

Changing Occupational and Business Practices

❖ How does hyper job evolution and job blending affect Texas workers?

Introduction

Business practices in a capitalistic system are never static. Practices are constantly evolving, albeit sometimes sporadically, toward greater efficiency. Global competition accelerated the pace of change during the past decade. But the current recession introduces an added impetus for structural transformation. In January 2009, more than a year into the national recession, former General Electric CEO Jack Welch prophesied, “The dynamics of this [recession] don’t allow you to come out the same way you went in. You’re going to have to come out in a more productive way to deal with a new economy going forward.”

Productivity is the key to profitability. If there is a silver lining in this otherwise dark economic cloud, it is that, historically, great innovation comes out of great dislocation. Statistics will not tell the full story of business efforts to increase productivity.

Business is adapting by taking advantage of an increasingly global economy, including access to international talent and a burgeoning global marketplace. All of this is creating new occupations, blending existing roles and restructuring jobs so that higher paid talent is performing greater amounts of higher level, value-added work activities. Underlying this process is a movement to take advantage of new technology to lower costs, add understanding and address skill shortages. As Microsoft founder Bill Gates said, “Information technology and business are becoming inextricably interwoven. I don’t think anybody can talk meaningfully about one without the talking about the other.”

What’s Happening

Across Houston, electricity providers are installing more than 50,000 homes and businesses with new smart meters that will track electricity use and communicate monthly power consumption to CenterPoint Energy. As a consequence of the smart meter, CenterPoint soon will need only about a dozen meter readers rather than its current staff of 400.

And smart meters are just the first half of the change. Later this decade CenterPoint, like many other electricity providers, expects to install smart grid technology, which will involve using software and sensors to automate electricity distribution across the electricity grid.

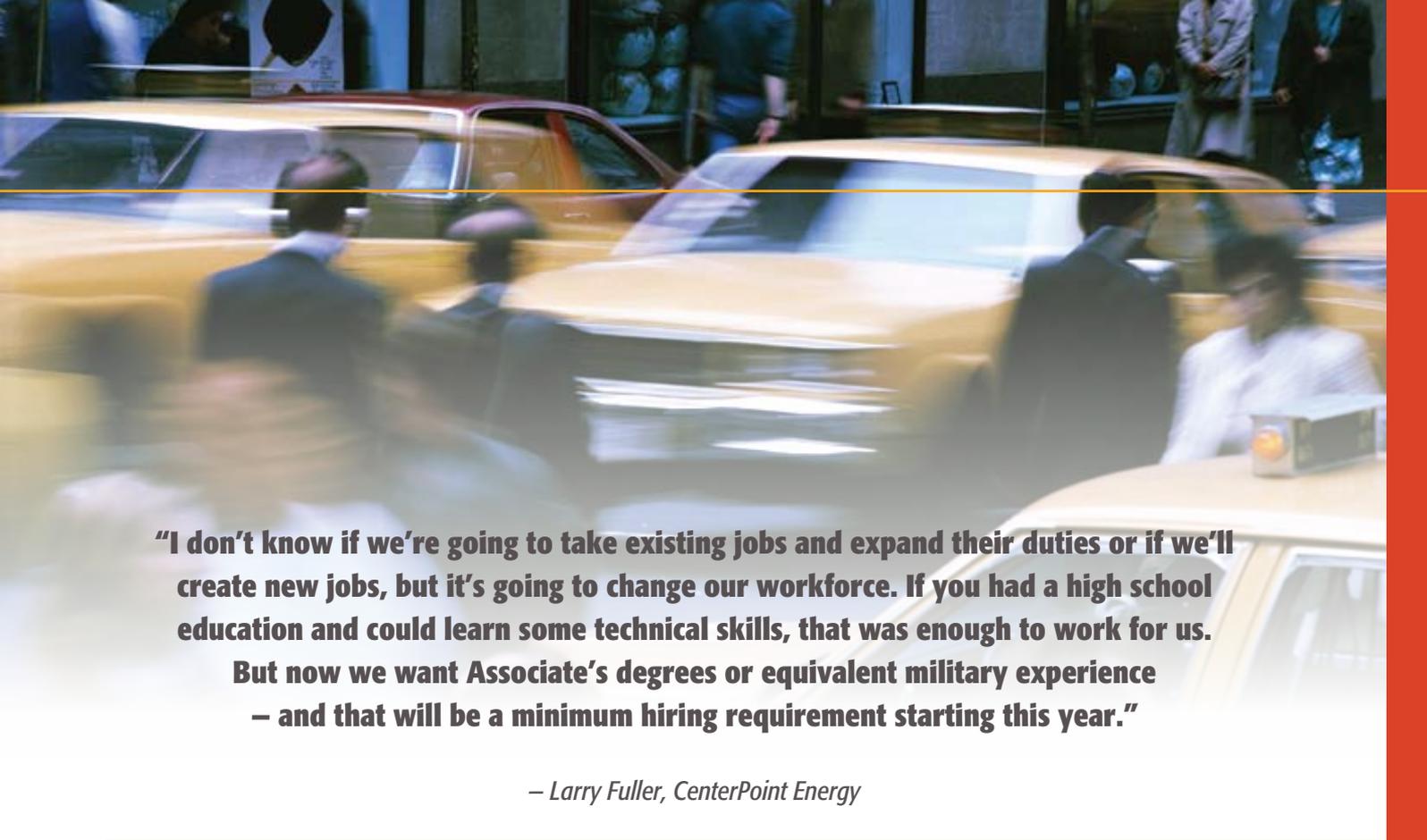
Challenging economic times tend to attract change.

“Recessions tend to speed up everything,” said Bill Broussard, managing partner at the King, Chapman & Broussard management consulting firm in Houston. “The recession is asking you to confront change; you can’t avoid it.”

Larry Fuller, director of safety, environment and technical training at CenterPoint agrees. “Our industry has changed in just the past six months. It’s huge. The way we’ve done it is pretty close to the same way we’ve done the distribution of electricity since 1879. Now it’s changing,” said Fuller. “The way we’re doing business is fundamentally changing. Part of our workforce will be different. Part of our workforce will be the same.”

CenterPoint is trying to quickly create a retraining program for workers, starting with meter readers. Some meter readers

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will become smart reader maintenance workers, a job that doesn’t yet exist but soon will. The company is using SkillsNET Enterprises Ltd. of Waxahachie to identify and measure the skills of the existing meter readers and the skills necessary for the future smart reader maintenance workers. This will help CenterPoint create its new training programs, which are expected to affect every employee.

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CenterPoint isn’t the only employer changing. Technology advances, economic conditions and an aging workforce are some of the catalysts for change in organizations.

“The redesign of American industry is an extraordinary opportunity for creative leaders and managers to ask young employees to participate in the redesign of the business and their productivity, such that it makes those young employees brighter than any [provided by] college training,” said Broussard. “We don’t have enough skill transfer going on. You can find valuable things to do with your aging employees. They can be your faculty.”

Broussard stresses that through team projects a company can create a learning environment that develops the skills and leadership for the corporation’s future. A company’s learning environment involves every aspect of an organization, including occupational titles. “The [job] title needs to be task driven. You give me five people with the title ‘supervisor’ and I’ll show you five people who do that job differently. It’s a dirty secret, but we know that people adjust the job title to fit them,” Broussard said. “We can take the ‘supervisor’ title and make it ‘team lead,’ and it changes the mind-set and approach people have to the job.”

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Occupational transformations happen for many reasons. National Oilwell Varco (NOV), the global energy equipment giant based in Houston, has grown through a series of 180 acquisitions over 15 years. NOV also acquired worker job titles that didn’t correspond across divisions, disorganized training programs and an employee age gap (the oil industry skipped hiring a generation of workers in the 1980s and 1990s).

In an effort to improve sales operations and grow the sprawling company, NOV created the title “Vice President of Sales Effectiveness” and hired Jed Niederer for the new position in 2008. He created multiple corporate sales training programs that have helped divisions reorganize, integrate and improve revenues. Niederer said, “There was no sales training program, but it was an idea whose time had come.”

Niederer recently noted that the amount

of tasks he had was odd considering his job didn’t exist a few years ago. Then his boss, Jerry Gauche, pointed out, “Just because there wasn’t a job doesn’t mean there wasn’t work to be done.”

For some companies, job titles aren’t changing but job roles are. Cunningham Lindsey is a firm that handles outsourced insurance adjustments in the field for major insurance companies. Just a few years ago, insurance adjusters walked up to a damaged car with a pad of paper and a cheap camera. Now those adjusters are walking up with a laptop computer, a digital camera and the ability to absorb verbal abuse.

Cunningham Lindsey is also trying to reorganize the job of its hundreds of adjusters who work in hundreds of markets by analyzing their adjusters’ daily tasks. The company wants to shift the more repetitive tasks of lower priced insurance cases to entry-level workers, while leaving

more experienced employees with the higher priced tasks. Employees will be arranged by geographic territory and assigned to individual insurance clients. “In the past, an adjuster was an adjuster. But that’s not how it’s going to be in the future, and we’re changing,” said David Repinski, U.S. CEO of Cunningham Lindsey in Dallas.

Almost all of the new jobs at the Texas Health Science Center in Houston are what Marsha Brody-Silva, human resources director, calls “hybrid jobs” that involve cross-disciplinary knowledge and skills. In 2009, the center created a new title: Chemical Conjugation Specialist. The job requirements of this position were at least a Bachelor’s degree and three years of experience in chemical composition and nanotechnology. For five months, the center tried to fill the job and eventually chose a Chinese doctoral graduate with a background in chemical research. Brody-Silva also has been struggling to fill a position of Research Assistant, a job that requires workers with backgrounds in education and medical research to go to Texas schools to gather data on obese children and teach teachers about health studies.

“We have to keep job titles really general or we won’t get anybody applying and we’ll be recruiting for a year just to fill one position,” she said. “We have to cast our nets really wide to try to find people who can develop into these new jobs.”

Creating new jobs in response to market demand helped Lauren Engineers & Constructors of Abilene more than triple its revenues between 2008 and 2010. Lauren Engineers was a construction firm helping to build oil, natural gas and chemical plants. Now Lauren Engineers is “manufacturing” new kinds of equipment for new kinds of plants.

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Lauren Engineers is building modern solar farms. Technology advances, lower prices and federal incentives for solar equipment are pushing up demand. In response, Lauren Engineers has been hiring and training hourly workers for a totally new job — solar assembler. These employees assemble miles of solar collectors that join fragile glass mirrors, expensive oils and welded metal. These projects also require new orbital welding technicians, who weld pipe and operate robot welding machines. Company tests find only about 4 of 100 experienced welders have the know-how and dexterity to handle the job.

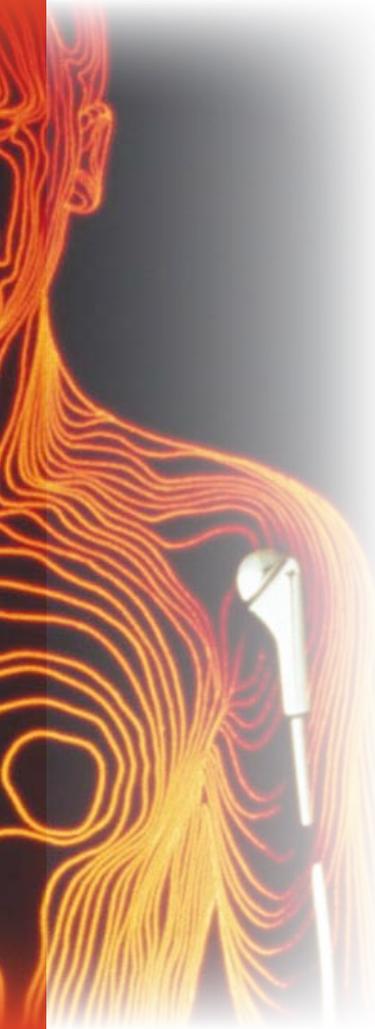
The evolving energy industry is creating other new work roles. “There’s a lot of retraining of existing skill sets of existing people around energy use,” said Cris Eugster, the chief sustainability officer at CPS Energy in San Antonio. His job and title didn’t exist before 2008. Now he’s seeing firms add similar roles to reduce costs. “Some companies are making this a new job. We’re seeing some more ‘sustainability directors’ and ‘energy efficiency managers’ out there as companies adjust to the market.”

| The Data

Current labor-market data collection methods cannot comprehensively track job evolution and the kinds of work performed by temporary workers. Existing data systems don’t track changes over time in work activities or skills within an occupation, so it is almost impossible to assess the number of blended occupations and amount of work activity offloading — parsing and redistributing tasks — occurring in the labor force. For example, data collected by the federal Bureau of Economic Analysis show that U.S. multinational corporations have decreased the percentage of workers employed in the United States from 79.9% in 1989 to 65.2% in 2007, but data do not exist about tasks assigned to workers outside this country. Still, anecdotal evidence shows workplace practices are changing.

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Visible examples of work task offloading occur throughout the health care sector, in legal services and in education: for example, teachers passing on lower-value-added tasks to teachers' aides; registered nurses offloading work activities to licensed practical nurses, who, in turn, offload lower-value-added tasks to nurses' aides; and carpenters assigning routine, low-skill work to apprentices and helpers.

While this division of work has always existed, technology, advanced communications and outsourcing make it easier for employers to break apart existing jobs and assign highly skilled workers only the higher-value-added tasks, while substituting technology for lower skilled tasks. This trend results in a need for fewer, but more highly skilled workers; offloading routine tasks to lower paid workers who are located either locally or overseas; and automation of routine tasks.

The growing field of telemedicine demonstrates the unbundling of tasks. For example, physicians in India can examine radiology scans of patients in the United States via the Internet. Radiologists there, mostly U.S. trained and licensed doctors, review the image, offer a preliminary diagnosis and fax a written report to the primary physician in the United States — within about 30 minutes. With a shortage of radiologists, the increased use of computed tomography (CT) scans and the need to quickly interpret results on a 24/7 basis, offloading of radiology reading to India is becoming attractive to the U.S. health care industry.

What's happening in the health care industry isn't new. Technology has been destroying jobs ever since the dawn of the Industrial Revolution. Workers making horse-drawn carriages may have experienced emotional trauma when Henry Ford rolled out the Model-T. Yet many studies of manufacturing plant upgrades show that new technology did not displace jobs but shifted the occupational composition and rewards in favor of skilled maintenance workers and upgraded the task content of less-skilled occupations. In other words, enhanced technology in the

workplace requires workers with higher order skill sets.

In 2001, Columbia University economist Ann Bartel released a study of a manufacturing plant that installed new computer controlled machining equipment. Bartel observed that the new machines required not fewer workers but different skill sets requiring deeper levels of engineering, programming and problem-solving skills and fewer routine machining skills. Bartel concluded that "while some increase in computer literacy is also needed, the critical change in skill sets is being able to respond to the new information processes, which involves greater decision-making responsibility regarding quality control and 'fixing disruptions and breakdowns.'"

In a similar study, MIT economist David Autor determined computers in the workplace put more information directly in the hands of frontline workers. With access to more computerized information, Autor concluded that workers need greater cognitive skills, such as problem solving and intellectual flexibility, apart from application-specific computer knowledge.

So What?

Globalization continues to sway business location decisions. More than half of the revenue earned by U.S. multinational corporations comes from outside the United States. In 2000, U.S. gross domestic product (GDP), which includes all domestic spending, accounted for 29.6% of the world GDP. By 2008 the GDP had decreased to 23.4%. While that figure is still significant, as consumer buying power grows worldwide, jobs and business investment will likely follow the customer.

Various outsourcing arrangements allow a company to focus on core competencies and hire expertise to provide nonessential business services. For example, hotel chains, such as InterContinental and Marriott, are grappling with information technology (IT) innovations to improve properties, including advanced wired and

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wireless telecommunications, property management, video surveillance and electronic door locking. InterContinental's "Hotel in a Box" collaboration with IBM will revamp the selection and installation of high-tech components in new hotels without extending their own in-house IT capabilities. Much of the software development for this project will be done by workers offshore.

This type of occupational restructuring is wide ranging and includes new occupational titles that are less descriptive of the work performed. Workers are being defined not by their occupational title but by the sum of their talents and knowledge. At department store Nordstrom, what was once called a shoe salesman is now referred to as a Certified Fit Specialist. Other new titles that have popped up include Director of First Impressions, to replace the traditional receptionist title, and Director of Hiring the Cool People for a human resources recruiter.

These new occupational titles are often the result of new or blended occupations whereby work tasks for a particular job include activities once done by several different workers under separate titles. Blended jobs tend to occur when departing workers are not replaced but their essential functions must still be performed. These essential functions are reassigned to existing workers, often under new hybrid job titles and pay arrangements. The infusion of new technologies in a workplace may also change job duties and required expertise, and often a blended occupational title is devised to recognize that new expertise.

Finally, while increased capital investments, especially in information technology, are often viewed as essential to increased productivity, of even greater importance are management practices that integrate worker talents and technology.

It can be argued that the most critical workplace transformations are the ways workers are organized, managed and measured. Increasingly, this means increased managerial focus on worker engagement, processes of continuous improvement and innovation and quality process management. Work-flow redesign includes such practices as greater flexibility to allocate talent across projects within an organization, more use of self-managing teams and fewer levels of management hierarchy to increase responsiveness to customer needs. If a company's workforce is its greatest asset, how that asset is managed becomes paramount.

For employers, the importance of becoming a high-performance workplace is magnified. Computerization puts more information in the hands of all employees — information that was previously reserved for managers. Workers can use that information on the front lines of product or service delivery to keep track of output, productivity and quality control, which are the essence of a high-performance workplace. Organizations with rigid hierarchical cultures that discourage access to information may find they are less nimble and experience pressure to restructure the workplace to delegate more decision making to frontline workers. Worker empowerment also needs new management thinking, compensation strategies and culture change — an achievement that may be easier said than done. In a 1988 report, Harvard business professor Shoshana Zuboff observed that there is nothing certain or inevitable about the use of technology in the workplace: "Technology and work co-evolve with other social and institutional factors that affect the specific direction change will take."





Chapter 6 | Suggested Strategies

Think Globally, Plan Regionally

Occupational and workplace transformations have obvious implications for the Texas education and training system. The infusion of computer technology across almost every sector of the economy has resulted in new approaches to work and worker preparation. With increased amounts of information readily available to all workers, employers need employees with higher levels of literacy and abstract formal and procedural reasoning skills. Work once performed within the narrow confines of an occupation now is completed by workers with broader responsibilities, with the expectation that they understand both the technical tasks and the contextual environment where those tasks are accomplished. These workers must think conceptually and systemically and demonstrate intellectual flexibility. Collectively, greater emphasis on these various critical-thinking abilities presents a challenge to traditional teaching methods, which often rely more on rote memorization and less on problem solving. These transformations warrant a number of public policy considerations:

- **Identify** those work activities most likely to be automated or to be sent offshore. It makes little sense to provide education or skills training in work activities that will likely become obsolete. Various research methods are available, which are based on the work of academics such as Princeton economist Alan Blinder, to identify

potentially obsolete tasks and avoid major educational investments in curricula related to those tasks.

- **Move beyond** worker preparation based on occupational titles and understand the granular work activities and educational competencies employers expect workers to master. It is premature to say that occupational titles are passé. But traditional assumptions about what people in various occupations do should be revisited and understood before committing to educational investments. The job title Wind Technician, for example, includes many work activities routinely performed by electricians, manufacturing workers and maintenance repair workers. Thinking more granularly about work activities (rather than job titles) allows unemployed or dislocated workers who already possess most of the necessary skill sets to quickly upgrade their skills by mastering only the missing knowledge requirements.
- **Focus** on education and training methods that encourage critical thinking and problem-solving skills within every course and discipline. Critical thinking is not an ability acquired through only a liberal arts education; it is a way to question and process information that can be imbued in every instructional program. Education policy analyst Andrew Rotherham said “critical thinking, problem solving, information literacy, and global awareness have been important to human progress throughout history, at least among the



elites in different societies. What is new is the extent to which individual and collective success now depends on all students having such skills.”

- **Encourage** domestic job creation through policies and practices that provide incentives for hiring American workers. Bob Gay, analyst with Commerzbank Securities in New York noted, “There’s an unprecedented ability to pick up and build a plant elsewhere.” This increased fluidity of capital and talent means that extra measures must be taken to encourage innovation and domestic job creation. Business-friendly tax policies, earnings repatriation opportunities, wage subsidies and financial assistance for employers to provide worker training offer possibilities to promote domestic job growth.
- **Invest** in information systems and educational initiatives that address worker competency at a more granular level. Workers must be able to add skill sets at the margin of their existing résumés, as blended occupations and work task offloading become commonplace.
- **Expand** open-entry, open-exit programs and offer certificates of mastery or short courses to fill individual skill needs. By attending these programs and courses, employees don’t have to matriculate redundant two- or four-year degree programs with fixed-period enrollment schedules. In the age of global competitiveness where continuous skill acquisition is vital, the education

infrastructure must be aligned to the needs of the largest potential customer of education services — employed workers.

The issue of work-task offloading is often viewed as eroding existing wage premiums. This is a possibility. However, offloading also offers opportunities for career progressions, especially for entry-level workers or those with disabilities. Workers with less education or limited abilities may be able to perform the lower-value-added tasks of many occupations, especially if the company has work arrangements to outsource or automate higher-value-added work activities. As public intermediaries provide reemployment services, it makes sense to focus on the tasks that an unemployed person can perform, identify which jobs require those abilities and then collaborate with businesses on potential work process accommodations.

Mark Troppe with the NIST Manufacturing Extension Partnership may have summed it up best: “We have to figure out practical ways for this country, states and regions to make sense of a complex economy, a complex marketplace, to align investments, and ‘develop talent’ for growing sectors of the economy in a world that is changing dramatically.” To make those investments, the education and training communities must understand how the workplace is evolving and identify those activities, knowledge and skills that will enhance worker employability.