

What Jobs Won't Return?

Our misplaced, displaced, and replaced work

By Ira S. Wolfe

Two storms blasted across our labor markets. The first, driven by a gale of creative destruction, was kicked strong a decade back by outsourcing, offshoring, and cybertechnologies that began scrambling whole industries. And the second came last year when bursting financial bubbles magnified the longer term furies with the severe recession. We asked Ira Wolfe to peer through the receding clouds at the employment landscape that's coming into view again to search for those jobs that were blown away like the buggy whip makers of long ago. And we invited a panel of distinguished educators to review Ira's discoveries through the lenses of their best strategic information. Here are their views of the emerging job horizon. —Ted Byrne, editor

"The picture of the U.S. economy that emerges is of abundance and poverty," says Edward E. Gordon. "Abundance of labor, poverty of talent." In other words, despite high unemployment rates, the U.S. as it stands does not have enough people to fill the jobs that *should* be created and an oversupply of people to fill jobs that are or should be obsolete.

The economy now sits in a hole more than 10 million jobs deep. How and when we can climb out of that humongous pit seems to be the linchpin for a full-blown economic recovery. According to Gordon, author of *Winning the Global Talent Showdown*, the United States is headed for this major talent meltdown with 12 to 24 million vacant jobs between 2010 and 2020, mostly high-paying, high-skilled jobs.

The canary has been singing in the labor mine for several decades warning of our growing lack of talent as we enter a transitional labor-market era. Partially due to ignoring the warning and partially the result of the most recent economic crisis, businesses and government are now confronting a day of reckoning: prolonged joblessness for the unskilled, low-skilled, and underskilled. "We've been hearing alarms about the skills gap for years," according to Gordon, president of Imperial Consulting. "But if ever there was a time to get serious about helping workers acquire the right skills, this is it."

Thomas Friedman, of *The World Is Flat* fame, suggests that a critical reason for the recent Great Recession is "an education breakdown on Main Street" that has undermined the ability of the average American worker to compete in the global arena.



The September 2009 Employment Dynamics and Growth Expectations Report from the staffing firms Robert Half International and Career Builder also reported that human resource managers judged 47 percent of their applicants unqualified. Many of these vacant positions were STEM jobs or those that are in science, technology, engineering, or mathematics.

Unfortunately, change in the way we train and educate workers and prepare students for the future is not what you're hearing in the news. What we're getting is the same old theme of denial. To reboot the economy and sustain growth, we can't just reframe existing jobs. We need to stop creating jobs that employ the current talent pool of low-skill workers. Instead, we need to stimulate middle and high-

skill job growth and start creating talent. Gone forever are the days of semiskilled, well-paying blue-collar factory jobs that can provide a 19-year-old dropout or high school graduate with a living wage. Today, counting on a low-skill manufacturing or service job to keep you in the middle class is as sensible as buying a Beta tape for a Blu-ray Disc player.

Ten million is the conservative number required to get the unemployment rate back to 5 percent. And because the population is still growing and many unemployed return to the job market, we need to produce 1.5 million new jobs a year just to keep pace. That assumes we can create jobs that the country needs and can match idle workers with the right skills to do those jobs.

SCULPTURE



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Edna V. Baehre, PhD,
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Between HS and BA

The fact is that there is a strong force in place that is helping to create the talent pool that will move Pennsylvania forward. Pennsylvania's 14 community colleges are turning out thousands of individuals every year with professional and technical expertise.

It's no secret that many jobs in the coming years will require education or training beyond high school. However, most of those jobs won't require a 4-year degree. In fact, 80 percent of the jobs in the future will require postsecondary education but will not require a bachelor's degree.

This is part of the reason that community colleges are seeing a boom in enrollment. At Harrisburg Area Community College (HACC), we had another record enrollment of nearly 23,000 in 2009—up from 10,585 in 2000. Coupled with our Workforce and Economic Development training and community education programs, we serve more than 75,000 students in our eight-county primary coverage area in nearly 200 degree, diploma, and certificate programs.

Those students will see a very tangible return from their investments. In fact, a HACC graduate earns an additional \$240,000 over his or her working lifetime compared to someone with a high school diploma. And if you look at our total economic impact, the 30,000 HACC graduates living in this region will capture more than \$7 billion in higher lifetime earnings.

However, beyond the personal financial gain, our graduates help to enrich the region. They form the backbone of middle management and perform vital functions in business and industry and will be vital as business and industry changes in the 21st century.

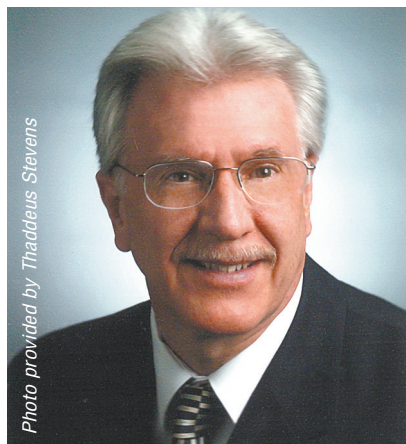


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The Labor Mismatch Was Predictable

It's a challenge when significant numbers of the un and underemployed have skills or might even be college grads but lack a match with the needs of the economy. Frankly, while we associate success with at least a 4-year degree, how many oceanographers, marine biologists, teachers, or criminal scientist grads do we need? Just look at Ira Wolfe's list that reveals projected demand for 479,000 jobs for grads, while the many who graduate in excess of that number will wipe out the "employment" gain.

In fact, the demand for skilled jobs is not gone forever if you look carefully at the composition of jobs in this region. Most residential and a significant component of commercial construction, for example, is still labor-driven, and jobs for electricians, plumbers, and mechanics cannot be outsourced. Dig into the numbers and it becomes apparent that even the "new" green jobs are simply casting for existing skills with new names.

We seem to have a cultural bias against any form of hands-on work and are obsessed with sending everyone to a 4-year college as the only road to success. The result? That mismatch between the skills of the workforce and the needs of the economy. And as Ira mentions, the failure of our K-12 system to produce graduates with competitive competencies is an additional drag. This is the result of continuing to teach to mainly one learning style and reward only one type of intelligence. Students who learn differently or are under-resourced become disaffected and do not learn.

According to Gordon's research, "Between today and 2020, it is expected that 74 percent of all jobs created in America will be high-paying jobs for high-skilled workers. While there will be a need for 123 million of those talented people, only 50 million Americans will qualify. By contrast, low-paying, low-skill jobs will shrink to just 26 percent of the total jobs in the U.S. Worst of all, just 44 million people will be needed for those jobs, but 150 million or more candidates will be seeking those jobs."

In Pennsylvania, the skills gap is hitting middle-skills jobs the hardest. According to the 2007 National Skills Coalition report, about 53 percent of Pennsylvania's jobs were in middle-skill occupations. But only 42 percent of the state's workers likely have the appropriate training for these jobs. That's significant because 51 percent of all jobs in Pennsylvania are middle-skills with another 30 percent of jobs in the high-skilled segment. If you're doing the math, less than 19 percent of all jobs will be low-skilled. Pennsylvania's excess labor capacity for these low-skill jobs is over 42 percent, and you just can't move low-skilled workers into middle- and high-skilled jobs without considerable education and training investment. The report concluded that Pennsylvania would require 4.6 times more annual investment in workforce development and education than was currently funded ... and that was before the budget cutbacks of 2010.

Even more compelling is Gordon's prediction that reducing joblessness might be realistic if a lot of the jobs that were lost were coming back. But that just isn't going to happen—not now and not in the future. "That's the hard truth that a lot of people don't want to face," says Joe Watson, author of *Where the Jobs Are Now*.

What will happen to those 100 million-plus low-skilled American workers? Unless something changes quickly and dramatically, they will either be unemployed or employed by a manager who believes that a poorly skilled employee is better than no employee at all. That might work short-term for an economic boost, but it's a prescription for disaster for business.

For almost 2 decades beginning with *The War for Talent* book released by consulting firm McKinsey & Company, a shortage of skilled workers has been forecast. This crisis is by no means unexpected. Beginning in 2001 and accelerated by the Great Recession, job creation models were shattered. Outsourcing and automation became a fact of life for many organizations. Many businesses resisted change, hanging onto processes and people that were inefficient, unproductive, and costly.

Many people ignored the warnings. Others challenged the logic. They argued that the baby boomers would retire, tech-savvy Millennials would replace them, and improvements in education and training would turn any shortage of

skilled workers from a disruptive gap into a productive bond.

Well, the boomers aren't retiring just yet. The Millennials are unemployed. Gen X isn't advancing up the career ladder. Education is desperately attempting to play catch-up with fewer and fewer resources and dollars. And workforce training is just plain underfunded, underutilized, and just too bureaucratic to retool and reequip over 100 million workers with the skills they need quickly ... and desperately.

The recession changed all that. It's like the recession justified a business cleansing—wholesale layoffs, plant closings, and outsourcing for the sake of avoiding bankruptcy or closing a business entirely. "Many businesses took the recession as an opportunity to clean house and raise quality," says Mustafa Kapadia, an outsourcing advisor with EchoPoint Consulting. "The political and moral sting and backlash from replacing five people with one piece of software or equipment and outsourcing entire departments abated, at least temporarily, under the veil of business survival. Employees weren't sacrificed for the sake of a few extra bucks on the bottom line but for survival and sustainability." What happened in 2008–2009 should have happened voluntarily in many businesses years ago. The recession just provided the excuse.

Watson agrees. Up until now there has been a "gradual shift in the United States from an industrial-based job market to an information-based one. The recession, however, precipitated a sudden, radical shift in the market toward information and service jobs, pulling the rug out from under what was left of an industrial-agrarian economy."

The residual effect of this accelerated shift ultimately left at least 15 million workers out in the cold and potentially another 10 million underemployed looking for jobs. And those numbers don't even take into account all the underskilled workers hanging on by a thread. How soon will it be until another wave of workers receives pink slips because their jobs aren't needed anymore or automation or outsourcing can replace them? Finding jobs for all those people is simply not going to happen—at least not quickly—even if rehiring and new job creation rebounds.

Many out-of-work workers, particularly in construction and manufacturing, simply don't have the skills to pick up where they left off when the economic train leaves the station. "In a sense," says Gary Burtless, a labor economist with the Brookings Institute, "every time someone's laid off now, they need to start over."

"What is happening now," says jobs and growth expert Tom Gimbel, "is no different from 100 years ago when workers who forged horseshoes had to learn to make tires." Gimbel, who is also CEO of Chicago-based staffing and recruiting firm Lasalle Network, sees the elimination of many

jobs due to automation and efficiencies. He recalls that 20 years ago every attorney in a law firm had a personal assistant. The requirements to be a legal assistant consisted of the ability to take shorthand, type 80 words per minute, and make coffee. Today, four partners share one assistant, and associates are expected to do their own word processing.

Another factor making it harder than ever to fix the joblessness mess is that a significant number of workers laid off during the latest recession were men. And men, for the past several decades, simply haven't kept up with changing minimum education requirements. Women outnumber men in college and make up over half of graduating classes in many postsecondary, professional, graduate, and business schools. Many of the men will need to retrain and find new careers. That is easier said than done since retooling an assembly line worker or carpenter to become a nurse requires more than just a few years of schooling.

But blue-collar workers aren't the only casualties of technology and a recession. Many professional jobs in finance, media, and even law and accounting will never be the same. The

outsourcing of white-collar work has become possible. "While the number of law school graduates is up," says Gimbel, "many of these new attorneys never end up practicing law." Likewise, medicine has been outsourcing the interpretation of x-rays to India and Australia for years. Accounting firms are outsourcing the preparation of tax returns for a fraction of the cost of hiring young college graduates. Businesses are outsourcing payroll and sometimes even the entire human resource function to online and outsourced firms. And law firms now outsource their research overseas instead of hiring new grads since access to nearly all the documents is available online. And it's not only about saving dollars—the labor with the skills to do these virtual jobs is abundant and most times equally if not more qualified.

An information-driven company used to require hundreds of data entry workers, according to Kapadia. One of his clients started with 400 employees before he analyzed what the employees were doing and the cost of employing them. His company showed management that by scanning forms, the technology could read the data with 95 percent

accuracy. "To deal with the five percent error rate," Kapadia shared, "we hired offshore workers to review the data—to ensure our human quality check. The U.S. counterparts, mostly data entry workers, in the past now become analysts." The client is creating jobs, Kapadia reports, but the jobs are fewer in number and the skills required are more advanced. All in all, hundreds of data entry jobs were lost, but the quality of the company's work went up. One new job effectively replaced four to five others.

While professional jobs will surely be created, the type and complexity of work that the newly hired will be expected to perform will require different and more advanced skills sets. New jobs being created require the ability to work remotely, coordinated different systems and teams, and collaborate beyond company walls and even time zones. The successful

project manager of the past worked within one company, experiencing more control over the players and resources. "Today," says Kapadia, "managing a project is extremely hard to do. You have to manage different mindsets. A project manager today is really a governance manager, a collaboration manager, an outsource manager. A CIO friend of mine who heads up IT for a 2,000-employee semiconductor business runs his entire IT department with only three employees. Their function—coordinate, coordinate, coordinate."

Employers, workers, and politicians need to come to grips with reality. The theme of denial about joblessness is no longer effective. In fact, it's destructive. Creating new jobs that match the skills levels of the unemployed is politically sound short-term but economic cacophony in the long run. Sustainable long-term



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The Master's Is the New Bachelor's

Higher education has a major role to play in closing the training gap and fueling more rapid and complete economic recovery in Pennsylvania. As Ira Wolfe has described, the jobs that will emerge will be at a much higher level than those that went away. Moreover, in hiring to fill those jobs, employers will be looking specifically for people with more advanced education and training. Expanding degree completion programs at the bachelor's level is a priority for Pennsylvania, which has

excess capacity in lower-skills workers, mismatched with projected job growth in higher-skills job areas. That is a serious training gap—one that can significantly slow economic recovery in our state.

For many higher-paying, higher-skills jobs, however, a bachelor's degree will be necessary but not sufficient. As a quick look at any online job search will show, more and more job descriptions state: "Bachelor's degree required. Master's preferred." Is it realistic for employers to expect new hires to have master's degrees? Here is a sobering answer: According to U.S. Census data, a greater proportion of adults in America today has a master's degree or higher than had a 4-year college degree in 1962. Quite literally, in the 21st century, "the master's is the new bachelor's." Increasingly, a master's degree is the entry level education required for the most desirable, higher-paying jobs—and those jobs are exactly where we will see significant growth in Pennsylvania.

Lastly, more than any time in our history, employers will expect their employees to keep up-to-date through ongoing professional education, even after earning a master's degree. The need for continuing professional education never stops throughout one's career, and the role of education in ingraining a habit of lifelong learning has never been more important.



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The Price of Willful Ignorance

By nature, educators are optimists believing in the inherent power of both individuals and systems to improve by analyzing problems then making appropriate adjustments in both behavior and attitude. Ira Wolfe's sobering, on-target analysis of Pennsylvania's current labor market situation and immediate future, however, gives pause to even the most optimistic among us.

Mr. Wolfe decries the "poverty of talent" that economists predicted and regional employers now face on a regular basis. Those of us in higher education have our own version of this reality—the significant number entering colleges of all types woefully underprepared in basic academic skills and, therefore, requiring remedial coursework to address these deficiencies. While there are multiple contributing factors to this situation, the reality is

that upwards of 40 percent of those entering a Pennsylvania community college within 3 years of graduating from high school are not capable of going right into college-level courses without first spending time and money in pre-collegiate instruction in reading, basic composition, and mathematics.

This is not a time to pit educators against business people or state policy makers versus economists, for we simply do not have the luxury of being "armchair sociologists" trying to decide who's fault it is we got this way. Educators must continuously discuss local real-life examples that explain in specific terms these workplace realities and the social as well as personal implications of ignoring them. While we may well want to continue emphasizing our tradition of "all work has value", this needs to be tempered with scenarios that bring home, in straight-to-the-point, personal financial examples, what life will be like for those who opt out of mastering more complex marketplace skills. Being honest with both the unemployed and young people about the lifestyle implications of trying to find a low-skill job or what daily existence will be like even if someone has such a position are not scare tactics. This is simply much needed straight talk—and willful ignorance is no shield from its consequences.

Wholesale implementation of up-to-date workplace preparation will demand more not less from individual learners, educational professionals, entire systems and undoubtedly will cost more too. There is a lot riding on our ability to develop the collective will that it will take to be up to the challenge.

The iceman cometh ... and the iceman went away.

More than 25 percent, or over 2 million, of the jobs that were erased from the economy over the past 2 years are probably gone for good.

Going back to the beginning of the 20th century, we've seen dozens of occupations disappear. As computers and automated systems increasingly take the jobs humans once held, more and more professions are becoming or are now extinct.

Consider the iceman. Before electric refrigerators became pervasive in the 1940s, iceboxes needed to be stocked regularly with ice to keep food cold. With advances in manufacturing and automation, the need for deliverymen to haul 25 to 100 chunks of ice into homes disappeared.

Anyone remember the lector? Probably not unless you lived nearly 100 years ago. In the early 1900s lectors read newspapers and political tracts aloud to factory workers. The occupation was particularly popular with cigar makers in Florida and New York City. Today, a lector would easily be replaced by two ear buds and an iPod.

Other jobs used to employ thousands of people that have disappeared during the latter part of the 20th century include elevator operators, copy boys, bowling alley pinsetters, river drivers, lamplighters, milkmen, switchboard operators, typists, typesetters, and telegraph operators.

The loss of jobs due to occupation extinction is expected to continue unabated over the next decade. At least 50 percent of workers in the American job market today work in people-powered industries like fast food restaurants, delivery companies, hospitality, and warehousing. All of these jobs are prime targets for robotic replacement, says Marshall Brain, the author of *How Stuff Works*. They will likely fall victim to automation and globalization just like textile jobs did beginning in the 1970s.

Brain wrote in his essay "Robotic Freedom" that "in 2003 we saw the deployment of automated checkout lines in retail stores. By 2015 we will start to see voice-recognizing robots helping customers in these stores, inventory-shelving robots putting the products out, cleaning robots sweeping the floors and parking lots, and cart robots bringing the shopping carts back into the store."

Job extinction won't stop there. Other occupations that will decline the most through 2018, measured by percentage change in jobs, according to Bureau of Labor Statistics, include the following:

Occupation	Pct. drop	Jobs lost
Textile bleaching and dyeing machine operators and tenders	45 percent	7,200
Textile winding, twisting, and drawing out machine setters, operators, and tenders	41 percent	14,200
Textile knitting and weaving machine setters, operators, and tenders	39 percent	11,500
Shoe machine operators and tenders	35 percent	1,700
Extruding and forming machine setters, operators, and tenders, synthetic and glass fibers	34 percent	4,800
Sewing machine operators	34 percent	71,500
Semiconductor processors	32 percent	10,000
Textile cutting machine setters, operators, and tenders	31 percent	6,000
Postal service mail sorters, processors, and processing machine operators	30 percent	54,500
Fabric menders (excluding garment)	30 percent	300

Source: Bureau of Labor Statistics

But all the news isn't bad. In fact, Joe Watson, CEO of Without Excuses and StrategicHire, believes that "by learning a new skill or translating your existing skills to a different field, you will be employed for as long as you want, no matter what shape the economy is in." Watson recommends that job seekers take control and "go where the growth [industries] are." According to the Bureau of Labor Statistics cited by Watson, service occupations are projected to have the largest number of total job openings. Here are a few of the industries and projected growth numbers.

Health care: 3 million new jobs created by 2016

Biotechnology: 48,000 new jobs by 2016

Education: 479,000 new jobs by 2016

Green energy: 5 million new jobs by 2020

Government: 1 million new jobs by 2016

Information technology: 872,000 new jobs by 2016

Accounting: 150,000 new jobs created every year

Customer service: 545,000 new jobs created by 2016

Engineering: 160,000 new jobs created by 2016

Finance: 147,000 new advisor and analyst jobs created by 2016

Firefighting: 43,000 new jobs created by 2016

Insurance: 148,000 new jobs created by 2016

Social work: 132,000 new jobs created by 2016

growth requires the creation of new jobs that will grow and inherently stimulate our economy. Reframing existing jobs is simply subsidizing many obsolete workers and postponing the inevitable.

The definition of work and, consequently, the definition of a job is changing. The evolution from agrarian and industrial age jobs to service and knowledge work is nearing its completion, thanks to the help of the latest recession. The ability to use your head as well as your hands, not one or the other, is a requirement today. And yet we have graduation rates hovering around 70 percent for many high schools and science, technology, engineering, and mathematics (STEM) scores falling well behind dozens of nations. Today, knowledge is power, and too many workers simply don't have the mojo.

Employees in new jobs don't "go to work" ... and if they do, they don't work in permanent full-time positions. They work in part-time jobs, often working for several employers at the same time. But unlike the past when working part-time was a stepping stone to full-time employment or a means to propping up personal finances, part-time work in the future will be by design. Skilled workers will work remotely, simultaneously interacting with different teams in different places and even collaborating on different projects. People with the right skills sets can do that. The contingent worker, or "just-in-time" worker, will become the norm, especially in lower-skill jobs. The less versatile the employee, the more expendable he or she becomes.

People also have long complained that they have been swamped by too much information. In 1917 a manager of a Connecticut manufacturing plant complained about the effects of the telephone: "Time is lost, confusion results, and money is spent." Despite his objections, technologies like the telephone supported economies built around mass production. Today, technology and globalization have created a seismic shift from quantitative change to qualitative differences. Economies once driven by whoever owned the machinery and raw materials are now being outflanked by the new raw material of business—data. Joe Hellerstein at the University of California at Berkeley calls it the "industrial revolution of data." *The Economist* called it the "data deluge." Keeping up with all the new information being created is difficult enough. Analyzing it and extracting useful information is harder still. Ignoring it is economic suicide.

This revolution requires a new skill worker—one who has the ability to process large volumes of uninterrupted data and extract valuable information from it. Gordon, in a recent issue of *The Futurist*, called for "[a] new age [that] will require the reinvention of the education-to-employment system."

In the meantime, employers seeking qualified workers will face unprecedented challenges to recruit and retain them. And our communities will continue wrestling with the societal, personal, and economic impact of prolonged joblessness.

Can you hear me now?

