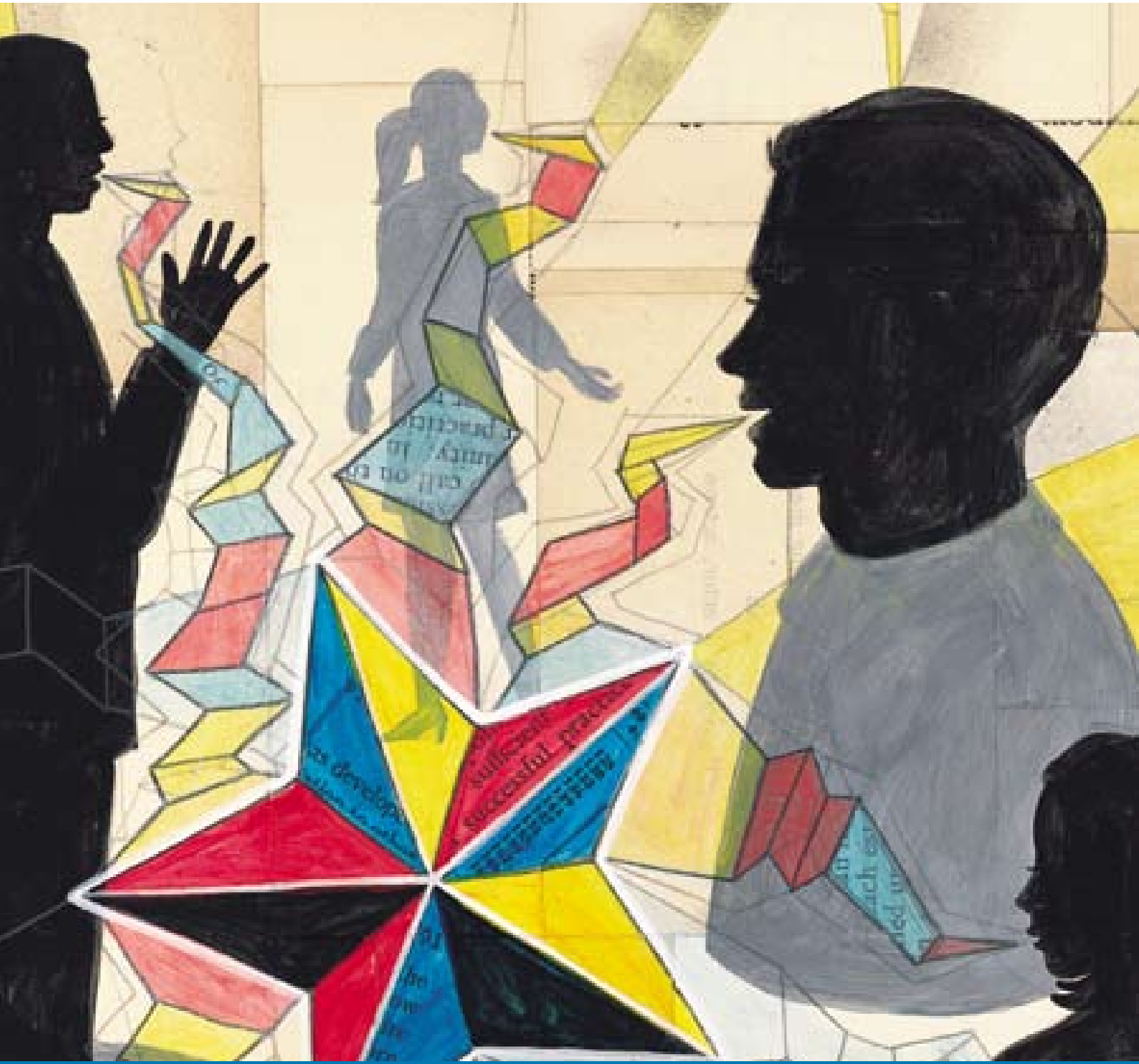
The McKinsey *Quarterly*

The 21st-century corporation



A *McKinsey Quarterly* Reader

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Introduction

In about 1760, a few entrepreneurs in the north of England had the idea of using steam engines to drive machines that spun cotton thread—the germ of the first industrial revolution. A bit more than a century after that, some European and American companies launched the second industrial revolution by embracing innovations such as electricity and electric motors, internal-combustion engines, production lines, interchangeable parts, and hierarchical, vertically integrated corporations. Today our whole planet is being transformed by a dramatic, nonindustrial revolution based on intangibles such as knowledge workers, intellectual capital, collaborative networks, low-cost interactions (particularly tacit ones), and globalization. Your business, your life, and your career will all change profoundly. This collection shows what companies and the people who work for them must do to succeed in that new world.

The **21st-century** organization

Big corporations must make sweeping organizational changes to get the best from their professionals.

Lowell L. Bryan and Claudia Joyce

About half a century ago, Peter Drucker coined the term "knowledge worker" to describe a new class of employee whose basic means of production was no longer capital, land, or labor but, rather, the productive use of knowledge. Today, these knowledge workers, who might better be called professionals, represent a large and growing percentage of the employees of the world's biggest corporations. In industries such as financial services, health care, high tech, pharmaceuticals, and media and entertainment, professionals now account for 25 percent or more of the workforce and, in some cases, undertake most typical key line activities. These talented people are the innovators of new business ideas. They make it possible for companies to deal with today's rapidly changing and uncertain business environment, and they produce and manage the intangible assets that are the primary way companies in a wide array of industries create value.

Productive professionals make big enterprises competitive, yet these employees now increasingly find their work obstructed. Creating and exchanging knowledge and intangibles through interaction with their professional peers is the very heart of what they do. Yet most of them squander endless hours searching for the knowledge they need—even if it resides in their own companies—and coordinating their work with others.

Article at a glance

Professional employees, who create value through intangible assets such as brands and networks, now constitute up to 25 percent or more of the workforce in financial services, health care, high tech, pharmaceuticals, and media and entertainment.

Making professionals productive enables big corporations to be competitive, yet most of them do little to improve the productivity of these employees.

Corporate organizational structures—designed vertically, with matrix and ad hoc overlays—make professional work more complex and inefficient.

Companies must change their organizational structures dramatically to unleash the power of their professionals and to capture the opportunities of today's economy.

The inefficiency of these professionals has increased along with their prominence. Consider the act of collaboration. Each upsurge in the number of professionals who work in a company leads to an almost exponential—not linear—increase in the number of potential collaborators and unproductive interactions. Many leading companies now employ 10,000 or more professionals, who have some 50 million potential bilateral relationships. The same holds true for knowledge: searching for it means trying to find the person in whose head it resides, because most companies lack working "knowledge markets." One measure of the difficulty of this quest is the volume of global corporate e-mail, up from about 1.8 billion a day in 1998 to more than 17 billion a day in 2004. As finding people and knowledge becomes more difficult, social cohesion and trust among professional colleagues declines, further reducing productivity.

A flawed organizational design

Today's big companies do very little to enhance the productivity of their professionals. In fact, their 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 cooperate 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.

Worse yet, matrix structures, designed to accommodate the "secondary" 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 often takes place only when the 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.

Other ad hoc organizational devices, such as internal joint ventures, co-heads of units, and proliferating task forces and study groups, serve only to complicate the organization further and to increase the amount of time required to coordinate work internally. The result is endless meetings, phone calls, and e-mail exchanges as talented professionals—line managers or members of shared utilities—waste valuable time grappling with the complexity of a deeply flawed organizational structure.

A new organizational model

To raise the productivity of professionals, big corporations must change their organizational structures dramatically, retaining the best of the traditional hierarchy while acknowledging the heightened value of the people who hatch ideas, innovate, and collaborate with peers to generate revenues and create value through intangible assets such as brands and networks. Companies can achieve these goals by modifying their vertical structures to let different groups of professionals focus on clearly defined tasks—line managers on earnings, for instance, and off-line teams on longer-term growth initiatives—with clear accountability. Then these companies should create new, overlaid networks and marketplaces that make it easier for professionals to interact collaboratively and to find the knowledge they need.

Companies can not only build this new kind of organization but also reduce the complexity of their interactions and improve the quality of internal collaboration by implementing four interrelated organizational-design principles:

1. Streamlining and simplifying vertical and line-management structures by discarding failed matrix and ad hoc approaches and narrowing the scope of the line manager's role to the creation of current earnings

2. Deploying off-line teams to discover new wealth-creating opportunities while using a dynamic management process to resolve short- and long-term trade-offs

3. Developing knowledge marketplaces, talent marketplaces, and formal networks to stimulate the creation and exchange of intangibles

4. Relying on measurements of performance rather than supervision to get the most from self-directed professionals

The ideas underlying each of these policies may not be entirely new, but we don't know of any company that applies *all* of them holistically—and this failure limits the ability to perform up to potential. A company that tries to simplify its vertical organizational structure without helping large numbers of self-directed professionals to collaborate more easily might increase its efficiency, for example. But that would be more than offset by a decrease in its effectiveness.

Simplify the line structure

The first design principle is to clarify the reporting relationships, accountability, and responsibilities of the line managers, who make good on a company's earnings targets, for all other considerations will get short shrift until short-term expectations are met. To achieve this goal, a company must establish a clearly dominant axis of management—product, functional, geographic, or customer—and eliminate the matrix and ad hoc organizational structures that often muddle decision-making authority and accountability. Dynamic management and improved collaboration, as we show later, are better ways of accomplishing the purposes of these ad hoc structures.

A company that aims to streamline its line-management structures should create an effective enterprise-wide governance mechanism for decisions that cross them, such as the choices involved in managing shared IT costs. These mechanisms are typically created by defining and clarifying the decision-making authority of each member of the senior leadership team and establishing enterprise-wide governance committees as required. It may also be necessary to take important support functions, which demand focused management, out of the line structure, so that specialized professionals (rather than line managers, who are often, at best, gifted amateurs) can run these functions as shared utilities.

Finally, to promote the creation of enterprise-wide formal networks, parallel structures and parallel roles should be established across the whole extent of the company. Defining the role of the comptroller or the country manager consistently throughout it, for example, helps the people in those roles to interact and collaborate.

Manage dynamically

Once the newly simplified vertical structure allows line managers to limit their attention to meeting the near-term earnings expectations of the company, it has the luxury of focusing other professionals on the long-term creation of wealth. The advantages of such a separation are obvious. As one executive we know put it, you don't want people who are engaged in hand-to-hand combat to design a long-term weapons program.

Ongoing multiyear tasks such as launching new products, building new businesses, or fundamentally redesigning a company's technology platform usually call for small groups of full-time, focused professionals with the freedom "to wander in the woods," discovering new, winning value propositions by trial and error and deductive tinkering. Few down-the-line managers, who must live day to day in an intensely competitive marketplace, have the time or resources for such a discovery process.

Not that companies should forgo discipline while undertaking such a project. In fact, the portfolio-of-initiatives approach to strategy enables them to "plan on being lucky" by using the staged-investment processes of venture capital and principal investing firms, as well as the R&D processes of leading industrial corporations.[1] Companies that take this approach devote a fixed part of their budgets (say, 2 to 4 percent of all spending) and some of their best talent to finding and developing longer-term strategic initiatives. Each major one usually has a senior manager as its sponsor to ensure that resources are well invested. Once an initiative is ready to be scaled up—when revenues and cost projections become clear enough to appear in the budget—it can be placed in the line structure.

Of course, at the enterprise level, companies must manage their short- and long-term earnings in a way that integrates their spending on strategic initiatives with the overall budget, so they will need to adopt a systemic, effective way of making the necessary trade-offs. What we call dynamic management can help: a combination of disciplined processes, decision-making protocols, rolling budgets, and calendar-management procedures makes it possible for companies to manage the portfolio of initiatives as part of an integrated senior-management approach to running the entire enterprise. Dynamic management forces companies to make resource allocation trade-offs, explicitly, at the top of the house rather than allowing them to be made, implicitly, by down-the-line managers struggling to make their budgets. This change further simplifies the line managers' role.

How can managers translate the concept of corporate performance into an operational reality? See "Managing for improved corporate performance" on mckinseyquarterly.com.

Develop organizational overlays

Having stripped away unproductive matrix and ad hoc structures from the vertical organization and clarified the line structure, a company must develop

[1] Lowell L. Bryan, "Just-in-time strategy for a turbulent world," *The McKinsey Quarterly*, 2002 special edition: Risk and resilience, pp. 16–27. The primary stages of such an investment process are diagnosing the problem or opportunity, designing a solution, creating the prototype, and scaling it up, with natural stopping points, midcourse corrections, or both at the end of each stage.

organizational overlays in the form of markets and networks that help its professionals work horizontally across its whole extent. These overlays make it easier for them to exchange knowledge, to find and collaborate with other professionals, and to develop communities that create intangible assets.

Because these market and network overlays help professionals to interact horizontally across the organization without having to go up or down the vertical chain of command, they boost rather than hinder productivity. Companies that establish such overlays are making investments not only to minimize the search and coordination costs of professionals who exchange knowledge and other valuable intangibles among themselves but also to maximize the opportunities for all sorts of cost-effective, productive interactions among them.

We believe that moving simultaneously into knowledge marketplaces, talent marketplaces, and formal networks will make all three more effective. A knowledge marketplace, for example, helps members of a formal network to exchange knowledge, which in turn helps to strengthen the network. A talent marketplace works better if the people who offer and seek jobs in it belong to the same formally networked community. In combination, these techniques can make it possible for companies to work horizontally in a far more cost-effective way.

Knowledge marketplaces. For the better part of the past 15 years, knowledge management has generated a good deal of buzz. Despite heavy investment, the benefits have been limited. Real value comes less from managing knowledge and more—a lot more—from creating and exchanging it. And the key to meeting this goal is understanding that the most valuable knowledge of a company resides largely in the heads of its most talented employees: its professionals.

Exchanging knowledge on a company-wide basis in an effective way is much less a technological problem than an organizational one. As we have argued, to promote the exchange of knowledge, companies must remove structural barriers to the interaction of their professionals. These companies must also learn how to encourage people who may not know each other—after all, big corporations usually have large numbers of professionals—to work together for their mutual self-interest. What's the best way of encouraging strangers to exchange valuable things? The well-tested solution, of course, is markets, which the economy uses for just this purpose. The trick is to take the market inside the company.

How can companies create effective internal markets when the product is inherently intangible? Among other things, working markets need objects

of value for trading, to say nothing of prices, exchange mechanisms, and competition among suppliers. In addition, standards, protocols, regulations, and market facilitators often help markets to work better.

These conditions don't exist naturally—a knowledge marketplace is an artificial, managed one—so companies must put them in place.[2] In particular, the suppliers of knowledge must have the incentives and support to codify it (that is, to produce high-quality "knowledge objects"). "Buyers" must be able to gain access to content that is more insightful and relevant, as well as easier to find and assimilate, than alternative sources are.

Knowledge marketplaces are a relatively new concept, so they are rare. We have found that building an effective one in a large company requires significant investments to get the conditions in place—but that such a marketplace can indeed be built. A successful mechanism of this kind substantially improves the ability to create and exchange knowledge and dramatically cuts search and coordination costs.

Talent marketplaces. A company can create similar efficiencies by developing a talent marketplace that helps employees in a talent pool, either within a single organizational unit or across the enterprise, to explore alternative assignments varying from short-term projects to longer-term operating roles. Simultaneously, anyone with assignments to offer can review all of the people looking for new opportunities. As with marketplaces for knowledge, companies must invest in their talent markets to ensure that gifted men and women looking for new jobs hook up with managers seeking talent.

Companies must define the talent marketplace by specifying standardized roles, validating the qualifications of candidates, determining how managers receive the job seekers' performance evaluations, and so forth. The other requirements include pricing (the compensation for a particular role or assignment), an exchange mechanism to facilitate staffing transactions, and protocols and standards (how long assignments run, the mechanics of reassignment, the process of conveying decisions to reassign employees). Talent marketplaces do exist—particularly in professional organizations—but like knowledge marketplaces they are at an early stage of development.

Formal networks. People with common interests—such as similar work (industrial engineers, say), the same clientele (the automotive industry), or the same geography (China)—naturally form social networks. These networks lower the cost of interaction while increasing its value to all participants.

[2] Lowell L. Bryan, "Making a market in knowledge," *The McKinsey Quarterly*, 2004 Number 3, pp. 100–11.

A network often provides them with increasing returns to scale: the larger it is, the more chances they have to find opportunities for collaboration.

Social networks do face problems. They often have limited reach (for example, because they don't extend to many potential members in far-flung units and geographies). What's more, they sometimes operate inefficiently (several conversations might be required to reach the right person), may rely too much on the participants' goodwill, and, most particularly, can fail to attract enough investment to serve the common good of all members effectively.

The solution, for a company, is to boost the value of the network by investing in it and formalizing its role within the organization. One such move is the designation of a network "owner" to build common capabilities (for instance, by making investments to generate knowledge). Others include developing incentives for membership, defining separate territories (the existence of more than one social network may confuse would-be members), establishing standards and protocols, and providing for a shared infrastructure (say, a technology platform supporting the network's activities).

In fact, a formal network with specific areas of economic accountability can undertake many of the activities that have inspired companies to use matrix management structures. A formal network relies on self-directed people who work together out of self-interest, while a matrix uses a hierarchy to compel people to work together. In addition, a formal network enables people who share common interests to collaborate with relatively little ambiguity about decision-making authority—ambiguity that generates internal organizational complications and tension in matrixed structures.

Although social networks flourish at many companies, only a few have formalized them. That next step, though, is one of the most important things a company can do, because it removes unnecessary complexity from horizontal interactions among talented people across organizational silos.

Measure performance

The final set of ideas rounding out this new organizational model involves relinquishing some level of supervisory control and letting people direct themselves, guided by performance metrics, protocols, standards, values, and consequence-management systems.

To be sure, accountable leaders must control large companies even as many of their workers become more and more self-directed. But what's needed is inspired leadership, not more intrusive management. Of course, management will continue to be vital—particularly to get value from the many

employees who will go on laboring in "industrially engineered" processes and to hold all of a company's workers and managers accountable for their performance.

But as the workforce increasingly comes to consist of self-directed professionals, leaders will have to manage them by setting aspirations and using performance metrics that motivate them to organize their work, both individual and collective, to meet those aspirations. One successful CEO once told us that to motivate behavior, measuring performance is more important than providing financial incentives to reward it. The challenge is that to measure it effectively, the metrics must be tailored to individual roles and people. Get the metrics wrong and unintended behavior is the result.

To motivate the collaborative behavior that makes this new organizational model work, companies must create metrics that hold employees individually accountable for their contribution to *collective* success—an idea we call holding people "mutually accountable." Such metrics are particularly important for senior and top managers but are required, more broadly, for all self-directed workers. People who are great at developing the abilities of other talented people or at contributing distinctive knowledge, for example, should be more highly valued than those who are equally good at doing their own work but not at developing talent or contributing knowledge.

A new organizational model for today's big corporations will not emerge spontaneously from the obsolete legacy structures of the industrial age. Rather, companies must design a new model holistically, using new principles that take into account the way professionals create value. Big companies that follow these principles will get more value, at less cost, from the managers and the professionals they employ. In the process, they can become fundamentally better at overcoming the challenges—and capturing the opportunities—of today's economy. Q

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Competitive advantage from **better interactions**

Tacit interactions are becoming central to economic activity. Making those who undertake them more effective isn't like tweaking a production line.

Scott C. Beardsley, Bradford C. Johnson, and James M. Manyika

For many employees today, collaborative, complex problem solving is the essence of their work. These "tacit" activities—involving the exchange of information, the making of judgments, and a need to draw on multifaceted forms of knowledge in exchanges with coworkers, customers, and suppliers—are increasingly a part of the standard model for companies in the developed world. Many employees engage in activities of this kind to some extent; production workers at Toyota Motor, for instance, collaborate continually with engineers and managers to find new ways of reducing costs and solving quality problems. But employees such as managers and salespeople, whose jobs consist primarily of such activities, now make up 25 to 50 percent of the workforce. They are typically a company's most highly paid workers and make huge contributions to its competitive prospects in a fast-changing global business landscape.[1] During the next decade, companies that make these activities—and the employees most involved in them—more productive will not only raise the top and bottom lines but also build talent-based competitive advantages that rivals will find hard to match.

But building these advantages won't be easy: companies must alter the way they craft strategies, design organizations, manage talent, and leverage

Leigh Wells

[1] Lowell L. Bryan and Claudia Joyce, "The 21st-century organization," *The McKinsey Quarterly*, 2005 Number 3, pp. 24–33.

Article at a glance

Companies are looking for ways to improve the effectiveness of their top talent: workers who interact with others and draw on experience and judgment to solve the deepest business problems.

What makes these workers valuable is their ability to work collaboratively, to leverage "relationship capital," and to improvise and improve new solutions within an environment that fosters trust and constant learning.

To put these workers to best use, companies must change the way they organize, hatch their strategies, and manage their talent and IT.

The levers that managers must pull to get this job done—flattening hierarchies and creating an environment for constant learning—are familiar. But it will be critical to understand exactly what a company must do to use these workers most effectively and how such efforts differ from other kinds of productivity programs.

technology. The best way for executives to begin is to understand the nature of what economists call tacit interactions—the searching, coordinating, and monitoring activities required to exchange goods, services, and information. During the past half century, the faster pace of specialization, globalization, and technical change has profoundly altered companies, their customers, the supply chains around them, and, consequently, the nature of work within them and at their borders. The result is a dramatic increase in the volume and value of interactions.[2] In most developed economies today, four out of five nonagricultural jobs involve them; only one in five involves extracting raw materials or working on a production line. A century ago, the proportions were reversed. (This shift is under way in the developing world as well. For a comparison of selected developed and developing countries, see Exhibit 1.) The number of jobs chiefly involving the most complex interactions—tacit ones—is growing faster than any other type of job in developed nations. Examples include running supply chains, managing the way customers buy and experience products and services, reviving brands, and negotiating acquisitions.

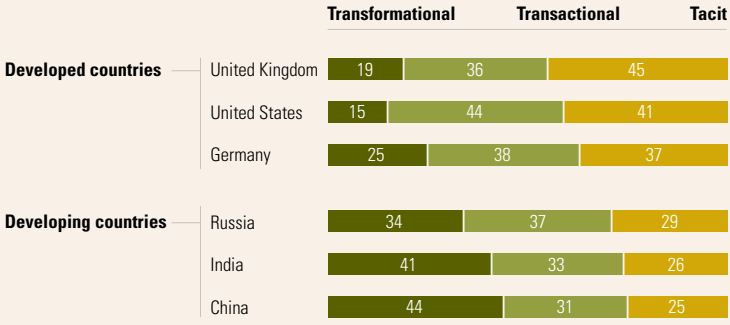
Companies boost their productivity by improving the *efficiency* of transformational activities (such as the extraction of raw materials) or of transactions (for instance, the work of the clerks in the accounts-payable function). But the productivity of marketing managers and lawyers can't be raised by standardizing their work or replacing them with machines. (Nor can companies boost the tacit component of other jobs in this way—automation does nothing, for example, to help the production workers on a Toyota assembly line collaborate with others.) The old strategies for efficiency improvements don't apply to employees whose jobs mostly involve tacit interactions; instead, a company must boost these workers'

[2] Patrick Butler, Ted W. Hall, Lenny Mendonca, Alistair M. Hanna, Byron Auguste, James M. Manyika, and Anupam Sahay, "A revolution in interactions," *The McKinsey Quarterly*, 1997 Number 1, pp. 4–23; and Bradford C. Johnson, James M. Manyika, and Lareina A. Yee, "The next revolution in interactions," *The McKinsey Quarterly*, 2005 Number 4, pp. 20–33.

EXHIBIT 1

More jobs require tacit interactions

Composition of economies, 2004, % of workforce by job type[1]



[1]Categorized by predominant job activity: tacit = complex interactions; transactional = routine interactions; transformational = extraction or conversion of raw materials; 800 occupations studied.

Source: Bureau of Labor Statistics; Global Insights; International Labour Organization, United Nations; World Bank; McKinsey analysis

productivity by making them more *effective* at what they do. As a result, the company will build talent-based competitive advantages that are difficult for rivals to duplicate.

The boundaries between these three categories of business activities—transformational, transactional, and tacit—are not static; they change constantly as a result of innovations in the way functions and tasks are organized and the impact of technology. Although all three are important in today's developed economies, it will be necessary to make a real effort to boost the productivity of tacit interactions. Even as they become more and more dominant, the managerial science for boosting their effectiveness remains less well understood than are ways of increasing the efficiency of transformational and transactional activities. But that must now change. Executives will have to learn how to compete, innovate, and manage in an era when tacit interactions dominate and drive performance. Early innovators are emerging, and sectors where tacit interactions have been dominant for some time offer useful lessons.

Tacit productivity

In work of any kind, variability is a sure sign that things could be better. Manufacturers know how to reduce variability in production work and have therefore greatly raised their operating productivity over the past two decades. Aided by technology, companies have adroitly smoothed variance in call centers and IT help desk operations by standardizing interactions—writing scripts for call-center operators, for instance—thus making tasks

into routines. But look at work involving tacit interactions in almost any company today; performance always fluctuates wildly.

Variability often characterizes the performance of, for instance, the sales force. In most high-tech companies, enterprise salespeople manage a broad number of interactions and must constantly solve problems to get the job done. In addition to interacting with existing and potential customers, salespeople work with marketing staffers, draw on the services of technical-support and customer service specialists, and sort out shipping problems with supply chain supervisors. Often, the variance between the highest- and lowest-performing sales teams is wide. Effective performance isn't simply about generating leads and closing deals; it's also about how well a salesperson manages the work. In fact, interactions drive customer satisfaction and loyalty—and, ultimately, success in sales.

Companies can analyze work done in processes and root out wasteful activities so that employees do more in less time. But companies don't improve tacit interactions by forcing salespeople (or other tacit workers) to follow a uniform procedure. On the contrary, that approach can undermine their effectiveness—salespeople, for instance, generate more sales and profits when they have better information at their fingertips; can engage in value-adding interactions with customers; are better networked with customers, suppliers, and organizational colleagues; collaborate to develop the better ideas that emerge from iterative teamwork; and learn and grow in deal after deal.

That is also true for other workers engaged primarily in tacit interactions, including software engineers at Google, Microsoft, and Yahoo!; Cisco Systems' manufacturing managers, who direct the connections among the company's salespeople, suppliers, and contract manufacturers; fund managers at Blackstone and Fidelity Investments; doctors and nurses at Kaiser Permanente; movie producers; merger integration managers; and insurance agents. In insurance companies, tacit interactions now constitute the primary activities of 63 percent of the workforce. The proportion is 60 percent in securities companies, 70 percent in health care, and 45 percent in retailing. Even in utilities, 30 percent of the employees undertake tacit work.

Executives recognize that they must manage these workers differently. Managing for effectiveness in tacit interactions is about fostering change, learning, collaboration, shared values, and innovation. Workers engage in a larger number of higher-quality tacit interactions when organizational

barriers (such as hierarchies and silos) don't get in the way, when people trust each other and have the confidence to organize themselves, and when they have the tools to make better decisions and communicate quickly and easily.

These aren't new management ideas; indeed, companies have always had workers involved in tacit interactions. But the ever-increasing growth in their number and value is driving companies to adopt such ideas more quickly and deeply.

The competitive imperative

The need to move forward is both substantial and urgent, as our study of more than 8,000 US companies with a preponderance of tacit interactions suggests. We found that the performance of companies in relatively tacit-interactive sectors varied far more than that of other companies. The level of performance variability (defined as the standard deviation of performance divided by the mean level of performance) was 0.9 for companies in sectors with a low level of tacit interactions. Among companies in sectors with a middling number of tacit interactions it was 5.5, rising to 9.4 in sectors with a high level of interactions.

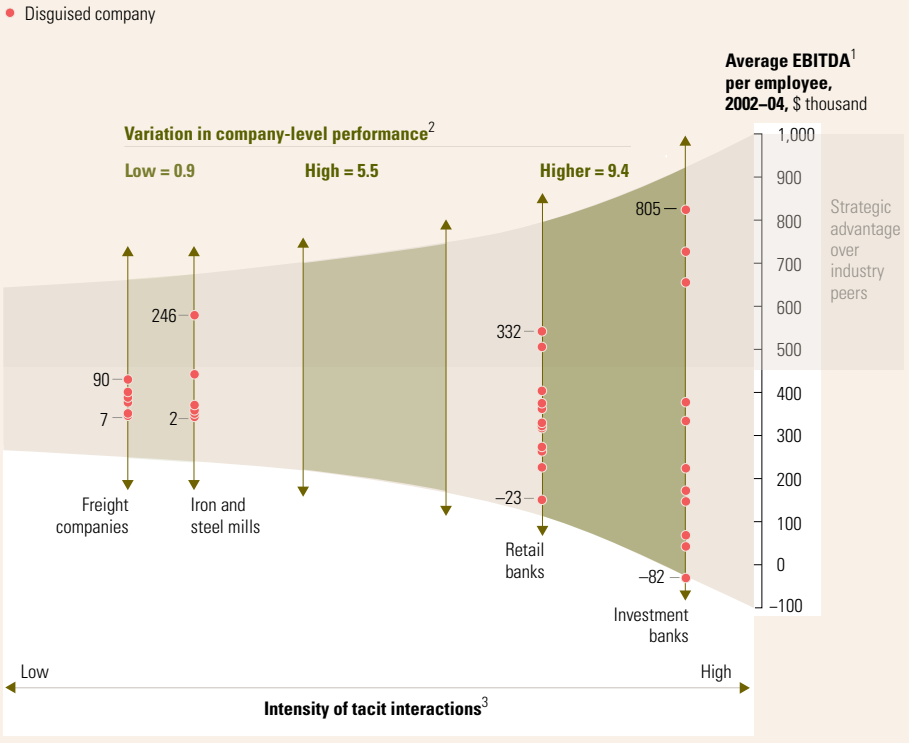
*In certain highly tacit sectors, companies **in the top quartile** understand how to make their tacit employees more effective*

This widening variability as the extent of tacit interaction increases reflects two things. First, companies have considerable competitive headroom for improving the productivity of those who undertake tacit interactions and less headroom for improving the productivity of other workers. Second, in some highly tacit sectors, companies in the top quartile understand how to make tacit workers more effective and now have a significant performance lead on rivals that still manage for efficiency (Exhibit 2).

The top performers have also figured out that by managing their tacit interactions more effectively, they can create competitive advantages that rivals in their sectors find hard to match—in particular, because tacit interactions are hard to specify in advance, or "prewire." Such interactions involve talented people armed with experience, judgment, creativity, facts, and the ability to connect the dots in problem solving, all of which make their work more effective and more likely to achieve desired outcomes. The actions and innovations of these people are usually specific to a particular business situation. Tacit capabilities do not resemble IT systems or reengineered processes that can be copied easily. Their power lies in the collective company-specific knowledge that emerges over time.

EXHIBIT 2

Performance varies for the highly tacit



[1]EBITDA = earnings before interest, taxes, depreciation, and amortization.
[2]Defined as ratio of standard deviation to mean for EBITDA per employee within each industry.
[3]Level of intensity defined as: low—below 14% interactions workers; high—14% to 62% interactions workers; higher—above 62% interactions workers.

Source: Compustat; McKinsey analysis

New management science

Efforts to make tacit interactions (and hence the talent that undertakes them) more effective require changes in every facet of a business, from hatching strategies to organization to managing talent and leveraging IT. Each of these is essentially a piece in a set of interconnected changes. The focus of managerial action is to establish conditions that allow tacit interactions to emerge and flourish rather than trying to engineer connections from the top down. Management's job is to foster connectivity, remove barriers, facilitate learning, and provide new tools that help workers collaborate and learn within an environment that demands more and more complex and often decentralized decision making.

Strategy and innovation

Wherever groups of people collaborate to solve problems—in the field, the supply chain, operations, marketing—innovations are more likely to occur

at the front lines of interaction than at the corporate center. Furthermore, innovations in tacit interaction are by nature usually the result of decentralized experimentation, trials, and learning.

A company can boost the number and quality of the interactions likely to promote innovation if it creates the conditions that allow them to emerge. Google, for instance, encourages its software engineers to devote 20 percent of their time to pursuing their own ideas for new and innovative products and services. Google Earth, a next-generation mapping application, was one such product. New ideas are exposed to the market through the Google Labs Web site and tested both inside and outside the company, which assesses the success of initiatives by gauging how much attention and resources they attract. Pilots that catch on are adopted and those that don't are shut down, so the allocation of resources is more an emergent activity (which isn't centrally planned or predetermined) than a managed one.

To boost the effectiveness of tacit interactions, companies must also upend their strategic decision-making processes. Managers today commonly believe that more and better ideas will follow when communication and interaction increase inside a company and beyond—with its partners, suppliers, customers, and communities of interest—and become "multidirectional." But few companies bake this understanding into the development of strategy by altering traditional top-down processes to include mechanisms and approaches that allow a portfolio of initiatives to emerge from internal and external interactions.[3] Not that management should abdicate its role in setting thematic strategic goals and the company's direction—quite the opposite, since these become crucial to providing a "magnetic north" as innovations occur at the interaction interfaces.

Finally, managers should construct incentives that stimulate collaboration by encouraging innovators to share their inventions and insights within the organization. A trader who works for one of a company's funds isn't likely to share ideas that would help the people who run the rest of them if each fund's employees are rewarded by its performance relative to that of the others. Rewards for collaborating and for sharing knowledge, by contrast, help the organization as a whole rise to the level of its best innovations. Rewards could also reflect an innovator's ability to attract resources and users, such as customers, or reflect the breadth and depth of their personal and professional networks. Bottom-up innovators usually don't have the structural authority to order people to join a team; instead, the innovator succeeds by influencing them and leveraging a personal network—collaborating, sharing, inspiring, and leading.

[3] Lowell L. Bryan and Ron Hulme, "Managing for improved corporate performance," *The McKinsey Quarterly*, 2003 Number 3, pp. 94–105.

Organization

To encourage more interaction, innovation, and collaboration, companies must become more porous by continuing to break down barriers to interactions—barriers such as hierarchies and organizational silos. While the command and control exerted by hierarchies help a company to manage its routine processes and tasks efficiently, they also short-circuit tacit interactions: information moves up and down a hierarchy at defined management levels. By contrast, to stimulate interactions, organizations want whatever information is relevant for solving a particular problem to be shared among teams laterally, in real time, irrespective of reporting channels and silos. What's more, organizational structures presuppose structures for getting work done, but tacit work is improvisational and difficult to define in advance, for it follows the problem being solved and the nature of the opportunity at hand.

Workers will exchange information if there is a fair return on sharing it and a clear value for seeking it. See "Making a market in knowledge" on mckinseyquarterly.com.

Tacit interactions reduce the importance of structure and elevate the importance of people and collaboration. Some of these changes are already under way. In many companies, people now come together in project teams, address an issue, and then disassemble to start the process again by joining other informal teams. In fact, this approach is common in certain professional-services and engineering firms, so their organizational charts rarely reflect what is really happening within them. Hierarchy-busting has been a theme in the business press for years, but the pace of change has been slow and its effectiveness questionable.

Companies will face a real challenge when they need to balance old- and new-school management sciences, particularly if, as is often the case, their tacit interactions are evenly balanced and intermingled with the transactional and transformational activities they undertake. They will still need to manage workers who primarily undertake transformational (production) or transactional tasks—that is, to manage these workers for efficiency—while simultaneously enabling tacit workers to interact in more fluid structures. The necessary balance will require trade-offs between performance norms, on the one hand, and cooperative norms, on the other.

People, knowledge, values, and learning

Culture, metrics, and incentives will need to change as well. The kind of network building that tacit workers must do to boost their effectiveness thrives in a culture built on trust. It will thrive, too, in companies that

reward collaboration, dispense group-based incentives, and measure tacit work by its impact and the relationships that those who engage in it forge. Output measures alone are far less effective in the messy, "inefficient" world of tacit innovation.

Few of these "soft" managerial mechanisms have legs today. How do you measure the contribution of an employee who is 1 of 20 people on a team? What was that employee's contribution to the outcome? Is it even clear whether that contribution was positive or negative? How do team managers measure the work of people who serve on more than one team? Moreover, as decision making becomes more decentralized and organizations grow in size, it will become critical to articulate clearly the corporate and professional values that will provide a "compass" and shared sense of purpose and direction to tacit workers. Evaluation processes will need to evolve to include more peer- and project-based reviews, as opposed to the lines of traditional reporting, and must also assess softer aspects of work such as values, nonhierarchical leadership abilities, and mentoring skills.

Wherever tacit interactions take place, so do learning and the creation of new knowledge. The people involved become sources of and contributors to institutional learning. Companies can't manage this kind of knowledge from the top down. Instead, managers must promote its capture and sharing by developing the right infrastructure and incentives, as well as a "market in knowledge." Recently, blogs (online diaries), wikis (Web sites where users can contribute and edit content), and the like have created new, decentralized, and dynamic approaches to the capture and dissemination of the knowledge critical for tacit interactions.

The focus of learning changes too. Organizations can use programs delivered in classrooms or sites to train production workers to operate lathes or call-center personnel to handle incoming calls. But learning in the tacit world is based much more on experience and apprenticeship and on the ways in which both are scaled across the networks of people who participate in interactions: inexperienced managers learn from experienced ones. Also, managers continually change their roles—they must constantly study examples and analogies. Companies may even find it worthwhile to expose tacit workers to totally new experiences to round out their capabilities.

Finally, even hiring profiles will change—indeed, in some tacit-intensive industries, such as software and hospitals, they already have. Managers in these organizations have redefined their job descriptions and criteria in order to hire people who can solve problems, work under ambiguous reporting relationships, and network. But the pool of experienced tacit workers is

finite, and demand is increasing; companies already feel the pinch. In reaction, they may cast a wider global net for tacit talent. One thing is clear: for tacit interactions, selecting and motivating talent are core processes that drive effective outcomes.

Technology

Clearly, technology will play a critical role in fostering tacit interactions and making them more effective and valuable. Indeed, technology has in large part been responsible for the acceleration of tacit interactions over the past 20 years. Two decades ago, international calls were costly and e-mail was a novelty; today, global voice connections are cheap, people around the world send about 30 billion e-mails a day, and entirely new technologies—broadband Internet, search capabilities such as Google, mobile phones, personal digital assistants such as BlackBerries and Treos, and video-conferencing—make it possible for tacit interactions to happen more easily.

Companies will increasingly focus on these kinds of technologies to further improve tacit work, thereby raising a host of new IT-management issues. The bulk of corporate investment in technology has been devoted to improving transactional and even transformational activities. New investments in PDAs, collaborative software, wiki tools, and other technologies that improve tacit interactions will be far less costly than, say, enterprise transactional systems. But they do require new IT architectures and skills. Some companies are already getting it right. Tacit-dominated sectors in the top quartile of labor productivity growth have armed their employees with five times more IT stock than sectors in the bottom quartile. Further, they are increasing their IT base per employee 40 percent more rapidly (on an annual basis).

The good news is that, with few exceptions, most enterprises now have an underlying communications infrastructure, which is vital for extending the reach of interactions. This infrastructure must go on evolving to provide a foundation for ever-richer media. Companies will increasingly need to deploy technology that makes shared data, information, and expertise available in real time; to offer decision support tools that help workers involved in tacit interactions create insights from data and analyses and that enhance the context and information that interactions require; to improve the ability of employees, customers, and suppliers to interact; and to offer effective collaboration tools for multiparty work flows.

Many of the technologies and tools that tacit workers are going to use will promote the collaborative and dynamic pursuit, capture, and sharing of knowledge and will allow for more video, audio, and graphics to facilitate remote interactions and broader access to scarce expertise. Tools based on

search capacities, collaborative approaches to capturing and organizing knowledge, and new digital-learning channels are likely to emerge.

Further, these new tools and approaches have broader implications for the way companies manage their IT infrastructures and operations. The new world won't use either the practices and organizing principles that production-support and transaction systems require or the big, rigid business applications designed to automate transactions and make them efficient. Not that enterprise applications won't be required; rather, they must evolve to make tacit interactions more effective. Executives will have to focus on deploying work-group-centric tools that are easy to set up and tear down as projects and strategic experiments come and go. They will also have to find ways of connecting these tools easily to preexisting interaction platforms. In addition, the issue of information overload must be addressed: already, Microsoft and others are trying to help tacit workers filter data from interactions more successfully and thereby reduce the burden of the excess information created when companies manage interactions (and their rate of increase) improperly.

Managing in an environment where most workers mainly participate in interactions will upend the greater part of what senior management has learned over the past half century. But the opportunity to create new forms of competitive advantage is clear for companies that take a new approach. The time to start is now. Q

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The new metrics of corporate performance: **Profit per employee**

Most measurements of performance are geared to the needs of 20th-century manufacturing companies. Times have changed. Metrics must change as well.

Lowell L. Bryan

Let's get right to the point: companies focus far too much on measuring returns on invested capital (ROIC) rather than on measuring the contributions made by their talented people. The vast majority of companies still gauge their performance using systems that measure internal financial results—systems based on metrics that don't take sufficient notice of the real engines of wealth creation today: the knowledge, relationships, reputations, and other intangibles created by talented people and represented by investments in such activities as R&D, marketing, and training.

Increasingly, companies create wealth by converting these "raw" intangibles into the institutional skills, patents, brands, software, customer bases, intellectual capital, and networks that raise profit per employee and ROIC. These intangibles are true capital, in the sense of delivering cash returns, even though the sources of those returns are intangible. Indeed, the most valuable capital that companies possess today is precisely intangible rather than financial.[1] Companies should redesign their financial-performance metrics for this new age.

[1] Karl Erik Sveiby, *The New Organizational Wealth: Managing and Measuring Knowledge-Based Assets*, San Francisco: Berrett-Koehler Publishers, 1997.

Article at a glance

Today's approach to measuring financial performance is geared excessively to the capital-intensive operating styles of 20th-century industrial companies. It doesn't sufficiently account for factors such as the contributions of talented employees that, more and more, are the basic source of wealth.

Financial performance—observed through balance sheets, cash flow reports, and income statements—is and always will be the principal metric for evaluating a company and its managers. But greater attention should be paid to the role of intangible capital and the ways of accounting for it.

The superior performance of some of the largest and most successful companies over the past decade demonstrates the value of intangible assets.

Companies can redesign the internal financial-performance approach and set goals for the return on intangibles by paying greater attention to profit per employee and the number of employees rather than putting all of the focus on returns on invested capital.

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Consider a simple approximation of intangible capital: the market value of a company less its invested financial capital. Using book capital as a crude proxy for financial capital, in 2005 the intangible capital of the world's largest 150 companies was $7.5 trillion, versus $800 billion in 1985.

Despite the evidence that intangibles are now the true source of corporate wealth, companies tightly control discretionary spending on them. Advertising, R&D, new-product development, training, knowledge creation, software projects, and so forth are almost always expensed on a "What can we afford?" basis. Why?

One reason is that accounting for intangibles is difficult. In particular, each intangible's specific contribution is hard to assess; how, for example, do you value a brand? Intangibles are embedded in the value chain of production, so it generally isn't clear which intangibles are the sources of profits—or what specific balance of intangible and tangible assets should get the credit (or blame) for results.

The bigger problem is that most companies gear the way they measure their financial performance to the needs of an earlier industrial age, when capital enjoyed pride of place in the minds of strategists and investors. Companies fill their annual reports with information about how they use capital but fail to reflect sufficiently on their use of the "thinking-intensive" people who increasingly drive wealth creation in today's digital economy. The development of external financial reports according to generally accepted accounting principles (GAAP) ranks among the principal foundations of our modern global capital marketplace. Financial performance

(seen through balance sheets, cash flow reports, and income statements) no doubt is and will remain the principal metric for evaluating a company and its management. But it's time to recognize that financial performance increasingly comes from returns on talent, not on capital.

GAAP accounting currently treats investments in intangibles conservatively, compared with the way it treats capital investments in tangible assests. Intangible investments are mostly expensed, not capitalized. This conservatism isn't necessarily bad but does inspire top managers to cut discretionary spending on intangibles in order to deliver quick earnings. That approach may raise short-term profits but can also undermine a company's long-term health.

To boost the potential for wealth creation, strategically minded executives must embrace a radical idea: changing financial-performance metrics to focus on returns on talent rather than returns on capital alone. This shift in perspective would have far-reaching implications—for measuring performance, for evaluating executives, even for the way analysts measure corporate value. Only if executives begin to look at performance in this new way will they change internal measurements of performance and thus motivate managers to make better economic decisions, particularly about spending on intangibles.

Measuring financial performance in the digital age

Before exploring the new metrics needed to achieve these goals, let's reflect upon the way some companies have recently created great wealth by using their thinking-intensive people rather than their capital.

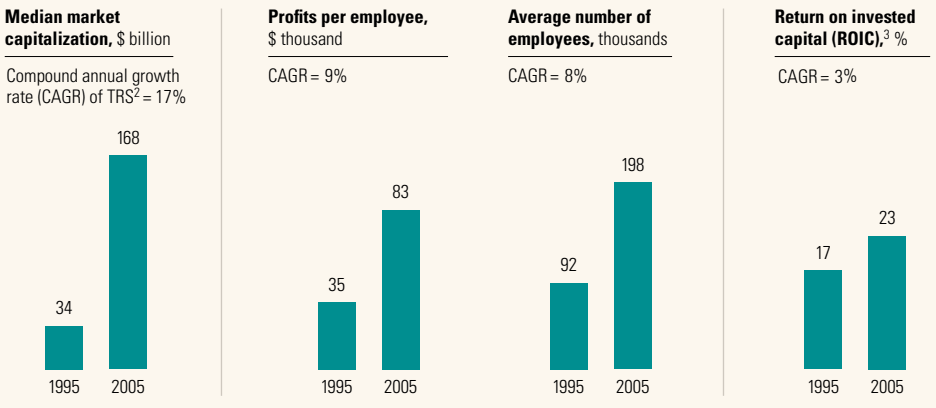
In past articles, my colleagues and I have examined how, from 1995 to 2005, the top 30 of the very largest companies in the world (ranked by market capitalization) have seen their profit per employee rise to $83,000, from $35,000.[2] On average, the number of people these companies employ has grown to 198,000, from 92,000, and their ROIC (or book value, in the case of financial institutions) has increased to 23 percent, from 17 percent (Exhibit 1). As a result, the median market cap of this group of companies rose to $168 billion, from $34 billion, with total returns to shareholders (TRS) at 17 percent a year. The driver of this dramatic rise in market cap was a fivefold increase in average profits—an increase brought on in turn by a more than 100 percent jump in profit per employee and a doubling in the number of employees. By comparison, these companies' ROIC increased, over this same period, by only a third.

[2] Lowell L. Bryan and Michele Zanini, "Strategy in an era of global giants," *The McKinsey Quarterly*, 2005 Number 4, pp. 46–59.

EXHIBIT 1

Soaring profits

Drivers of growth for 30 largest companies,[1] 1995–2005



[1] US and foreign companies by American depositary receipts, top 30 by market capitalization in 2005; excludes outliers and companies with negative net incomes.
[2] Total returns to shareholders.
[3] Or book value, in the case of financial institutions.

It is hardly a surprise that growth in profits and market caps should be closely correlated and that a fivefold increase in profits should lead to a similar increase in market caps. But these results do suggest that companies need to take a new approach to measuring financial performance—an approach based on maximizing returns on people. Total profit, after all, is the product of profit per employee and the total number of employees, so maximizing both expressions increases total profit, which drives market capitalization.

Concentrating on this formula (as opposed to returns on capital) offers several advantages. For one, unlike ROIC, profit per employee is a good proxy for earnings on intangibles, partly because the number of people a company employs is easy to obtain. Capital, perhaps surprisingly, is subject to the vagaries of accounting definitions and such corporate-finance decisions as debt-to-equity ratios, dividend policies, and liquidity preferences. As we've noted, and as any executive will testify, talent—not capital—is usually the scarcer resource.

Clearly, then, a new set of metrics could help companies gauge their performance more effectively. Executives should home in, first, on how much profit per employee a company generates. They should make the number of employees a key factor in strategic thinking. And they should keep a clear eye on ROIC, but more as a way of ensuring that the company earns more than the cost of that capital than as an aspiration in its own right. With these metrics, the company can set its goals for the return on intangibles

(that is, profit per employee) and growth (the number of employees), as well as its return on capital, which is largely a sanity check. Together, these three metrics squarely highlight—and drive—market caps.

Profit per employee

If a company's capital intensity doesn't increase, profit per employee is a pretty good proxy for the return on intangibles. The hallmark of financial performance in today's digital age is an expanded ability to earn "rents" from intangibles.[3] Profit per employee is one measure of these rents. ROIC is another. If a company boosts its profit per employee without increasing its capital intensity, management will increase its rents, just as raising ROIC above the cost of capital would. The difference is that viewing profit per employee as the primary metric puts the emphasis on the return on talent. This approach focuses the minds of managers on increasing profit relative to the number of people a company employs. It suggests that the most valuable use of an organization's talent is the creation and use of intangibles. Fortunately, the opportunities to increase profit per employee are unprecedented in a digital economy, where intangible assets are a rich source of value. Opportunities to improve ROIC to an equal extent are hardly as plentiful.

Another advantage of profit per employee is that it requires no adjustment for accounting conventions. Since companies expense their spending on intangibles but not on capital investments (which are usually depreciated over time), profit per employee is a conservative, output-based measure. And since it is based on accounting conventions, companies can easily benchmark it against the comparable results of competitors and other companies.

Profit per employee therefore focuses companies on intangible-intensive value propositions and, in turn, on talented people—those who, with some investment, can produce valuable intangibles.

Number of employees

One way to improve a company's profit per employee is simply to shed low-profit employees. But if they generate profit greater than the cost of the capital used to support their work, shedding them actually reduces the creation of wealth, unless management adds an offsetting number of workers who produce a higher profit per employee.

The Walton family, remember, consistently sits atop the *Forbes* annual wealth list. Why? Because Wal-Mart Stores, the company the family controls,

[3] Economists define rent as the profit earned after a company pays for all of the factor costs of production (labor, raw materials, and so forth), including the cost of capital.

not only hires large numbers of employees who generate a relatively low average profit[4] but also uses a business model that enables it to handle the complexity involved in managing huge numbers of employees, without incurring offsetting diseconomies.

Real wealth creation therefore comes from increasing either a company's profit per employee (without offsetting reductions in the number of employees or offsetting increases in capital intensity) or the number of employees who earn that level of profit—or both. We can observe this dynamic on a simple grid that illustrates the source of the profit earned by a company and a competitor (Exhibit 2). The grid also shows how total employment can serve as a crude proxy for the internal complexity of any organization, particularly when it is compared with companies in similar industries that have a comparable employment mix. From this vantage point, profit per employee becomes a proxy for how well a company manages that complexity.

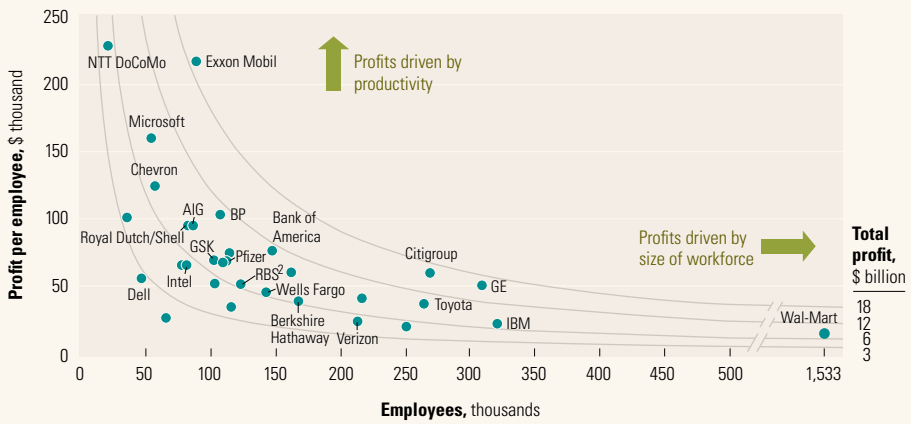
A company can, of course, streamline its organization and use tools such as formal networks, talent marketplaces, and knowledge marketplaces[5]

[4] In 2004 Wal-Mart employed 1.7 million people, who generated an average profit of $6,200 each.
[5] For more information on talent markets, see Lowell L. Bryan, Claudia I. Joyce, and Leigh M. Weiss, "Making a market in talent," *The McKinsey Quarterly*, 2006 Number 2, pp. 98–109. For more information on knowledge markets, see Lowell L. Bryan, "Making a market in knowledge," *The McKinsey Quarterly*, 2004 Number 3, pp. 100–11.

EXHIBIT 2

Talent as profit driver

Drivers of profit for 30 largest companies,[1] 2002–04 (average)



[1] US and foreign companies by American depositary receipts, top 30 by market capitalization in 2004; excludes outliers and companies with negative net incomes.
[2] Royal Bank of Scotland.

to mobilize intangibles throughout the enterprise. To the extent that it does so, its profit per employee should increase, even in the absence of profitable new value propositions, if it removes any unproductive complexity.

Returns on capital

A company can also improve its profit per employee by substituting capital for labor costs. Of course, while capital is relatively inexpensive and readily available, it demands a return and for this reason must be used carefully. But if the company uses total employment to drive its growth aspirations, the amount of capital it requires will be a derivative of the capital its employees need for their work, rather than an independent aspiration.

Executives should therefore look at ROIC mainly as a sanity check. So long as the return exceeds the cost, profit per employee is the better metric because it not only represents the scarcest resource but also reflects profit after the expensing of necessary investments. Capital investment, meanwhile, is depreciated or amortized.

Using the total number of employees as a metric also allows companies to avoid subjective accounting judgments.[6] Book capital, on the other hand, is—surprisingly—relatively ambiguous, for it is subject to somewhat arbitrary accounting conventions that involve goodwill, depreciation schedules, and the way companies expense stock options, among other things. Calculations of a company's ROIC have their own limitations, particularly for financial institutions, whose assets are mostly financial. Invested capital is not only a meaningless concept for such companies but also requires them to make some heroic assumptions.[7]

Maximizing market capitalization

The goal of these efforts to reorient financial-performance metrics around talent, of course, is to maximize a company's market cap, perhaps the most important single measure of size and economic relevance. The market cap directly affects a company's ability to control its own strategic destiny and is highly correlated with its total net income; of the top 30 companies by net income from 2002 to 2004, all but 5 were in the top 30 by market

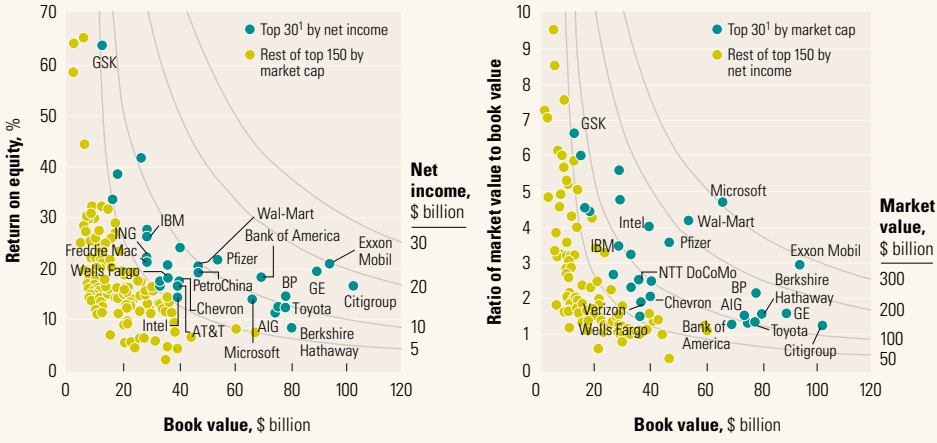
[6] According to some observers, the many temporary contractual workers that certain large companies use should be counted as employees. I disagree. These workers may depend on the company for work, but they are largely fungible labor and usually don't undertake the intensive intangible work that drives a company's profits. This is exactly why companies choose to rely on contractual labor.

[7] See Felix Barber and Rainer Strack, "The surprising economics of a 'people business,'" *Harvard Business Review*, June 2005, Volume 83, Number 6, pp. 80–90, in which the authors propose using economic profit per employee to gauge the true performance of "people businesses." Economic profit subtracts the cost of capital from profit per employee. Profit per employee is a more practical metric, as it can be taken directly from accounting statements and allows for straightforward comparisons of performance across companies. (Calculating economic profit per employee often requires internal company data.) A related concept, economic contribution per employee, can be a useful internal metric.

EXHIBIT 3

The return-on-capital lens

Net income and market capitalization shown as returns on invested capital (ROIC), 2002–04 (average)



Overlap

AT&T	AIG	Exxon Mobil	Pfizer	NTT DoCoMo
Freddie Mac	Bank of America	GE	Royal Dutch/Shell	Verizon Communications
ING	Berkshire Hathaway	GlaxoSmithKline	Toyota Motor	Vodafone
PetroChina	BP	IBM	Wal-Mart Stores	
	Chevron	Intel	Wells Fargo	
	Citigroup	Microsoft		

[1]US and foreign companies by American depositary receipts; 71% of top 30 by income are also in top 30 by market capitalization.

Source: Global Vantage; McKinsey analysis

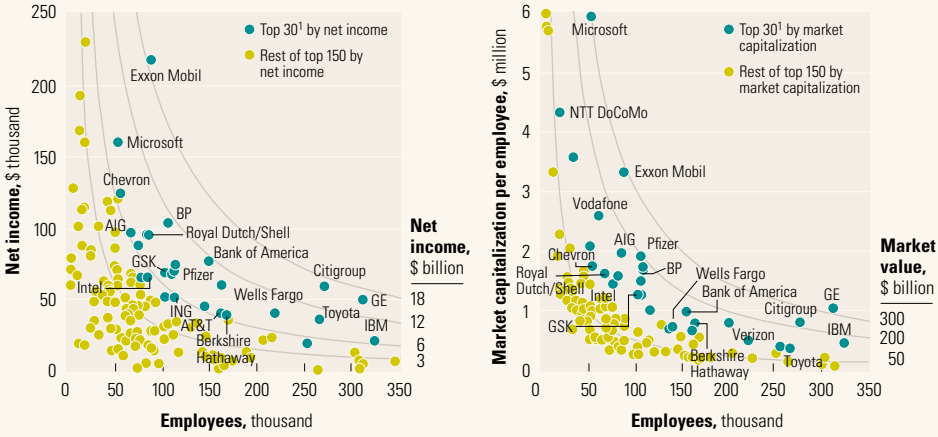
value. A company can expose this correlation by displaying its net income as the return on book equity multiplied by book equity and then comparing that relationship with its total market cap disaggregated (in a strategic-control map) into its market-to-book ratio multiplied by book equity (Exhibit 3). The company can also see this same correlation by disaggregating net income, using profit per employee and the total number of employees. Doing so displays the total market cap as a function of the latter and the market cap per employee (Exhibit 4).

Net income and market cap can therefore be regarded as functions of the return on either capital or talent. The point is that although the two metrics produce similar results, return on talent is a more powerful model in a competitive environment where the intangible assets that talented employees create provide the greater part of new wealth.

EXHIBIT 4

The return-on-talent lens

Income and market capitalization shown as returns on talent, 2002–04 (average)



Overlap

AT&T	AIG	Exxon Mobil	Pfizer	Coca-Cola
Freddie Mac	Bank of America	GE	Royal Dutch/Shell	NTT DoCoMo
ING	Berkshire Hathaway	GlaxoSmithKline	Toyota Motor	Verizon Communications
PetroChina	BP	IBM	Wal-Mart Stores	Vodafone
	Chevron	Intel	Wells Fargo	
	Citigroup	Microsoft		

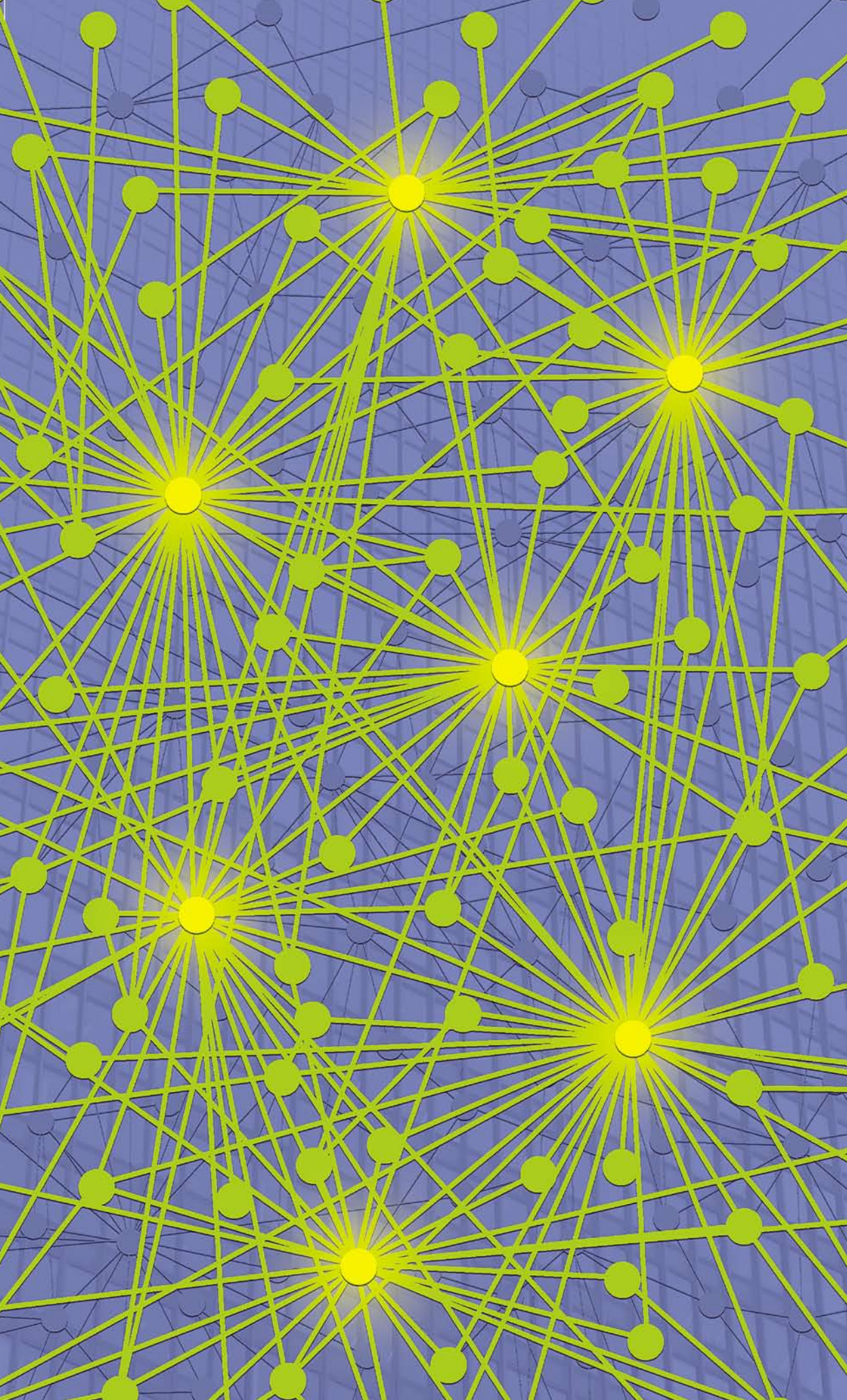
[1]US and foreign companies by American depositary receipts. 71% of top 30 by income are also in top 30 by net income.

Source: Global Vantage; McKinsey analysis

Today's annual reports are filled with information about how companies use capital but offer little about the number of employees, the mix of employees, or the different kinds of employees (beyond a simple expense item on compensation and benefits). Yet it is thinking-intensive talent, not capital, that now drives the creation of wealth and thus deserves to be measured more precisely by strategically minded executives. Q

Lowell Bryan is a director in McKinsey's New York office.

This article is adapted from his forthcoming book, *Mobilizing Minds: Creating Wealth from Talent in the 21st-Century Organization*, McGraw-Hill, spring 2007.



Mapping the value of employee **collaboration**

As collaboration within and among organizations becomes increasingly important, companies must improve their management of the networks where it typically occurs.

Robert L. Cross, Roger D. Martin, and Leigh M. Weiss

Although collaboration is at the heart of modern business processes, most companies are still in the dark about how to manage it. Linear, process-based tools such as activity-based costing, business process reengineering, and total quality management have long been effective at measuring and improving the efficiency of people and organizations in accomplishing individual tasks. But they do a poor job of shedding light on the largely invisible networks that help employees get things done across functional, hierarchical, and business unit boundaries.[1]

This blind spot has become problematic. Falling communications costs, globalization, and the increasing specialization of knowledge-based work have made collaboration within and among organizations more important than ever. As "tacit" interactions replace more routine economic activity and the scale and complexity of many corporations creep upward, the need to manage collaboration is growing.[2] Nearly 80 percent of the senior

[1] This article focuses on intracompany interactions and collaborations rather than those extending beyond the boundaries of the enterprise. For more about the latter, see John Seely Brown and John Hagel III, "Creation nets: Getting the most from open innovation," *The McKinsey Quarterly*, 2006 Number 2, pp. 40–51.

[2] For more on tacit interactions, which involve the exchange of information, the making of judgments, and a need to draw on multifaceted forms of knowledge in exchanges with coworkers, customers, and suppliers, see Scott C. Beardsley, Bradford C. Johnson, and James M. Manyika, "Competitive advantage from better interactions," *The McKinsey Quarterly*, 2006 Number 2, pp. 52–63. For more on the evolution of large corporations, see Lowell L. Bryan and Michele Zanini, "Strategy in an era of global giants," *The McKinsey Quarterly*, 2005 Number 4, pp. 46–59.

Article at a glance

Falling communications costs, globalization, and the increasing specialization of knowledge-based work are making collaboration within and among organizations increasingly important.

Yet few companies understand or know how to manage the intracompany networks in which collaboration typically occurs.

A few leading companies are beginning to map their networks of relationships, to analyze the economic costs and benefits that key interactions create, and to identify value-creating interventions.

Successful interventions help companies to reduce complexity, redefine roles, and allocate financial, physical, and human resources more efficiently.

executives surveyed in a 2005 study said that effective coordination across product, functional, and geographic lines was crucial for growth. Yet only 25 percent of the respondents described their organizations as "effective" at sharing knowledge across boundaries.[3]

Many companies have responded by spending heavily on collaboration software. In hopes of disseminating best practices and sharing expertise, a few leaders (such as BP, HP, IBM, P&G, and Xerox) have even begun identifying networks of employees doing similar work. Technology, though, at best fails to deal with the underlying problem and at worst becomes a source of information overload that undermines effective collaboration. And it's often unclear whether efforts to enhance networks promote productive collaboration or just consume money and time.

What companies need in a collaborative age is the ability to map and analyze the value created (or destroyed) deep within employee networks. Sophisticated network analysis approaches have emerged from the academic world during the past two decades. But they have tended to focus more on individual than organizational effectiveness and on communications, work flows, and the exchange of resources rather than on the value those interactions create.[4] To make these tools more useful, executives must reorient them toward the revenue and productivity benefits that collaborative interactions generate, the costs such interactions impose, and opportunities to improve connectivity at the points that create the greatest economic value.

[3] For the full survey results, see "The McKinsey Global Survey of Business Executives, July 2005," mckinseyquarterly.com, July 2005.

[4] See Thomas J. Allen, *Managing the Flow of Technology*, Cambridge, MA: MIT Press, 1984; Ronald S. Burt, *Structural Holes: The Social Structure of Competition*, Cambridge, MA: Harvard University Press, 1995; David Krackhardt and Jeffrey R. Hanson, "Informal networks: The company behind the chart," *Harvard Business Review*, July 1993, Volume 71, Number 4, pp. 104–11; Wayne E. Baker, *Achieving Success through Social Capital: Tapping Hidden Resources in Your Personal and Business Networks*, San Francisco: Jossey-Bass, 2000; and Rob Cross and Andrew Parker, *The Hidden Power of Social Networks: Understanding How Work Really Gets Done in Organizations*, Cambridge, MA: Harvard Business School Press, 2004.

Consider the experience of a leading biotechnology company that relied on sharing best practices among quality control engineers to help its manufacturing facilities rapidly ramp up the production of new products. Network analysis showed the company which engineers took part in the interactions that generated time savings and the greatest and lowest cost, respectively. Aggregated to reveal the economic value created through interactions across locations, these figures identified the places in the network where collaborative breakdowns inhibited the transfer of proven practices and showed how costly these breakdowns were. As a result, the company knew exactly where it made economic sense to invest in tools, training, and team-building efforts.

Organizations hoping to emulate the biotechnology company (and other pioneers in a wide range of sectors) must first map their collaborative networks and then analyze the economic benefits and costs that key interactions within those networks create. Once executives understand the value that's flowing across networks, they can intervene in straightforward, cost-justified ways. Typical examples include replicating high-performing networks, training workers to emulate the collaborative approaches of successful colleagues, making valuable expertise and advice more readily available, and revamping performance metrics to reflect mutual accountabilities better. These kinds of successful interventions can help companies reduce complexity, redefine roles, serve customers and clients more effectively, and allocate financial, physical, and human resources more efficiently.

Understanding how work really gets done

Three examples will show how traditional ways of mapping processes and analyzing activities have limits when it comes to understanding the performance of individuals, teams, and entire organizations.

- *Individual performance.* A nonprofit wanted to boost its fund-raisers' productivity. Conventional wisdom suggested targeting certain types of donors, managing the sales process in a defined sequence, and persuading donors through appeals tailored to their interests. Yet some high performers followed few of these practices; several low performers embraced them all.

- *Team performance.* A program to improve the processes of a large global construction company boosted the efficiency of its employees. But performance disparities remained across sales offices, even after controlling for the varying attractiveness of their markets.

- *Organization-wide performance.* An engineering company experienced growing pains as international expansion made it increasingly difficult to bring together construction managers and engineers, whose objectives were frequently in conflict. (The former focused on cutting costs, the latter on technical solutions.) Unfortunately, the company's linear view of the construction process—emphasizing the tasks performed by each group and the handoffs between them—shed little light on collaborative issues.

Network analysis can help companies in circumstances like these. The first step is identifying the functions or activities where connectivity seems most relevant and then mapping relationships within those priority areas. Options for obtaining the necessary information include tracking e-mail, observing employees, using existing data (such as time cards and project charge codes), and administering short (5- to 20-minute) questionnaires. Organizations mapping their decision-making processes might ask their employees, "Whom do you ask for advice before making an important decision?" Others targeting innovation might ask, "With whom are you most likely to discuss a new idea?" Questions are posed bidirectionally: if Joe says he was helpful to Jane, but she says she doesn't know him, his claim is disregarded. With the information in hand, companies can use standard software to create network maps illustrating relationships (Exhibit 1).

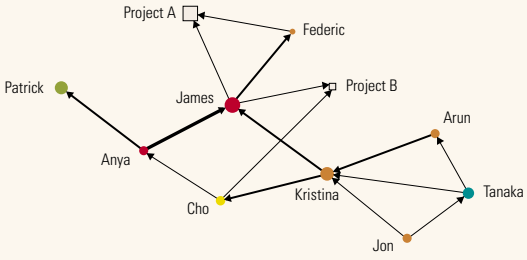
So far, so familiar. The real value comes when companies move from mapping interactions to quantifying the benefits and costs of collaboration. To do so, companies must assess the time employees spend on interactions of various types, as well as the savings and sales contributions of specific collaborations. Key inputs to this analysis include fully loaded compensation figures for network participants and detailed survey results (for example, the responses to queries such as, "How much time did working with employee X save you?" or "On how many deals in the following revenue bands did you work with employee Y?").

Network analysis helped the companies described earlier address their individual, team, and organization-wide performance issues. It turned out, for example, that high-performing fund-raisers not only had strong relationships with donors but also accounted for a disproportionate share (25 percent) of the connections *within* the fund-raising group. Tenure and experience were key reasons for the high performers' strong networks, so the organization was caught in a vicious cycle: low-tenure fund-raisers got stuck on the fringes of both their internal and external networks, became dissatisfied, and quit before they became productive. By helping

EXHIBIT 1

Reading a network map

Selected elements of a sample network map



Node = individual or entity in network	
Color	Represents membership in or affiliation with group or category[1]
Shape	Represents different types of nodes (eg, one shape for individual, entity; another shape for projects, articles, laboratories)
Size	Larger size represents greater degree of an assigned value—eg, degree of connectedness, centrality

Tie or link = connection between 2 nodes; represents an assigned value—eg, decision-making input, information transmission	
Line weight	Thicker line indicates more frequent interactions
Arrow	Shows direction of interaction, eg, Kristina provides James with decision-making input
Spatial relationships	
Location of nodes	Nodes with highest number of connections are located in center of map; those on periphery have fewest connections

[1] Group or category such as business unit, gender, geography, role, tenure.

new fund-raisers rapidly replicate the high performers' networks, the nonprofit expected to increase its revenue from employees with no more than two years' tenure by nearly 200 percent.

For the construction company, network analysis revealed that a key distinction between the strongly and poorly performing offices was the percentage of collaborative time (68 percent for the former, 50 percent for the latter) that account managers spent with customers. By getting at the roots of these issues—which further analysis attributed to hierarchy, organizational design, and project-management processes—the construction company replicated the network orientation of high-performing offices in poorly performing ones.

Finally, an analysis of one of the engineering company's high-performing groups showed that a small number of construction managers and engineers single-handedly accounted for 35 percent of all the collaboration occurring within it. This kind of collaboration dramatically enhanced the group's ability to deliver expertise. Identifying and building connectivity between specialists in other groups helped the firm to raise its construction revenue to $275 million, from $80 million, in a single year.

Creating relational value

The powerful results of identifying and replicating high-performing networks represent only a small part of the potential of network analysis. It's also possible to promote specific interactions that help generate revenue and boost productivity. Targeted action is dramatically more effective than promoting connectivity indiscriminately, which typically burdens already-overloaded employees and yields network diseconomies. A more informed network perspective helps companies to identify the few critical points where improved connectivity creates economic value by cutting through business unit and functional silos, physical distance, organizational hierarchies, and a scarcity of expertise.

Developing a network perspective can help the 21st-century organization retain the best of its traditional organizational structures, while simultaneously acknowledging the heightened value of innovations, collaborators, and intangible assets. See "The 21st-century organization" on mckinseyquarterly.com.

Generating revenue

A network view often uncovers "hidden" people whose contribution to cross-selling or closing deals is far greater than individually focused performance metrics might imply. It can also suggest where to replicate collaborative behavior, when to draw in valuable experts from the network's fringe, and how to eliminate obstacles to collaborative sales efforts—obstacles that include time, skills, personalities, incentives, and ignorance of which colleagues have expertise. The experiences of a global technology company and a consulting firm illustrate how these issues play out in practice.

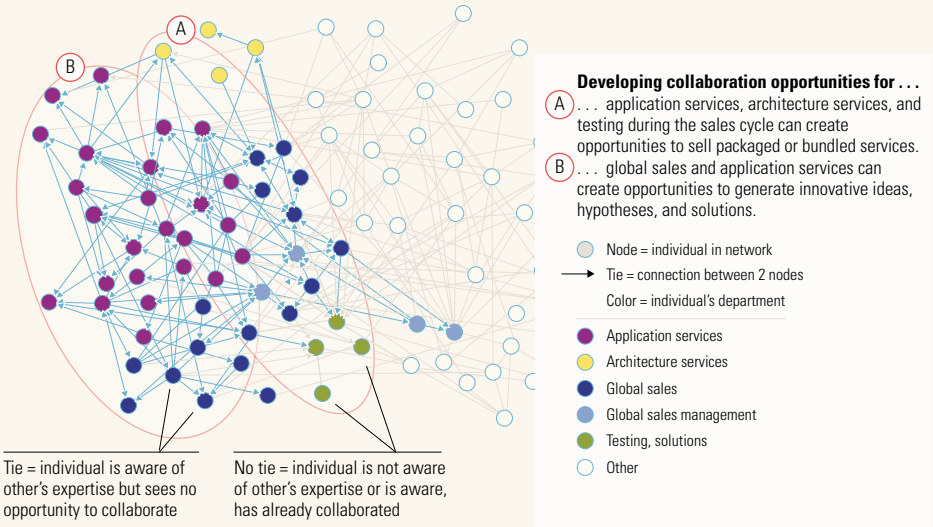
Improving cross-selling. A leading technology company used network analysis during an effort to become more responsive to customers and marketplace shifts. The analysis not only helped the company's leaders find out where collaboration generated revenue but also proved useful for reframing the roles of key players in the network.

The company, for example, broke out collaborative contributions by bands of revenue and learned that the most and least valuable interactions (those generating more than $2,000,000 and less than $250,000, respectively) invariably involved different people. What's more, a network perspective helped the company identify which colleagues knew about one other's expertise but didn't draw on it. (Exhibit 2 shows how many people said they were acquainted but saw no possibility of collaborating in a sales effort.) In our experience this very real but usually invisible barrier to cross-selling and account penetration is common in organizations.

EXHIBIT 2

A map of wasted opportunities

Individuals were asked to identify people whose expertise they knew about but with whom they saw no opportunity to collaborate. The resulting network map illustrates those *potential but missed opportunities*.



Source: Network Roundtable at the University of Virginia; McKinsey analysis

To boost sales the company sought both to replicate the major contributors' behavior and to help several key salespeople understand how collaboration could make them more successful. It quickly became clear that the success of the high-performing collaborators resulted from more than just expertise or affability. When the company compared them with its other salespeople, it found that they were accommodating, more responsive to requests, flexible, amenable to constructive criticism, enthusiastic team players, and effective conflict managers. The importance of these traits caused the company to overhaul its incentive program and to launch an effort to build collaborative skills throughout the sales network.

Enhancing career paths. When a global consulting firm used network tools to analyze the sales efforts of a group of roughly 80 partners, it identified two crucial categories of people who weren't recognized by its performance-management processes, which emphasized individual revenue production. By making joint sales calls, sharing experiences, and the like, 10 partners supported collaborative efforts yielding 60 percent of this group's revenue; the top 5 accounted for 38 percent. A completely different subset of partners made an enormous contribution to the execution of projects by helping others to save time and generate high-quality work; this second group, for

example, contributed expertise on the problems of clients, visited them, and helped with analyses. The contributions of these partners, too, were highly concentrated: the top 10 people were responsible for 48 percent of the value generated through time savings, and the top 5 for 32 percent.

The consulting firm used this knowledge to end a long-simmering disagreement about dual career paths for partners. There was no longer any question about the need to recognize the contributions of partners whose expertise or experience played a key role in winning many new clients and of those whose work improved the effectiveness and efficiency of the firm's efforts to serve them.

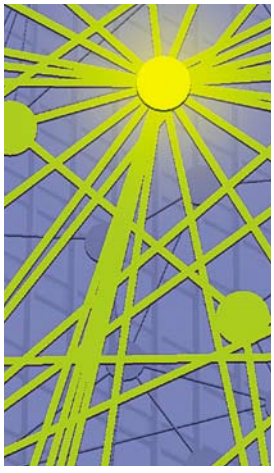
Boosting productivity

Most companies—even high-performing ones—can find opportunities to boost their collaborative productivity. Sometimes, network analysis shows them that they can generate savings by facilitating the transfer of advice and information from colleagues. In other cases, a network perspective isolates unseen collaborative inefficiencies resulting from poor job design, an ineffective allocation of the right to make decisions, and outdated role definitions, process steps, or organizational designs.

The specific issues and interventions vary considerably across industries. But some general themes emerge. Often, companies that operate without a network perspective allocate resources inefficiently, manage talent blindly, and experience large disparities in the effectiveness of collaboration within and across units. Scrutinizing the time savings that relationships generate helps companies to isolate what's working; to decide what, where, and how to invest in additional connectivity; and to redefine roles and staffing levels. Examples from three very different industries illustrate the range of possibilities.

Validating the effectiveness of networks, sharing good ideas. In the petrochemical business, avoiding downtime is critical given the magnitude of its investment in fixed assets. Solving problems quickly often requires collaboration across disciplines such as drilling, geology, physics, and production. So one leading petrochemical company formed more than 20 networks (ranging in size from 50 to several hundred employees) and focused on work areas where people could benefit from sharing best practices.

Having taken the unusual step of engineering these networks, the petrochemical company was particularly eager to measure their impact. Network analysis showed that the effort, which previously had been operating largely on faith, was generating substantial, shareable



productivity benefits. One 60-person network alone contributed $5 million in savings. A typical story involves engineers and an out-of-commission oil well. Engineers used their network to identify an expert who had no relationship with the well but did have critical knowledge that helped them fix it in two days instead of the expected four. Network analysis thus allowed the company to validate the efficacy of its networks.

The company then began taking steps to pass lessons among networks. A knowledge-sharing team interviewed the leaders of networks to collect and disseminate best practices. Training sessions allowed the leaders of the most successful networks to share what they had learned. The keys to success included forming networks carefully around focused topic areas closely related to the way work was actually done, giving network members the leadership and training for success (rather than merely dumping collaborative tools on them), and continually tracking and measuring success to encourage participation and inform decision making about when (and when not) to finance incremental network improvements.

Improving the allocation of resources. A global financial-services organization mapped and calculated the time its key employees saved by sharing information and resources with their colleagues. This effort helped the company to make better decisions about how much to invest in its collaborative relationships, whether to focus on collaboration within or across groups, and what role collaboration should play in its human-resources (HR) strategy. The success of a pilot effort led the company to replicate it widely, yielding savings that should ultimately dwarf the initial benefits.

Network analysis, for example, allowed executives to prioritize the company's investment in collaboration by helping them to model the financial benefits of improving the network and to weigh the anticipated returns against the costs. After recognizing that a set of key brokers occupied central positions in the network, for instance, the company realized that connecting all of these people with each other and with just one person on the network's fringe would yield $140,000 a year in savings within business units and $865,000 across them. Facilitating these interactions would be far less costly than buying the group another unused collaborative tool or holding an off-site meeting.

In addition, network analysis showed the company how to focus its collaborative efforts within and across groups, since aggregating results by

business units, roles, projects, and hierarchical levels showed executives where to direct the relevant investments. One division's global network of technical project managers generated monthly savings of 3,383 hours (which translated into roughly $215,000). When the financial institution realized that about 70 percent of these savings resulted from collaboration within divisions, it began focusing more heavily on collaboration among them to reduce the number of redundant efforts and to promote the exchange of expertise in project-management tools, methodologies, and technologies.

Another benefit to the company was an improved ability to measure and manage talent. Executives were surprised to learn how much relational value was created by people they hadn't recognized as central contributors and how little by others they had regarded as more influential. The company responded by financially rewarding the key collaborators (many of whom had previously been frustrated by the failure to recognize their effectiveness), redefining roles and performance metrics to promote collaboration, and in some cases elevating (or demoting) the role of the network's central (or peripheral) figures in the company's succession plans.

EXHIBIT 3

Uncovering the value

Labor cost of time spent in or preparing for interactions with others (example of major US utility)

>$2,000 $1,000–$1,999 <$1,000

	Number of employees	Average cost of interaction time per employee per month, $						
		Application architect	Business unit architect	Data architect	Infrastructure architect	Systems analyst	Project manager	Other
Application architect	17	2,126	1,121	715	1,597	476	626	1,103
Business unit architect	5	3,750	2,460	1,110	1,560	30	210	660
Data architect	6	3,600	950	2,800	2,225	225	975	650
Infrastructure architect	16	1,406	656	375	5,588	56	1,013	1,069
Systems analyst	2	1,125	0	150	975	0	1,500	1,275
Project manager	5	1,680	210	1,050	3,180	1,680	1,470	3,450
Other	7	1,714	471	193	1,843	364	1,971	2,057

Source: Network Roundtable at the University of Virginia; McKinsey analysis

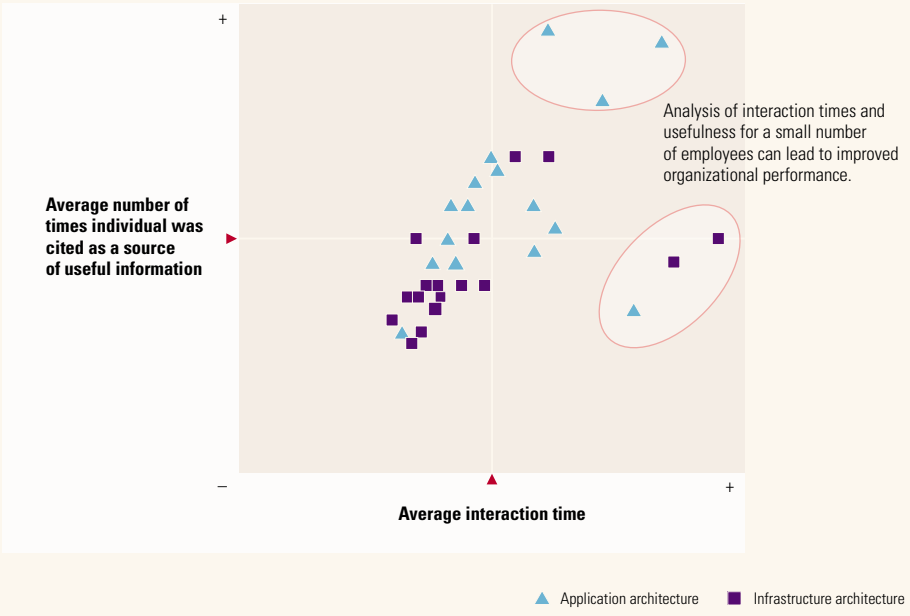
Managers were also encouraged to coach a few people who didn't know how to build networks.

Eliminating inefficiencies. The chief information officer (CIO) of a major utility calculated collaboration's average monthly cost per employee—both within roles (for example, collaboration among all data architects) and between them (between, say, data architects and other members of the IT staff)—throughout the IT organization (Exhibit 3). This analysis helped the company to root out collaborative inefficiencies. By comparing the colleagues who were generally considered effective communicators, for instance, the CIO was able to identify outliers: a small number of employees who actually were significantly less effective than the rest (Exhibit 4). Consequently, the company focused personalized coaching efforts on collaborative issues that were unique to each of the unexpected low performers.

Network analysis also helped to clarify roles by showing that the utility's data architects and project managers spent more than half of their time collaborating. Yet these demands had never before influenced the hiring,

EXHIBIT 4

Who needs help?



Source: Network Roundtable at the University of Virginia; McKinsey analysis

staffing, or performance evaluations of such workers. As a result, they lacked collaborative skills, their job functions and role descriptions were incomplete, and the internal cost allocations used to establish transfer prices for IT projects underestimated the total cost of certain programs and thereby distorted the company's resource allocation. Addressing these issues not only improved the execution of projects and the company's ability to price them but also made internal customers more satisfied.

Finally, the company used network analysis to set appropriate staff levels. It knew that it could avoid certain problems by involving its infrastructure architects (who design and maintain major applications supporting vital business functions) in key decisions at the right time. But often this didn't happen. Traditional budgeting and cost allocation processes might have suggested hiring more infrastructure architects. Network analysis, however, showed that they interacted less than most other employees of the IT organization. The first step for the CIO, therefore, was breaking down the barriers that inhibited collaboration.

Collaboration is an increasingly vital feature of business life. But when companies just promote collaboration indiscriminately, they create bottlenecks and diminish their organizational effectiveness. A network perspective gives executives the information they need to foster collaboration at the points where it delivers an economic return. Q

Rob Cross, an adviser to McKinsey, is an associate professor and director of the Network Roundtable at the University of Virginia's McIntire School of Commerce, where **Roger Martin** is an assistant professor;
Leigh Weiss is an associate principal in McKinsey's Washington, DC, office.

Harnessing the power of informal **employee networks**

Formalizing a company's ad hoc peer groups can spur collaboration and unlock value.

Lowell L. Bryan, Eric Matson, and Leigh M. Weiss

In any professional setting, networks flourish spontaneously: human nature, including mutual self-interest, leads people to share ideas and work together even when no one requires them to do so. As they connect around shared interests and knowledge, they may build networks that can range in size from fewer than a dozen colleagues and acquaintances to hundreds. Research scientists working in related fields, for example, or investment bankers serving clients in the same industry frequently create informal—and often socially based—networks to collaborate.

Most large corporations have dozens if not hundreds of informal networks, which go by the name of peer groups, communities of practice, or functional councils—or have no title at all. These networks organize and reorganize themselves and extend their reach via cell phones, Blackberries, community Web sites, and other accessories of the digital age. As networks widen and deepen, they can mobilize talent and knowledge across the enterprise. They also help to explain why some intangible-rich companies, such as ExxonMobil and GE, have increased in scale and scope and boast superior performance.[1]

Jerry Stenback

[1] Lowell L. Bryan and Michele Zanini, "Strategy in an era of global giants," *The McKinsey Quarterly*, 2005 Number 4, pp. 46–59.

As we studied these social and informal networks, we made a surprising discovery: how much information and knowledge flows through them and how little through official hierarchical and matrix structures. As we used surveys and e-mail analysis to map the way employees actually exchange information and knowledge, we concluded that the formal structures of companies, as manifested in their organizational charts, don't explain how most of their real day-to-day work gets done.

So it's unfortunate, at a time when the ability to create value increasingly depends on the ideas and intangibles of talented workers, that corporate leaders don't do far more to harness the power of informal networks. Valuable as they are, these ad hoc communities clearly have shortcomings: they can increase complexity and confusion, and since they typically fly under management's radar, they elude control.

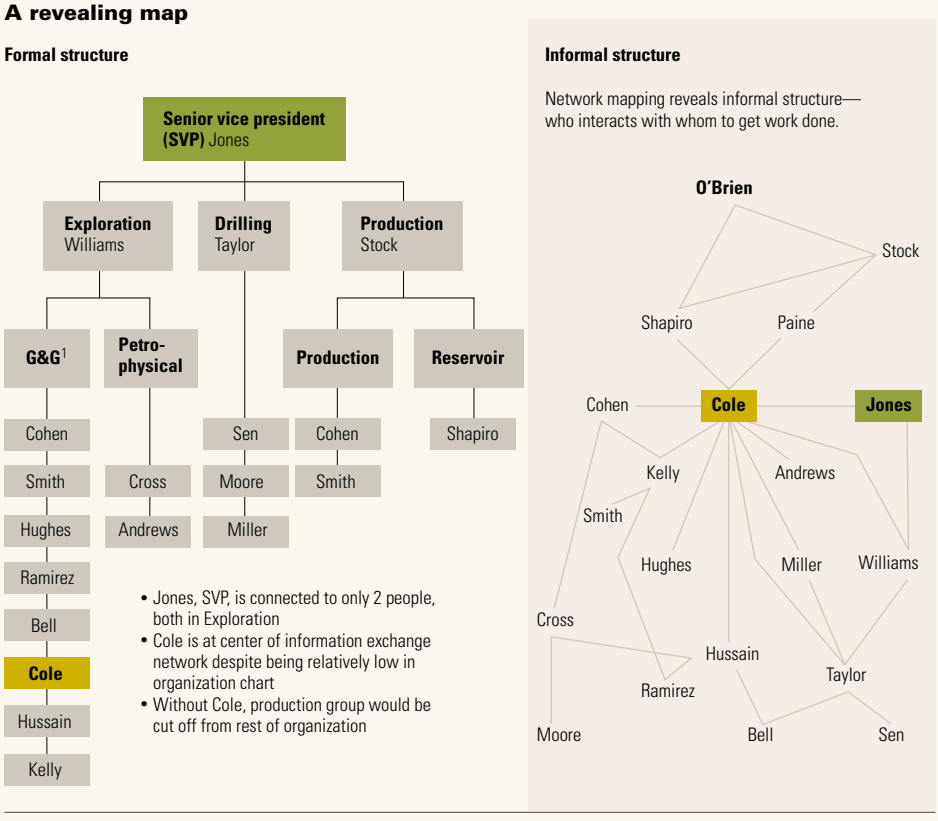
But companies can design and manage new formal structures that boost the value of networks and promote effective horizontal networking across the vertical silos of so many enterprises today. By building network infrastructures, assigning "leaders" to focus discussion, and combining hierarchy and collaboration to bring together natural professional communities, formalized networks serve as an organizing structure for collaborative professional work. They can replace cumbersome and outdated matrix structures, facilitate the creation and sharing of proprietary information and knowledge, and help build more and better personal relationships among the members of a community. Most important, they can enable leaders to apply the energy of diverse groups of professionals and managers to realize collective aspirations.

The long and short of informal networks

Personal social networks, both within and outside of companies, increase the value of collaboration by reducing the search and coordination costs of connecting parties who have related knowledge and interests. They don't necessarily fit into the organizational chart. Consider the case of an energy company staffer we'll call Cole (Exhibit 1). Although he sits relatively far down in the formal company structure, he acts as the hub in an informal network because he has knowledge that others find valuable. Without him, the production group would be cut off from the rest of the organization. His boss Jones, the unit's senior vice president, is connected in the informal network to only two people, both in Exploration. This is increasingly typical in today's large, sprawling corporations. Informal networks, slipping through the back channels, cross the lines of geography, products, customer groups, and functions—where the action is—and even through the thick silo walls of vertically oriented organizations.

EXHIBIT 1

A revealing map



[1] Geological and geophysical.

Source: Rob Cross and Andrew Parker, *The Hidden Power of Social Networks*, Boston: HBS Press, 2004

But though informal networks help many of the largest companies capture wealth, they also cause severe headaches. As tens of thousands of individuals search for knowledge and productive personal relationships in social networks, they generate much of the overload of e-mails, voice mails, and meetings that make today's large companies more complex and inefficient. At one large company, we conducted a network analysis of more than 1,000 people across a number of business units around the world to gauge the frequency and quality of the interactions that generated decisions about business planning and other processes. Nearly half of the interactions were not central to making decisions. This analysis suggested that redesigning the processes to eliminate or reduce the noncore interactions could result in savings of tens of millions of dollars and shorten the time to make the decisions.

Part of the problem is that informal networks, as ad hoc structures, essentially rely on serendipity, so their effectiveness varies considerably.

In large companies a number of informal networks may form on related topics but never integrate. People with valuable knowledge or skills may not join the most appropriate network, belong to other informal networks, or fail to discover that a network exists. What's more, companies typically underinvest in the capabilities needed to make networks function effectively and efficiently. An informal network often has crucial members, such as Cole, who serve as hubs to connect participants, but such members can hobble or even undermine the network if they become overloaded, act as gatekeepers, horde knowledge to gain power, or leave the company (Exhibit 2).

The greatest limitation of these ad hoc arrangements is that they can't be managed. They may not be visible to management, and even when they are it's hard for corporations to take full advantage of them. Unintended barriers, corporate politics, and simple neglect can keep natural networks from flourishing. At worst, informal networks can make dysfunctional organizations even more so by adding complexity, muddling roles, or increasing the intensity of corporate politics.

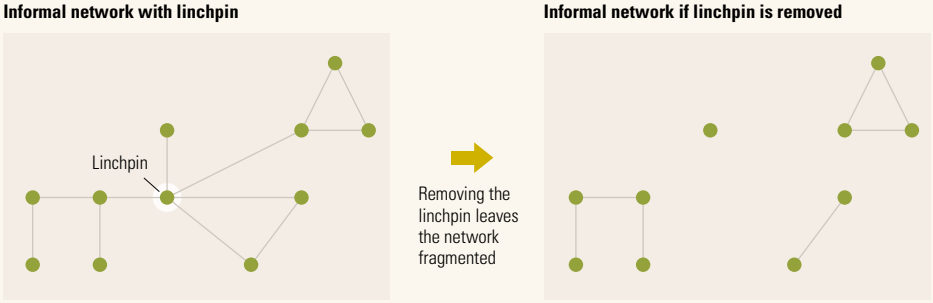
Formal networks

The specific objective of designing and establishing formal networks is to increase the value and lower the costs of collaboration among professionals. Since formal networks stimulate interactions that the organization sponsors and encourages, they can be managed.

A leading petrochemical company, for example, recently designed more than 20 formal networks, ranging in size from 50 to several hundred people, to focus on specific work areas so that employees could share best practices. This was critical, because the networks could minimize downtime in these areas. In one case the company measured the impact of networks

EXHIBIT 2

The missing link



on engineers at an oil well, who used them to find experts with the knowledge needed to get the well back into production in two days rather than the anticipated four.

These networks succeeded because the company formed them around focused topics closely related to the way work was carried out at the wells. Management also appointed the networks' leaders, gave the members training, carefully identified the members of each network across the geographically dispersed company, made technology investments, and sponsored a knowledge-sharing team that collected and disseminated best practices.[2]

Matrix decoded

Because formal networks cross line structures, they can easily be mistaken for matrix organizational entities. But the differences are significant and start with the organizing principles that underlie each (Exhibit 3). A matrix organizes work through authority and is therefore principally based on management hierarchy. A formal network organizes work through mutual self-interest and is therefore principally based on collaboration.

In classic matrix organizations, managers and professionals have two or more bosses who have authority over their work; the chief financial officer of a business unit, for example, might report both to its line manager and to the corporate finance chief. These matrixes represent different axes of management, such as products, geography, customers, or functions. Hierarchical direction comes from two different sources, and the person in the middle of the matrix must resolve any conflicts. In hierarchically organized companies, matrix management became popular because no matter how well organized their line structures may have been by functions, geography, customers, or products, they felt they needed secondary axes of management to stretch horizontally across the enterprise and thus make it possible to integrate other work activities.

Matrix management worked reasonably well from its advent in the 1960s until the late 1980s, particularly because it enabled limited collaboration to take place within companies as they became increasingly aware that hierarchical managers sometimes had to coordinate their activities. Matrix structures made sense because they were used sparingly and therefore didn't greatly confuse the hierarchical vertical line structures responsible for much of the success of large 20th-century companies.

[2] Robert L. Cross, Roger D. Martin, and Leigh M. Weiss, "Mapping the value of employee collaboration," *The McKinsey Quarterly*, 2006 Number 3, pp. 28–41.

EXHIBIT 3

Hierarchical vs. collaborative

	Matrix structure	Formal network
Organizing principle	Organizes work through authority	Organizes work through mutual self-interest
Mode of influence	Management hierarchy	Collaboration and leadership
Number of bosses	Two or more representing different axes of management, eg, product, geography, customer, function	One manager for each person; one formal network leader for each networked community
Implications	• Proliferation of matrixed roles and complex hierarchical structure • Excessive interactions • Decision-making bottlenecks • Difficulty finding knowledge • Conflicts arising from different bosses	• Simple hierarchical structure • Streamlined interactions • Streamlined decision making • Easier and faster to find knowledge using network's resources • Single boss reduces number of conflicts that need to be resolved

But when globalization took hold, companies were forced to adapt to an increasingly fluid and uncertain competitive environment, so more work from different perspectives had to be integrated. As the number of professionals needing to direct much of their own work has risen, matrixed roles have proliferated. This increased the need for more interactions, and decision making now swamps the time available for matrix managers to coordinate the work personally. Furthermore, the amount of knowledge and information that must be absorbed and exchanged often exceeds the personal capacities of any individual, no matter how talented, to deal with them in a matrix structure.

Professionals who want to work horizontally across an organization currently find themselves forced to search though poorly connected organizational silos for the knowledge and collaborators they need. In many companies these matrix and other hybrid organizations have become dysfunctional. The symptoms include endless meetings, phone calls, and e-mail exchanges, as well as confused accountability for results.

A new model

Companies need to build infrastructures to create and support formal networks. Such well-designed and well-supported formal networks remove bottlenecks and take much of the effort out of networking. Rather than forcing employees to go up and down hierarchical chains of command, formal networks create pathways for the natural exchange of information and knowledge. Individual members of networks don't have to find one another through serendipity.

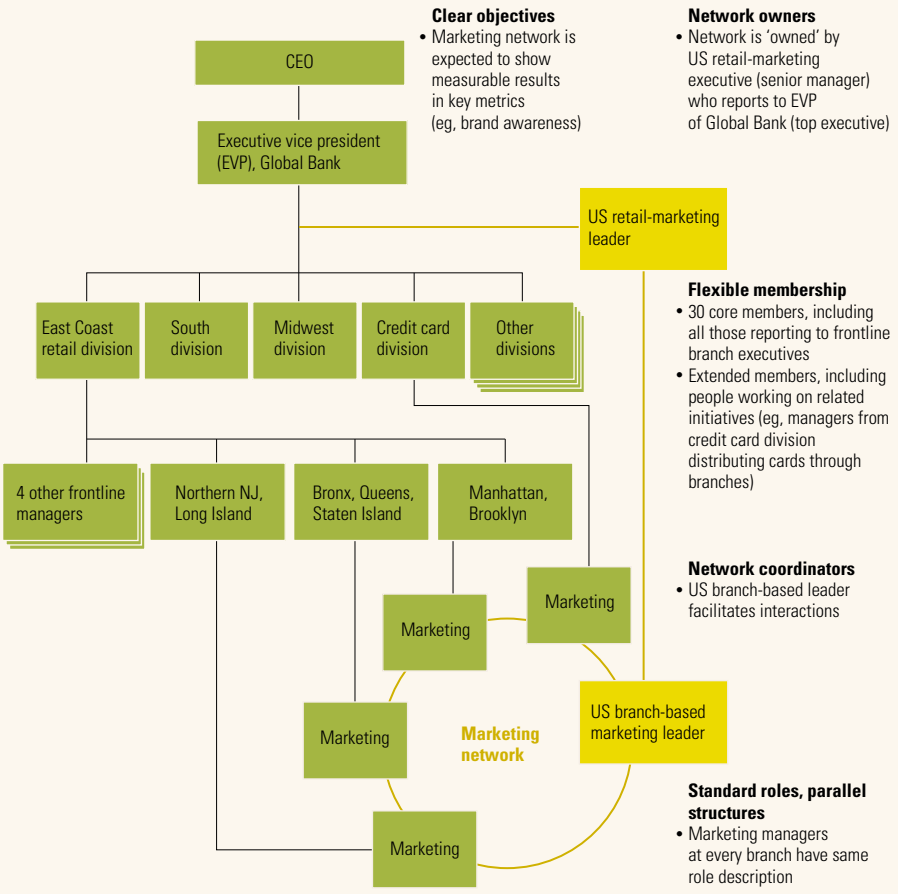
Consider the US retail unit of a financial institution we'll call Global Bank, which was organized as a matrix. Its retail-marketing managers, forced to report to a regional as well as a functional manager, often didn't know whose authority to recognize and had little opportunity to share best practices with other marketing professionals across the organization.

In the new model (Exhibit 4) regional marketing managers still report to the branch network's regional managers but no longer have a second boss in marketing. Instead, a branch-based formal network leader for marketing facilitates their interactions with other marketing professionals. The leader can't give them orders but can encourage them to work for the network's benefit (for example, by asking them to help develop new

EXHIBIT 4

Formalizing a network

Example of global financial institution's US retail operation



promotional materials or to find better ways of using local-advertising budgets). The marketing leader's boss, the US retail-marketing executive, is a senior manager who owns the formal network and mobilizes marketing talent for special projects, identifies candidates for marketing positions, oversees the maintenance of the domain's knowledge (for instance, branch signage or promotional materials), and stimulates its creation. The company, which expects the network to show measurable results in key metrics (such as brand awareness), evaluates the owner by taking into account qualitative assessments of how well this formal network operates as compared with others, as well as the expectations of corporate leaders.

Formalizing a network

To formalize a network, the company must define who will lead it—that is, the network owner—and make that leader responsible for investing in the network to build its collective capabilities, such as knowledge that is valuable for all members. The company can facilitate the development of a formal network by providing incentives for participating in it (such as community building off-sites) and for contributing to it (such as recognition for people who contribute distinctive knowledge).

Network owners facilitate interactions between members, stimulate the creation of knowledge, maintain the network's knowledge domain, and help members do their jobs more effectively and efficiently. For a formal network to work effectively, its territory must be defined—informal networks sometimes make overlapping claims on the same activities. Furthermore, the network must have standards and protocols that describe how it should work.

Another difference between a formal network and a matrix is that the network owner isn't a boss but rather a "servant leader." The owner of a network doesn't oversee its work or personally manage or evaluate the performance of individual members (except for direct reports) but may provide input to the evaluation process.

The responsibilities of the formal leader of a network are primarily limited to its activities, such as organizing the infrastructure supporting it, developing an agenda for maintaining its knowledge domain, building a training program, holding conferences, and qualifying members as professionally competent.

Despite this limited hierarchical authority, a formal network's leader should be held accountable (together with line management) for the network's

performance. After all, the leader has great ability to help its members improve their performance and in this way can shape the organization. Much of the leader's impact comes from controlling the investments and activities that make the members individually—and the network collectively—more effective, and much from the ability to inspire and persuade.

In professional firms, which have long used formal networks called practices, it is always possible to tell the difference between talented and average leaders. While the responsibilities might be the same, talented ones create far more vibrant, exciting practices than their average counterparts do. It is therefore entirely appropriate to hold the leader of a formal network accountable for its performance, even if the leader has no direct authority over individual members.

Connecting members to the network

In the model we propose, companies should design formal networks to extend the reach of professional work throughout the organization but not to interfere with its hierarchical decision-making processes. The idea is to achieve this extended reach by adding value for the networks' members, not by exercising authority through hierarchical leaders.

To undertake the appropriate roles, a formal network's leader should have a discrete budget to finance network investments, which give the leader the muscle to offer the members added value. These investments might include infrastructure, both human and technological, to support network interactions; codified knowledge in forms such as documents, internal blogs, and "networkpedias"; training for members; and activities such as conferences to build a social community. Companies can evaluate the leader's performance by using some quantitative measures, such as the level of participation in conferences, e-mail volumes, standard measures from network analysis (for example, the number of steps it takes for any person in the network to reach anyone else), density, knowledge documents produced, and downloads. Management can also track and test the effectiveness of a network by assessing the satisfaction of its members, the effectiveness of responses to inquiries, and the ability to find appropriate partners for dialogue quickly.

But the real measure of the network's success would be qualitative assessments, made by members and senior leaders, of its effectiveness in realizing its mission. These assessments might come in the form of stories or case studies illustrating improvements in professional productivity.

Providing structure to professional work

Just as formal hierarchical structures define management roles, formal network structures define collaborative professional ones. In this way such networks can enable large companies to overcome the problems of very large numbers by creating small, focused communities of interest integrated within larger, more wide-ranging communities—for instance, subcommunities focused on different aspects of financial services, such as wholesale and retail banking.

The number of networks employees participated in would be up to them, unless they were core members, for whom participation would be a job requirement. In other words each member would build a personal social network within the formal networks, depending on that member's roles and professional interests. The limits of network participation are largely a function of time and interest; members would join networks that had more value to them than the opportunity costs of their time and would leave when those networks no longer had that much value.

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By participating in more than one network at a time, talented workers would gain the ability to integrate knowledge and access to talent across a number of communities. A person in the retail-banking community could also be a member of a branding community, for example, and members could bring knowledge gained there into other communities.

The number of formal networks a company could create is limited only by how much management chooses to invest in them. Their number and size could vary with how well each of them serves its members—effective networks would grow in membership and interactions; ineffective ones would lose both. In this way formal networks regulate themselves. Rapid growth proves the value of a network, its leader, and the money invested in it.

Today's mega-institutions have room for thousands of formal networks. A company with 100,000 professional and managerial employees, for example, could have 2,000 networks with 100 people apiece if each professional and manager was a member of just 2 networks. Broad networks (in fields such as finance or IT) might have thousands of members; specialized ones (say, a Turkish interest group) might have only a few dozen. Formal networked communities could form around not just customer groups, products, geography, and functional lines but also in conjunction with integrative crosscutting themes, such as risk management and global forces (nanotechnology and changing demographics, for instance).

Formal network structures can mobilize employees to generate value by propagating knowledge and its creators all over the enterprise. Rather than pushing knowledge and talent through a hierarchical matrix, formal networks let employees pull these necessities toward them. Q

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Gérard DuBois

The next revolution in **interactions**

Successful efforts to exploit the growing importance of complex interactions could well generate durable competitive advantages.

Bradford C. Johnson, James M. Manyika, and Lareina A. Yee

Like vinyl records and Volkswagen Beetles, sustainable competitive advantages are back in style—or will be as companies turn their attention to making their most talented, highly paid workers more productive. For the past 30 years, companies have boosted their labor productivity by reengineering, automating, or outsourcing production and clerical jobs. But any advantage in costs or distinctiveness that companies gained in this way was usually short lived, for their rivals adopted similar technologies and process improvements and thus quickly matched the leaders.

But advantages that companies gain by raising the productivity of their most valuable workers may well be more enduring, for their rivals will find these improvements much harder to copy. This kind of work is undertaken by, for example, managers, salespeople, and customer service reps, whose tasks are anything but routine. Such employees interact with other employees, customers, and suppliers and make complex decisions based on knowledge, judgment, experience, and instinct.

New McKinsey research reveals that these high-value decision makers are growing in number and importance throughout many companies. As businesses come to have more problem solvers and fewer doers in their ranks, the way they organize for business changes. So does the economics

Article at a glance

As more 21st-century companies come to specialize in core activities and outsource the rest, they have greater need for workers who can interact with other companies, their customers, and their suppliers.

Thus the traditional organization, where a few top managers coordinate the pyramid below them, is being upended.

Raising the productivity of employees whose jobs can't be automated is the next great performance challenge—and the stakes are high.

Companies that get it right will build complex talent-based competitive advantages that competitors won't be able to duplicate easily—if at all.

of labor: workers who undertake complex, interactive jobs typically command higher salaries, and their actions have a disproportionate impact on the ability of companies to woo customers, to compete, and to earn profits. Thus, the potential gains to be realized by making these employees more effective at what they do and by helping them to do it more cost effectively are huge—as is the downside of ignoring this trend.

But to improve these employees' labor performance, executives must put aside much of what they know about reengineering—and about managing technology, organizations, and talent to boost productivity. Technology can replace a checkout clerk at a supermarket but not a marketing manager. Machines can log deposits and dispense cash, but they can't choose an advertising campaign. Process cookbooks can show how to operate a modern warehouse but not what happens when managers band together to solve a crisis.

Machines *can* help managers make more decisions more effectively and quickly. The use of technology to complement and enhance what talented decision makers do rather than to replace them calls for a very different kind of thinking about the organizational structures that best facilitate their work, the mix of skills companies need, hiring and developing talent, and the way technology supports high-value labor. Technology and organizational strategies are inextricably conjoined in this new world of performance improvement.[1]

Raising the labor performance of professionals won't be easy, and it is uncertain whether any of the innovations and experiments that some pioneering companies are now undertaking will prove to be winning formulas. As in the early days of the Internet revolution, the direction is clear but the path isn't. That's the bad news—or, rather, the challenge (and opportunity) for innovators.

[1] Lowell L. Bryan and Claudia Joyce, "The 21st-century organization," *The McKinsey Quarterly*, 2005 Number 3, pp. 24–33; and Lowell L. Bryan, "Getting bigger," *The McKinsey Quarterly*, 2005 Number 3, pp. 4–5.

The good news concerns competitive advantage. As companies figure out how to raise the performance of their most valuable employees in a range of business activities, they will build distinctive capabilities based on a mix of talent and technology. Reducing these capabilities to a checklist of procedures and IT systems (which rivals would be able to copy) isn't going to be easy. Best practice thus won't become everyday practice quite as quickly as it has in recent years. Building sustainable advantages will again be possible—and, of course, worthwhile.

The interactions revolution

Today's most valuable workers undertake business activities that economists call "interactions": in the broadest sense, the searching, coordinating, and monitoring required to exchange goods or services. Recent studies—including landmark research McKinsey conducted in 1997[2]—show that specialization, globalization, and technology are making interactions far more pervasive in developed economies. As Adam Smith predicted, specialization tends to atomize work and to increase the need to interact. Outsourcing, like the boom in global operations and marketing, has dramatically increased the need to interact with vendors and partners. And communications technologies such as e-mail and instant messaging have made interaction easier and far less expensive.

The growth of interactions represents a broad shift in the nature of economic activity. At the turn of the last century, most nonagricultural labor in business involved extracting raw materials or converting them into finished goods. We call these activities *transformational* because they involve more than just jobs in production.[3] By the turn of the 21st century, however, only 15 percent of US employees undertook transformational work such as mining coal, running heavy machinery, or operating production lines—in part because in a globalizing economy many such jobs are shifting from developed to developing nations. The rest of the workforce now consists of people who largely or wholly spend their time interacting.

[2] Patrick Butler, Ted W. Hall, Alistair M. Hanna, Lenny Mendonca, Byron Auguste, James Manyika, and Anupam Sahay, "A revolution in interaction," *The McKinsey Quarterly*, 1997 Number 1, pp. 4–23.

[3] Douglass C. North, "Institutions, Transaction Costs, and Productivity in the Long Run," Washington University at St. Louis economics working paper, economic history series, number 9309004, September 1993; Douglass C. North, "Transaction Costs Through Time," Washington University at St. Louis economics working paper, economic history series, number 9411006, November 1994; and Douglass C. North, "Institutions and Productivity in History," Washington University at St. Louis economics working paper, economic history series, number 9411003, November 1994.

Within the realm of interactions, another shift is in full swing as well, and it has dramatic implications for the way companies organize and compete. Eight years after McKinsey's 1997 study, the firm's new research on job trends in a number of sectors finds that companies are hiring more workers for complex than for less complex interactions. Recording a shipment of parts to a warehouse, for example, is a routine interaction; managing a supply chain is a complex one.

Complex interactions typically require people to deal with ambiguity—there are no rule books to follow—and to exercise high levels of judgment. These men and women (such as managers, salespeople, nurses, lawyers, judges, and mediators) must often draw on deep experience, which economists call "tacit knowledge." For the sake of clarity, we will therefore refer to the more complex interactions as *tacit* and to the more routine ones as *transactional*. Transactional interactions include not just clerical and accounting work, which companies have long been automating or eliminating, but also most of what IT specialists, auditors, biochemists, and many others do (see sidebar, "About the research").

Most jobs mix both kinds of activities—when managers fill out their expense reports, that's a transaction; leading workshops on corporate

About the research

The next wave of performance improvements—to raise the effectiveness of tacit workers—will be far more difficult than the improvement efforts of the past. But companies that can innovate to make their complex, higher-value business activities deliver what their customers care about most will probably gain significant (and not easily duplicated) advantages in distinctiveness, quality, and cost.

We looked at the range of business activities involved in more than 800 occupations in the United States. Building on McKinsey's 1997 study, we placed every job in one of three categories: *transformational* (extracting raw materials or converting them into finished goods), *transactional* (interactions that unfold in a generally rule-based manner and can thus be scripted or automated), and *tacit* (more complex interactions requiring a higher level of judgment, involving ambiguity, and drawing on tacit, or experiential, knowledge). While any kind of work clearly involves activities in all three of our categories, we placed each job by determining its predominant activity. This occupational segmentation allowed us to develop a macroeconomic view of employment and wage shifts and to isolate trends in tacit interactions. We cross-checked the results with the 1997 activity-level analysis and with other economists' findings on interactions.

Then we linked the occupational analysis to the US government's industry classifications and quantified the mix of tacit, transactional, and transformational activities within and across industries. In addition, we used data from the International Labour Organization, the World Bank, and other sources to analyze these trends on a global basis. Finally, interviews with economists and with functional and industry experts throughout McKinsey helped us to identify and understand the key enablers of tacit and transactional interactions in today's companies.

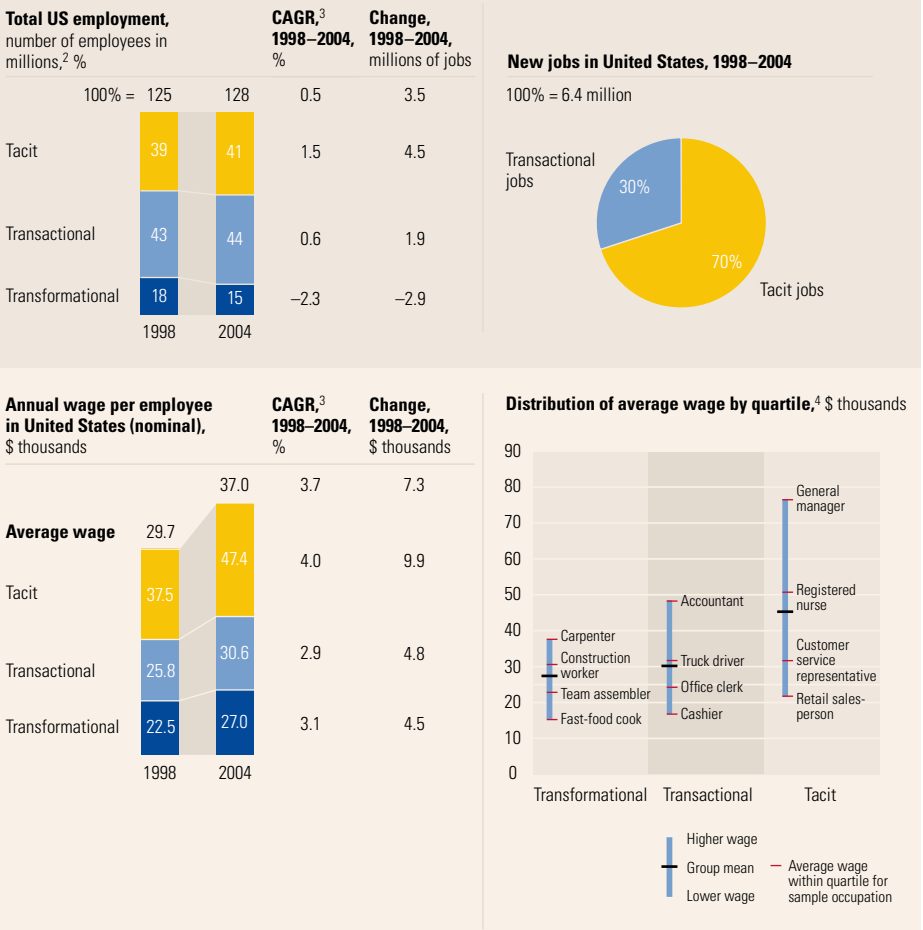
strategy with their direct reports is tacit work. But what counts in a job are its predominant and necessary activities, which determine its value added and compensation.

During the past six years, the number of US jobs that include tacit interactions as an essential component has been growing two and a half times faster than the number of transactional jobs and three times faster than employment in the entire national economy. To put it another way, 70 percent of all US jobs created since 1998—4.5 million, or roughly the combined US workforce of the 56 largest public companies by market

EXHIBIT 1

A new kind of worker

US employment and wages by job type[1]



[1]Categorized by predominant job activity: tacit = complex interactions; transactional = routine interactions; transformational = extraction or conversion of raw materials; 800 occupations studied.
[2]Excludes part-time and self-employed workers.
[3]Compound annual growth rate.
[4]Quartiles based on number of employees within given category.

Source: US Bureau of Labor Statistics; McKinsey analysis

capitalization—require judgment and experience. These jobs now make up 41 percent of the labor market in the United States (Exhibit 1). Indeed, most developed nations are experiencing this trend.

The balance is tipping toward complexity, in part because companies have been eliminating the least complex jobs by streamlining processes, outsourcing, and automating routine tasks. From 1998 to 2004, for example, insurance carriers, fund-management companies, and securities firms cut the number of transactional jobs on their books by 10 percent, 6.5 percent, and 2.7 percent a year, respectively. Likewise, a more automated check-in process at airports makes for smaller airline check-in staffs, automated replenishment systems reduce the need for supply chain bookkeepers, and outsourcing helps companies shed IT help desk workers. Manufacturers too have eliminated transactional jobs.

*The number of jobs that involve relatively **complex interactions** is growing at a phenomenal rate*

Meanwhile, the number of jobs involving more complex interactions among skilled and educated workers who make decisions is growing at a phenomenal rate. Salaries reflect the value that companies place on these jobs, which pay 55 and 75 percent more, respectively, than those of employees who undertake routine transactions and transformations.

Demand for tacit workers varies among sectors, of course. The jobs of most employees in air transportation, retailing, utilities, and recreation are transactional. Tacit jobs dominate fields such as health care and many financial-services and software segments (Exhibit 2). But all sectors employ tacit workers, and demand for them is growing; most companies, for example, have an acute need for savvy frontline managers.

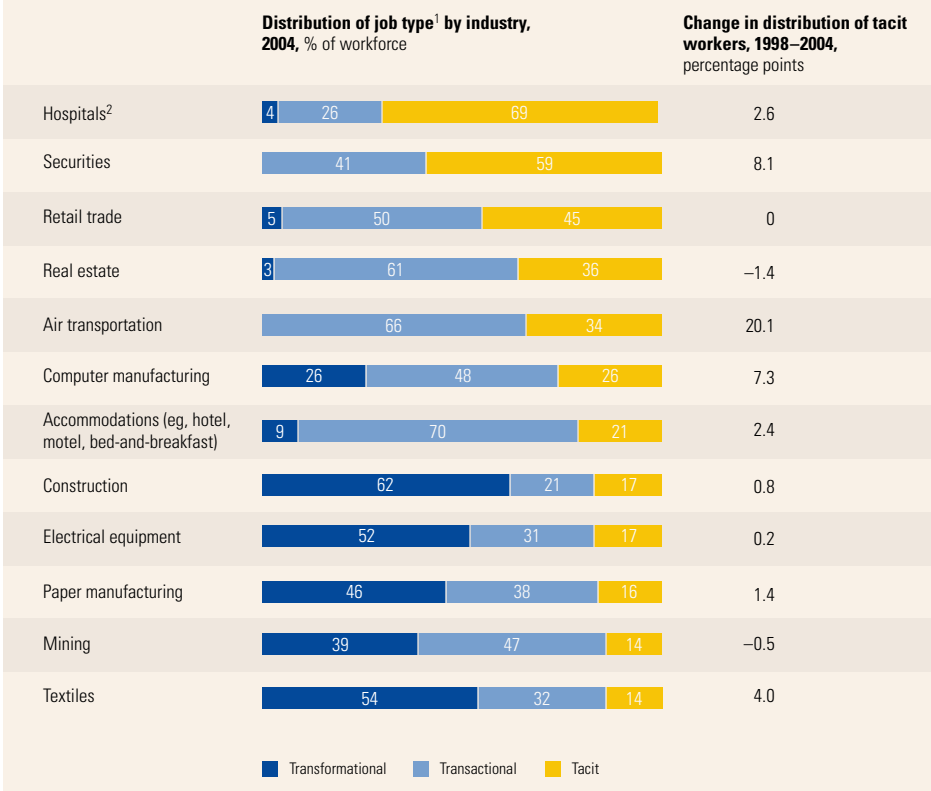
A new path to better performance

The demand for tacit employees and the high cost of employing them are a clear call to arms. Companies need to make this part of the workforce more productive, just as they have already raised the productivity of transactional and manufacturing labor. Unproductive tacit employees will be an increasingly costly disadvantage.

The point isn't how many tacit interactions occur in a company—what's important is that they ought to add value. This shift toward tacit interactions upends everything we know about organizations. Since the days of Alfred Sloan, corporations have resembled pyramids, with a limited number of tacit employees (managers) on top coordinating a broad span

EXHIBIT 2

The job mix



[1]Categorized by predominant job activity: tacit = complex interactions; transactional = routine interactions; transformational = extraction or conversion of raw materials; 800 occupations studied.
[2]Numbers do not sum to 100%, because of rounding.

Source: US Bureau of Labor Statistics; McKinsey analysis

of workers engaged in production and transactional labor. Hierarchical structures and strict performance metrics that tabulate inputs and outputs therefore lie at the heart of most organizations today.

But the rise of the tacit workforce and the decline of the transformational and transactional ones demand new thinking about the organizational structures that could help companies make the best use of this shifting blend of talent. There is no road map to show them how to do so. Over time, innovations and experiments to raise the productivity of tacit employees (for instance, by helping them collaborate more effectively inside and outside their companies) and innovations involving loosely coupled teams will suggest new organizational structures.

The two critical changes that executives must take into account as they explore how to make tacit employees more productive are already clear, however. First, the way companies deploy technology to improve the performance of the tacit workforce is very different from the way they have used it to streamline transactions or improve manufacturing. Machines can't recognize uncodified patterns, solve novel problems, or sense emotional responses and react appropriately; that is, they can't substitute for tacit labor as they did for transactional labor. Instead machines will have to make tacit employees better at their jobs by complementing and extending their tacit capabilities and activities.

Second, a look back at what it took to raise labor productivity over the past ten years shows that the overall performance of sectors improves when the companies in them adopt one another's managerial best practices, usually involving technology. In retailing, for instance, Wal-Mart Stores was a pioneer in automating a number of formerly manual transactional activities, such as tracking goods, trading information with suppliers, and forecasting demand. During the 1990s, most other general-merchandise retailers adopted Wal-Mart's innovations, boosting labor productivity throughout the sector.[4]

But in the world of tacit work, it's less likely that companies will succeed in adopting best practices quite so readily. Capabilities founded on talented people who make smarter decisions about how to deploy tangible and intangible assets can't be coded in software and process diagrams and then disseminated throughout a sector.

Tacit technology

Companies have three ways of using technology to enhance and extend the work of tacit labor. First, and most obviously, they can use it to eliminate low-value-added transactional activities that keep employees from undertaking higher-value work. Pharmacies, for example, are using robots to fill prescriptions in an effort to maximize the amount of time pharmacists can interact with their customers. Meanwhile, The Home Depot is trying out automated self-checkout counters in some stores.

[4] Brad Johnson, James Manyika, and Lenny Mendonca, *US Productivity Growth 1995–2000: Understanding the Contributions of Information Technology Relative to Other Factors*, McKinsey Global Institute, October 2001 (www.mckinsey.com/mgi); Diana Farrell, Terra Terwilliger, and Allen P. Webb, "Getting IT spending right this time," *The McKinsey Quarterly*, 2003 Number 2, pp. 118–29; and Diana Farrell, "The real new economy," *Harvard Business Review*, October 2003, Volume 81, Number 10, pp. 104–12.

The retailer isn't just automating and eliminating transactional tasks; its chairman and CEO, Robert Nardelli, believes that automated counters can reduce by as much as 40 percent the time customers spend waiting at cash registers. Just as important, the new counters mean that people who used to operate the old manual ones can be deployed in store aisles as sales staff—a much higher-value use of time.

Furthermore, technology can allocate activities more efficiently between tacit and transactional workers. At some companies, for example, technology support—traditionally, tacit work undertaken by staff experts on PCs and networks—has been split into tacit and transactional roles. Transactional workers armed with scripts and some automated tools handle the IT problems of business users; only when no easy solution can be found is a tacit employee brought in.

Second, technology makes it possible to boost the quality, speed, and scalability of the decisions employees make. IT, for instance, can give them easier access to filtered and structured information, thereby helping to prevent such time wasters as volumes of unproductive e-mail. Useful databases could, say, provide details about the performance of offshore suppliers or expanded lists of experts in a given field. Technology tools can also help employees to identify key trends, such as the buying behavior of a customer segment, quickly and accurately.

Kaiser Permanente is one of the organizations now pioneering the use of such technologies to improve the quality of complex interactions. The health care provider has developed not only unified digital records on its patients but also innovative decision-support tools, such as programs that track the schedules of caregivers for patients with diabetes and heart disease. Although it is hard to determine quantitatively whether physicians are making better judgments about medical care, data suggest that Kaiser has cut its patients' mortality rate for heart disease to levels well below the US national average.

Finally, new and emerging technologies will let companies extend the breadth and impact of tacit interactions. Loosely coupled systems are more likely than hard-coded systems and connections to be adapted successfully to the highly dynamic work of tacit employees. This point will be particularly critical, since tacit interactions will occur as much within companies as across them.[5] Broadband connectivity and novel applications (including collaborative software, multiple-source videoconferencing, and

[5] John Seely Brown and John Hagel III, "Flexible IT, better strategy," *The McKinsey Quarterly*, 2003 Number 4, pp. 50–9.

IP telephony) can facilitate, speed up, and progressively cut the cost of such interactions as collaboration among communities of interest and build consensus across great distances. Companies might then involve greater numbers of workers in these activities, reach rural consumers and suppliers more effectively, and connect with networks of people and specialized talent around the world.[6]

Competitive advantage redux

Technology itself can't improve patient care or customer service or make better strategic decisions. It does help talented workers to achieve these ends, but so, for example, do organizational models that motivate tacit employees and help them spot and act on ideas. These kinds of models usually involve environments that encourage tacit employees to explore new ideas, to operate in a less hierarchical (that is, more team-oriented and unstructured) way, and to organize themselves for work. Most of today's organizational models, by contrast, aim to maximize the performance of transactional or transformational workers. Tacit models are new territory.

The rigidity of traditional organizational models too often limits innovation and learning. See "From push to pull: The next frontier of innovation" on mckinseyquarterly.com.

As a result, it won't be easy for companies to identify and develop distinctive new capabilities that make the best use of tacit interactions—new ways to speed innovations to market, to make sales channels more effective, or to divine customer needs, for instance. But at least such capabilities will also be difficult for competitors to duplicate. Best practices will be hard to transplant from one company to another if they are based on talented people supported by unique organizational and leadership models and armed with a panoply of complementary technologies. If it becomes harder for performance innovations to spread through a sector and thereby to boost the performance of all players, it will once again be possible to build operating-cost advantages and distinctive capabilities sustainable for more than a brief moment.

During the past few years, advantages related to costs and distinctiveness have rarely lasted for long: they eroded quickly when companies built them from innovations in the handling of what are essentially transactional interactions. E*Trade Financial, for instance, gained tactical advantages by optimizing transactional activities to create more efficient and less

[6] Scott Beardsley, Luis Enriquez, Carsten Kipping, and Ingo Beyer von Morgenstern, "Telecommunications sector reform—A prerequisite for networked readiness," *Global Information Technology Report 2001–2002: Readiness for the Networked World*, World Economic Forum, Oxford University Press, June 2002, pp. 118–37.

expensive ways of making trades but then watched its unique position evaporate when other discount brokers and financial advisers embraced the new technology and cut their trading fees. Cheap trades were no longer a sufficient point of differentiation.

By contrast, advantages built on tacit interactions might stand. A company could, for example, focus on improving the tacit interactions among its marketing and product-development staff, customers, and suppliers to better discern what customers want and then to provide them with more effective value-added products and services. That approach would create a formidable competitive capability—and it is difficult to see how any rival could easily implement the same mix of tacit interactions within its organization and throughout its value chain.

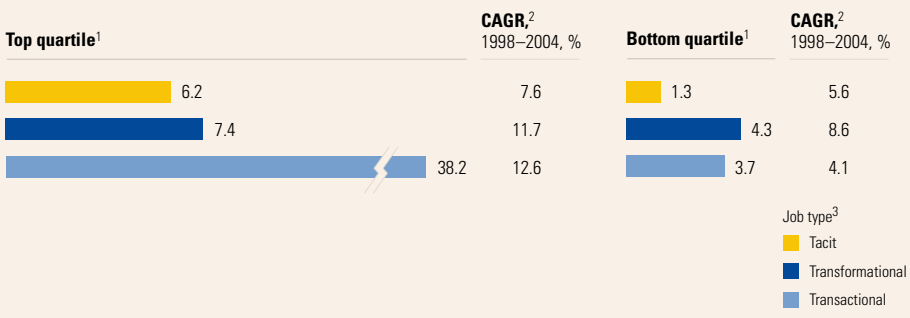
Looking forward

As companies explore how to expand the potential of their most valuable employees, they face more than a few challenges. For one thing, they will have to understand what profile of interactions—transactional and tacit—is critical to their business success and to allocate investments for improving the performance of each. Some companies will have to redeploy talent from transactional to tacit activities, as Home Depot did. Others, following the example of companies such as Toyota Motor and Cisco Systems, may find it necessary to redeploy their available tacit capacity to transformational and transactional activities, thus bringing a new level of problem solving to many kinds of transformational jobs. At the same time, it will be necessary to guard against becoming overly reliant on

EXHIBIT 3

Investing in technology

IT stock per employee by job type, 2004, $ thousands (nominal)



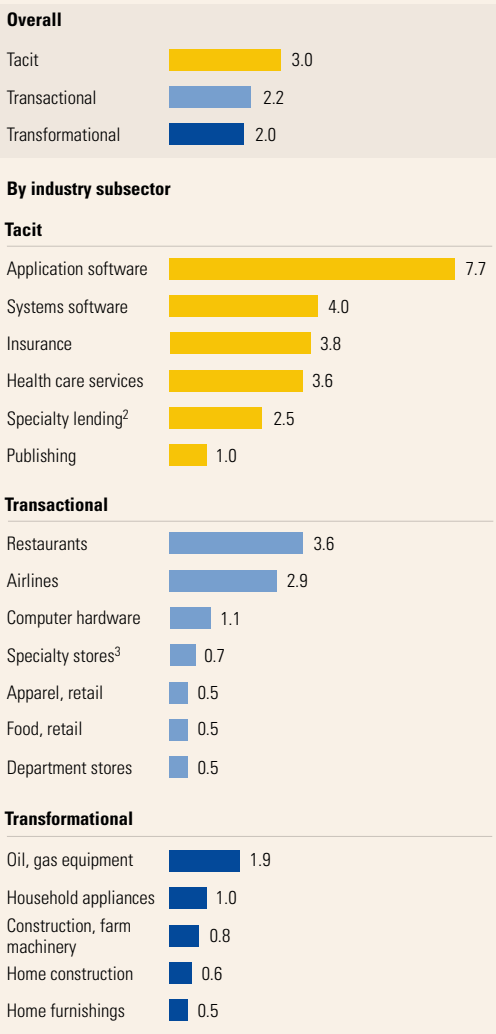
[1]Quartiles based on growth in labor productivity, 1998–2004.
[2]Compound annual growth rate.
[3]Categorized by predominant job activity: tacit = complex interactions; transactional = routine interactions; transformational = extraction or conversion of raw materials; 800 occupations studied.

Source: US Bureau of Labor Statistics; McKinsey analysis

EXHIBIT 4

Performance varies

Dispersion of average EBITDA per employee for companies by industry type,[1] ratio of standard deviation to mean



[1]EBITDA = earnings before interest, taxes, depreciation, and amortization; categorized by predominant job activity within industry: tacit = complex interactions; transactional = routine interactions; transformational = extraction or conversion of raw materials; data reflect industry weighted-average GDP by job type.
[2]Includes credit card issuers, mortgage lenders, education lenders.
[3]Includes kitchen retail, movie rental, office supply stores.

a few star tacit employees and to manage critical tacit or transactional activities undertaken by partners or vendors.

On the human-resources side, companies will need a better understanding of how they can hire, develop, and manage for tacit skills rather than transactional ones—something that will increasingly determine their ability to grow. Certain organizations must therefore learn to develop their tacit skills internally, perhaps through apprenticeship programs, or to provide the right set of opportunities so that their employees can become more seasoned and knowledgeable. What's more, performance is more complex to measure and reward when tacit employees collaborate to achieve results. How, after all, do you measure the interactions of managers?[7]

Companies will also have to think differently about the way they prioritize their investments in technology. On the whole, such investments are now intended largely to boost the performance of transformational activities—manufacturing, construction, and so on—or of transactional ones. Companies invest far less to support tacit tasks (Exhibit 3).

So they must shift more of their IT dollars to tacit tools, even while they still try to get whatever additional (though declining) improvements can

[7]Lowell L. Bryan, "Making a market in knowledge," *The McKinsey Quarterly*, 2004 Number 3, pp. 100–11.

be had, in particular, from streamlining transactions. The performance spread[8] between the most and least productive manufacturing companies is relatively narrow. The spread widens in transaction-based sectors—meaning that investments to improve performance in this area still make sense. But the variability of company-level performance is more than 50 percent greater in tacit-based sectors than in manufacturing-based ones (Exhibit 4). Tacit activities are now a green pasture for improvement. Q

[8] As measured by revenue or EBITDA (earnings before interest, taxes, depreciation, and amortization) per employee.

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