megainstitutions are very large. The client relationship management (CRM) practice of IBM, for example, has 4,000 consultants, which generates some 8 million potential bilateral relationships among them. The challenge in such large populations is to find the one or two people among the larger populations who possess the unique, distinctive knowledge one needs at a particular moment. The problem is exacerbated because, as the numbers grow, the ability to have personal relationships with even a small fraction of the entire population and to be able to interact intensively with each of them diminishes rapidly.

If you were to spend half your time interacting with 1,000 people, for example, you would have about one minute a week to spend with each of them. This means that even within a relatively "small" 1,000-person organization, you are unlikely to know much about your

coworkers, nor are you likely to interact very much with many of them. How can you know which of them may have the particular, distinctive knowledge you require? How do you match the best job opportunity within an enterprise to a particular person's unique talents?

But the problem of large numbers is not just an issue of lowering search and coordination costs. The problem of large numbers is exacerbated by the difficulties in maintaining sufficient social cohesion and trust among people who don't know each other—to get them to willingly share information and knowledge or work opportunities.

The greater the number of people, of course, the more difficult the challenge. This is why anthropologists and others have observed that tribal groups tend to split in two when they reach 250 to 500 people. When the group reaches that size, it is difficult for any member of the tribe, even the patriarchal leader, to know everyone. Some, such as Malcolm Gladwell in *The Tipping Point,* have estimated the number for effective connectivity is closer to 150.[9] Yet now we have firms with over 100,000 professionals and managers. It was the tyranny of large numbers, in fact, that caused companies to subdivide their workforces into self-contained businesses in the first place. The problem is that in the digital era, siloed businesses put up barriers that serve to exacerbate the challenges of enabling large numbers of people to collaborate across the enterprise.

Organizational Design Opportunities for All

We believe there are opportunities to improve the organizational design of nearly all companies, even the superclass companies, and thereby to address the challenge of large numbers. However, the organizational design challenges most companies face are great. Most large companies today have organizations that were not so much designed as that merely evolved according to a set of rules (that is, the 20th-century model). While many of the organizations of these large companies may once have had the semblance of a design, as the years have

passed, most have evolved into organizations that bear little resemblance to that original design. With some notable exceptions, such as ExxonMobil, GE, IBM, Microsoft, and Toyota, most of these companies rarely operate effectively as one company. The result is widely differing organizational approaches across the company, with those differences being driven not so much by external complexities or by innate differences among businesses as by such vagaries as the personalities of different managers and by the history of how the organization evolved.

One presumption behind the 20th-century model is that individual businesses are independent and self-contained. But, in the digital age, large-scale collaboration across business boundaries is now required. Given the widely differing approaches to organizing roles and evaluating the people who fill them in different organizational units, however, it is not surprising that these differences drive communication challenges and conflicting, rather than complementary, behaviors. At best, these differences require extensive, complex interactions to coordinate work across organizational boundaries. At worst, organizational boundaries have hardened into silo walls, leaving people to behave selfishly.

Trying to overcome these issues through the use of matrix structures and "double counting" of financial results gains some benefits in terms of collaboration, but at great costs in terms of efficiency and effectiveness. The enormous upsurge in the volume of electronic interactions enabled by the digital age combined with the expanded number of thinking-intensive workers results in the unproductive complexity challenges described in Chapter 1.

We believe that the time has come for corporate leaders to take control of their organizations. They need not merely react to the challenges of the digital age. Rather, just as Alfred Sloan and others did in the 1920s, they can design a better way to work—and with it they can launch major strategic organizational change initiatives that can move their corporations along different paths. As we said in the Preface, we believe you can develop a set of carefully designed initiatives, each of which can reduce unproductive internal complexity (that is, unnecessary search and coordination costs) while stimulating the creation and productive flow

of valuable intangibles (for example, talent, knowledge), and thereby relax complexity limits. If so, you can enable the better capture of rents and create far greater wealth, not to mention far better working conditions for your employees.

Ideas for Organizing in the Digital Age

In the remainder of this book we will describe a set of ideas to suggest how one can better organize companies to create wealth in the 21st century. The ideas build on one another. Which ideas should be adopted and in what order will depend on the individual company and its particular circumstances.

Ideas to Manage Better

The first three ideas are on how to manage better in the 21st century. While these ideas are not truly new—in that they represent best practices drawn from superclass companies, professional services firms, the military, and staged gate investors—they are combined in ways that are innovative and different and in ways that make them more relevant to designing organizations that can produce higher "profits per employee."

- **Idea 1. Backbone Line Structure.** This idea is for companies that are struggling with the complexity of managing their own organization. Creating a backbone line structure involves streamlining management by increasing the authority of line management to drive earnings performance while creating enterprisewide standards and protocols to bound that authority. A backbone line hierarchy provides frontline managers with clear authority to mobilize the mind power, capital, and labor needed to perform. The idea is to put the tactical control of the complexity of dealing with the external marketplace under backbone frontline managers, or "field command-

ers." To simplify and focus frontline management, this approach takes accountabilities for developing major new strategies out of the front line and places that accountability with senior and top management. It also takes from the front line the responsibility for the complexity of managing shared support requiring specialized, professional skills, and it places that responsibility under shared central utilities, which are held accountable for their abilities to support the line effectively and efficiently.

- **Idea 2. One-Company Governance and Culture through a Partnership at the Top.** This idea is for companies that have organizations hamstrung by organizational silos, those that make it very difficult to mobilize mind power, labor, and capital on an enterprisewide basis. There are a number of approaches to moving to a one-company governance model, but the one we advocate is based on a "partnership at the top." Such a partnership is built on having a powerful CEO who has sufficient clout from the board to be able to hold top people both individually and mutually accountable and to be able to exit any executive not willing to act as a "partner." This approach involves creating a parent governance committee and a number of subcommittees (for example, IT, HR, technology), each of which takes ownership for exercising one-company governance in its field of focus. Such a committee-based structure requires a disciplined use of time, and therefore this approach demands operating through a unified, integrated corporate calendar. This approach would also normally involve creating an extended partnership that would comprise the several hundred most senior people in the company.

  One-company governance also involves moving to a one-company culture that, in turn, establishes and enforces one-company standards, protocols, and values.

  In concert with a strong line management structure, one-company governance provides the essential foundation needed to enable a company to be "well managed" and thereby able to use hierarchy to mobilize mind power, labor, and capital.

- **Idea 3. Dynamic Management.** Dynamic management is an idea that is aimed at enabling companies to mobilize the intangibles needed to discover new, wealth-creating strategies and business models as they navigate the external complexity, confusion, and uncertainty of today's world. It provides a way to do so without disrupting the ability or focus of frontline management on day-to-day operating performance. Dynamic management uses a pursuit of a "portfolio of initiatives" to discover wealth-creating opportunities by managing the related investment risks through the use of staged gate investment processes. With this approach, you navigate external complexity and uncertainty rather than make "leaps of faith" that assume away that complexity and uncertainty.

Ideas to Improve the Flow of Intangibles

The next three ideas involve improving the flow of intangibles through the company by using the energy of individuals who are self-directing their own work, thereby overcoming the problems of gaining collaboration among large numbers of employees who don't know each other. These ideas are all relatively new. This is largely because they have become practically possible only in the last decade with the advent of ubiquitous networked digital technology. These ideas are significantly dependent as well upon a company being well managed and operating as one company, and therefore they are less relevant to poorly managed companies.

- **Idea 4. Formal Networks.** A formal network is an organizing capability that uses the natural self-interest of individuals with a common interest to form a structured community that enables them to collaborate with one another easily, particularly through digital technology. It overcomes the problem of large numbers by creating subgroups with hundreds, rather than with tens of thousands, of people interacting with one another. Versions of formal networks, called "communities of practice," have long existed in professional

firms; the idea is to bring such practices inside large companies to organize their professionals into networked communities so that they can exchange intangibles with a minimum of search or coordination costs. Formal networks mobilize mind power by enabling communities to build and exchange both personal and collective knowledge in defined areas of mutual interest.

- **Idea 5. Talent Marketplaces.** A talent marketplace is an enterprisewide organizational capability that takes advantage of the natural self-interest of managers seeking talent and the natural self-interest of job seekers in order to find each other through market mechanisms. While HR professionals still serve as "brokers," this approach puts greater responsibility for personal development on the individual relative to the corporation. The intent is to make it easier for individuals to find jobs that they find exciting and that meet their personal development needs. It also puts a greater burden on managers to make jobs more appealing to job seekers if they want to compete for the best talent. Making talent markets work requires putting in place capabilities and processes to handle searching, competition, pricing, contracting the terms of employment, and so on. Talent marketplaces mobilize mind power by getting the right talent to the right jobs.

- **Idea 6. Knowledge Marketplaces.** A knowledge marketplace is an enterprisewide organizational capability that enables those workers with a natural self-interest in seeking particular types of knowledge to find those author-workers with a self-interest in building a personal reputation. Knowledge marketplaces include such approaches as providing a market exchange for high-quality documents, expertise systems, internal "wikipedias," and internal "blogs." They also include specific processes for ensuring effective searching, competition, and the quality of knowledge being traded, and they provide rewards for knowledge producers. Knowledge marketplaces mobilize mind power by getting the right knowledge to the right minds.

Ideas to Motivate Better Behaviors

The next two ideas are perhaps the most far-reaching, some might even say radical, of those proposed in the book. They involve rewiring the financial reporting systems and the performance evaluation systems of companies to motivate better economic behaviors by individuals. Doing so can enable companies to rely less on supervision and more on motivation to drive constructive behavior, and that, in turn, can make every one of the other ideas described in this book work better.

- **Idea 7. Motivating Economic Behaviors.** This idea requires revamping the financial reporting systems of companies to motivate better economic behaviors in the digital age. Most of today's financial reporting is based on "generally accepted accounting principles" (GAAP) that were designed to report earnings *externally* but that are used by most companies for reporting earnings *internally* as well.

  We are *not* advocating any changes to external reporting conventions. Rather, we are recommending a new approach to internal reporting. We propose that companies put greater weight on returns on talent (and returns to intangibles) than they place on returns on capital. Indeed, we advocate that profit per employee become the primary metric of profitability. We believe that returns on capital should be looked at just to ensure that they are sufficient to cover the costs of capital.

  This chapter also lays out an approach to financial performance measurement that is intended to motivate economic behaviors from managers while preserving and enhancing top management's abilities to deliver the current earnings expected by the market. It also involves shifting to enterprisewide financial performance measures more in tune with the 21st century. Better financial metrics enable the mobilization of mind power by motivating the economic behaviors to do so.

- **Idea 8. Role-Specific Performance Measurement.** Role-specific performance measurement involves defining the behavior expected for

each of the roles in a company and then institutionalizing the performance measures of people in these roles to motivate collaborative, economic behaviors. This approach recognizes the importance of role modeling, of the definition of skills required, and of the setting of expectations for performance to enable people to develop a good mental model of behavior, particularly in relation to people occupying similar roles. It then uses role-specific performance measurement to reinforce those desired behaviors.

The intent is to motivate the right behaviors from largely self-directed, thinking-intensive people who require significant autonomy to undertake their work. Under this approach, you hold people not just individually accountable for their performance but also mutually accountable for how well they help others succeed. This approach also enables the creation of compliance processes to provide appropriate consequences to individuals who behave badly.

The biggest change this approach requires is moving from having individual managers be primarily responsible for evaluating performance to institutionalizing performance measurement and career development through personnel committees. Role-specific performance measurement enables mobilizing mind power by motivating better behaviors from people who need to collaborate with one another.

Ideas to Implement an Organizational Strategy

The final idea is to make organizational design for the 21st century the centerpiece of corporate strategy.

- **Idea 9. Organizational Design as Strategy.** Wealth in the 21st century will come from becoming better at mobilizing the mind power latent in each company's workforce of talented employees. Hoping that the existing organizing model will through serendipity evolve to a better design is an inadequate response to the economic changes brought about by our transition to the digital age. Organizational

design can no longer be an afterthought. Rather, corporate leaders need to invest an amount of design energy that is sufficient to the task of creating an organization that can thrive no matter what conditions it meets as the 21st century unfolds.

The approach we recommend is to develop a "master plan" of how you want the organization to operate in the future, say, some five years from now, and then to deliberately put it in place through a multiyear portfolio-of-initiatives program that uses stage gating discipline to navigate the execution of organizational change.

Designing and successfully completing major organizational change initiatives will be hard. It will require enormous commitment, focus, and patience from top leadership. But doing so is the key to having a working environment that enables the company's professionals and managers to perform up to their full potential, thereby making it possible for the company to prosper.

Now let's begin exploring these ideas, one at a time.