

Labour Trends in the 21st Century

Knowledge Worker

Introduction

Peter Drucker Market Trends predictions.

Dr. Edward L. Glaeser analysis of the successful skilled cities.

Enrico Moretti's findings on the job market.

Apple Report/ The New Geography of Jobs, written by Enrico Moretti.

Tom Davenport – The Importance of Knowledge Workers in a Global Economy.

Stephen R. Covey – Knowledge Worker Productivity.

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Introduction

Most commonly when people consider the world of work in the 21st century, the discussions turn to the reality of labour mobility and the transition of jobs to low labour cost locations. However there are additional concepts to be considered, two of which are:

1. The Knowledge Worker and
2. Labour engagement models, contractor or Full Time employee.

Knowledge Worker

The term "Knowledge Worker" is thought to have been first coined by Peter Drucker in 1959 in his book *The Landmark of Tomorrow* (1959) and predicted that labourers would rely more on their brains than their hands and that the knowledge worker would become the main cog in a network of information-based industries, such as Information Technology.

Knowledge Worker play a vital role in the Global Economy. Tendency of the increased growth of the knowledge workers population had been studied by major business analysts like Peter Drucker and followed by Alvin Toffler, Ikujiro Nonaka, Tom Davenport, Don Tapscott and others.

Renowned Harvard Sociologist Dr. Edward L. Glaeser theorizes in *The Rise of the Skilled City* (2003) that successful cities of the future will be those with the most educated and innovative citizens. He and Berkeley Economics Professor Enrico Moretti confirm that the most livable cities are those with a high concentration of knowledge workers, with at least 5 service jobs generated per knowledge worker.

In a further document we outlined:

- Peter Drucker Market Trend predictions.
- Dr. Edward L. Glaeser analysis of the successful skilled cities.
- Enrico Moretti's findings on the job creation.
- Apple report, which directly supports the trend described in "The New Geography of Jobs", written by Enrico Moretti.
- Tom Davenport develops and confirms Drucker's predictions in his article "The Importance of Knowledge Workers in a Global Economy".
- Steven Covey's interview on the topic of the Knowledge Worker productivity.

Peter Drucker

Peter Drucker was an American Management Consultant, educator, and author, whose writings contributed to the philosophical and practical foundations of the modern business corporations. Peter Drucker has been described as "the founder of modern management". He was also a leader in the development of management education as well as founding the concept known as "management by objectives".

Peter Drucker described knowledge worker as one who works primarily with information. He argues that knowledge has become the central, key resource that knows no geography.

The concept of the "knowledge worker" became central in his philosophy. It would be challenging to try to include all the ideas Drucker presented on this topic. Some of the quotations from the other of his books are sited further on this page.

"The great challenge to management today is to make productive the tremendous new resource, the knowledge worker. This, rather than the productivity of the manual worker, is the key to economic growth and economic performance in today's society." -- *Peter Drucker, Concept of the Corporation*

"Knowledge worker productivity is the biggest of the 21st century management challenges. In the developed countries it is their first survival requirement. In no other way can the developed countries hope to maintain themselves, let alone to maintain their leadership and their standards of living." – *Peter Drucker, Managing the Challenges of the 21st Century*

"Finally, these new industries differ from the traditional 'modern' industry in that they will employ predominantly knowledge workers rather than manual workers." - Peter Drucker in *The Age of Discontinuity* (1969)

Edward Ludwig “Ed” Glaeser

Edward Ludwig "Ed" Glaeser (born May 1, 1967) is an American economist and is the Fred and Eleanor Glimp Professor of Economics in the Faculty of Arts and Sciences at Harvard University, where he has taught since 1992. He has published dozens of papers on cities, economic growth, and law and economics.

In his paper, *The Rise of the Skilled City* Dr. Glaeser describes successful cities of the future as those with the most educated and innovative citizens, which are willing to adapt to economic shock. Knowledge Workers congregate in these cities and are supported by service providers –

“In the first part of the 20th century, urban success generally meant specialization in manufacturing. Declining transport costs and declining importance of manufacturing has meant that at the beginning of the 21st century, successful cities have moved from manufacturing into other industries... we find that metropolitan areas with high levels of education and significant manufacturing as of 1940 switched from manufacturing to other industries faster than high-manufacturing areas with less human capital. These results suggest that skills are valuable because they help cities adapt and change their activities in response to negative economic shocks.”

“Human capital predicts population and productivity growth at the city and metropolitan area level as surely as it predicts income growth at the country level. High skill areas have been getting more populous, better paid and more expensive. Indeed, aside from climate, skill composition may be the most powerful predictor of urban growth. This is both a boon to the skilled cities that have done spectacularly over the past two decades and a curse to the cities with less skilled workers that have suffered an almost unstoppable urban decline.”

Enrico Moretti

Enrico Moretti is Professor of Economics at the University of California, Berkeley where he holds the Michael Peevey and Donald Vial Career Development Chair in Labor Economics. His research interests include Labor Economics, Urban Economics and Regional Economics.

In his book *The New Geography of Jobs*, Economics Professor Enrico Moretti compared the effects of tech innovation to those of manufacturing and found that each new manufacturing job creates 1.6 service jobs while each new high tech job creates 5 new service jobs:

“ My analysis indicates that attracting one job in manufacturing generates 1.6 additional local service jobs—less than a third of the corresponding figure for high tech **[he calculates that one high-tech job results in five additional jobs]**.... Take a city like Seattle. Although a manufacturing company like Boeing has twice as many jobs in Seattle as Microsoft does, it ultimately creates fewer jobs.”

From the book review by Forbes Magazine :

“Moretti more properly sees things in a different light for the rise of tech behemoths in the Golden State multiplying jobs for those lacking a technological bent, not to mention tech jobs for those who do. Considering Facebook alone, Moretti notes that its economic impact can't be limited to its 1,500+ employees; instead we must consider the 53,000 jobs created for Facebook apps, not to mention “at least 130,000 more jobs in related business services.”

Looking at Apple, it employs 12,000 in Cupertino, but Moretti finds that there are at least 60,000 jobs related to Apple. As Moretti states so clearly, “in Silicon Valley, high-tech jobs are the cause of local prosperity, and the doctors, lawyers, roofers, and yoga teachers are the effect.”

How Steve Jobs Created Jobs

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This story appears in the Aug. 20, 2012 edition of Forbes magazine.

While there have been many stories criticizing Apple for exporting thousands of manufacturing jobs to China, some say Apple isn't getting the credit it deserves for keeping innovation in the U.S.



The proposed new Apple Campus 2 is a giant, four-story circle that will house up to 13,000 employees in Apple's hometown of Cupertino, Calif.

Steve Jobs, in the last months of his life, took time to attend a city council meeting in Apple Inc.'s hometown of Cupertino, Calif. and pitch a new 175-acre campus. Apple's former CEO talked confidently about his plans for the 2.8-million-square-foot building, wowing the crowd with design details of what will be a giant circle with a courtyard in the middle when it's completed in 2015.

“It's a little like a spaceship landed,” Jobs said in his last public appearance, [a 20-minute presentation in June](#)

2011 preserved on YouTube. “There’s not a straight piece of glass on this building. It’s all curved.”

More important, Jobs talked about how Apple Campus 2—dubbed “the mothership” by company watchers—will house 12,000 to 13,000 employees, many now scattered in several nearby buildings in this upscale suburb in Silicon Valley. “We’ve come up with a design that puts 12,000 people in one building,” he said. “Think about that.”

Yes, think about it. Jobs’ insistence on having his teams in one place isn’t surprising. He was a big advocate of face-to-face meetings. When it came time for new digs at Pixar, the animation studio he bought in 1986, Jobs wanted a huge building around a central atrium to encourage people to bump into one another. Each Monday morning at Apple, CEO Tim Cook meets with the other nine members of the executive team, just as Jobs did before him, to review the business, look at how existing products are faring, discuss every new product under development and talk over issues affecting the company. “Creativity comes from spontaneous meetings, from random discussions,” Jobs told his biographer Walter Isaacson. “You run into someone, you ask what they’re doing, you say, ‘Wow,’ and soon you’re cooking up all sorts of ideas.”

What’s odd about the mothership is how outside the norm it is. Apple’s high-tech rivals, including Google, Microsoft, Intel, Adobe Systems and Hewlett-Packard, are proud to say they have engineers working in research sites around the world. Apple, in contrast, has kept almost all its technical, creative and marketing leaders in the U.S., working side by side in Cupertino. All of the product teams responsible for the iPad, iPhone and Mac

are here. All the software, including the iOS mobile operating system and the Mac OS, is written here.

Even though there are a few pockets of Apple engineers in offices outside California—Pittsburgh, Seattle, a team in Israel—Cupertino is the focal point. “If a decision needs to be made,” says a former employee, “then the person making it is in Cupertino.”

Former employees, analysts and economists argue that this is a key reason that Apple, unlike many of its - competitors, has been able to create products and services that work so well together. (Apple declined to comment directly on the story.) “Decision making can be faster, management can be more involved, and you get better-integrated products,” says another former Apple executive. “The new campus goes right to that point.”

Another result is a remarkably efficient process. Apple’s R&D spending is a mere 2% of sales. Compare that to Google’s R&D spending, which is 13.6% of revenue, or Microsoft’s, at 13%.

While there have been plenty of stories criticizing Apple for exporting thousands of manufacturing jobs to China, some say Apple isn’t getting the credit it deserves for keeping innovation in the U.S., which translates into a bump in jobs in the local economy.

In a company-funded study in March, Apple claimed credit for creating or supporting more than 500,000 U.S. jobs. That includes 47,000 U.S. Apple employees (out of a global staff of 70,000), with 13,000 engineering jobs in Cupertino, 27,350 retail workers and a large support team in Austin, Tex. It also counted 210,000 jobs created

by companies developing iOS products for the iPhone and iPad. There are another 257,000 jobs at nine suppliers in the U.S. working on its behalf, including Corning, Texas Instruments, Samsung, Fairchild Semiconductor and RF Micro Devices—as well as the drivers at UPS and FedEx who deliver Apple products to customers.

While there was some snorting over the inclusion of truck drivers and Apple's use of oft debated "job multipliers" to gin up the numbers, Enrico Moretti, a professor of economics at the University of California, Berkeley, insists that Apple's contribution is notable. "If - tomorrow Apple decides to outsource engineering and design to Bangalore or Shanghai, [then] Cupertino, and California in general, would suffer," says Moretti. "We wouldn't just lose 13,000 engineering jobs but also the thousands of jobs supported by those jobs. An innovation job equals more than one job."

In his new book, *The New Geography of Jobs* (Houghton Mifflin Harcourt, 2012), Moretti argues that every high-tech job in a metropolitan area in the U.S. translates into five local service jobs—lawyers, cabdrivers, hairdressers, yoga instructors. In comparison, one job in traditional manufacturing generates 1.6 additional local service jobs. By his count, Apple's engineers in Cupertino help support 65,000 additional local service jobs. That's admittedly small compared to the hundreds of thousands of workers employed in Chinese factories. Rather than lament the loss of those low-paying jobs, the U.S., Moretti argues, should encourage the creation of more innovation jobs here, through things like a permanent R&D credit, because that in turn will support service jobs that pay well.

“I’m not saying Apple is the best company in the world,” Moretti says. “Companies are in the business of maximizing their products, and I wouldn’t want them to do anything else. But what I’m saying is that 65% to 70% of the American workforce doesn’t work in innovation or manufacturing. Most people work in services, and those services jobs are not the cause of employment growth. They’re the effect of those innovation jobs. “

Gary Pisano, a professor at Harvard Business School, also says Apple should get points for creating jobs in the U.S., though he admits they’re hard to quantify. “I’m less interested in how many UPS people are delivering Apple products,” he says. “The bigger picture for me is that these guys changed the trajectory of business, specifically the mobile phone business.”

Before the iPhone was introduced, “everyone was saying there wouldn’t be more innovation; it’s all about driving the cost down,” Pisano says. “If you think about the massive number of jobs associated with the mobile ecosystem—app developers, suppliers, services—it just seems to be a big number.”

And he credits Apple’s ability to be disruptive and innovative precisely to its decision to keep research, development and design tightly integrated in one place. “Apple is making a bet that by keeping things more closely clustered geographically, they can do better on design,” Pisano says. “Others may do something different, but it’s hard to argue with Apple’s approach.”

The four-story Apple Campus 2 will house a restaurant, a gym and other amenities for employees, Apple said in a brochure sent to Cupertino residents in May. Shuttles

will transport them to its long-standing address at Infinite Loop, home to another 2,800. Jobs told the city council last year he fully expects the campus to be “the best office building in the world. I do think architecture students will come here to see this.” They won’t be the only ones.

<http://www.babsonknowledge.org/>

November 02, 2005

The Importance of Knowledge Workers in a Global Economy

Peter Drucker, who was the first person to describe knowledge workers to any substantial degree (in his 1959 book Landmarks of Tomorrow), said as far back as 1968 that:

To make knowledge work productive will be the great management task of this century, just as to make manual work productive was the great management task of the last century.

Then in 1997 Drucker went even further out along the knowledge worker limb:

The productivity of knowledge and knowledge workers will not be the only competitive factor in the world economy. It is, however, likely to become the decisive factor, at least for most industries in the developed countries.

Why did Drucker-and why should we-believe that knowledge workers and their productivity were so important to the world economy? There are a variety of reasons.

First, they are a large and growing category of workers. If we can't figure out how to make more than a quarter of the labor force more productive, we're going to have problems with our economy overall. They are also the most expensive type of worker that organizations employ, so it's doubly shameful if they're not as productive as they could be.

Secondly, they are key to the growth of many economies. Agricultural and manufacturing work have generally become commoditized, and are moving to the economies where it can be performed at the lowest cost. The only forms of agricultural or industrial work that survive in sophisticated economies are those in which a high degree of knowledge has been injected-for example, in biotechnology manufacturing, or in "precision farming," where the amount of fertilizer and pesticides administered to a given crop are carefully monitored using GPS devices in tractors. If agriculture and manufacturing are moving to countries with low labor costs (China is a particularly good example), the jobs that remain in the so-called knowledge-based economies are particularly critical to countries' economic survival.

It's not clear exactly what workers in the US, Western Europe, and Japan are going to do for a living in the future (other than providing local services), but it is clear that if these economies are to prosper, the jobs of many of the workers must be particularly knowledge-intensive.

It's already apparent that the firms with the highest degree and quality of knowledge work tend to be the fastest-growing and most profitable.

Microsoft, for example, is among the most profitable organizations in the history of the planet.

Pharmaceutical firms not only save peoples' lives with their drug treatments, they also tend to have high profit margins.

"Growth industries" generally tend to be those with a high proportion of knowledge workers.

Within organizations, knowledge workers tend to be closely aligned with the organization's growth prospects. Knowledge workers in management roles come up with new strategies. Knowledge workers in R&D and engineering create new products. Knowledge workers in marketing package up products and services in ways that appeal to customers. Without knowledge workers there would be no new products and services, and no growth.

Posted **by Tom Davenport** on November 2, 2005 04:34 PM

Thomas Davenport is a world-renowned thought-leader who has helped hundreds of companies revitalize their management practices. He combines his interests in research, teaching, and business management as the President's Distinguished Professor in Management and Information Technology at Babson College. He has also taught at the Harvard Business School, the University of Chicago, Dartmouth's Tuck School of Business, and the University of Texas at Austin and has directed research centers at Accenture, McKinsey & Company, Ernst & Young, and CSC. He is also a Senior Advisor to Deloitte Analytics. Tom earned a Ph.D. from Harvard University in social science.

An agile and prolific thinker, Tom has written or co-authored sixteen best-selling business books and is one of Harvard Business Review's most frequently published authors. He is the creator and/or early author of several key business ideas including: competing on analytics, big data, knowledge management, human approaches to information management, business process reengineering, and realizing the value of enterprise systems.

Tom was named one of the top 50 Business School Professors in the World by Poets and Quants and Ziff Davis once again included him as one of only four IT management thought leaders on their "100 Most Influential People in IT" list. Tom has been named one of 10 "Masters of the New Economy" by CIO Magazine, one of 25 "E-Business Gurus" by Darwin, and one of the most trusted consultants and the third leading business-strategy analyst (just behind Peter Drucker and Tom Friedman) by Optimize Magazine.

Knowledge Workers: 10,000 Times the Productivity

“Do you believe that the Information/Knowledge Worker Age we’re moving into will outproduce the Industrial Age fifty times? I believe it will. We’re just barely beginning to see it...Nathan Myhrvold, former chief technology officer at Microsoft, puts it this way: ‘The top software developers are more productive than average software developers not by a factor of 10X or 100X or even 1000X but by 10,000X.’ Quality knowledge work is so valuable that unleashing its potential offers organizations an extraordinary opportunity for value creation.”

Stephen R. Covey, *The 8th Habit*

There is no doubt a new era has begun. We’re shifting from the Industrial Age to the Information/Knowledge Worker Age, and it is paramount that we understand the paradigms that drive this new era. What brought success in one economic age will not lead to it in the next. This week we ask Dr. Covey about the new mind-set, skill-set, and tool-set required to thrive in the Knowledge Worker Age.

Q: You refer frequently to the Knowledge Worker Age or Era, and we can read in several publications where the current period of history is referenced that way. Where does the term come from and what does it mean?

A: I believe it was Peter Drucker that first coined the term knowledge worker. I don’t know if he used the word era or not. He used the term to acknowledge that we were moving from an era that valued things, like machines, for what they produced into an era that values knowledge—the application of knowledge that comes in the form of skills.

Q: Are we there, or just moving toward it?

A: Well, we are just moving toward it in many, many industries; but in some high-tech industries, we’re there. Most people are unaware of this sea-lane change that is taking place and, therefore, are not preparing for it. They are unaware because they are not experiencing world-class competition that comes from a new global economy. They are in fact experiencing it indirectly through lowering of costs and elimination of a lot of bureaucracy and the uplifting of quality. But it will eventually overtake every profession and every industry. And everyone will be affected by it.

Q: Why is there so much confidence that the Knowledge Worker Age will increase productivity so significantly?

A: Simply because people are empowered; and not only people, but entire cultures. These cultures will experience an internalization of the idea of interdependency so that the mores and norms are supportive of being productive and everyone will be accountable to everybody. This will unleash incredible energy, talent, creativity, resourcefulness, and new ideas. If I could have people understand one key paradigm of the Knowledge Worker Age it would be that you manage things, but you lead people. That is how we will empower them.

Q: What are some characteristics of a team or an organization struggling to apply the principles of this era versus one that is doing it well?

A: The struggling organizations are those that are still being straitjacketed and straddled with Industrial Age structures, systems, and processes, and sometimes even the Industrial Age definition of leadership being a position. The organizations that will make a tremendous productivity gauge will come from those where the cultures are highly interdependent. Their people will be focused on three or four truly significant priorities. There will be a wide sense of mutual accountability and the so-called bosses will become servant leaders in facilitating all of the processes and making sure there is an alignment of these processes, structures, and systems with the high-priority goals.

Q: What actions can people take if they are not in a position of formal authority and their superiors seem to be stuck in the Industrial Age both in mind-set and practice?

A: Leadership is not formal authority, leadership is moral authority. If you are principle-centered, your opportunities for influence increase; and if you're proactive and take initiative inside your own Circle of Influence, it will get larger. It will primarily get larger because of the pragmatics of the marketplace. You will simply produce more. If you have a subsidized or protected organization that doesn't have to deal with these market realities and this new, real, world-class competition, what I said may not happen. And you may find that the old structure and old ways will persist and there will be great resistance to a new style of leadership and to changing these deeply imbedded structures and systems. However, eventually they will have to change. Even organizations that are protected and subsidized are, in time, subject to market forces because they all have budgets and costs they have to get around.

Q: Reversing roles, if you are a boss wanting to increase the productivity of your team, what is the one thing you should be doing with your team to foster that?

A: Ask them that question. If they are codependent upon you and hesitate to speak up, walk out of the room and let them deal with that question. And ask them to bring forth their highest and best

recommendations. If they are not codependent upon you, stay in the room and participate. If they push back on you, that's fine. If you can push back on them without them feeling threatened, you have the basis for synergy and for using third-alternative solutions.

Q: What is the next era?

A: I don't know what the next era is. I know it will evolve through this Information/ Knowledge Worker Age. I've often called the next era the "Era of Wisdom." But basically that means that the principles of each of the economic ages are brought to bear in the Knowledge Worker Age. For instance, the principle of the work ethic in the Agrarian Age and the hunter and gatherer; the principles of learning and of collaboration and teamwork and efficiency of the Industrial Age; and the principles of constantly learning and improving and applying new technologies in very synergistic and collaborative ways and seeing your own role as a leader to be a servant leader rather than a so-called boss, however benevolent—these will represent the era that we're moving into little by little. But the actual content of the work to be done, I do not know.

About Stephen R. Covey

Stephen Richards Covey was an American educator, author, businessman, and keynote speaker. Recognized as one of Time magazine's 25 most influential Americans, Stephen R. Covey was one of the world's foremost leadership authorities, organizational experts, and thought leaders.