



# Matching

## people and jobs

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Achieving the most productive combination of workers  
and work is about to become a great deal easier.

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**S**ooner or later, every executive faces a similar people problem: as part of a large corporation, you may oversee, say, ten regional vice presidents, store managers, or unit heads and must assign them effectively. You know that the adroit management of small variations in their preferences and skills can make a marked difference in their productivity—and in your company’s earnings. Sorting out the possibilities for those ten managers confronts you with 3.6 million permutations (Exhibit 1, on the next page). Multiply the challenge as you move down to your managers’ direct reports and to *their* direct reports, and the complexity of the task becomes truly mind-boggling.

Faced with so many possibilities, most companies abandon the attempt to make rational choices and instead merely guess how best to assign employees to jobs. By treating people with diverse skills as an undifferentiated resource, these companies forfeit the chance to make substantial gains in productivity, profitability, and personnel development. Moreover, deploying employees more effectively is only the start. A manager who wants the best people to do their best work must anticipate the company’s workforce requirements, provide training tailored to individual goals, and reward employees for hard-to-measure contributions such as coaching. It is thus no surprise that a

systematic and continuous approach to fitting the right person to the right job at the right time has long been the Holy Grail of workforce organization. But most managers, search as they might, come up empty-handed. Few companies understand which employees are essential or how best to structure their workforce. As a result, human capital—the skills and knowledge of employees—too often remains an untapped performance lever.

All this is about to change. A new generation of tools has made it increasingly possible to fashion a more sophisticated approach to the management of a large distributed workforce. Real-time deployment tools can adjust staffing to variations in customer demand with unprecedented precision and speed. Succession-planning tools can reach deep into the company to find unsung heroes. And coming soon is software that could solve some of the most nagging challenges to the systematic organization of the workforce. As personal and handheld computers reach a critical mass in the workplace, workforce-management software will probably become ubiquitous.

The macroeconomic implications of mastering what economists might well call human-capital management are far-reaching (*see* sidebar, “The human-capital imperative”). Capturing these productivity gains at the company level could measurably boost economic growth. In the knowledge economy, labor is the fastest-growing expense, and talent, in cold economic terms, is inventory. Having too many—or, worse, too few—workers costs money and opportunities for growth. New human-capital tools can help a business to manage such surpluses and shortages and to develop and retain its most important people. Much as supply-chain-management software changed the rules of inventory management, the coming of age of human-capital management promises to usher in a new era for workforce management.

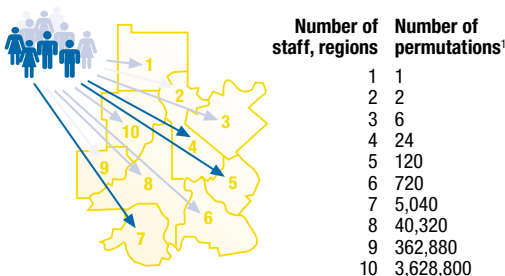
To reap the benefits of the new technology, executives must begin with old-fashioned managerial insight. Specifically, they need to identify their pivotal groups of workers and to understand where in the employment life cycle

those workers face the greatest barriers to productivity. The next step is to pinpoint the way workforce problems affect the company’s financial performance. Only then should executives consider which workforce-organization technologies to apply.

But if a company is an unattractive place to work, no technology will help. Conversely, a company that adopts a new approach to workforce management without deploying new

#### EXHIBIT 1

#### Mind-boggling



<sup>1</sup>Calculated by taking factorial (product of all whole numbers, except zero, that are less than or equal to that number) of number of staff members, positions.

technologies will lose a chance to raise the productivity of its workforce and to manage human capital on an enterprise-wide basis.

## The challenge of organizing the workforce

To gauge the scope of the opportunity, consider the challenges facing a grocery chain and an IT-consulting firm. The grocery chain's pivotal employees are the low-wage baggers, checkers, and in-store managers who deal with customers, as well as the distribution clerks and shelf stockers. These two groups account for 60 percent of the labor costs of typical grocery stores, which therefore try to minimize employee turnover. Nonetheless, turnover rates at US grocery stores exceed 30 percent a year. High turnover makes it

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## The human-capital imperative

For decades, managers have wrestled with the increasingly important challenge of organizing the workforce in the most effective way possible. In developed economies, adding more workers and capital as inputs—what economists call factor intensity—has reached the point of diminishing returns. Value is now created by the productivity gains that come from workforce innovation and more sophisticated people management.<sup>1</sup> But this transition is complicated by the shifting nature of work and by the growing cost and complexity of managing the workforce.

In the United States, the service sector's share of employment has grown from less than half of the economy in the 1950s to more than 70 percent today. Labor costs are the single largest component of US business expenses: in 2000 they represented 44 percent of GDP. And as the proportion of information workers in the overall workforce has risen, from one-third of all workers in the 1930s to over two-thirds today, so too have the interaction costs required to conduct business. The cost per interaction might have fallen sharply thanks to technology, but the number of interactions has grown still more. Even

in traditional manufacturing environments, most people no longer perform simple, isolated tasks but are part of complex production chains. That creates a need for sophisticated tools to coordinate and manage interactions among workers.

Pencils and paper and computer spreadsheets—the recruiting, staffing, and performance evaluation tools of choice for most companies—have thus reached the limit of their usefulness. Often these primitive tools are customized and developed for a specific business unit or office, not to scale across the enterprise. And particularly when they are disconnected from the core financial, human-resource, and operations systems that guide decision making in other areas, they provide little insight into workforce trends.

—*Kenneth Berryman*

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<sup>1</sup>Overall economic output is a function of the number of workers multiplied by hours per worker multiplied by productivity per hour. Assuming a shrinking workforce and a stable work week, productivity growth is the only lever for increasing economic output.

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necessary to spend more money—perhaps \$200,000 per store a year, or 40 percent of an average chain store’s net income—on recruitment, training, and overtime. Even more important to the chain as a whole, perhaps, are the indirect costs: poor customer-satisfaction rates and low employee morale.

The IT-consulting firm, by contrast, employs mainly knowledge workers, who at any one time are allocated among several projects, many with shifting and competing time lines. The firm creates value by moving each employee to the most suitable project in the appropriate sequence. Its challenge—maintaining high levels of employee utilization and completing projects on or ahead of schedule while creating a lively work environment that brings its best to each engagement—is more complicated than the grocery chain’s. Better workforce management provides the direct benefit of improved performance and lower labor costs as well as the less tangible benefits of establishing a reputation for reliable, innovative problem solving.

### Turning to the technology solution

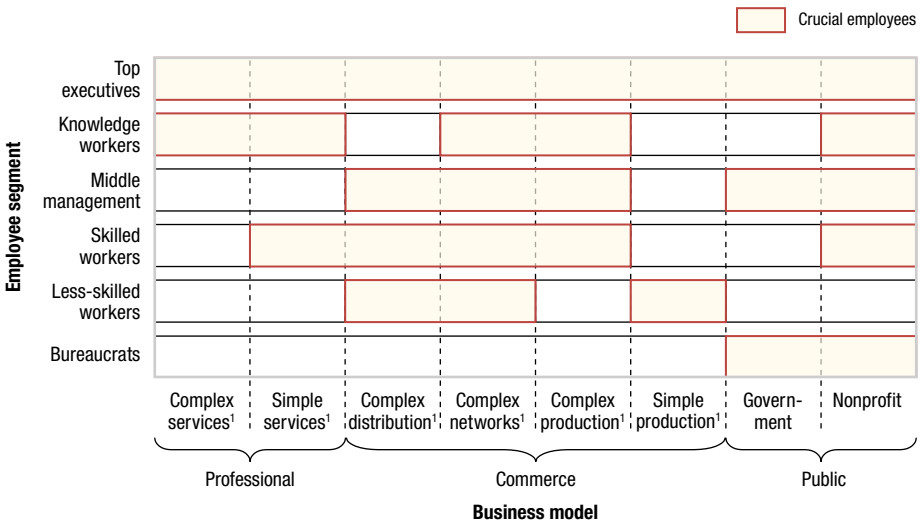
Coupled with dramatically falling telecom costs, the proliferation of PCs, handheld computers, and collaboration tools has transformed the way companies communicate with and track their employees. This electronic infrastructure has evolved enough to help companies map their human capital efficiently and cost-effectively: software can, for example, integrate recruitment, training, staffing, and the operation of databases and thereby generate insights that once seemed impossible; for example, by linking recruitment and training databases to manufacturing databases, managers can establish how different skill levels correlate with product defect rates. Technology can also help uncover the management potential of all employees, not just those on the leadership track.

In the case of the grocery chain, software tools could improve the recruitment and integration of newly hired employees by developing profiles based on their background and recruitment source. Such profiles would help the chain predict turnover rates and devise customized training programs to reduce them. (It might, for example, turn out that employees hired through word of mouth rather than job fairs tend to stay longer but need more training.) If turnover falls, other software tools can adjust hiring forecasts.

As for the IT firm, it could benefit from an emerging class of analytical tools that use complex algorithms and artificial-intelligence techniques to shorten project completion times. By sifting through a database of employee skill sets, the tools generate staffing solutions to meet current demand and to anticipate priorities for emerging projects. The deployment of these solutions at a technology-consulting firm has cut project completion times by 10 to 40 percent and overall resource requirements by 25 to 40 percent.

EXHIBIT 2

**Who are your essential people?**



<sup>1</sup>For example, investment banks offer complex professional services, insurance companies relatively simple ones; “big-box” retailers run complex distribution processes, airlines complex networks, and pharmaceutical companies complex production operations, in contrast to the fairly simple operations of pulp and paper manufacturers.

A leading provider of data storage used one such software tool to examine a competitive product-development bid that had previously been running significantly behind schedule. Among other things, the tool helped the company anticipate when management intervention would be required, thus all but eliminating the frequent and time-consuming scramble to get management to sign off on major decisions. Indeed, it speeded up the company’s bidding process so much that the prototype was delivered on time, ahead of those from competitors, which were forced to drop out of the running for a \$300 million contract.

In our experience, the use of these tools for managing human capital can give companies a clear performance advantage, whether they compete in knowledge-intensive industries such as software and biotechnology or in traditional industries such as manufacturing and retailing. The tools provide value through cost savings from increased utilization and lower turnover and through higher productivity—the result of improved training, more effective deployment, and targeted incentives that reward and promote the most productive employees.

**Checking the basics**

Before a company can exploit the new technology, it must identify its pivotal workers, know how to improve their productivity, and understand the connection between them and its financial performance.

## EXHIBIT 3

## Evolving employees

	Plan	Engage	Develop	Deploy	Reward	Key requirement
Top executives	○	○	●	○	●	Develop succession and risk-assessment plan for top 2–5% of workforce
Knowledge workers	◐	◐	●	●	◐	Deploy workers to achieve maximum utilization (particularly between projects)
Middle management	○	◐	●	●	●	Link compensation to individual <i>and</i> group performance
Skilled workers	●	◐	◐	●	◐	Plan workforce size and requirements; share best practices across divisions
Less-skilled workers	●	●	○	●	○	Reduce turnover cost through efficient recruiting and on-the-job training/mentoring
Bureaucrats	◐	○	●	○	○	Deploy workers around annual budgetary constraints (quasi-fixed labor force)

## Who is really pivotal?

The crucial first step is to identify your pivotal workers. In most businesses, not all employees are created equal—a subset, which can vary across business units and may change as a company evolves, always plays a disproportionate role in creating value. Our experience suggests that workforces fall into six segments: top executives, knowledge workers, middle management, skilled workers, less-skilled workers, and bureaucrats. Depending on the industry, any of these groups can emerge as the most pivotal.

To identify the crucial group, consider your business model (Exhibit 2, on the previous page). If innovation and intangible assets generate a company's competitive advantage, for example, top management and knowledge workers are essential; clearly, a pharmaceutical company depends on the ability of its research scientists to develop new drugs. But where costs and services differentiate competitors, skilled and semiskilled workers might play a pivotal role. So if the strategy of a national restaurant chain rests on superior customer service, the organization must develop its less-skilled employees.

Cost structures and the value chain are further pointers. Executives could, for example, ask where in the organization a doubling of productivity might generate major financial gains. They could also ask at what point in the history of the business, from start-up to expansion, its emphasis shifts to a different segment of the workforce. A retail venture that was just starting up, for instance, would rely chiefly on its top executives, but expansion into a national chain would shift its focus to the middle managers who open and staff new stores.

### What is the most important productivity challenge?

Once a company has identified its pivotal workers, it can start to think about improving their productivity, not just once but continually. The trick is to map the biggest productivity challenges that occur as workers move through the stages of their life cycle at the company (Exhibit 3), but few businesses bother to do so. Moreover, interviews with more than 50 senior managers from a range of industries indicate that while some challenges are common to all segments of the workforce, others emerge only after a company has thought through the evolution of each employee's career in the context of its business model.



Systematically scanning the employee life cycle is the only way to uncover the most intense productivity pressure points that a company and its employees face. The process starts well before people are taken on. To know what kind of prospects to hire, how many, and when, for instance, managers should turn to workforce forecasting, which is essential to reduce labor shortages or surpluses and to boost utilization (something that can be complicated if demand varies by season or attrition rates fluctuate).

A company should then break down skill levels and retention rates by candidate to find out where to hire people with the necessary skills and how to develop them via training and on-the-job experience. Deployment, the next stage, can be a vexing problem, particularly for professional-services firms that require employees to work on several projects at once. Finally, if high attrition rates threaten overall productivity, companies can reduce them by offering workers varied incentives and continual development opportunities.

### Where is the link to financial performance?

The third step is to link these workforce needs with the company's financial performance. What does turnover of research scientists, for instance, cost in lost productivity and higher search expenses? How do low utilization rates among call-center employees hurt earnings? While the connections can seem explicit, they must often be tested. Retail stores that can remove barriers to the hiring of more knowledgeable and courteous staff, for example, can probably raise their sales—but which barriers should go, and at what cost?

During our research we interviewed, among other people, senior logistics and transportation executives who claimed to be carrying out workforce planning. When we asked what financial metrics guided their human-capital choices—deciding, say, whether to hire full- or part-time drivers—few had any answer. These executives had drawn no connection between workforce planning and financial performance and were therefore flying blind.

To trace the bottom-line impact of higher workforce productivity, a company must identify the barriers to it and model their cost. Consider a corporate-law firm that has a lackluster development or retention strategy and high levels of attrition among its lawyers. The firm has determined that a 10 percent fall in attrition could raise billable utilization rates by 2 percent. To find out how to cut attrition, the firm could use software to track work patterns; it might find, for instance, that junior lawyers working with a particular combination of senior partners were twice as likely to quit as their peers. It could then respond by adjusting the way cases were assigned. For a law firm with annual billings of \$100 million, a 2 percent increase in billable utilization rates would far outweigh the cost of installing software to target the sources of attrition.

### Emerging human-capital technologies

At this point, managers can assess the growing number of customized software solutions for resolving specific workforce problems. The tools, which can be integrated into a company's underlying IT infrastructure, fall into several categories.

Deployment tools help a company manage its cost structure by improving its utilization rates and making the most of differences in skills to match workers with jobs. These tools, which integrate staffing algorithms with project-management software, can be used in applications that range from the staffing of retail or call centers to the resolution of service-industry challenges. Consider the way a traditional call center functions: all operators work set shifts, calls are routed to the first available operator, and all customers are treated more or less alike. Today, new software can route the most important customers to the most experienced and highly rated operators and adjust staffing in 15-minute intervals through the real-time analysis of call volumes.



The second category of promising human-capital-management technologies consists of workforce-development tools, which can increase productivity by enabling managers to match skills to positions, by helping companies to retain their best and most talented employees, and by charting succession planning deep within the organization. A retail grocery company, for instance, could find its next division president from among the top ten vice presidents and its next customer service manager from among all of its top checkers.

Finally, workforce-planning tools bring together internal forecasts and external trend analyses to reduce the time needed to staff and start up businesses and to integrate recruitment with training-and-development plans. Restau-

rant chains, for instance, could use these tools to avoid a recurring problem: building many new restaurants only to find that too few people have been hired to operate them.

In the near future, companies will be able not only to prevent such problems but also to go one step further: they will have the tools to create a sophisticated forecast of their workforce needs by integrating macroeconomic forecasts—dozens of market variables—into their staffing plans. Although such tools could not have predicted the recent technology meltdown and will never anticipate serious swings in economic activity, they *can* refine a company's workforce plans—for example, by smoothing out moderate expansions and contractions.

While a fair number of software firms offer customized solutions for the problems of managing a workforce, many such applications are not yet commercially available in off-the-shelf configurations. That should change within 12 to 18 months. So far, niche players and providers of customized services have successfully targeted specific industries and functions—training and development, the staffing of projects, and retention planning. But we believe that the larger enterprise resource providers might be better placed to develop or acquire applications for human-capital management.

Implementation challenges are sure to abound, but as these are worked out, managers will find that they have powerful new people-management tools. Much as customer-relationship- and risk-management applications enabled sales managers and senior financial executives, respectively, to control customer relationships and risk profiles from the desktop, the next generation of human-capital-management software will let senior managers use human-capital data to drive constant gains in productivity.

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A new era in human-capital management is approaching. Value increasingly comes from boosting the productivity of individual workers and from greater workforce innovation. Meanwhile, the technological infrastructure needed to map out human capital is rapidly falling into place. By achieving the most productive possible combination of workers and work, companies can find a lasting source of competitive advantage. **Q**