DAVID GREBOW AND STEPHEN J. GILL

MINDS AT WORK

MANAGING FOR SUCCESS IN THE KNOWLEDGE ECONOMY

“Beautifully written. Thoroughly researched. Refreshing to read.”
—MARCIA CONNER, Co-Author, The New Social Learning
“Minds at Work makes a masterful modern case to put people at the center of every organization’s value chain. Beautifully written. Thoroughly researched. Refreshing to read.”
—Marcia Conner
Changemaker, Impactrepeneur, and Co-Author of The New Social Learning

“Minds at Work is a definitive blueprint for anyone striving to unlock the competitive advantage of their employees in the new knowledge economy.”
—Wayne McCulloch
Chief Customer Officer, Kony

“What is the impact of learning in our age of autonomous productivity? Minds at Work provides a compelling look at what managers must do to engage the creativity of their employees in way that delivers sustainable results. Authors David Grebow and Stephen Gill offer research-backed solutions that anyone who manages—as well as those who want to manage—will want to implement. Read it now because the future is not waiting.”
—John Baldoni
Inc. Top 50 Leadership Expert
Executive Coach
Author, MOXIE
“Minds at Works reminds us of the most fundamental need to build an adaptive organization, an entire company built around the flexible mindset. As is often said, ‘It is not the strongest that survive, but those most adaptive to change.’ If this book is sitting on your desk, open it, read it, and take the lessons it offers to heart!”

—Rich Sheridan
CEO and Chief Storyteller, Menlo Innovations
Author, Joy, Inc.

“In Minds at Work, Stephen J. Gill and David Grebow set forth a guide to help organizations move from managing hands (repetitive tasks to be optimized) to managing minds that learn and grow dynamically. The leaders’ role in this new workplace is to support multiple modes of data-driven push and pull learning. Stephen and David outline a new learning organization, one that is open and transparent, full of communication and collaboration, and developing a sense of autonomy, stretch, and purpose with—not for—employees.”

—Megan Torrance
Founder and Chief Energy Officer, TorranceLearning
To our wives, Susan Leigh Fry and Nanette Gill, whose love, patience, and support helped us write this book.
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INTRODUCTION

We began the research for this book by looking for examples of companies that said they were learning cultures, where learning was continuous and supported in every aspect of organizational life. We never found one. We found some examples of learning cultures within companies, in various departments and units, but never consistently across the whole enterprise. We eventually realized why. A company can tell the world it has a learning culture, provide lots of learning opportunities, and supply educational technology for everyone. But if management support for learning is not apparent and constantly on display by managers every day, the original culture that supported and rewarded “not learning” will hold sway over any attempt to be a culture focused on learning.

Many CEOs do not support learning, and they are not willing to invest in the development of their employees. They seem to hope that new technology will solve their problems and they won’t have to deal with people. A global study from Korn Ferry in 2016 succinctly states the problem: Of the 800 top business executives surveyed, 67 percent believed that technology will drive greater value than human capital (and 64 percent believed people are a cost, not a driver of value). While human capital versus technology may be in debate, some executives still continue to focus on the technology side of the business at the expense of developing people.

We realized that a culture focused on learning needs leaders and managers focused on learning. So we started to look at the critical relationship between managers and learning. Managers are expected to direct people’s daily work and performance. They are not usually expected to develop employees. That’s when we found ourselves exploring new, uncharted territory, in which we discovered four big surprises.
The first was realizing that there are two types of companies, and that they have very different ways of managing how their employees work and learn. We call the first a “managing hands” company, which existed during the two Industrial Revolutions, when we made things and managed hands. We call the second a “managing minds” company, developed for the new knowledge economy corporation, in which we produce work using our minds and therefore need to manage those minds.

The managing hands company was created to meet the needs of the industrial economy. These 19th- and 20th-century companies focused on what people could produce using their hands. Work changed slowly; people needed to show up to do their jobs, and the skills they learned were relatively simple and physical. Some workers, over time, could become experts in a task or procedure and were recognized as such. Management systems—and MBA programs—were developed and used to manage all those hands, using sophisticated financial tools. Training programs that were echoes of schoolrooms were developed to show employees how to make things with their hands, using tools and operating machines.

The second type of company we looked at was a result of the 21st-century knowledge economy. These companies were trying to meet the needs of the knowledge economy and focused on what people produced with their minds. The work people did changed almost every day, as globalization forced their companies to innovate faster and faster. People were suddenly able to work anywhere and anytime, and they demanded more from their employers and the workplace. The old idea of one person being the expert had disappeared. The skills needed to perform 21st-century knowledge economy jobs were not only increasingly complex, but continuously changing. Training that had been pushed at people was being quickly supplemented by learning that was pulled when and where it was needed. Companies were forced to find innovative ways to manage the minds doing the work.

The hallmark of these managing minds companies is the way they manage learning. Without trying to self-consciously be a learning culture, they simply make learning a top priority by supporting it loudly and
convincingly at all levels of management, and by providing the technology needed for people to communicate, collaborate, and learn together. Yet these companies are not widely recognized or studied for managing minds, even though they are often seen as business or industry leaders.

That led us to the next surprise. Too many of the managing hands companies we looked at were an endangered species, stuck in a 20th-century time warp. Even the MBA programs that many managers learned from were outdated. There is no way to become the smartest company on the block if you continue managing hands in a world that demands managing minds. You can’t solve 21st-century problems using 20th-century solutions.

Managing hands companies find themselves trying to survive in an increasingly hypercompetitive, fast-paced, and interconnected marketplace, where the only sustainable competitive advantage is the ability to learn and move faster than the competition. Corporate Darwinism proves that a company must evolve to meet the demands of new and different environments or else perish. There are more than enough examples of extinct companies that did not—or could not—change quickly enough from managing hands to managing minds to prove this point.

The third surprise arrived when we started connecting the dots representing the companies that are managing minds. We saw examples of this new type of company all over the world, from Mexico to Brazil, the Netherlands to the United Kingdom, and everywhere in the United States. These companies all shared identifiable characteristics and measurable results. They are in every industry from manufacturing to mobile communications, construction to computer processing. They range across a continuum from hardly changing traditional to slowly moving hybrid transitional to racing ahead forward-thinking aspirational. They demonstrate their commitment to managing minds from their workscape designs to their onboarding materials to the ways they share information and make decisions to, most important, the way they develop people professionally and personally. They are clearly making learning the most important, ongoing, and pervasive aspect of their organizational culture.
These companies are part of a relatively recent worldwide trend. They are talent magnets with low turnover, producing rapid growth and profits year over year. And we believe they are the future of management and learning. They represent the direction companies must take to be successful in the 21st century. And that was the biggest surprise of all.

Management Wake-Up Call

Old maps are brilliant because the great mapmakers of the 16th and 17th centuries not only captured the places that were known, but gathered as much information from as many sources as possible to try and map uncharted territory. When they reached a place in unknown maritime waters, they would add “here there be dragons” and illustrate their maps with pictures of monsters warning explorers to beware.

Once again, we are sailing into uncharted territory. It seems as if we all went to bed one night, and when we woke up the next day, everything had changed. Yet many of us are still operating as if it were yesterday. Most management practices and principles we use today were developed in the 19th and 20th century, when managers managed hands and workers learned at a different pace. Digital technology, automation, and globalization have forever changed everything.

In the 21st-century knowledge economy, employees produce knowledge and know-how, and need to continuously learn in dramatically new ways. Yet managers everywhere are employing management principles and practices as if we’re still in the prior centuries. In response, companies worldwide comprise a movement to change the way they manage people to succeed in today’s knowledge economy.

The greatest mapmakers of old were not the ones who made better maps of places that were known. They gleaned insights about the places yet to be explored and mapped out the uncharted territory. So that’s what we have attempted to do. Our focus is on what happens to all the people—managers and the people they manage—who find themselves in this unknown place where they must learn to manage minds, in a company that tells them they are now responsible for their own learning. It is what we consider the real adventure, which needs to be explored and mapped.
The new world economic order has placed companies at an inflection point in the history of managing people and the way they learn, and managers sit at the exact center of the curve. This curve has been shaped by three major and notable economic paradigm shifts in the past 300 years, each with an attendant management approach and an educational system that helped people learn how to do their jobs.

**The Agricultural Economy: We Managed Backs**

The first great economic era was all about land: land for wealth, land for status, land for food. We legally defined private property. Learning was hands on, and on the farm. Education was limited to a few, delivered by tutors or small private schools and colleges for the children of wealthy landowners and landed gentry.

We used our bodies and learned to harness the power of oxen and horses. At the most extreme, we enslaved or indentured people to do the backbreaking work. In the early 1800s, picking cotton was one of the most important jobs in the U.S. economy. We managed backs, and almost 90 percent of the population in the Western world worked on farms and in the fields.³

**The 20th-Century Industrial Economy: We Managed Hands**

We harnessed steam power. Electricity became universal. We mass-produced cars, clothing, food, and more on our assembly lines and in sweat shops. The machines took over the farm work and the number of farmers dropped to below 6 percent by the end of the century.⁴ Even housework changed when electricity powered washing machines, transformed ice boxes into refrigerators, and replaced brooms and dust pans with vacuum cleaners.

Educational reforms reflected this change. Public education was meant for everyone, and through a series of legislative decisions, public education reached rich and poor, urban and rural, male and female. Classroom instruction emphasized preparation for careers that were more about hands than backs. Schools emphasized efficiency over individualization in hopes of educating the masses with a curriculum designed centrally by experts that stayed consistent year to year.
Managers and employees learned to do their jobs in an exact copy of the classroom setting in which they learned to learn. The workplace became the school-place. Still, change was slow, and the process of learning something often took months and even years. People were in the same place—office or factory—day after day. The predominant method of learning was classroom based and instructor led. It was highly structured training, a model developed during World War I.\textsuperscript{5} We developed programs or courses and pushed them out to people we thought needed them. The goal was mass training for mass production, being able to perform the same task or set of tasks the same way for as long as those skills remained useful.

Frederick Winslow Taylor, one of the first management consultants, wrote \textit{The Principles of Scientific Management} in 1911. He developed what he called the theory, which used a stopwatch to time the way hands were used at work down to the hundredth of a minute. His time-motion studies tried to emphasize the most efficient way to manage and optimize work on the assembly line. Taylor’s research became the standard for managing hands for the remainder of the 20th century.\textsuperscript{6} His approach was all about productivity and reducing the time it takes for a worker’s hands to complete a task. Management science was derived from this work and evolved into the MBA degree when companies wanted a scientific approach to management.

\textbf{The 21st-Century Knowledge Economy: We Manage Minds}

In the late 20th century, Peter Drucker was prescient enough to create a new name for people who labored to produce information; he called them \textit{knowledge workers}. What these knowledge workers mass produced was know-how and ideas. They spent their days fluidly moving between thinking and talking, meeting and deciding, researching and writing. Suddenly we depended no longer on backs or hands, but on brainpower. And yet how we educate and train adult workers remains the same today.

Here’s a story that illustrates how these three economic paradigms have changed. In 2007, David gave a presentation to the annual gathering of chief information officers (CIOs) at Boeing in Southern California. As the top CIO was leading David into the conference room,
she told him that the building they were in had an interesting history. Built on what was originally an orange grove, the building was first used as a giant manufacturing facility for producing airplanes. When the demand for planes declined, the huge building was reconfigured into floors, offices, and cubicles. The Boeing employees who worked there sat in front of their computers producing, refining, defining, revising, discussing, and communicating ideas: Ideas for new planes. Ideas for improving the production of planes. Ideas about related projects that had something to do with planes. In approximately half a century, the same piece of land had been used by workers whose manual agricultural labor produced food; then workers who did highly skilled, industrial -economy manufacturing work that produced planes; and ultimately workers who produced ideas as part of the new knowledge economy.

The Boeing story is an example of evolution through different economies. Now in the knowledge economy, Boeing employees produce ideas, work with ideas, think about ideas, and write and talk about ideas. Of course, people then have to turn those ideas into things—planes. But even those people are followed by others who had more ideas about how to market planes, sell them, teach people to fly them, and so on.

Even many of the people we still imagine as being hands-on industrial economy workers are high-tech knowledge economy employees. Miners have gone high-tech. If you go to the bottom of a coal mine, as former Labor Secretary Robert Reich did more than 20 years ago, you see miners using very complicated, modern coal-digging equipment, complete with bright LED lights, dials, meters, and finely tuned adjustments that need to be carefully monitored and operated. Even what was once the most manual of jobs has become more highly skilled, requiring people to use their minds and not just their hands to produce coal.

According to McKinsey, “as many as 45 percent of the activities individuals are paid to perform can be automated by adapting currently demonstrated technologies.” This portends a future where people must take on a different role than they had in the industrial economy. No longer will people be needed to make, operate, fix, or move things. We will have to use our minds to produce work. It may be using technology to augment and increase what we can do, but it is becoming more and
more about the production of ideas. Success in the knowledge economy is about the ability to sift through ideas and identify the ones that can be turned into profitable products and services, and do that in a way that is respectful of the environment and the diverse people who live on this planet.

Taken as a whole, these knowledge workers are the corporate brain. In a flat and digitally interconnected world where 24/7 marketplaces are open, creating a hypercompetitive environment, the corporate brain separates the winners from the losers. It is strategic to make sure that all employees can learn as much as they need of the four types of knowledge—know-what, know-why, know-how, and know-who—anytime and anyplace. In this knowledge economy, the ability to learn has become the most critical differentiator. Developing that ability is at the center of it all, and managers are the key to making that happen.

The Role of Managers

When we set out to examine the role of managers in the 21st-century knowledge economy, we never ventured far from these critical questions: What keeps them up at night? What are their pain points? What’s the biggest problem managers need to solve? We identified ongoing employee issues that are at the root of many corporate problems. Employees are:

- feeling disengaged
- learning on their own; not using company resources
- demanding all things be digital
- needing far more transparency than ever
- wanting collaboration and open communication
- wanting more challenging work that enables them to grow professionally and personally.

Through our research, we found that managers often have a hard time articulating what was keeping them up at night. But they know the current system of management and learning is not helping them solve these problems, compete, and succeed in this new marketplace. They are not sure what to call it, but a new model of management
and learning, the one we identify as managing minds, seems to be constantly showing up and working more effectively.

The companies worldwide that are thriving are adhering to this new model of managing minds. It has proven to be more effective in many ways; these companies are better able to:

- Increase employee and customer loyalty.
- Create happier workplaces and workers.
- Reduce costly turnover.
- Drive increased profitability.
- Provide measurably improved levels of performance.
- Continuously lead a smarter, more agile workforce.
- Generate more useful ideas.

Successfully managing minds means being able to get the best from people—their talents, thoughts, creativity, willingness to cooperate and collaborate, and feelings of trust, loyalty, and empathy. And that requires winning hearts as well as managing minds. In previous economies, employees might have hated their co-workers, managers, or job, but they were still able to crank out work with their hands. Playing well in the sandbox was not a prerequisite. Try that in a company that needs employees to be continually engaged and learning, working closely with others, and constantly producing with their minds. It doesn’t work.

Table I-1 compares attributes of the 20th-century industrial economy model of managing hands with the emerging 21st-century knowledge economy approach of managing minds.

### Table I-1. Management in the 20th and 21st Centuries

<table>
<thead>
<tr>
<th>20th-Century Industrial Economy</th>
<th>21st-Century Knowledge Economy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Command and control</td>
<td>Collaborate and communicate</td>
</tr>
<tr>
<td>Knowledge is power</td>
<td>Sharing knowledge is power</td>
</tr>
<tr>
<td>Siloed organization; secretive</td>
<td>Open organization; transparent</td>
</tr>
<tr>
<td>Workspaces</td>
<td>Learning spaces</td>
</tr>
<tr>
<td>Limited technology access</td>
<td>Unlimited technology access</td>
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<tr>
<td>Learning is pushed</td>
<td>Learning is pulled</td>
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</tbody>
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A Tale of 3 Companies

Companies fall into three general groups in relation to managing minds:

• traditional companies that are still completely managing hands
• transitional companies that are moving from managing hands to managing minds
• aspirational companies that are actively managing minds.

Traditional companies are found mainly in developing countries with a strong tradition of using cheap labor to make things. Often this means producing inexpensive items using 19th-century sweat-shop approaches to managing hands. The aspirational companies are experimenting with what works when managing minds. Aspirational companies are most companies trying to change from managing hands to managing minds.

AT&T is a great example of a transitional company that started as a managing hands company (in 1885), evolved structurally, and has more recently realized it had to quickly change—or die a slow death. In the beginning, there was AT&T, and only AT&T. As a government-approved monopoly, the company’s list of firsts in the telecommunications industry is unparalleled. With the first transcontinental line, rotary phone, transatlantic phone service, mobile phone, automated switchboard, and transatlantic phone cable, AT&T was an icon of a company that managed hands and built a telecommunications industry. It all ended in 1982, when the federal government broke giant “Ma Bell” apart, allowing the company to keep only the long-distance and equipment-manufacturing business.

This was the start of an intense period of technological change and competition. From that point on, AT&T tried to expand and grow, first into the business of making computers and then, in 1991, buying a cellular company as mobile phones were beginning to take off. Trying to become a one-stop shop for all things communication, AT&T even bought the number 2 cable television provider. Then in 2002, the big surprise: SBC, the second-largest regional telephone company, bought AT&T. The company, once among the biggest monopolies in the world, the greatest leader in telecommunications technology, had been beaten by a new, disruptive Internet technology that was faster and cheaper.
And this is where the transitional part of the story begins.

AT&T’s new competitors included not only Verizon and Sprint, but Amazon, Netflix, and Google. Randall Stephenson, chairman and chief executive, knew he had to reinvent the company to compete. So in 2014, he asked 280,000 employees worldwide to start a retraining program. In his mind, it was an easy choice: Take classes and begin to upgrade your skills or limit your opportunities at AT&T to zero. The company knew that a large portion of the workforce needed to learn the new digital technology, and fast. In response, Stephenson rolled out a program called Vision 2020 that combined online programs and classroom-based courses to prepare employees to work with AT&T’s cloud-based system, scheduled for implementation in 2020.

The change in technology is profound. It will make copper wires, phone lines, switching equipment—and much more—obsolete, along with the related work skills. AT&T employees must learn a full range of new skills relating to everything from digital networking and cloud technology to virtualization and data science. New products need to be developed, marketed, and successfully implemented.¹⁰

The 2020 date is only the beginning. According to Randall Stephenson, “There is a need to retool yourself, and you should not expect to stop.” Employees are supposed to take as much as 10 hours per week of online learning or find themselves “obsolete” with regard to ever-changing technology. In other words, they need to become continuous learners.¹¹ They need to take responsibility for learning what they need to know to remain valued in the company.

Vision 2020 is a bold idea for a giant corporation that needs to change. In Stephenson’s words, “If we can’t do it, mark my words, [by 2020] we’ll be managing decline.”¹²

Some AT&T employees are fully committed, like one product manager responsible for smartphone software. With company assistance for tuition, she leaves work at 7 p.m., studies at home until midnight, and spends Saturdays and Sundays getting her master’s degree in computer science. Soon after the program’s start, almost half the workforce, mostly managers, signed up, with most taking online courses in web design and development, programming, app development, and data analysis.
Not everyone is looking forward to a new high-tech career at AT&T, however. Many employees who have been with the company for years are looking forward to getting a “golden handshake” and retiring early. The company estimates that the number of retirees and people who leave because they don’t want to go through the coming changes will make AT&T a leaner operation, with one-third fewer workers. And, because changing from a company that needs wires fixed and ditches dug to one specializing in cloud-based software cannot happen overnight, many employees will reach retirement age while the changes are occurring and will never experience the “new AT&T.”

For the employees who are looking forward to working with the new organization, the Vision 2020 program is constantly at the forefront of their work. Weekly emails are accompanied by video programs about online learning courses. There is a company website where employees transitioning from an analog company to a software-based one can find new careers and check to make sure they have the required courses, certificates, or credentials. Coursework and grades are tracked and new, related courses are recommended. Performance reviews contain the information on these courses and note whether the employee is willing to help the company succeed by continuously learning. Promotions will be based, in part, on whether the employee keeps learning.

Not many companies can make the transition from managing hands to managing minds without some pain. AT&T is an example of how technology, automation, and globalization can force even the oldest and largest of companies to pivot and try to become a company that can compete and succeed in the 21st-century knowledge economy. AT&T’s transition will require the total commitment of the company—every aspect of organizational life must support and encourage learning.

The key to AT&T’s success, as with all knowledge economy companies, will be whether managers can make the shift from managing hands to managing minds. Once we recognize that the problem is using an outmoded way of managing people, we must ask, “How do I evolve from the old style of management—managing hands—that no longer seems to produce the results I need, to this new approach called managing minds?”
WHY MANAGEMENT NEEDS TO CHANGE

As the economic paradigms change, a corporate Darwinism takes over and the companies that fail to change and evolve disappear.

In 2012, Richard Foster’s research at Yale University indicated that the average life span of a company listed in the S&P 500 index of leading U.S. companies fell by more than 50 years in the last century, from 67 years in the 1920s to just 15 years. He estimated that by 2020, more than three-quarters of the S&P 500 will be companies that we have not heard of yet.¹ More recently, in 2016, Innosight, a growth strategy consulting firm, forecasted that half of S&P 500 companies will be replaced over the next 10 years.² The new environment is increasingly aggressive, incessantly competitive, and constantly driven by surprise innovation and technological changes, all happening at an unprecedented pace. Yet we are still trying to use 20th-century management practices and principles to coordinate and manage people in the 21st century. We need to change the way we manage people so managers can
create the best environment for everyone to develop the competencies necessary to be successful in this new environment.

We have no choice. We need to stop managing hands.

None of this, we suspect, is new. What may be new is that you are, as a manager, in charge of this change. Your primary responsibility is to lead people into a 21st-century knowledge economy that supports and sustains learning over everything else. Learning is the critical differentiator in the knowledge economy. How you manage that learning is the new competitive advantage.

We describe the 21st-century corporation as an organization that is global and virtual. People all over the world will form the intersecting nodes for a constantly humming web of communication. They will be able to continuously and seamlessly communicate and collaborate. From the individual to the group, their actions will be quick, decisive, and informed, and the results relevant, smart, and proactive.

To create this corporation, how we share information must change. As Ray Gilmartin, CEO of Merck, states, the 21st-century corporation is one in which “a hierarchy of ideas replaces the hierarchy of position.” The previous command-and-control structure—where knowledge was power, but only a few could access it and make decisions—will be replaced with the new structure, where sharing knowledge is the real power and decisions are made by everyone focused on the job. There is no alternative future.

Examples abound of companies that were once household names that became extinct because they did not successfully shift from a static managing hands model to a more agile and dynamic managing minds approach: Compaq, E.F. Hutton, PaineWebber, Merry-Go-Round, MCI WorldCom, Eastern Air Lines, Enron, Woolworth, Pan Am, Kodak, Standard Oil, The Pullman Company, Arthur Andersen, General Foods, TWA. Of the many factors that contributed to their demise, their slowness or inability to change the way they managed people played a major role.

If you have your doubts, look at the companies that are managing minds who filled the empty spot in the marketplace. Investment firm E.F. Hutton—whose commercial catchphrase was, “When E.F.
Hutton talks, people listen”—was replaced by several technology-based brokerage houses that understood that investors wanted to disintermediate from brokers and manage their own stock portfolios. The older companies were so invested in a hands-on approach to buying and selling stocks that they missed the big new idea. Individuals no longer wanted to listen. Instead, they wanted to use a faster, cheaper, and more do-it-yourself technology that provided information to help them purchase and sell stocks without brokers.

Kodak’s moment happened when senior management refused to look at digital photography as a disruptive technology. They failed to heed their own engineers, who told them that instant film was an idea whose time had come and gone. Decisions in this managing hands company were top-down and final. Kodak was so invested in manufacturing film that they ignored customers who were rapidly switching to filmless cameras. The lesson is clear: Corporations must learn to listen to their customers and employees or face the consequences.

Management Practices, Old and New

“Change or die” is not just a compelling hook to capture the imagination. It is the reality that corporations face whether they want to admit it or not. Fortunately, examples of success are everywhere. The new style of managing minds is the antidote to the problems created by trying to force-fit the 20th-century analog model into the 21st-century digital reality.

Hands are replaceable, literally: Human hands are being replaced by robotic hands every day. And managing robots is no longer a job that requires hands-on managers. This trend toward automation will not stop while technology keeps getting better and more sophisticated. One study from Oxford University found that “advanced robots are gaining enhanced senses and dexterity, allowing them to perform a broader scope of manual tasks. This is likely to change the nature of work across industries and occupations.” Astonishingly, robot hands can now thread a needle.

If you think threading a needle is not that big a deal, here is another example. In a kitchen in Silicon Valley, the team at Zume Pizza is hard at work. Pepe and Giorgio squirt on the sauce, and Marta spreads it in
concentric circles, just like they do in Italy. Then Bruno puts the pizza in the oven to bake to perfection. And they do not even stop for a moment to catch their breaths. That’s because Pepe, Giorgio, Marta, and Bruno are robots. And while human employees still apply the toppings according to the customer’s wishes, it’s only a matter of time before they cede that role, too. Made-to-order, ready-to-go, fully automated pizza in as little as seven minutes: As the owners are proud of saying, it’s “artisanal robotic pizza.”5

You need only to read any recent news report to see this story repeated hundreds of times:

• Foxconn has replaced 60,000 factory workers with robots.6
• Wendy’s is replacing its lowest-paid workers with robots.7
• Tesla Gigafactory is using robots to build machines at its battery factory.8

We once used machines to build things, and we managed hands. Now we build machines to build machines. When there are no hands left, what still needs to be managed?

Minds. It’s time we begin to consciously manage minds—the minds of the people who design, program, install, service, and upgrade those robotic hands, for example. Their work is the product of their thinking, creativity, and problem solving.

But where can managers learn to empower and nurture minds? We looked at the curriculums of more than 30 MBA programs and found that they are still focused on the principles and practices developed in the 20th-century industrial economy. Managers are taught about finance, big data, investment, global management, economics, strategy, executive leadership, macroeconomics, statistics, marketing, legal studies, and persuasive speaking. Harvard University has a course titled Managing Human Capital that is a discussion-based class looking at how to manage people. Modules include “Hiring and Onboarding,” “Evaluating Performance,” and “Talent Management,” all from the perspective of traditional companies.

Management science was derived from empirical observation of workplaces designed to produce things. The MBA programs that were
developed during that period could only see organizations that were managing hands as their models. It’s like the scientists that thought the Earth was flat and based their research on that premise. These MBA programs emphasize what leaders need to do operationally to maximize profit in their companies. Unfortunately, this is not what is needed today. Recruiters, according to a study by Jeff Kavanaugh, are looking for “professionalism, critical thinking, teamwork, and communication.”

Managers need to take on new roles and responsibilities very different from the ones they are used to, have been mentored and trained to do, or have been taught to follow from their management courses or MBA programs. According to Deloitte University Press, “Ninety percent of companies are redesigning their organizations to be more dynamic, team-centric, and connected.” Many of these companies are trying a variety of approaches and ideas to reinvent themselves to meet the challenges they experience every day. They are getting parts of the puzzle correct, but when we looked at the companies that are managing minds, we realized they have figured out the central idea that pulls all the pieces together into a coherent picture.

The lessons are starting to be learned in some MBA programs. For example, Stanford University’s Graduate School of Business teaches about managing minds in one of its courses, Redesigning Work for 21st-Century Men and Women, which tries to “explore the gap between how our organizations are designed, and what a new generation of workers desire in terms of work.” It has another course called Interpersonal Dynamics. Taught since 1968, the course is currently the most popular elective. Often referred to as the “touchy feely” course, it covers many of the interpersonal issues related to communication and feedback skills.

Still, the goal of Stanford’s program is to make students better leaders, not managers of 21st-century companies that must manage minds to survive and thrive. In the future, we could imagine a curriculum that included courses on how to run a managing minds business, such as Characteristics of the 20th-Century Industrial Economy Organization, Moving Away From Command-and-Control Management Styles, A Focus on Learning, The Technology-Driven Workforce, Learn-

The lack of forward-looking courses is disappointing. The universities and colleges offering these programs do no one a service: not the soon-to-be managers or executives, not the people they’ll manage, and certainly not the organizations that will hire them. We need to change the way we manage people, or continue to be unprepared and unable to cope with the rapid and dramatic changes occurring now. It’s part of the corporate Darwinian evolution. If we start to dig, there’s no shortage of corporate bones to examine.

The $92 Billion Question

Arie de Geus, former head of the strategic planning group at Royal Dutch Shell, said that “the ability to learn faster than competitors may be the only sustainable competitive advantage.” Companies devote most of their learning resources—money, time, effort—to formal training, yet this method of learning contributes little to overall success. Workers learn little from training programs, no matter how well designed and delivered. And those programs do little to help people learn faster than the competition.

Think about it. Arie de Geus was not talking about the kind of learning that is canned and available to everyone. The idea of learning as a competitive advantage is really about the ability to see patterns and trends, make creative leaps, take risks and learn from failures, listen to what customers are saying, and take their words to heart. It’s about real learning, the kind that needs to be identified, nurtured, practiced, and constantly improved. The kind produced when managers are consciously managing with real learning as the outcome.

HR, training departments, and chief learning officers have been designing and delivering training events for more than 100 years. They have become quite good at doing this. But the future of learning in organizations is not about developing and delivering high-quality training events. It is about managing minds and the attendant learning that contributes in a measurable way to the success of the organization,
regardless of how that learning occurs. The problem with canned or highly structured training programs is that people forget what they have learned before it is applied in the workplace, and training's potential positive impact is lost due to a host of organizational factors beyond the control of learning professionals.

Instructor-led programs continue to be the primary method of training; almost 49 percent of the training hours in 2015 were instructor-led. Although classroom-based training has declined over the past few years and some instructor-led training is done electronically, the predominant method is still sage on the stage. Only 15 to 20 percent of participants in these programs will end up applying what they learned to achieving the strategic goals of their organizations. It adds up to an incredible waste of resources. Consider that $164.2 billion was spent on learning and development activities in 2012. This means that $92 billion of that was wasted.

The $92 billion question is, “Why is there so little impact from formal training in organizations?” Our experience has led us to believe there are five primary reasons for the failure of traditional, instructor-led training:

1. **Timeliness.** Training, to be effective, must be delivered as close in time as possible to when it is most needed. Training programs scheduled at a specific time in the future cannot be timely. They constitute “just-in-case” training: knowledge you might need someday. Younger employees expect the knowledge and know-how they need to be available when and where they need it, anytime and anyplace. If they want training at all, they want it to be “just-in-time.”

2. **Knowledge transfer.** Instructors cannot ensure that knowledge transfer occurs. Even if learning occurs during the course, there is no guarantee that it will be retained or applied on the job. In all the years during which training was seen as the answer to a corporate problem, there has been no consistent measurement of the transfer and effectiveness of training on the job. Training has been treated as the magic wand, but like all magic tricks, the problem still exists; it is just temporarily hidden.
3. **Increased speed of change.** Today’s highly complex organizations, with their shifting customer demands and competitive pressures, have rapidly changing learning needs that require agile learners and solutions. Globalization and digital technology create new, instantaneous corporate challenges. Training that takes weeks or months to design and redesign using standard instructional methods can never keep up with new technology and new applications of that technology. No one is sure training truly worked even before the advent of these tectonic changes in the corporate landscape. We know that it does not work today.

4. **Context.** Because these programs are removed from the day-to-day activities of the workplace, they lack relevancy. The point is that when you train people to perform a job, if that training is done away from where they work, either in terms of actual space or time, they are unlikely to take the lessons back to work and use them to improve performance. Another way to look at it is that training is useful to stimulate short-term memory, but has never been proven to engage long-term memory. Simulations can work in the short term. Replicating the workplace in a lab or assessment center can work in the short term. Everything else fails to do the job and produce the desired results of improved performance over time.

5. **Sage on the stage.** The instructor-led training (ILT) method that permeates some if not all of these programs is a poor way to facilitate learning. It limits the amount and types of interaction, tends to avoid experimentation and discovery, and limits learning to the time and place of the event. If testing your short-term memory and gathering smile sheets at the end of the course is what you want to spend time and money on, keep doing instructor-led training. ILT is not worth it if what you really want are measurable results that show improved performance in the workplace and impact on the organization.
Clark Quinn summed up the situation when he wrote, “The waste of organizational resources, and learner time, is tragic. Seldom has so much been done, for so many, for so little gain.” This observation applies to all formal learning solutions, such as workshops, courses, seminars, online instruction, off-site events, and conferences. In the current economic environment, in which resources are becoming more limited, this is a recipe for failure. Corporations today cannot afford to waste resources. Maybe there was a time when learning events (especially off-site events) were considered perks and it did not matter how much participants learned. Those days are over.

The waste is more the result of mismanagement of expectations than poor design. Organizations do things that disable the transfer of knowledge and prevent the lessons from being applied to achieve business goals. For example, people are sent to business acumen simulations without knowing how what they learn will fit into their professional or personal growth, how they will be expected to apply what they learn to improve work performance, and what difference it will make for the organization.

ILT grew out of a managing hands approach to learning. We must shift the focus from the delivery of formal training programs to the real learning that contributes to organizational success. The answer to every problem isn’t training. It’s to stop managing hands and using training as the cure-all, and begin managing minds, with learning as the goal.

Many studies and experts tell us that training must focus on improving performance. However, performance improvement has always been a nebulous or difficult goal to achieve through training programs. It all starts with training programs not being high on the list of the ways learners want or need to obtain the knowledge they need to improve work. Training separates learners from one another and from the context in which they will need to adopt and adapt what they learn. We have rarely seen training alone produce a measurable return on investment, or provide a sustainable, demonstrable improvement in performance. What companies have gotten wrong is a blind and unwavering emphasis on training to solve problems and improve performance.

Rather, they should be creating connections. The greatest source of learning is from the connections people make within their organizations.
When you are managing minds, you are intentional about helping everyone make connections—with other learners, mentors and coaches, other departments, suppliers and business partners, communities of practice, and external resources.

Managers who still have one foot in the industrial economy may be dipping a toe into the knowledge economy out of a feeling of anxiety about competing in the future. These managers will not be successful given the tremendous, rapid change in our society. They must realize that they can’t depend on training to prepare workers for the new world in which we live. They have to step out of the managing hands world and jump quickly with both feet into managing minds.